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CROSS SECTIONS FOR ATOMIC DISPLACEMENTS IN SOLIDS BY FAST ELECTRONS

O. S. Oen

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O. S. Oen

AUGUST 1973

OAK RIDGE NATIONAL LABORATORY
Oak Ridge, Tennessee 37830
operated by
UNION CARBIDE CORPORATION
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CROSS SECTIONS FOR ATOMIC DISPLACEMENTS IN SOLIDS BY FAST ELECTRONS

O. S. Oen

ABSTRACT

The Mott series has been used to calculate the number of displacements produced in elastic collisions between fast electrons and atomic nuclei. Displacement cross sections of 37 different elements spanning the atomic table were calculated for electron energies ranging from threshold to about 150 MeV. The Kinchin and Pease model was used with atomic thresholds ranging from 4 to 96 eV in steps of 4 eV. The results are compared with those using the less accurate McKinley-Feshbach formula frequently used in radiation damage studies. In addition, tables giving the differential scattering cross sections in 5° intervals for both the Mott series and the McKinley-Feshbach formula are included.

INTRODUCTION

The use of energetic electrons to produce radiation damage in solids is widespread. Their usefulness results from several factors: A monochromatic collimated beam can be readily obtained, they have a large penetrating ability, and it is believed that they produce a simpler type of damage than heavy particles such as neutrons or heavy ions. An earlier version of the present report has been widely used.[1] Because of a large number of requests it has seemed useful to produce an expanded version. This new version includes more values of the atomic displacement threshold, more electron energies, and a greater variety of elements. In particular a large number of threshold energies has been used since it has been

[1] O. S. Oen, "Cross Sections for Atomic Displacements in Solids by Fast Electrons," ORNL-3813 (1965).

recently shown[2] that the displacement cross-section for a linear displacement probability can be obtained from the conventional sharp displacement cross-sections. The recent widespread use of the high energy electron microscope[3] to introduce damage has prompted some aspects of the calculations. Some of the elements chosen in this work were selected because of their great potential in technological applications. The very high electron energy of the order 150 MeV was selected since it represents the energy available in the Oak Ridge linear electron accelerator.

In order to calculate the probability of displacing an atom in a solid from its normal lattice position by a fast electron it is necessary to know the scattering cross section between an electron and an atom. The scattering of a nonrelativistic electron by the Coulomb field of a point nucleus was first treated by Rutherford, and the relativistic extension was done by Mott[4] using the Dirac theory of the electron. Since the electrons used in radiation damage are in the relativistic velocity range, it is necessary to use Mott's theory. Mott has expressed the scattering between a point nucleus and an electron as an infinite series of Legendre expansions. Since that series solution is cumbersome to evaluate, several authors have approximated it to get simpler, more tractable expressions. The so-called McKinley-Feshbach version of the Mott equation has been most frequently used to calculate atomic displacement cross sections for

---

[2] O. S. Oen, in *Radiation Effects in Semiconductors*, edited by F. L. Vook (Plenum, New York, 1968), p. 264.

[3] M. J. Makin, Phil. Mag. 18, 637 (1968).

[4] N. F. Mott, Proc. Roy. Soc. (London) A124, 426 (1929); A135, 429 (1932); N. F. Mott and H. S. W. Massey, *The Theory of Atomic Collisions* (Oxford University Press, New York, 1965), 3rd ed., chap. IX.

radiation damage research. Seitz and Koehler[5] pointed out that the McKinley-Feshbach formula should be sufficiently accurate for light elements ($Z \lesssim 29$), but that for heavy elements it becomes necessary to use the more accurate Mott series formulation.

METHOD OF CALCULATION

The method used to calculate the atomic displacement cross sections by fast electrons follows closely that of Seitz and Koehler.[5] The calculational procedures are outlined in the paragraphs below.

The energy transferred to a heavy nucleus by an electron scattered through an angle θ is given by

$$T = T_m \sin^2 \theta/2 \tag{1}$$

where T_m, the maximum transferred energy which occurs for a head-on collision, is

$$T_m = 2 \frac{E}{Mc^2} (E + 2mc^2) \quad . \tag{2}$$

Here E is the kinetic energy of the electron and M is the mass of the target atom. The rest energy of the electron is $mc^2 = 0.511$ MeV.

The conventional sharp displacement threshold model has been used. It assumes that an atom can be displaced only if it receives an energy equal or greater than some threshold energy, T_d. Upon receiving such an

---

[5]F. Seitz and J. S. Koehler, p. 305 in *Solid State Physics*, vol. 2, ed. by F. Seitz and D. Turnbull (Academic Press, New York, 1956). See also J. W. Corbett, *Electron Radiation Damage in Semiconductors and Metals* (Academic Press, New York, 1966).

energy, the probability that the atom is displaced is taken as unity. Furthermore, the primary displaced atom can, if sufficiently energetic, produce additional displaced atoms. The cascade model used is that of Kinchin and Pease[6] which gives the average number of displacements, ν, produced by a primary knock-on of energy T as

$$\begin{aligned} \nu(T) &= 1 & T_d \leq T \leq 2T_d \\ &= T/2T_d & T > 2T_d \quad . \end{aligned} \tag{3}$$

The total cross section (primary plus secondaries) for producing atomic displacements by an electron of energy E can be written as

$$\sigma_{tot}(E,T_d) = \int_{T_d}^{T_m} \nu(T) \frac{d\sigma}{dT} dT \tag{4}$$

while the cross section for producing primary displacements only is

$$\sigma_p(E,T_d) = \int_{T_d}^{T_m} \frac{d\sigma}{dT} dT \quad . \tag{5}$$

In Eqs. (4) and (5) the quantity $d\sigma/dT$ is the differential scattering cross section for transferring an energy T to an atom by an electron of energy E. The above integrals can be done analytically for the McKinley-Feshbach version of $d\sigma/dT$, but numerical methods become necessary when using the Mott series. Rewriting Eq. (4) more explicitly using the results of Eq. (3) gives

---

[6] G. H. Kinchin and R. S. Pease, Repts. Progr. Phys. 18, 1 (1955).

$$\sigma_{tot}(E,T_d) = \frac{\pi Z^2 e^4 (1-\beta^2)}{m^2 c^4 \beta^4} \left\{ \int_{T_d/T_m}^{1} \frac{dx}{x^2} M(x,E) \right\} \quad T_d \leq T_m \leq 2T_d \tag{4a}$$

$$= \frac{\pi Z^2 e^4 (1-\beta^2)}{m^2 c^4 \beta^4} \left\{ \int_{T_d/T_m}^{2T_d/T_m} \frac{M(x,E)}{x^2} dx + \int_{2T_d/T_m}^{1} \frac{T_m}{2T_d} \frac{M(x,E)}{x} dx \right\} \quad T_m > 2T_d \tag{4b}$$

where $\beta^2 = E(E+2mc^2)/(E+mc^2)^2$. Z is the atomic number of the target nucleus, e is the electronic charge and M(x,E) is the ratio of the Mott to the Rutherford cross section. The ratio M(x,E) was calculated using the method of Doggett and Spencer[7] and the integrals evaluated by 16 point Gauss-Legendre quadrature techniques. The integrand in the second integral of Eq. (4b) was transformed by the substitution $x = e^{-y}$ before evaluating the integral. The transformed integrand which varied less over the domain of integration proved easier to evaluate. The primary displacement cross section given by Eq. (5), when written out more explicitly, becomes identical to Eq. (4a) except that now there is no restriction on the magnitude of T_m provided it is larger than T_d. The substitution, $x = 1/y$, facilitated the evaluation of the integral for the primary cross sections.

The differential Rutherford scattering cross section per steradian is

$$\frac{d\sigma_R(\theta)}{d\Omega} = \frac{Z^2 e^4 (1-\beta^2)}{m^2 c^4 \beta^4 \sin^4 \frac{\theta}{2}} \quad . \tag{6}$$

The differential McKinley-Feshbach scattering cross section per steradian is

---

[7] J. A. Doggett and L. V. Spencer, Phys. Rev. 103, 1597 (1956).

$$\frac{d\sigma_{McK-F}(\theta)}{d\Omega} = \frac{d\sigma_R(\theta)}{d\Omega}\left[1 - \beta^2 \sin^2\frac{\theta}{2} + \frac{\pi Z}{137}\beta \sin\frac{\theta}{2}\{1 - \sin\frac{\theta}{2}\}\right] \quad . \qquad (7)$$

ADDITIONAL USE OF TABLES

Tables of primary and total displacement cross sections constructed using Eqs. (4) and (5), respectively, are made more flexible by noting the following relationship.[2] If $\sigma_{tot}(E, T_d)$ is the total displacement cross section, it is easy to show that the quantity

$$C_1\left[\sigma_{tot}\left(E, \frac{T_d}{2}\right) - \sigma_d\left(E, \frac{T_d}{2}\right)\right] \qquad (8)$$

gives the displacement cross section for a linear displacement probability function of the form

$$\begin{aligned} P(T) &= 0 \quad \text{for} \quad T \leq T_d \\ &= C_1\left(\frac{T-T_d}{T_d}\right) \text{ for } T > T_d \end{aligned} \qquad (9)$$

Here, C_1 is an adjustable slope parameter.

ACCURACY AND OTHER CALCULATIONS

All computations were performed on an IBM System/360 model 91 computer using long floating-point numbers (REAL*8, about 16 decimal digits).

The Mott series was evaluated using the computer code of Doggett and Spencer[7] taking 36 terms in the Legendre sums. For those cases of overlap the present results, as expected, are in excellent agreement with theirs and therefore their comments on the accuracy of the method apply here also. They have made several comparisons with other calculations and find good agreement. It should be pointed out that these

calculations were made assuming a point nucleus. At ultra high electron energies and large scattering angles this assumption becomes less valid because of nuclear size effects.[4]

For convenience and accuracy in reproducing, the tables have been printed as output by the computer and therefore some of the values contain more than the three or four figures which are significant.

All of the integrations were performed using 16 point Gauss-Legendre quadrature techniques. The integration routine was checked by numerically integrating the McKinley-Feshbach version of the Mott series and comparing that with the analytical result. Excellent agreement was found.

The calculated displacement cross sections for gold agree well with those of Khandelwal and Merzbacher.[8] The results appear also to agree well with those of Burke, Grossbard and Lowe.[9] For the light elements they agree well with the McKinley-Feshbach formula. It is believed that the overall accuracy of the calculations should be good to within a few percent.

DISCUSSION OF FIGURES AND TABLES

A. Integral Displacement Cross Sections

a) Figure 1 shows a comparison of the Mott and McKinley-Feshbach displacement cross sections for gold. The primary displacement cross section using Mott and McKinley-Feshbach scattering is shown as a ratio in Fig. 2.

---

[8] G. S. Khandelwal and E. Merzbacher, Phys. Rev. 130, 1822 (1963).

[9] E. A. Burke, N. J. Grossbard, and L. F. Lowe, "Calculated Cross Section for Atomic Displacements Produced by Electrons in the 1.0-3.0 MeV Energy Range," Air Force Cambridge Research Laboratories, AFCRL-65-286 (1965).

b) The first 37 tables give the primary and total displacement cross sections as a function of electron energy using several displacement threshold energies for 37 different elements spanning the atomic table. The Mott series is used for the electron-nuclear differential scattering and it was computed by the procedure already described.

B. Differential Scattering Cross Sections

For some purposes it is desirable to calculate displacement cross sections using a more refined, but specialized displacement model than that of Kinchin and Pease. This occurs, for instance, when one is studying atomic displacements as a function of crystal orientation.[10] For purposes such as these it would seem convenient to have available tables giving the Mott differential scattering.

a) Figures 3 and 4 give the ratio of Mott to Rutherford scattering for different elements.

b) Tables 38-55 give the ratio of Mott to Rutherford scattering as a function of electron scattering angle.

c) Figure 5 gives the ratio of Mott to McKinley-Feshbach scattering.

d) Tables 56-73 give the ratio of Mott to McKinley-Feshbach scattering as a function of electron scattering angle.

e) Table 74 gives the differential Rutherford scattering cross section in barns per steradian with the Z^2 factor omitted.

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[10] P. Jung and W. F. Schilling, Phys. Rev. B 5, 2046 (1972).

C. Auxiliary Results

Figure 6 gives the maximum energy in electron volts transferred to an atom by an electron in a head-on collision (Eq. 2) as a function of electron energy for several different elements.

The author is indebted to J. J. Coyne of the National Bureau of Standards for making available the computer code of J. A. Doggett and L. V. Spencer. He also wishes to thank J. H. Barrett, D. K. Holmes, M. S. Wechsler and especially M. T. Robinson for many stimulating discussions.

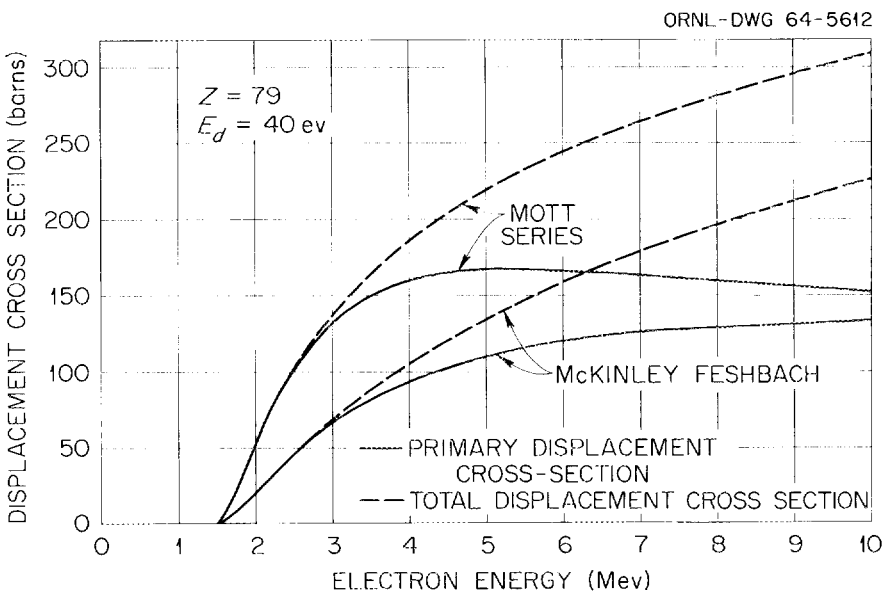

Fig. 1. Comparison of the Displacement Cross Sections Computer from the Mott Series and the McKinley-Feshbach Formula for Gold vs Electron Energy.

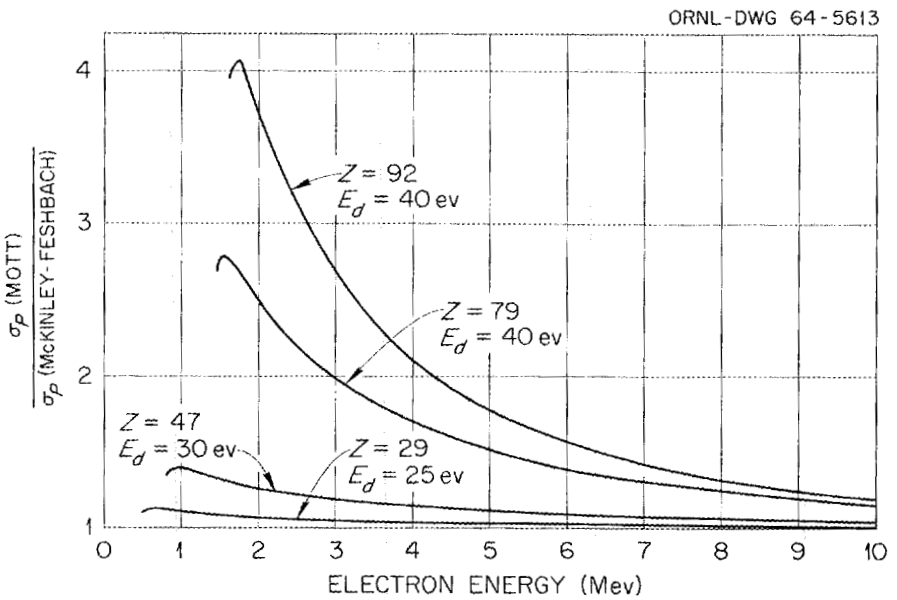

Fig. 2. Ratio of the Primary Displacement Cross Section Computed from the Mott Series to that of the McKinley-Feshbach Formula for Uranium, Gold, Silver, and Copper vs Electron Energy.

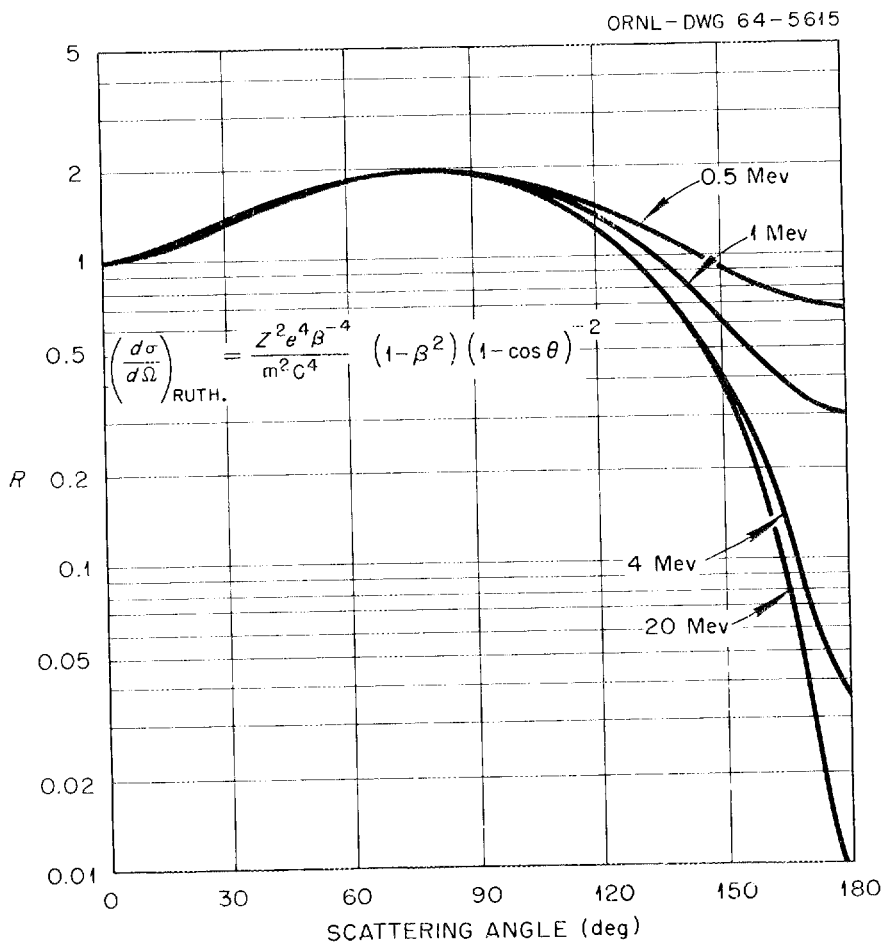

Fig. 3. The Ratio of Mott to Rutherford Scattering for Gold vs Electron Scattering Angle for Several Electron Energies.

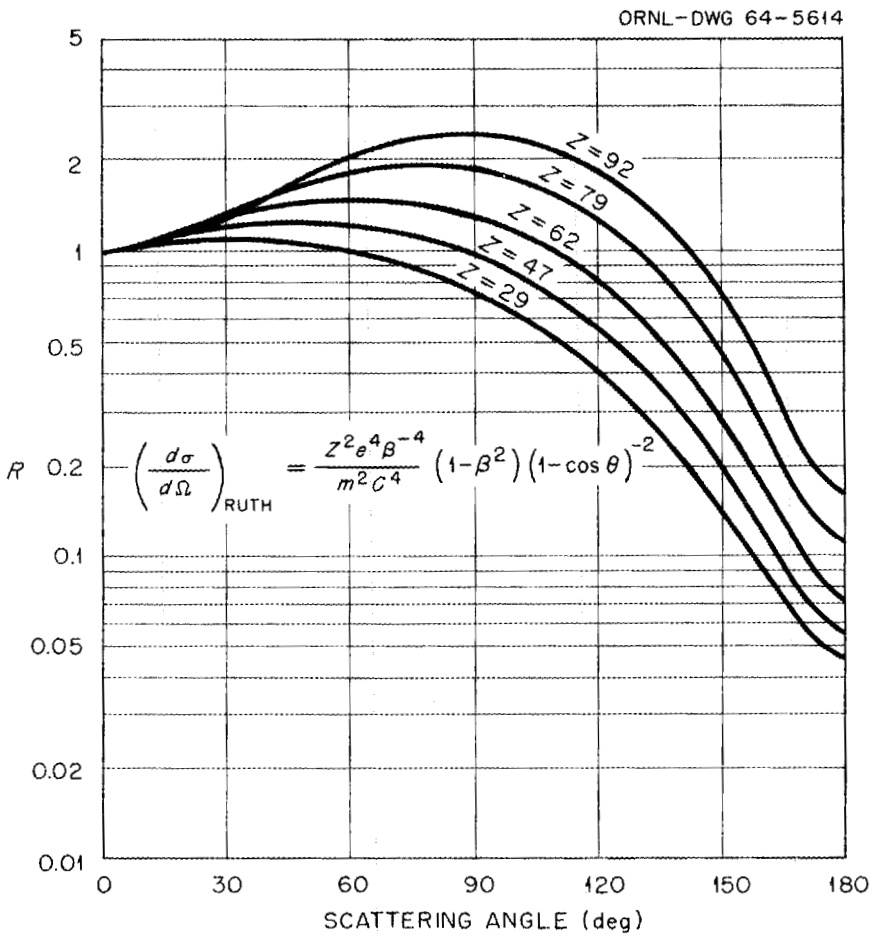

Fig. 4. The Ratio of Mott to Rutherford Scattering vs Electron Scattering Angle for Z = 92, 79, 62, 47, and 29 for 2 MeV Electrons.

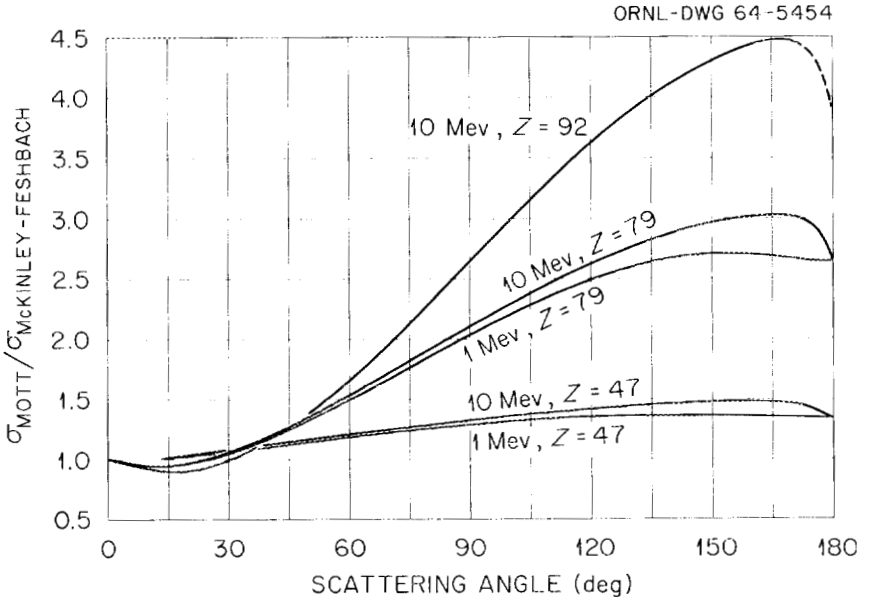

Fig. 5. The Ratio of Mott to McKinley-Feshbach Scattering vs Electron Scattering Angle for Uranium, Gold, and Silver.

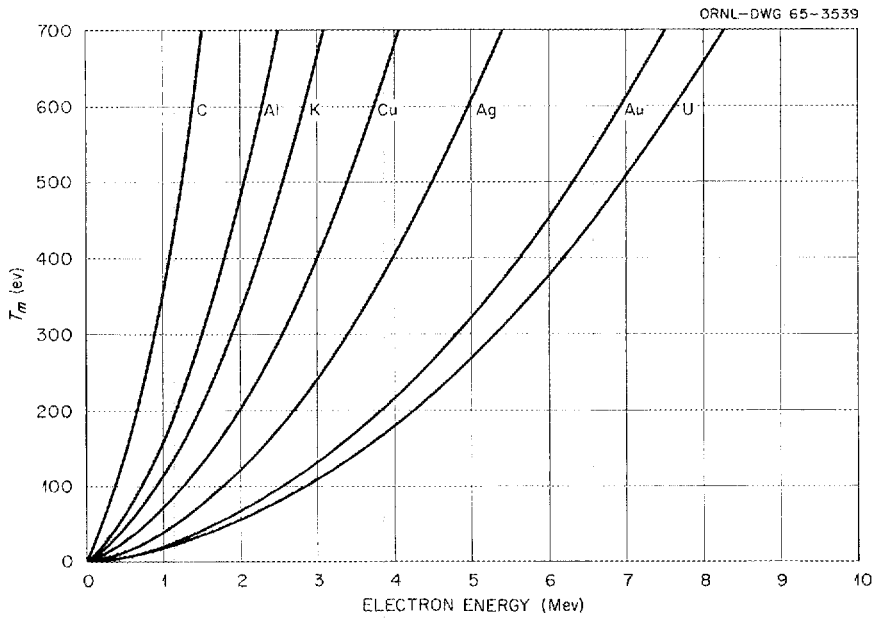

Fig. 6. The Maximum Energy Transferred to an Atomic Nucleus by an Electron in a Head-on Elastic Collision vs Electron Energy for Several Elements.

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN H
Z= 1 A= 1.008

TD= 4.0 EV	ET=0.001834 MEV		TD= 8.0 EV	ET=0.003661 MEV		TD=12.0 EV	ET=0.005482 MEV	
ENERGY(MEV)	PRIMARY	CASCADE	ENERGY(MEV)	PRIMARY	CASCADE	ENERGY(MEV)	PRIMARY	CASCADE
0.00185	42.27	42.27	0.00369	9.50	9.50	0.00553	4.69	4.69
0.00187	92.09	92.09	0.00373	22.04	22.04	0.00559	10.26	10.26
0.00190	162.90	162.90	0.00380	42.73	42.73	0.00570	19.88	19.88
0.00196	291.61	291.61	0.00391	72.28	72.28	0.00586	32.59	32.59
0.00203	422.53	422.53	0.00406	107.42	107.42	0.00608	47.89	47.89
0.00212	565.10	565.10	0.00424	142.94	142.94	0.00635	63.73	63.73
0.00223	707.05	707.05	0.00446	178.31	178.31	0.00668	79.51	79.51
0.00238	855.87	855.87	0.00475	214.33	214.33	0.00712	95.73	95.73
0.00256	983.75	983.75	0.00512	247.28	247.28	0.00767	110.28	110.28
0.00284	1108.00	1108.00	0.00567	277.88	277.88	0.00849	123.89	123.89
0.00320	1185.67	1185.67	0.00640	297.72	297.72	0.00959	132.85	132.85
0.00366	1212.54	1212.54	0.00732	304.53	304.53	0.01090	135.95	135.95
0.00421	1193.68	1203.55	0.00841	300.06	302.62	0.01260	134.09	135.27
0.00495	1134.07	1171.22	0.00988	285.56	295.00	0.01480	127.79	132.07
0.00586	1047.55	1120.02	0.01170	264.25	282.64	0.01750	118.57	126.83
0.00696	947.82	1055.99	0.01390	239.63	267.08	0.02080	107.76	120.12
0.00825	846.89	985.96	0.01640	215.41	250.53	0.02460	97.00	112.87
0.00953	763.63	924.10	0.01900	194.45	235.18	0.02850	87.82	106.25
0.01100	685.12	862.12	0.02190	175.26	220.26	0.03280	79.51	99.88
0.01280	608.07	797.55	0.02560	155.70	204.10	0.03830	71.00	92.97
0.01550	520.34	718.94	0.03110	133.78	184.74	0.04650	61.44	84.67
0.01830	453.04	654.43	0.03660	117.58	169.47	0.05480	54.30	78.07
0.02750	320.35	514.04	0.05490	85.17	135.92	0.08220	40.18	63.81
0.03660	250.92	431.64	0.07320	68.08	116.25	0.10900	32.88	55.73
0.05500	178.28	336.37	0.10900	50.74	94.50	0.16400	25.20	46.62
0.09160	118.96	249.17	0.18300	36.14	74.64	0.27400	19.05	39.09
0.18300	73.90	175.50	0.36600	25.51	60.07	0.54800	14.64	34.60
0.36600	51.73	138.32	0.73200	20.57	55.66	1.09000	12.71	35.05
0.55000	44.71	128.57	1.09000	19.14	56.50	1.64000	12.17	37.01
0.91600	39.58	125.55	1.83000	18.14	60.25	2.74000	11.82	40.72
1.28000	37.65	127.85	2.56000	17.81	63.86	3.83000	11.71	43.66
1.83000	36.37	133.12	3.66000	17.60	68.44	5.48000	11.64	47.13
3.66000	35.22	149.09	7.32000	17.42	78.68	10.90000	11.59	54.35
7.33000	34.86	169.49	14.60000	17.38	89.86	21.90000	11.58	62.08
12.80000	34.76	187.42	25.60000	17.36	99.29	38.30000	11.57	68.42
18.30000	34.74	199.29	36.60000	17.36	105.37	54.80000	11.57	72.51

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN H
Z= 1 A= 1.008

TD=16.0 EV	ET=0.007296 MEV		TD=20.0 EV	ET=0.009104 MEV		TD=24.0 EV	ET=0.010905 MEV	
ENERGY(MEV)	PRIMARY	CASCADE	ENERGY(MEV)	PRIMARY	CASCADE	ENERGY(MEV)	PRIMARY	CASCADE
0.00736	2.63	2.63	0.00919	1.81	1.81	0.01100	1.15	1.15
0.00744	5.77	5.77	0.00928	3.63	3.63	0.01110	2.33	2.33
0.00758	10.97	10.97	0.00946	7.06	7.06	0.01130	4.57	4.57
0.00780	18.38	18.38	0.00974	11.90	11.90	0.01160	7.63	7.63
0.00809	26.92	26.92	0.01010	17.34	17.34	0.01210	12.07	12.07
0.00846	36.11	36.11	0.01050	22.50	22.50	0.01260	15.81	15.81
0.00890	44.98	44.98	0.01110	28.80	28.80	0.01330	20.06	20.06
0.00948	54.03	54.03	0.01180	34.46	34.46	0.01410	23.84	23.84
0.01020	62.12	62.12	0.01270	39.73	39.73	0.01520	27.63	27.63
0.01130	69.91	69.91	0.01410	44.88	44.88	0.01690	31.28	31.28
0.01270	74.87	74.87	0.01590	48.15	48.15	0.01900	33.53	33.53
0.01450	76.81	76.81	0.01820	49.39	49.40	0.02180	34.46	34.46
0.01670	75.91	76.56	0.02090	48.83	49.27	0.02500	34.11	34.42
0.01960	72.53	74.91	0.02450	46.71	48.28	0.02940	32.65	33.77
0.02330	67.28	72.00	0.02910	43.43	46.50	0.03480	30.46	32.61
0.02770	61.29	68.35	0.03450	39.72	44.28	0.04140	27.87	31.09
0.03280	55.28	64.37	0.04090	35.90	41.80	0.04900	25.29	29.44
0.03790	50.29	60.82	0.04730	32.74	39.59	0.05670	23.12	27.96
0.04370	45.62	57.30	0.05460	29.78	37.39	0.06540	21.11	26.49
0.05100	40.93	53.55	0.06370	26.83	35.09	0.07530	19.10	24.95
0.06200	35.61	49.02	0.07730	23.52	32.32	0.09260	16.84	23.11
0.07290	31.73	45.51	0.09100	21.06	30.16	0.10900	15.17	21.68
0.10900	24.00	37.94	0.13600	16.23	25.58	0.16300	11.89	18.69
0.14500	19.95	33.64	0.18200	13.67	23.00	0.21800	10.17	17.06
0.21800	15.77	29.02	0.27300	11.12	20.41	0.32700	8.46	15.51
0.36400	12.46	25.52	0.45500	9.12	18.70	0.54500	7.14	14.70
0.72900	10.15	24.21	0.91000	7.76	18.70	1.09000	6.27	15.30
1.45000	9.20	25.90	1.82000	7.21	20.74	2.18000	5.94	17.38
2.18000	8.94	27.90	2.73000	7.08	22.59	3.27000	5.86	19.07
3.64000	8.79	31.13	4.55000	7.00	25.39	5.45000	5.82	21.52
5.10000	8.74	33.55	6.37000	6.97	27.41	7.63000	5.80	23.25
7.29000	8.71	36.29	9.10000	6.96	29.66	10.90000	5.79	25.17
14.50000	8.69	41.86	18.20000	6.95	34.23	21.80000	5.79	29.01
29.10000	8.68	47.72	36.40000	6.94	38.93	43.60000	5.79	32.94
51.00000	8.68	52.52	63.70000	6.94	42.77	76.30000	5.79	36.15
72.90000	8.68	55.59	91.00000	6.94	45.23	109.00000	5.79	38.20

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN H
Z= 1 A= 1.008

TD=28.0 EV ET=0.012701 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.01280	0.77	0.77
0.01290	1.52	1.52
0.01320	3.63	3.63
0.01350	5.56	5.56
0.01400	8.41	8.41
0.01470	11.75	11.75
0.01540	14.46	14.46
0.01650	17.76	17.76
0.01770	20.35	20.35
0.01960	22.97	22.97
0.02220	24.76	24.76
0.02540	25.43	25.43
0.02920	25.18	25.43
0.03420	24.17	25.00
0.04060	22.56	24.17
0.04820	20.71	23.11
0.05710	18.84	21.94
0.06600	17.28	20.89
0.07620	15.82	19.85
0.08890	14.37	18.77
0.10700	12.81	17.53
0.12700	11.55	16.48
0.19000	9.20	14.43
0.25400	7.97	13.36
0.38100	6.77	12.42
0.63500	5.86	12.10
1.27000	5.27	13.00
2.54000	5.06	15.03
3.81000	5.01	16.56
6.35000	4.98	18.73
8.89000	4.97	20.24
12.70000	4.96	21.90
25.40000	4.96	25.22
50.80000	4.96	28.60
88.90000	4.96	31.36
127.00000	4.96	33.12

TD=32.0 EV ET=0.014490 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.01460	0.57	0.57
0.01470	1.08	1.08
0.01500	2.51	2.51
0.01550	4.66	4.66
0.01600	6.55	6.55
0.01680	9.09	9.09
0.01760	11.17	11.17
0.01880	13.59	13.59
0.02020	15.63	15.63
0.02240	17.67	17.67
0.02530	19.02	19.02
0.02890	19.56	19.56
0.03330	19.39	19.58
0.03910	18.62	19.27
0.04630	17.43	18.68
0.05500	16.04	17.90
0.06520	14.62	17.03
0.07530	13.46	16.27
0.08690	12.36	15.51
0.10100	11.30	14.73
0.12300	10.06	13.77
0.14400	9.19	13.07
0.21700	7.40	11.60
0.28900	6.51	10.88
0.43400	5.62	10.31
0.72400	4.96	10.30
1.44000	4.55	11.32
2.89000	4.40	13.26
4.34000	4.37	14.66
7.24000	4.35	16.61
10.10000	4.35	17.94
14.40000	4.34	19.40
28.90000	4.34	22.33
57.90000	4.34	25.30
101.00000	4.34	27.70
144.00000	4.34	29.23

TD=36.0 EV ET=0.016274 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.01640	0.46	0.46
0.01650	0.82	0.82
0.01690	2.16	2.16
0.01740	3.67	3.67
0.01800	5.26	5.26
0.01880	7.06	7.06
0.01980	8.90	8.90
0.02110	10.75	10.75
0.02270	12.39	12.39
0.02520	14.02	14.02
0.02840	15.08	15.08
0.03250	15.52	15.53
0.03740	15.41	15.56
0.04390	14.82	15.34
0.05200	13.90	14.90
0.06180	12.81	14.31
0.07320	11.72	13.65
0.08460	10.81	13.07
0.09760	9.97	12.50
0.11300	9.17	11.93
0.13800	8.19	11.20
0.16200	7.51	10.67
0.24400	6.14	9.61
0.32500	5.46	9.12
0.48800	4.79	8.80
0.81300	4.30	8.97
1.62000	4.00	10.07
3.25000	3.90	11.90
4.88000	3.88	13.19
8.13000	3.87	14.94
11.30000	3.86	16.13
16.20000	3.86	17.45
32.50000	3.86	20.06
65.00000	3.86	22.70
113.00000	3.86	24.82
162.00000	3.86	26.21

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN H
Z= 1 A= 1.008

TD=40.0 EV ET=0.018051 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.01820	0.40	0.40
0.01840	0.91	0.91
0.01870	1.65	1.65
0.01930	2.98	2.98
0.02000	4.33	4.33
0.02090	5.80	5.80
0.02200	7.27	7.27
0.02340	8.72	8.72
0.02520	10.08	10.08
0.02790	11.37	11.37
0.03150	12.26	12.26
0.03610	12.63	12.63
0.04150	12.55	12.68
0.04870	12.09	12.52
0.05770	11.36	12.18
0.06850	10.50	11.73
0.08120	9.63	11.22
0.09380	8.91	10.77
0.10800	8.25	10.33
0.12600	7.58	9.87
0.15300	6.83	9.33
0.18000	6.28	8.93
0.27000	5.22	8.15
0.36100	4.68	7.82
0.54100	4.16	7.67
0.90200	3.79	7.96
1.80000	3.57	9.08
3.61000	3.50	10.81
5.41000	3.49	11.99
9.02000	3.48	13.60
12.60000	3.47	14.69
18.00000	3.47	15.87
36.10000	3.47	18.23
72.20000	3.47	20.61
126.00000	3.47	22.53
180.00000	3.47	23.77

TD=44.0 EV ET=0.019822 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.02000	0.36	0.36
0.02020	0.75	0.75
0.02060	1.48	1.48
0.02120	2.47	2.47
0.02200	3.64	3.64
0.02290	4.75	4.75
0.02410	5.97	5.97
0.02570	7.23	7.23
0.02770	8.36	8.36
0.03070	9.45	9.45
0.03460	10.17	10.17
0.03960	10.49	10.49
0.04550	10.43	10.54
0.05350	10.06	10.42
0.06340	9.47	10.16
0.07530	8.77	9.80
0.08920	8.07	9.40
0.10300	7.49	9.05
0.11800	6.97	8.72
0.13800	6.42	8.35
0.16800	5.81	7.93
0.19800	5.36	7.62
0.29700	4.51	7.05
0.39600	4.09	6.83
0.59400	3.68	6.79
0.99100	3.39	7.17
1.98000	3.23	8.29
3.96000	3.18	9.92
5.94000	3.17	11.01
9.91000	3.16	12.49
13.80000	3.16	13.48
19.80000	3.16	14.57
39.60000	3.16	16.71
79.20000	3.16	18.88
138.00000	3.16	20.62
198.00000	3.16	21.76

TD=48.0 EV ET=0.021588 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.02180	0.33	0.33
0.02200	0.63	0.63
0.02240	1.20	1.20
0.02300	1.98	1.98
0.02390	3.00	3.00
0.02500	4.05	4.05
0.02630	5.06	5.06
0.02800	6.09	6.09
0.03020	7.06	7.06
0.03340	7.95	7.95
0.03770	8.58	8.58
0.04310	8.85	8.85
0.04960	8.81	8.91
0.05820	8.52	8.82
0.06900	8.03	8.62
0.08200	7.46	8.33
0.09710	6.88	8.01
0.11200	6.40	7.73
0.12900	5.96	7.46
0.15100	5.51	7.17
0.18300	5.02	6.84
0.21500	4.66	6.61
0.32300	3.96	6.19
0.43100	3.62	6.06
0.64700	3.30	6.10
1.07000	3.07	6.51
2.15000	2.95	7.63
4.31000	2.91	9.17
6.47000	2.90	10.19
10.70000	2.90	11.53
15.10000	2.89	12.48
21.50000	2.89	13.46
43.10000	2.89	15.44
86.30000	2.89	17.43
151.00000	2.89	19.04
215.00000	2.89	20.06

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN H
Z= 1 A= 1.008

TD=52.0 EV ET=0.023347 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.02350	0.19	0.19
0.02380	0.55	0.55
0.02420	0.99	0.99
0.02490	1.71	1.71
0.02590	2.60	2.60
0.02700	3.43	3.43
0.02840	4.30	4.30
0.03030	5.21	5.21
0.03260	6.01	6.01
0.03610	6.79	6.79
0.04080	7.34	7.34
0.04660	7.58	7.58
0.05360	7.55	7.63
0.06300	7.31	7.57
0.07470	6.90	7.41
0.08870	6.43	7.18
0.10500	5.94	6.93
0.12100	5.55	6.70
0.14000	5.17	6.47
0.16300	4.81	6.25
0.19800	4.39	5.99
0.23300	4.10	5.81
0.35000	3.52	5.50
0.46600	3.24	5.43
0.70000	2.98	5.54
1.16000	2.81	5.99
2.33000	2.71	7.08
4.66000	2.68	8.53
7.00000	2.68	9.49
11.60000	2.67	10.74
16.30000	2.67	11.61
23.30000	2.67	12.53
46.60000	2.67	14.35
93.30000	2.67	16.19
163.00000	2.67	17.67

TD=56.0 EV ET=0.025101 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.02530	0.20	0.20
0.02560	0.48	0.48
0.02610	0.93	0.93
0.02680	1.50	1.50
0.02780	2.22	2.22
0.02910	3.00	3.00
0.03060	3.74	3.74
0.03260	4.51	4.51
0.03510	5.21	5.21
0.03890	5.89	5.89
0.04390	6.35	6.35
0.05020	6.56	6.57
0.05770	6.55	6.62
0.06770	6.35	6.58
0.08030	6.01	6.45
0.09530	5.61	6.27
0.11200	5.22	6.07
0.13000	4.87	5.87
0.15000	4.55	5.69
0.17500	4.24	5.51
0.21300	3.89	5.30
0.25100	3.64	5.16
0.37600	3.17	4.95
0.50200	2.94	4.92
0.75300	2.72	5.08
1.25000	2.58	5.55
2.51000	2.51	6.61
5.02000	2.49	7.99
7.53000	2.48	8.88
12.50000	2.48	10.05
17.50000	2.48	10.85
25.10000	2.48	11.72
50.20000	2.48	13.41
100.00000	2.48	15.11
175.00000	2.48	16.49

TD=60.0 EV ET=0.026849 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.02710	0.20	0.20
0.02730	0.36	0.36
0.02790	0.80	0.80
0.02870	1.33	1.33
0.02980	1.97	1.97
0.03110	2.61	2.61
0.03270	3.26	3.26
0.03490	3.95	3.95
0.03750	4.54	4.54
0.04160	5.14	5.14
0.04690	5.55	5.55
0.05360	5.74	5.74
0.06170	5.74	5.80
0.07240	5.57	5.77
0.08590	5.28	5.67
0.10200	4.94	5.52
0.12000	4.60	5.36
0.13900	4.31	5.20
0.16100	4.04	5.05
0.18700	3.78	4.91
0.22800	3.48	4.74
0.26800	3.27	4.64
0.40200	2.87	4.49
0.53600	2.68	4.50
0.80500	2.51	4.69
1.34000	2.39	5.17
2.68000	2.33	6.20
5.36000	2.32	7.51
8.05000	2.32	8.35
13.40000	2.32	9.46
18.70000	2.31	10.20
26.80000	2.31	11.01
53.60000	2.31	12.59
107.00000	2.31	14.18
187.00000	2.31	15.46

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN H
Z= 1 A= 1.008

TD=64.0 EV ET=0.028592 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.02880	0.14	0.14
0.02910	0.33	0.33
0.02970	0.70	0.70
0.03050	1.14	1.14
0.03170	1.72	1.72
0.03310	2.29	2.29
0.03480	2.86	2.86
0.03710	3.46	3.46
0.04000	4.01	4.01
0.04430	4.54	4.54
0.05000	4.90	4.90
0.05710	5.07	5.07
0.06570	5.07	5.13
0.07710	4.93	5.11
0.09140	4.68	5.03
0.10800	4.40	4.91
0.12800	4.10	4.77
0.14800	3.85	4.65
0.17100	3.62	4.53
0.20000	3.39	4.41
0.24300	3.14	4.28
0.28500	2.96	4.20
0.42800	2.63	4.11
0.57100	2.47	4.15
0.85700	2.32	4.35
1.42000	2.23	4.84
2.85000	2.18	5.84
5.71000	2.17	7.09
8.57000	2.17	7.88
14.20000	2.17	8.92
20.00000	2.17	9.63
28.50000	2.17	10.38
57.10000	2.17	11.87
114.00000	2.17	13.36
200.00000	2.17	14.57

TD=68.0 EV ET=0.030329 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.03060	0.15	0.15
0.03090	0.31	0.31
0.03150	0.62	0.62
0.03240	1.03	1.03
0.03360	1.52	1.52
0.03510	2.03	2.03
0.03700	2.56	2.56
0.03940	3.08	3.08
0.04240	3.56	3.56
0.04700	4.03	4.03
0.05300	4.36	4.36
0.06060	4.51	4.51
0.06970	4.52	4.57
0.08180	4.40	4.56
0.09700	4.19	4.50
0.11500	3.93	4.40
0.13600	3.68	4.28
0.15700	3.47	4.18
0.18100	3.27	4.09
0.21200	3.07	3.99
0.25700	2.86	3.89
0.30300	2.70	3.83
0.45400	2.42	3.78
0.60600	2.28	3.84
0.90900	2.16	4.07
1.51000	2.09	4.56
3.03000	2.05	5.53
6.06000	2.04	6.71
9.09000	2.04	7.47
15.10000	2.04	8.45
21.20000	2.04	9.12
30.30000	2.04	9.83
60.60000	2.04	11.23
121.00000	2.04	12.63
212.00000	2.04	13.77

TD=72.0 EV ET=0.032060 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.03230	0.11	0.11
0.03270	0.29	0.29
0.03330	0.55	0.55
0.03430	0.94	0.94
0.03550	1.35	1.35
0.03710	1.81	1.81
0.03910	2.29	2.29
0.04160	2.75	2.75
0.04480	3.18	3.18
0.04960	3.60	3.60
0.05610	3.90	3.90
0.06410	4.04	4.05
0.07370	4.05	4.10
0.08650	3.95	4.10
0.10200	3.77	4.05
0.12100	3.56	3.97
0.14400	3.33	3.87
0.16600	3.14	3.79
0.19200	2.97	3.71
0.22400	2.80	3.64
0.27200	2.61	3.56
0.32000	2.48	3.52
0.48000	2.24	3.50
0.64100	2.12	3.58
0.96100	2.02	3.82
1.60000	1.96	4.31
3.20000	1.94	5.25
6.41000	1.93	6.38
9.61000	1.93	7.10
16.00000	1.93	8.03
22.40000	1.93	8.66
32.00000	1.93	9.33
64.10000	1.93	10.66
128.00000	1.93	11.98
224.00000	1.93	13.06

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN H
Z= 1 A= 1.008

TD=76.0 EV ET=0.033786 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.03410	0.13	0.13
0.03440	0.24	0.24
0.03510	0.50	0.50
0.03610	0.83	0.83
0.03750	1.24	1.24
0.03910	1.63	1.63
0.04120	2.06	2.06
0.04390	2.48	2.48
0.04720	2.86	2.86
0.05230	3.24	3.24
0.05910	3.51	3.51
0.06750	3.65	3.65
0.07770	3.66	3.70
0.09120	3.57	3.71
0.10800	3.41	3.67
0.12800	3.22	3.60
0.15200	3.02	3.52
0.17500	2.87	3.46
0.20200	2.72	3.39
0.23600	2.57	3.33
0.28700	2.40	3.27
0.33700	2.29	3.25
0.50600	2.08	3.26
0.67500	1.98	3.36
1.01000	1.90	3.60
1.68000	1.85	4.09
3.37000	1.83	5.00
6.75000	1.83	6.08
10.10000	1.83	6.76
16.80000	1.83	7.65
23.60000	1.83	8.25
33.70000	1.83	8.89
67.50000	1.83	10.14
135.00000	1.83	11.40
236.00000	1.83	12.42

TD=80.0 EV ET=0.035506 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.03580	0.10	0.10
0.03620	0.23	0.23
0.03690	0.45	0.45
0.03790	0.74	0.74
0.03940	1.12	1.12
0.04110	1.48	1.48
0.04330	1.86	1.86
0.04610	2.24	2.24
0.04970	2.60	2.60
0.05500	2.94	2.94
0.06210	3.18	3.18
0.07100	3.31	3.31
0.08160	3.32	3.36
0.09580	3.25	3.37
0.11300	3.11	3.34
0.13400	2.94	3.29
0.15900	2.77	3.23
0.18400	2.63	3.17
0.21300	2.49	3.12
0.24800	2.37	3.07
0.30100	2.23	3.03
0.35500	2.13	3.01
0.53200	1.94	3.05
0.71000	1.86	3.16
1.06000	1.79	3.41
1.77000	1.75	3.89
3.55000	1.74	4.77
7.10000	1.74	5.81
10.60000	1.74	6.46
17.70000	1.74	7.31
24.80000	1.74	7.88
35.50000	1.74	8.49
71.00000	1.74	9.68
142.00000	1.74	10.87
248.00000	1.74	11.84

TD=84.0 EV ET=0.037221 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.03750	0.08	0.08
0.03790	0.20	0.20
0.03870	0.42	0.42
0.03980	0.69	0.69
0.04130	1.01	1.01
0.04310	1.34	1.34
0.04540	1.69	1.69
0.04830	2.03	2.03
0.05210	2.36	2.36
0.05760	2.67	2.67
0.06510	2.90	2.90
0.07440	3.01	3.01
0.08560	3.03	3.07
0.10000	2.97	3.08
0.11900	2.84	3.06
0.14100	2.70	3.02
0.16700	2.55	2.97
0.19300	2.42	2.92
0.22300	2.30	2.88
0.26000	2.19	2.84
0.31600	2.07	2.82
0.37200	1.98	2.81
0.55800	1.83	2.87
0.74400	1.76	2.98
1.11000	1.70	3.24
1.86000	1.67	3.72
3.72000	1.65	4.57
7.44000	1.65	5.57
11.10000	1.65	6.18
18.60000	1.65	7.00
26.00000	1.65	7.54
37.20000	1.65	8.12
74.40000	1.65	9.25
148.00000	1.65	10.38
260.00000	1.65	11.31

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN H
Z= 1 A= 1.008

TD=88.0 EV ET=0.038931 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.03930	0.10	0.10
0.03970	0.20	0.20
0.04040	0.36	0.36
0.04160	0.62	0.62
0.04320	0.93	0.93
0.04510	1.23	1.23
0.04740	1.53	1.53
0.05060	1.86	1.86
0.05450	2.16	2.16
0.06030	2.44	2.44
0.06810	2.65	2.65
0.07780	2.76	2.76
0.08950	2.77	2.81
0.10500	2.72	2.83
0.12400	2.62	2.81
0.14700	2.49	2.78
0.17500	2.35	2.74
0.20200	2.24	2.70
0.23300	2.14	2.67
0.27200	2.04	2.65
0.33000	1.93	2.63
0.38900	1.85	2.63
0.58300	1.72	2.70
0.77800	1.66	2.82
1.16000	1.61	3.08
1.94000	1.59	3.55
3.89000	1.58	4.38
7.78000	1.58	5.34
11.60000	1.58	5.93
19.40000	1.58	6.71
27.20000	1.58	7.23
38.90000	1.58	7.78
77.80000	1.58	8.86
155.00000	1.58	9.95

TD=92.0 EV ET=0.040635 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.04100	0.08	0.08
0.04140	0.17	0.17
0.04220	0.34	0.34
0.04340	0.57	0.57
0.04510	0.85	0.85
0.04710	1.13	1.13
0.04950	1.41	1.41
0.05280	1.71	1.71
0.05680	1.97	1.97
0.06290	2.24	2.24
0.07110	2.43	2.43
0.08120	2.53	2.54
0.09340	2.55	2.59
0.10900	2.51	2.60
0.13000	2.41	2.60
0.15400	2.30	2.57
0.18200	2.18	2.54
0.21100	2.08	2.51
0.24300	1.99	2.49
0.28400	1.90	2.47
0.34500	1.81	2.46
0.40600	1.74	2.47
0.60900	1.62	2.56
0.81200	1.57	2.68
1.21000	1.53	2.94
2.03000	1.51	3.41
4.06000	1.51	4.21
8.12000	1.51	5.13
12.10000	1.51	5.70
20.30000	1.51	6.45
28.40000	1.51	6.94
40.60000	1.51	7.47
81.20000	1.51	8.51
162.00000	1.51	9.55

TD=96.0 EV ET=0.042334 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.04270	0.07	0.07
0.04310	0.15	0.15
0.04400	0.32	0.32
0.04520	0.52	0.52
0.04690	0.77	0.77
0.04910	1.04	1.04
0.05160	1.30	1.30
0.05500	1.57	1.57
0.05920	1.82	1.82
0.06560	2.07	2.07
0.07400	2.24	2.24
0.08460	2.34	2.34
0.09730	2.36	2.39
0.11400	2.32	2.41
0.13500	2.24	2.41
0.16000	2.14	2.39
0.19000	2.03	2.36
0.22000	1.94	2.34
0.25400	1.86	2.33
0.29600	1.78	2.31
0.35900	1.70	2.31
0.42300	1.64	2.33
0.63500	1.54	2.43
0.84600	1.50	2.56
1.27000	1.46	2.82
2.11000	1.45	3.27
4.23000	1.45	4.05
8.46000	1.45	4.94
12.70000	1.45	5.50
21.10000	1.45	6.20
29.60000	1.45	6.68
42.30000	1.45	7.19
84.60000	1.45	8.18
169.00000	1.45	9.18

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN HE
Z= 2 A= 4.003

TD= 4.0 EV ET=0.007244 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.00731	11.08	11.08
0.00738	22.36	22.36
0.00753	45.12	45.12
0.00775	75.36	75.36
0.00804	110.17	110.17
0.00840	146.63	146.63
0.00883	182.16	182.16
0.00941	219.23	219.23
0.01010	251.19	251.19
0.01120	283.46	283.46
0.01260	303.98	303.98
0.01440	312.00	312.00
0.01660	308.30	310.97
0.01950	294.45	304.23
0.02310	273.60	292.69
0.02750	249.09	277.75
0.03250	224.98	261.79
0.03760	204.51	247.25
0.04340	185.42	232.87
0.05070	166.25	217.55
0.06150	144.87	199.35
0.07240	128.95	184.96
0.10800	97.66	154.33
0.14400	81.03	136.68
0.21700	63.93	117.77
0.36200	50.50	103.52
0.72400	41.07	98.09
1.44000	37.14	104.76
2.17000	36.09	112.83
3.62000	35.44	125.79
5.07000	35.23	135.53
7.24000	35.11	146.52
14.40000	35.01	168.97
28.90000	34.99	192.59
50.70000	34.98	211.95
72.40000	34.98	224.30

TD= 8.0 EV ET=0.014388 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.01450	2.39	2.39
0.01460	4.45	4.45
0.01490	10.32	10.32
0.01530	17.43	17.43
0.01590	26.77	26.77
0.01660	35.96	35.96
0.01750	45.58	45.58
0.01870	55.41	55.41
0.02010	63.67	63.67
0.02230	71.91	71.91
0.02510	77.23	77.23
0.02870	79.45	79.46
0.03300	78.82	79.57
0.03880	75.69	78.33
0.04600	70.84	75.92
0.05460	65.21	72.77
0.06470	59.47	69.26
0.07480	54.71	66.13
0.08630	50.27	63.04
0.10000	46.03	59.94
0.12200	40.92	56.01
0.14300	37.35	53.15
0.21500	30.10	47.15
0.28700	26.41	44.19
0.43100	22.79	41.84
0.71900	20.08	41.73
1.43000	18.38	45.81
2.87000	17.77	53.59
4.31000	17.63	59.24
7.19000	17.54	67.06
10.00000	17.52	72.38
14.30000	17.50	78.30
28.70000	17.49	90.11
57.50000	17.49	102.09
100.00000	17.49	111.70
143.00000	17.49	117.93

TD=12.0 EV ET=0.021436 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.02160	1.05	1.05
0.02180	2.28	2.28
0.02220	4.62	4.62
0.02290	8.33	8.33
0.02370	12.04	12.04
0.02480	16.36	16.36
0.02610	20.51	20.51
0.02780	24.73	24.73
0.03000	28.68	28.68
0.03320	32.34	32.34
0.03750	34.88	34.88
0.04280	35.97	35.97
0.04930	35.82	36.20
0.05780	34.62	35.86
0.06850	32.65	35.03
0.08140	30.33	33.88
0.09640	27.97	32.58
0.11100	26.07	31.46
0.12800	24.25	30.33
0.15000	22.39	29.14
0.18200	20.38	27.81
0.21400	18.92	26.85
0.32100	16.09	25.14
0.42800	14.68	24.58
0.64300	13.35	24.74
1.07000	12.42	26.41
2.14000	11.90	30.86
4.28000	11.73	37.04
6.43000	11.69	41.16
10.70000	11.67	46.62
15.00000	11.67	50.37
21.40000	11.66	54.37
42.80000	11.66	62.29
85.70000	11.66	70.31
150.00000	11.66	76.81
214.00000	11.66	80.94

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN HE
Z= 2 A= 4.003

TD=16.0 EV ET=0.028391 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.02860	0.57	0.57
0.02890	1.36	1.36
0.02950	2.85	2.85
0.03030	4.65	4.65
0.03150	7.02	7.02
0.03290	9.35	9.35
0.03460	11.67	11.67
0.03690	14.11	14.11
0.03970	16.28	16.28
0.04400	18.43	18.43
0.04960	19.90	19.90
0.05670	20.61	20.61
0.06530	20.61	20.84
0.07660	20.03	20.78
0.09080	19.04	20.45
0.10700	17.91	19.98
0.12700	16.68	19.40
0.14700	15.66	18.89
0.17000	14.71	18.40
0.19800	13.80	17.92
0.24100	12.77	17.39
0.28300	12.05	17.06
0.42500	10.66	16.67
0.56700	10.00	16.82
0.85100	9.40	17.65
1.41000	9.02	19.59
2.83000	8.82	23.60
5.67000	8.77	28.63
8.51000	8.76	31.84
14.10000	8.75	36.00
19.80000	8.75	38.86
28.30000	8.75	41.90
56.70000	8.74	47.89
113.00000	8.74	53.88
198.00000	8.74	58.77

TD=20.0 EV ET=0.035259 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.03560	0.48	0.48
0.03590	0.89	0.89
0.03660	1.79	1.79
0.03770	3.08	3.08
0.03910	4.51	4.51
0.04090	6.06	6.06
0.04300	7.55	7.55
0.04580	9.11	9.11
0.04930	10.53	10.53
0.05460	11.93	11.93
0.06170	12.94	12.94
0.07050	13.43	13.44
0.08100	13.49	13.66
0.09510	13.20	13.70
0.11200	12.66	13.59
0.13300	11.98	13.38
0.15800	11.27	13.11
0.18300	10.68	12.88
0.21100	10.14	12.68
0.24600	9.62	12.49
0.29900	9.05	12.31
0.35200	8.64	12.24
0.52800	7.89	12.39
0.70500	7.55	12.80
1.05000	7.26	13.80
1.76000	7.09	15.75
3.52000	7.02	19.28
7.05000	7.00	23.48
10.50000	7.00	26.06
17.60000	7.00	29.51
24.60000	7.00	31.78
35.20000	7.00	34.24
70.50000	7.00	39.04
141.00000	7.00	43.87
246.00000	7.00	47.75

TD=24.0 EV ET=0.042041 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.04240	0.30	0.30
0.04280	0.62	0.62
0.04370	1.29	1.29
0.04490	2.12	2.12
0.04660	3.14	3.14
0.04870	4.21	4.21
0.05120	5.26	5.26
0.05460	6.38	6.38
0.05880	7.39	7.39
0.06510	8.39	8.39
0.07350	9.12	9.12
0.08400	9.50	9.51
0.09660	9.59	9.71
0.11300	9.43	9.80
0.13400	9.10	9.79
0.15900	8.69	9.71
0.18900	8.25	9.61
0.21800	7.90	9.52
0.25200	7.56	9.45
0.29400	7.25	9.41
0.35700	6.90	9.40
0.42000	6.67	9.46
0.63000	6.25	9.85
0.84000	6.06	10.37
1.26000	5.92	11.43
2.10000	5.85	13.26
4.20000	5.83	16.38
8.40000	5.83	19.97
12.60000	5.83	22.19
21.00000	5.83	25.06
29.40000	5.83	26.97
42.00000	5.83	29.02
84.00000	5.83	33.02
168.00000	5.83	37.04
294.00000	5.83	40.30

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN HE
Z= 2 A= 4.003

TD=28.0 EV ET=0.048741 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.04920	0.24	0.24
0.04970	0.50	0.50
0.05060	0.93	0.93
0.05210	1.58	1.58
0.05410	2.35	2.35
0.05650	3.13	3.13
0.05940	3.91	3.91
0.06330	4.73	4.73
0.06820	5.49	5.49
0.07550	6.24	6.24
0.08520	6.80	6.80
0.09740	7.11	7.12
0.11200	7.20	7.30
0.13100	7.13	7.41
0.15500	6.93	7.46
0.18500	6.66	7.46
0.21900	6.39	7.44
0.25300	6.16	7.44
0.29200	5.95	7.44
0.34100	5.76	7.47
0.41400	5.55	7.56
0.48700	5.40	7.68
0.73100	5.16	8.20
0.97400	5.07	8.75
1.46000	5.01	9.79
2.43000	4.99	11.48
4.87000	4.99	14.28
9.74000	5.00	17.42
14.60000	5.00	19.34
24.30000	5.00	21.80
34.10000	5.00	23.46
48.70000	5.00	25.22
97.40000	5.00	28.65
194.00000	5.00	32.08

TD=32.0 EV ET=0.055362 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.05590	0.19	0.19
0.05640	0.36	0.36
0.05750	0.72	0.72
0.05920	1.23	1.23
0.06140	1.80	1.80
0.06420	2.42	2.42
0.06750	3.02	3.02
0.07190	3.65	3.65
0.07750	4.25	4.25
0.08580	4.84	4.84
0.09680	5.28	5.28
0.11000	5.54	5.54
0.12700	5.64	5.72
0.14900	5.62	5.84
0.17700	5.49	5.92
0.21000	5.32	5.96
0.24900	5.15	6.00
0.28700	5.00	6.04
0.33200	4.87	6.09
0.38700	4.75	6.17
0.47000	4.62	6.31
0.55300	4.54	6.46
0.83000	4.40	7.03
1.10000	4.36	7.58
1.66000	4.34	8.60
2.76000	4.35	10.17
5.53000	4.36	12.69
11.00000	4.37	15.45
16.60000	4.37	17.17
27.60000	4.37	19.33
38.70000	4.37	20.78
55.30000	4.37	22.32
110.00000	4.37	25.31
221.00000	4.37	28.35

TD=36.0 EV ET=0.061906 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.06250	0.15	0.15
0.06310	0.30	0.30
0.06430	0.57	0.57
0.06520	0.98	0.98
0.06870	1.44	1.44
0.07180	1.93	1.93
0.07550	2.41	2.41
0.08040	2.91	2.91
0.08660	3.39	3.39
0.09590	3.87	3.87
0.10800	4.23	4.23
0.12300	4.46	4.46
0.14200	4.56	4.62
0.16700	4.56	4.75
0.19800	4.49	4.85
0.23500	4.39	4.92
0.27800	4.28	4.99
0.32100	4.18	5.05
0.37100	4.10	5.13
0.43300	4.03	5.24
0.52600	3.95	5.41
0.61900	3.90	5.58
0.92800	3.84	6.17
1.23000	3.83	6.72
1.85000	3.84	7.68
3.09000	3.86	9.15
6.19000	3.88	11.44
12.30000	3.88	13.91
18.50000	3.89	15.44
30.90000	3.89	17.38
43.30000	3.89	18.67
61.90000	3.89	20.05
123.00000	3.89	22.70
247.00000	3.89	25.40

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN HE
Z= 2 A= 4.003

TD=40.0 EV ET=0.068376 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.06900	0.12	0.12
0.06970	0.24	0.24
0.07110	0.48	0.48
0.07310	0.79	0.79
0.07580	1.16	1.16
0.07930	1.57	1.57
0.08340	1.97	1.97
0.08880	2.38	2.38
0.09570	2.77	2.77
0.10500	3.14	3.14
0.11900	3.47	3.47
0.13600	3.68	3.68
0.15700	3.78	3.83
0.18400	3.80	3.96
0.21800	3.77	4.06
0.25900	3.71	4.15
0.30700	3.64	4.24
0.35500	3.58	4.33
0.41000	3.53	4.42
0.47800	3.49	4.54
0.58100	3.45	4.73
0.68300	3.43	4.91
1.02000	3.41	5.51
1.36000	3.42	6.04
2.05000	3.44	6.97
3.41000	3.46	8.32
6.83000	3.49	10.42
13.60000	3.50	12.67
20.50000	3.50	14.06
34.10000	3.50	15.80
47.80000	3.50	16.96
68.30000	3.50	18.20
136.00000	3.50	20.60
273.00000	3.50	23.03

TD=44.0 EV ET=0.074775 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.07550	0.10	0.10
0.07620	0.20	0.20
0.07770	0.39	0.39
0.08000	0.66	0.66
0.08290	0.97	0.97
0.08670	1.31	1.31
0.09120	1.64	1.64
0.09720	1.99	1.99
0.10400	2.29	2.29
0.11500	2.63	2.63
0.13000	2.91	2.91
0.14900	3.10	3.10
0.17100	3.19	3.24
0.20100	3.23	3.37
0.23900	3.22	3.48
0.28400	3.19	3.58
0.33600	3.15	3.68
0.38800	3.12	3.77
0.44800	3.10	3.88
0.52300	3.07	4.01
0.63500	3.06	4.21
0.74700	3.05	4.40
1.12000	3.07	4.99
1.49000	3.08	5.51
2.24000	3.12	6.38
3.73000	3.15	7.64
7.47000	3.17	9.58
14.90000	3.18	11.65
22.40000	3.18	12.90
37.30000	3.18	14.49
52.30000	3.18	15.55
74.70000	3.18	16.68
149.00000	3.18	18.86
299.00000	3.18	21.07

TD=48.0 EV ET=0.081104 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.08190	0.09	0.09
0.08270	0.17	0.17
0.08430	0.33	0.33
0.08670	0.56	0.56
0.09000	0.82	0.82
0.09400	1.10	1.10
0.09890	1.38	1.38
0.10500	1.67	1.67
0.11300	1.95	1.95
0.12500	2.24	2.24
0.14100	2.48	2.48
0.16200	2.65	2.66
0.18600	2.74	2.79
0.21800	2.79	2.91
0.25900	2.80	3.02
0.30800	2.79	3.13
0.36400	2.77	3.24
0.42100	2.76	3.34
0.48600	2.75	3.45
0.56700	2.75	3.59
0.68900	2.75	3.79
0.81100	2.76	3.98
1.21000	2.79	4.56
1.62000	2.81	5.07
2.43000	2.85	5.89
4.05000	2.88	7.08
8.11000	2.91	8.88
16.20000	2.91	10.79
24.30000	2.91	11.93
40.50000	2.91	13.39
56.70000	2.91	14.36
81.10000	2.91	15.40
162.00000	2.91	17.41
324.00000	2.91	19.42

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN HE
Z= 2 A= 4.003

TD=52.0 EV ET=0.087367 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.08820	0.07	0.07
0.08910	0.15	0.15
0.09080	0.29	0.29
0.09340	0.48	0.48
0.09690	0.70	0.70
0.10100	0.93	0.93
0.10600	1.17	1.17
0.11300	1.43	1.43
0.12200	1.68	1.68
0.13500	1.94	1.94
0.15200	2.15	2.15
0.17400	2.30	2.30
0.20000	2.39	2.43
0.23500	2.44	2.55
0.27900	2.47	2.66
0.33100	2.47	2.77
0.39300	2.47	2.89
0.45400	2.47	2.99
0.52400	2.48	3.11
0.61100	2.48	3.25
0.74200	2.50	3.45
0.87300	2.51	3.64
1.31000	2.56	4.21
1.74000	2.59	4.69
2.62000	2.63	5.48
4.36000	2.66	6.59
8.73000	2.68	8.27
17.40000	2.69	10.03
26.20000	2.69	11.10
43.60000	2.69	12.45
61.10000	2.69	13.35
87.30000	2.69	14.30
174.00000	2.69	16.15

TD=56.0 EV ET=0.093565 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.09450	0.07	0.07
0.09540	0.13	0.13
0.09730	0.25	0.25
0.10000	0.41	0.41
0.10300	0.57	0.57
0.10800	0.80	0.80
0.11400	1.03	1.03
0.12100	1.24	1.24
0.13000	1.45	1.45
0.14500	1.70	1.70
0.16300	1.88	1.88
0.18700	2.02	2.02
0.21500	2.11	2.14
0.25200	2.16	2.26
0.29900	2.20	2.37
0.35500	2.21	2.49
0.42100	2.23	2.60
0.48600	2.24	2.71
0.56100	2.25	2.83
0.65400	2.26	2.97
0.79500	2.29	3.17
0.93500	2.31	3.36
1.40000	2.36	3.91
1.87000	2.40	4.38
2.80000	2.44	5.12
4.67000	2.47	6.18
9.35000	2.49	7.75
18.70000	2.50	9.40
28.00000	2.50	10.38
46.70000	2.50	11.64
65.40000	2.50	12.47
93.50000	2.50	13.36
187.00000	2.50	15.08

TD=60.0 EV ET=0.099700 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.10000	0.02	0.02
0.10100	0.08	0.08
0.10300	0.18	0.18
0.10500	0.33	0.33
0.11000	0.51	0.51
0.11500	0.70	0.70
0.12100	0.89	0.89
0.12900	1.09	1.09
0.13900	1.29	1.29
0.15400	1.49	1.49
0.17400	1.66	1.66
0.19900	1.79	1.79
0.22900	1.88	1.91
0.26900	1.94	2.02
0.31900	1.98	2.14
0.37800	2.00	2.25
0.44800	2.02	2.37
0.51800	2.04	2.48
0.59800	2.06	2.60
0.69700	2.08	2.74
0.84700	2.11	2.93
0.99600	2.14	3.12
1.49000	2.19	3.66
1.99000	2.23	4.11
2.99000	2.27	4.82
4.98000	2.30	5.82
9.96000	2.32	7.29
19.90000	2.33	8.83
29.90000	2.33	9.76
49.80000	2.33	10.93
69.70000	2.33	11.71
99.60000	2.33	12.53
199.00000	2.33	14.14

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN HE
Z= 2 A= 4.003

TD=64.0 EV ET=0.105774 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.10600	0.01	0.01
0.10700	0.06	0.06
0.11000	0.19	0.19
0.11300	0.32	0.32
0.11700	0.46	0.46
0.12200	0.62	0.62
0.12900	0.80	0.80
0.13700	0.97	0.97
0.14800	1.15	1.15
0.16300	1.32	1.32
0.18500	1.48	1.48
0.21100	1.60	1.61
0.24300	1.68	1.71
0.28500	1.75	1.83
0.33800	1.79	1.94
0.40100	1.82	2.05
0.47500	1.85	2.17
0.55000	1.88	2.28
0.63400	1.90	2.40
0.74000	1.93	2.54
0.89900	1.96	2.73
1.05000	1.99	2.91
1.58000	2.05	3.43
2.11000	2.09	3.87
3.17000	2.13	4.55
5.28000	2.16	5.49
10.50000	2.18	6.87
21.10000	2.18	8.33
31.70000	2.19	9.20
52.80000	2.19	10.30
74.00000	2.19	11.04
105.00000	2.19	11.80
211.00000	2.19	13.32

TD=68.0 EV ET=0.111788 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.11200	0.01	0.01
0.11400	0.09	0.09
0.11600	0.16	0.16
0.11900	0.27	0.27
0.12400	0.42	0.42
0.12900	0.55	0.55
0.13600	0.71	0.71
0.14500	0.87	0.87
0.15600	1.02	1.02
0.17300	1.19	1.19
0.19500	1.33	1.33
0.22300	1.44	1.45
0.25700	1.52	1.55
0.30100	1.59	1.66
0.35700	1.64	1.77
0.42400	1.68	1.88
0.50300	1.71	2.00
0.58100	1.74	2.11
0.67000	1.76	2.23
0.78200	1.79	2.37
0.95000	1.83	2.56
1.11000	1.86	2.73
1.67000	1.93	3.24
2.23000	1.96	3.66
3.35000	2.00	4.31
5.58000	2.03	5.21
11.10000	2.05	6.51
22.30000	2.06	7.89
33.50000	2.06	8.71
55.80000	2.06	9.75
78.20000	2.06	10.44
111.00000	2.06	11.15
223.00000	2.06	12.58

TD=72.0 EV ET=0.117745 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.11800	0.01	0.01
0.12000	0.08	0.08
0.12200	0.14	0.14
0.12500	0.23	0.23
0.13000	0.36	0.36
0.13600	0.50	0.50
0.14300	0.63	0.63
0.15300	0.79	0.79
0.16400	0.92	0.92
0.18200	1.07	1.07
0.20600	1.21	1.21
0.23500	1.31	1.31
0.27000	1.39	1.41
0.31700	1.45	1.52
0.37600	1.50	1.63
0.44700	1.55	1.74
0.52900	1.59	1.86
0.61200	1.62	1.97
0.70600	1.65	2.08
0.82400	1.68	2.22
1.00000	1.72	2.41
1.17000	1.75	2.58
1.76000	1.81	3.07
2.35000	1.85	3.47
3.53000	1.89	4.10
5.88000	1.92	4.95
11.70000	1.94	6.19
23.50000	1.94	7.50
35.30000	1.94	8.27
58.80000	1.94	9.25
82.40000	1.94	9.90
117.00000	1.94	10.58
235.00000	1.94	11.93

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN HE
Z= 2 A= 4.003

TD=76.0 EV ET=0.123647 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.12400	0.01	0.01
0.12600	0.07	0.07
0.12800	0.12	0.12
0.13200	0.23	0.23
0.13700	0.34	0.34
0.14300	0.45	0.45
0.15000	0.57	0.57
0.16000	0.70	0.70
0.17300	0.84	0.84
0.19100	0.97	0.97
0.21600	1.10	1.10
0.24700	1.20	1.20
0.28400	1.27	1.30
0.33300	1.34	1.40
0.39500	1.39	1.51
0.46900	1.44	1.62
0.55600	1.48	1.74
0.64200	1.51	1.84
0.74100	1.54	1.96
0.86500	1.58	2.09
1.05000	1.62	2.28
1.23000	1.65	2.44
1.85000	1.72	2.92
2.47000	1.75	3.31
3.70000	1.79	3.90
6.18000	1.82	4.73
12.30000	1.84	5.90
24.70000	1.84	7.14
37.00000	1.84	7.87
61.80000	1.84	8.81
86.50000	1.84	9.42
123.00000	1.84	10.06
247.00000	1.84	11.34

TD=80.0 EV ET=0.129493 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.13000	0.01	0.01
0.13200	0.06	0.06
0.13400	0.11	0.11
0.13800	0.20	0.20
0.14300	0.30	0.30
0.15000	0.42	0.42
0.15700	0.52	0.52
0.16800	0.64	0.64
0.18100	0.76	0.76
0.20000	0.89	0.89
0.22600	1.00	1.00
0.25800	1.10	1.10
0.29700	1.17	1.20
0.34900	1.24	1.30
0.41400	1.29	1.40
0.49200	1.34	1.51
0.58200	1.38	1.63
0.67300	1.42	1.73
0.77600	1.45	1.85
0.90600	1.49	1.98
1.10000	1.53	2.16
1.29000	1.56	2.32
1.94000	1.63	2.79
2.58000	1.66	3.16
3.88000	1.70	3.73
6.47000	1.73	4.52
12.90000	1.74	5.64
25.80000	1.75	6.81
38.80000	1.75	7.52
64.70000	1.75	8.40
90.60000	1.75	8.98
129.00000	1.75	9.60
258.00000	1.75	10.81

TD=84.0 EV ET=0.135287 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.13600	0.02	0.02
0.13700	0.04	0.04
0.14000	0.10	0.10
0.14400	0.18	0.18
0.15000	0.28	0.28
0.15600	0.37	0.37
0.16500	0.48	0.48
0.17500	0.58	0.58
0.18900	0.70	0.70
0.20900	0.81	0.81
0.23600	0.92	0.92
0.27000	1.01	1.02
0.31100	1.09	1.11
0.36500	1.15	1.21
0.43200	1.21	1.31
0.51400	1.26	1.42
0.60800	1.30	1.53
0.70300	1.34	1.64
0.81100	1.37	1.75
0.94700	1.41	1.88
1.14000	1.45	2.05
1.35000	1.48	2.21
2.02000	1.55	2.66
2.70000	1.59	3.02
4.05000	1.62	3.57
6.76000	1.65	4.33
13.50000	1.66	5.40
27.00000	1.66	6.52
40.50000	1.67	7.19
67.60000	1.67	8.03
94.70000	1.67	8.59
135.00000	1.67	9.18
270.00000	1.67	10.33

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN HE
Z= 2 A= 4.003

TD=88.0 EV ET=0.141030 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.14200	0.02	0.02
0.14300	0.04	0.04
0.14600	0.09	0.09
0.15000	0.16	0.16
0.15600	0.25	0.25
0.16300	0.34	0.34
0.17200	0.44	0.44
0.18300	0.54	0.54
0.19700	0.64	0.64
0.21800	0.75	0.75
0.24600	0.85	0.85
0.28200	0.94	0.95
0.32400	1.01	1.03
0.38000	1.07	1.13
0.45100	1.13	1.23
0.53500	1.18	1.33
0.63400	1.23	1.45
0.73300	1.27	1.55
0.84600	1.30	1.66
0.98700	1.34	1.79
1.19000	1.38	1.95
1.41000	1.41	2.12
2.11000	1.48	2.55
2.82000	1.51	2.90
4.23000	1.55	3.43
7.05000	1.57	4.15
14.10000	1.59	5.19
28.20000	1.59	6.26
42.30000	1.59	6.89
70.50000	1.59	7.70
98.70000	1.59	8.23
141.00000	1.59	8.79
282.00000	1.59	9.89

TD=92.0 EV ET=0.146722 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.14800	0.02	0.02
0.14900	0.04	0.04
0.15200	0.09	0.09
0.15600	0.15	0.15
0.16200	0.23	0.23
0.17000	0.32	0.32
0.17900	0.41	0.41
0.19000	0.50	0.50
0.20500	0.59	0.59
0.22700	0.70	0.70
0.25600	0.79	0.79
0.29300	0.88	0.88
0.33700	0.94	0.96
0.39600	1.01	1.06
0.46900	1.06	1.16
0.55700	1.12	1.26
0.66000	1.16	1.37
0.76200	1.20	1.47
0.88000	1.24	1.58
1.02000	1.27	1.70
1.24000	1.32	1.87
1.46000	1.35	2.02
2.20000	1.41	2.45
2.93000	1.45	2.79
4.40000	1.48	3.30
7.33000	1.50	3.99
14.60000	1.52	4.98
29.30000	1.52	6.01
44.00000	1.52	6.62
73.30000	1.52	7.39
102.00000	1.52	7.89
146.00000	1.52	8.43
293.00000	1.52	9.49

TD=96.0 EV ET=0.152366 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.15300	0.01	0.01
0.15500	0.04	0.04
0.15800	0.08	0.08
0.16300	0.15	0.15
0.16900	0.22	0.22
0.17500	0.29	0.29
0.18500	0.37	0.37
0.19800	0.46	0.46
0.21300	0.55	0.55
0.23600	0.65	0.65
0.26600	0.74	0.74
0.30400	0.82	0.82
0.35000	0.88	0.90
0.41100	0.95	0.99
0.48700	1.00	1.09
0.57800	1.06	1.19
0.68500	1.11	1.30
0.79200	1.14	1.40
0.91400	1.18	1.51
1.06000	1.21	1.62
1.29000	1.25	1.79
1.52000	1.29	1.94
2.28000	1.35	2.36
3.04000	1.39	2.68
4.57000	1.42	3.18
7.61000	1.44	3.85
15.20000	1.45	4.80
30.40000	1.46	5.78
45.70000	1.46	6.37
76.10000	1.46	7.10
106.00000	1.46	7.58
152.00000	1.46	8.11
304.00000	1.46	9.11

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN BE
Z= 4 A= 9.013

TD= 4.0 EV ET=0.016169 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.01630	7.81	7.81
0.01640	13.62	13.62
0.01680	35.53	35.53
0.01730	60.11	60.11
0.01790	86.03	86.03
0.01870	115.40	115.40
0.01970	145.31	145.31
0.02100	175.33	175.33
0.02260	202.08	202.08
0.02500	227.76	227.76
0.02820	245.35	245.35
0.03230	252.80	252.83
0.03710	251.14	253.59
0.04360	241.70	250.17
0.05170	226.75	243.07
0.06140	209.30	233.60
0.07270	191.61	223.07
0.08400	176.89	213.67
0.09700	163.03	204.30
0.11300	149.43	194.67
0.13700	134.11	183.31
0.16100	122.87	174.69
0.24200	100.53	157.38
0.32300	89.21	149.34
0.48500	78.14	144.01
0.80800	69.97	146.66
1.61000	64.90	164.20
3.23000	63.07	193.70
4.85000	62.64	214.43
8.08000	62.37	242.67
11.30000	62.29	262.10
16.10000	62.24	283.09
32.30000	62.20	325.23
64.60000	62.18	367.78
113.00000	62.18	402.33
161.00000	62.18	424.25

TD= 8.0 EV ET=0.031857 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.03210	1.87	1.87
0.03240	4.11	4.11
0.03310	9.02	9.02
0.03400	14.76	14.76
0.03530	22.04	22.04
0.03690	29.62	29.62
0.03880	36.99	36.99
0.04140	44.85	44.85
0.04460	51.89	51.89
0.04930	58.63	58.63
0.05570	63.55	63.55
0.06370	65.95	65.97
0.07320	66.14	66.91
0.08600	64.53	66.96
0.10100	61.78	66.25
0.12100	58.07	64.91
0.14300	54.48	63.42
0.16500	51.50	62.10
0.19100	48.64	60.80
0.22300	45.87	59.58
0.27000	42.88	58.36
0.31800	40.69	57.65
0.47700	36.62	57.42
0.63700	34.70	58.71
0.95500	32.99	62.53
1.59000	31.91	70.42
3.18000	31.36	85.48
6.37000	31.19	103.80
9.55000	31.15	115.34
15.90000	31.12	130.38
22.30000	31.11	140.57
31.80000	31.10	151.36
63.70000	31.09	172.68
127.00000	31.09	194.00
223.00000	31.09	211.45
318.00000	31.09	222.46

TD=12.0 EV ET=0.047105 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.04750	0.93	0.93
0.04800	2.06	2.06
0.04890	3.98	3.98
0.05040	6.89	6.89
0.05220	9.96	9.96
0.05460	13.44	13.44
0.05740	16.78	16.78
0.06120	20.34	20.34
0.06590	23.59	23.59
0.07300	26.83	26.83
0.08240	29.24	29.24
0.09420	30.58	30.60
0.10800	30.97	31.37
0.12700	30.63	31.84
0.15000	29.75	32.00
0.17800	28.60	31.97
0.21100	27.37	31.86
0.24400	26.36	31.79
0.28200	25.43	31.77
0.32900	24.54	31.84
0.40000	23.58	32.14
0.47100	22.92	32.58
0.70600	21.79	34.57
0.94200	21.32	36.80
1.41000	20.97	41.00
2.35000	20.81	47.93
4.71000	20.77	59.46
9.42000	20.75	72.41
14.10000	20.74	80.33
23.50000	20.73	90.57
32.90000	20.73	97.39
47.10000	20.73	104.73
94.20000	20.73	118.97
188.00000	20.73	133.24
329.00000	20.73	144.81
471.00000	20.73	152.24

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN BE
Z= 4 A= 9.013

TD=16.0 EV ET=0.061946 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.06250	0.56	0.56
0.06310	1.15	1.15
0.06440	2.35	2.35
0.06620	3.87	3.87
0.06870	5.72	5.72
0.07180	7.68	7.68
0.07550	9.62	9.62
0.08050	11.68	11.68
0.08670	13.59	13.59
0.09600	15.52	15.52
0.10800	16.98	16.98
0.12300	17.91	17.92
0.14200	18.35	18.61
0.16700	18.38	19.14
0.19800	18.12	19.53
0.23500	17.71	19.84
0.27800	17.27	20.13
0.32200	16.90	20.41
0.37100	16.58	20.74
0.43300	16.27	21.17
0.52600	15.97	21.85
0.61900	15.78	22.57
0.92900	15.51	24.97
1.23000	15.44	27.14
1.85000	15.44	31.02
3.09000	15.49	36.89
6.19000	15.54	46.08
12.30000	15.55	55.98
18.50000	15.55	62.07
30.90000	15.55	69.85
43.30000	15.55	75.02
61.90000	15.55	80.51
123.00000	15.55	91.12
247.00000	15.54	101.92

TD=20.0 EV ET=0.076413 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.07710	0.37	0.37
0.07790	0.78	0.78
0.07940	1.51	1.51
0.08170	2.53	2.53
0.08480	3.74	3.74
0.08860	5.01	5.01
0.09320	6.28	6.28
0.09930	7.63	7.63
0.10600	8.76	8.76
0.11800	10.17	10.17
0.13300	11.23	11.23
0.15200	11.95	11.97
0.17500	12.36	12.54
0.20600	12.54	13.07
0.24400	12.54	13.53
0.29000	12.44	13.96
0.34300	12.32	14.38
0.39700	12.22	14.78
0.45800	12.14	15.22
0.53400	12.08	15.76
0.64900	12.03	16.56
0.76400	12.02	17.33
1.14000	12.07	19.69
1.52000	12.14	21.77
2.29000	12.25	25.24
3.82000	12.36	30.25
7.64000	12.42	37.85
15.20000	12.44	45.91
22.90000	12.44	50.85
38.20000	12.44	57.09
53.40000	12.44	61.20
76.40000	12.44	65.62
152.00000	12.44	74.13
305.00000	12.44	82.77

TD=24.0 EV ET=0.090532 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.09140	0.27	0.27
0.09230	0.55	0.55
0.09410	1.07	1.07
0.09680	1.78	1.78
0.10000	2.53	2.53
0.10500	3.54	3.54
0.11000	4.37	4.37
0.11700	5.32	5.32
0.12600	6.26	6.26
0.14000	7.27	7.27
0.15800	8.08	8.08
0.18100	8.67	8.68
0.20800	9.03	9.18
0.24400	9.26	9.67
0.28900	9.39	10.14
0.34400	9.44	10.61
0.40700	9.48	11.08
0.47000	9.50	11.51
0.54300	9.54	11.99
0.63300	9.58	12.56
0.76900	9.65	13.37
0.90500	9.72	14.14
1.35000	9.90	16.38
1.81000	10.03	18.32
2.71000	10.17	21.37
4.52000	10.28	25.73
9.05000	10.35	32.22
18.10000	10.36	39.06
27.10000	10.37	43.13
45.20000	10.36	48.35
63.30000	10.36	51.80
90.50000	10.36	55.48
181.00000	10.36	62.63
362.00000	10.36	69.80

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN BE
Z= 4 A= 9.013

TD=28.0 EV ET=0.104327 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.10500	0.14	0.14
0.10600	0.34	0.34
0.10800	0.71	0.71
0.11100	1.23	1.23
0.11500	1.85	1.85
0.12100	2.64	2.64
0.12700	3.29	3.29
0.13500	4.00	4.00
0.14600	4.75	4.75
0.16100	5.47	5.47
0.18200	6.13	6.13
0.20800	6.62	6.64
0.23900	6.97	7.09
0.28100	7.23	7.56
0.33300	7.41	8.02
0.39600	7.55	8.49
0.46900	7.66	8.97
0.54200	7.76	9.42
0.62500	7.85	9.90
0.73000	7.95	10.47
0.88600	8.07	11.26
1.04000	8.17	11.98
1.56000	8.41	14.11
2.08000	8.55	15.86
3.12000	8.70	18.61
5.21000	8.81	22.46
10.40000	8.87	28.09
20.80000	8.88	33.99
31.20000	8.88	37.51
52.10000	8.88	42.00
73.00000	8.88	44.97
104.00000	8.88	48.10
208.00000	8.88	54.23

TD=32.0 EV ET=0.117819 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.11800	0.03	0.03
0.12000	0.30	0.30
0.12200	0.56	0.56
0.12600	1.03	1.03
0.13000	1.45	1.45
0.13600	1.99	1.99
0.14300	2.53	2.53
0.15300	3.15	3.15
0.16400	3.68	3.68
0.18200	4.31	4.31
0.20600	4.86	4.86
0.23500	5.28	5.30
0.27000	5.60	5.70
0.31800	5.87	6.15
0.37700	6.09	6.59
0.44700	6.26	7.05
0.53000	6.42	7.53
0.61200	6.55	7.97
0.70600	6.67	8.44
0.82400	6.79	8.99
1.00000	6.94	9.75
1.17000	7.06	10.42
1.76000	7.32	12.42
2.35000	7.46	14.04
3.53000	7.61	16.54
5.89000	7.71	19.98
11.70000	7.76	24.92
23.50000	7.77	30.15
35.30000	7.77	33.25
58.90000	7.77	37.18
82.40000	7.77	39.77
117.00000	7.77	42.48
235.00000	7.77	47.88

TD=36.0 EV ET=0.131028 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.13200	0.10	0.10
0.13300	0.19	0.19
0.13600	0.47	0.47
0.14000	0.81	0.81
0.14500	1.19	1.19
0.15100	1.58	1.58
0.15900	2.03	2.03
0.17000	2.53	2.53
0.18300	2.99	2.99
0.20300	3.51	3.51
0.22900	3.96	3.96
0.26200	4.35	4.36
0.30100	4.65	4.74
0.35300	4.91	5.14
0.41900	5.14	5.57
0.49700	5.34	6.02
0.58900	5.52	6.49
0.68100	5.66	6.92
0.78600	5.80	7.37
0.91700	5.94	7.90
1.11000	6.10	8.62
1.31000	6.23	9.29
1.96000	6.49	11.14
2.62000	6.63	12.63
3.93000	6.76	14.91
6.55000	6.85	18.01
13.10000	6.90	22.49
26.20000	6.91	27.13
39.30000	6.91	29.88
65.50000	6.91	33.37
91.70000	6.91	35.68
131.00000	6.91	38.13
262.00000	6.91	42.90

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN BE
Z= 4 A= 9.013

TD=40.0 EV ET=0.143971 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.14500	0.08	0.08
0.14600	0.15	0.15
0.14900	0.36	0.36
0.15400	0.67	0.67
0.15900	0.96	0.96
0.16700	1.35	1.35
0.17500	1.68	1.68
0.18700	2.09	2.09
0.20100	2.47	2.47
0.22300	2.91	2.91
0.25100	3.31	3.31
0.28700	3.66	3.67
0.33100	3.94	4.02
0.38800	4.21	4.41
0.46000	4.44	4.82
0.54700	4.65	5.25
0.64700	4.84	5.70
0.74800	4.99	6.11
0.86300	5.14	6.55
1.00000	5.28	7.04
1.22000	5.45	7.74
1.43000	5.57	8.36
2.15000	5.83	10.10
2.87000	5.96	11.48
4.31000	6.08	13.58
7.19000	6.17	16.41
14.30000	6.21	20.43
28.70000	6.22	24.64
43.10000	6.22	27.13
71.90000	6.22	30.28
100.00000	6.22	32.32
143.00000	6.22	34.53
287.00000	6.22	38.85

TD=44.0 EV ET=0.156663 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.15800	0.08	0.08
0.15900	0.13	0.13
0.16200	0.29	0.29
0.16700	0.54	0.54
0.17300	0.80	0.80
0.18100	1.10	1.10
0.19100	1.43	1.43
0.20300	1.75	1.75
0.21900	2.09	2.09
0.24200	2.46	2.46
0.27400	2.83	2.83
0.31300	3.14	3.16
0.36000	3.41	3.48
0.42200	3.67	3.84
0.50100	3.91	4.24
0.59500	4.12	4.66
0.70400	4.31	5.09
0.81400	4.47	5.49
0.93900	4.61	5.91
1.09000	4.76	6.38
1.33000	4.93	7.05
1.56000	5.05	7.63
2.34000	5.29	9.26
3.13000	5.42	10.56
4.69000	5.53	12.48
7.83000	5.61	15.09
15.60000	5.65	18.78
31.30000	5.65	22.61
46.90000	5.65	24.86
78.30000	5.65	27.74
109.00000	5.65	29.60
156.00000	5.65	31.61
313.00000	5.65	35.54

TD=48.0 EV ET=0.169118 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.17000	0.04	0.04
0.17200	0.13	0.13
0.17500	0.25	0.25
0.18000	0.44	0.44
0.18700	0.69	0.69
0.19600	0.96	0.96
0.20600	1.21	1.21
0.21900	1.49	1.49
0.23600	1.79	1.79
0.26200	2.13	2.13
0.29500	2.45	2.45
0.33800	2.74	2.76
0.38800	2.99	3.06
0.45600	3.25	3.41
0.54100	3.48	3.79
0.64200	3.70	4.18
0.76100	3.89	4.60
0.87900	4.05	4.99
1.01000	4.19	5.38
1.18000	4.33	5.84
1.43000	4.49	6.46
1.69000	4.62	7.04
2.53000	4.85	8.57
3.38000	4.97	9.77
5.07000	5.07	11.57
8.45000	5.14	13.98
16.90000	5.18	17.39
33.80000	5.18	20.89
50.70000	5.18	22.97
84.50000	5.18	25.59
118.00000	5.18	27.31
169.00000	5.18	29.17
338.00000	5.18	32.75

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN BE
Z= 4 A= 9.013

TD=52.0 EV ET=0.181349 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.18300	0.06	0.06
0.18400	0.09	0.09
0.18800	0.23	0.23
0.19400	0.41	0.41
0.20100	0.60	0.60
0.21000	0.82	0.82
0.22100	1.05	1.05
0.23500	1.30	1.30
0.25300	1.55	1.55
0.28100	1.86	1.86
0.31700	2.15	2.15
0.36200	2.42	2.44
0.41700	2.67	2.73
0.48900	2.91	3.06
0.58000	3.14	3.42
0.68900	3.35	3.80
0.81600	3.55	4.21
0.94300	3.70	4.57
1.08000	3.84	4.94
1.26000	3.98	5.38
1.54000	4.14	6.00
1.81000	4.25	6.53
2.72000	4.48	7.99
3.62000	4.58	9.10
5.44000	4.68	10.79
9.06000	4.75	13.02
18.10000	4.78	16.18
36.20000	4.78	19.42
54.40000	4.78	21.34
90.60000	4.78	23.76
126.00000	4.78	25.33
181.00000	4.78	27.06

TD=56.0 EV ET=0.193368 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.19500	0.05	0.05
0.19700	0.10	0.10
0.20100	0.21	0.21
0.20600	0.34	0.34
0.21400	0.52	0.52
0.22400	0.72	0.72
0.23500	0.91	0.91
0.25100	1.14	1.14
0.27000	1.37	1.37
0.29900	1.64	1.64
0.33800	1.91	1.91
0.38600	2.17	2.18
0.44400	2.40	2.45
0.52200	2.63	2.77
0.61800	2.86	3.11
0.73400	3.07	3.48
0.87000	3.26	3.87
1.00000	3.41	4.21
1.16000	3.55	4.60
1.35000	3.68	5.02
1.64000	3.84	5.59
1.93000	3.95	6.09
2.90000	4.16	7.47
3.86000	4.26	8.52
5.80000	4.35	10.11
9.66000	4.41	12.19
19.30000	4.44	15.13
38.60000	4.44	18.15
58.00000	4.44	19.93
96.60000	4.44	22.18
135.00000	4.44	23.66
193.00000	4.44	25.25

TD=60.0 EV ET=0.205185 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.20700	0.04	0.04
0.20900	0.09	0.09
0.21300	0.18	0.18
0.21900	0.31	0.31
0.22700	0.46	0.46
0.23800	0.64	0.64
0.25000	0.81	0.81
0.26600	1.01	1.01
0.28700	1.22	1.22
0.31800	1.47	1.47
0.35900	1.72	1.72
0.41000	1.96	1.97
0.47100	2.18	2.23
0.55300	2.40	2.53
0.65500	2.63	2.86
0.77900	2.83	3.22
0.92300	3.02	3.59
1.06000	3.16	3.92
1.23000	3.30	4.29
1.43000	3.43	4.69
1.74000	3.58	5.24
2.05000	3.68	5.72
3.07000	3.88	7.02
4.10000	3.98	8.02
6.15000	4.06	9.51
10.20000	4.12	11.45
20.50000	4.14	14.22
41.00000	4.15	17.04
61.50000	4.15	18.70
102.00000	4.15	20.79
143.00000	4.15	22.18
205.00000	4.15	23.67

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN BE
Z= 4 A= 9.013

TD=64.0 EV ET=0.216810 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.21800	0.02	0.02
0.22100	0.08	0.08
0.22500	0.16	0.16
0.23100	0.26	0.26
0.24000	0.41	0.41
0.25100	0.56	0.56
0.26400	0.72	0.72
0.28100	0.90	0.90
0.30300	1.09	1.09
0.33600	1.32	1.32
0.37900	1.55	1.55
0.43300	1.78	1.79
0.49800	1.99	2.04
0.58500	2.21	2.33
0.69300	2.43	2.65
0.82300	2.63	2.99
0.97500	2.81	3.35
1.12000	2.95	3.67
1.30000	3.09	4.02
1.51000	3.21	4.40
1.84000	3.35	4.93
2.16000	3.45	5.39
3.25000	3.64	6.64
4.33000	3.73	7.58
6.50000	3.81	8.98
10.80000	3.86	10.82
21.60000	3.88	13.41
43.30000	3.89	16.06
65.00000	3.89	17.62
108.00000	3.89	19.58
151.00000	3.89	20.88
216.00000	3.89	22.27

TD=68.0 EV ET=0.228252 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.23000	0.03	0.03
0.23200	0.06	0.06
0.23700	0.14	0.14
0.24400	0.25	0.25
0.25300	0.37	0.37
0.26400	0.50	0.50
0.27800	0.65	0.65
0.29600	0.81	0.81
0.31900	0.99	0.99
0.35300	1.20	1.20
0.39900	1.42	1.42
0.45600	1.63	1.64
0.52400	1.83	1.88
0.61600	2.05	2.16
0.73000	2.26	2.47
0.86700	2.45	2.80
1.02000	2.63	3.13
1.18000	2.77	3.45
1.36000	2.89	3.78
1.59000	3.02	4.15
1.94000	3.15	4.67
2.28000	3.25	5.11
3.42000	3.43	6.29
4.56000	3.51	7.18
6.84000	3.59	8.51
11.40000	3.63	10.26
22.80000	3.65	12.70
45.60000	3.66	15.19
68.40000	3.66	16.66
114.00000	3.66	18.52
159.00000	3.66	19.73
228.00000	3.66	21.04

TD=72.0 EV ET=0.239520 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.24100	0.02	0.02
0.24400	0.06	0.06
0.24900	0.13	0.13
0.25600	0.22	0.22
0.26500	0.33	0.33
0.27700	0.45	0.45
0.29200	0.59	0.59
0.31100	0.74	0.74
0.33500	0.90	0.90
0.37100	1.09	1.09
0.41900	1.30	1.30
0.47900	1.51	1.52
0.55000	1.70	1.74
0.64600	1.91	2.01
0.76600	2.11	2.31
0.91000	2.30	2.63
1.07000	2.47	2.95
1.24000	2.61	3.26
1.43000	2.73	3.58
1.67000	2.85	3.94
2.03000	2.98	4.42
2.39000	3.07	4.85
3.59000	3.24	5.98
4.79000	3.32	6.83
7.18000	3.39	8.09
11.90000	3.43	9.73
23.90000	3.45	12.05
47.90000	3.45	14.42
71.80000	3.45	15.80
119.00000	3.45	17.54
167.00000	3.45	18.70
239.00000	3.45	19.94

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN BE
Z= 4 A= 9.013

TD=76.0 EV ET=0.250621 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.25300	0.03	0.03
0.25500	0.05	0.05
0.26000	0.11	0.11
0.26800	0.20	0.20
0.27800	0.30	0.30
0.29000	0.41	0.41
0.30500	0.53	0.53
0.32500	0.67	0.67
0.35000	0.82	0.82
0.38800	1.00	1.00
0.43800	1.20	1.20
0.50100	1.40	1.41
0.57600	1.58	1.62
0.67600	1.78	1.88
0.80100	1.98	2.17
0.95200	2.17	2.48
1.12000	2.33	2.79
1.30000	2.47	3.09
1.50000	2.58	3.40
1.75000	2.70	3.75
2.13000	2.82	4.21
2.50000	2.91	4.61
3.75000	3.07	5.69
5.01000	3.15	6.51
7.51000	3.21	7.71
12.50000	3.25	9.28
25.00000	3.27	11.48
50.10000	3.27	13.71
75.10000	3.27	15.03
125.00000	3.27	16.69
175.00000	3.27	17.78

TD=80.0 EV ET=0.261563 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.26400	0.03	0.03
0.26600	0.05	0.05
0.27200	0.11	0.11
0.27900	0.18	0.18
0.29000	0.27	0.27
0.30300	0.38	0.38
0.31900	0.49	0.49
0.34000	0.62	0.62
0.36600	0.76	0.76
0.40500	0.93	0.93
0.45700	1.11	1.11
0.52300	1.30	1.31
0.60100	1.48	1.52
0.70600	1.68	1.77
0.83700	1.87	2.05
0.99300	2.05	2.35
1.17000	2.21	2.65
1.36000	2.34	2.95
1.56000	2.45	3.23
1.83000	2.56	3.58
2.22000	2.68	4.02
2.61000	2.77	4.41
3.92000	2.92	5.45
5.23000	2.99	6.23
7.84000	3.05	7.37
13.00000	3.09	8.85
26.10000	3.11	10.95
52.30000	3.11	13.08
78.40000	3.11	14.33
130.00000	3.11	15.89
183.00000	3.11	16.95

TD=84.0 EV ET=0.272352 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.27500	0.03	0.03
0.27700	0.04	0.04
0.28300	0.10	0.10
0.29100	0.17	0.17
0.30200	0.25	0.25
0.31500	0.34	0.34
0.33200	0.45	0.45
0.35400	0.57	0.57
0.38100	0.70	0.70
0.42200	0.86	0.86
0.47600	1.04	1.04
0.54400	1.22	1.23
0.62600	1.39	1.43
0.73500	1.58	1.67
0.87100	1.77	1.94
1.03000	1.94	2.22
1.22000	2.10	2.53
1.41000	2.22	2.80
1.63000	2.34	3.09
1.90000	2.44	3.41
2.31000	2.56	3.84
2.72000	2.64	4.22
4.08000	2.78	5.21
5.44000	2.85	5.96
8.17000	2.91	7.06
13.60000	2.94	8.49
27.20000	2.96	10.48
54.40000	2.96	12.50
81.70000	2.96	13.70
136.00000	2.96	15.20
190.00000	2.96	16.18

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN BE
Z= 4 A= 9.013

TD=88.0 EV ET=0.282994 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.28500	0.02	0.02
0.28800	0.04	0.04
0.29400	0.09	0.09
0.30200	0.15	0.15
0.31400	0.23	0.23
0.32800	0.32	0.32
0.34500	0.42	0.42
0.36700	0.52	0.52
0.39600	0.65	0.65
0.43800	0.80	0.80
0.49500	0.97	0.97
0.56500	1.14	1.15
0.65000	1.31	1.35
0.76400	1.50	1.58
0.90500	1.68	1.84
1.07000	1.85	2.12
1.27000	2.00	2.42
1.47000	2.12	2.68
1.69000	2.23	2.95
1.98000	2.33	3.27
2.40000	2.44	3.68
2.82000	2.52	4.04
4.24000	2.66	5.01
5.65000	2.72	5.72
8.48000	2.78	6.77
14.10000	2.81	8.13
28.20000	2.82	10.04
56.50000	2.83	11.97
84.80000	2.83	13.11
141.00000	2.83	14.54
198.00000	2.83	15.50

TD=92.0 EV ET=0.293496 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.29600	0.02	0.02
0.29900	0.04	0.04
0.30500	0.08	0.08
0.31400	0.14	0.14
0.32500	0.21	0.21
0.34000	0.30	0.30
0.35800	0.39	0.39
0.38100	0.49	0.49
0.41000	0.60	0.60
0.45400	0.75	0.75
0.51300	0.91	0.91
0.58600	1.08	1.09
0.67500	1.24	1.28
0.79200	1.42	1.50
0.93900	1.60	1.76
1.11000	1.76	2.02
1.32000	1.91	2.31
1.52000	2.03	2.57
1.76000	2.13	2.84
2.05000	2.23	3.14
2.49000	2.34	3.54
2.93000	2.41	3.89
4.40000	2.55	4.81
5.86000	2.61	5.50
8.80000	2.66	6.51
14.60000	2.69	7.81
29.30000	2.70	9.64
58.60000	2.70	11.49
88.00000	2.70	12.58
146.00000	2.70	13.94
205.00000	2.70	14.86

TD=96.0 EV ET=0.303862 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.30600	0.01	0.01
0.30900	0.03	0.03
0.31500	0.08	0.08
0.32500	0.13	0.13
0.33700	0.20	0.20
0.35200	0.27	0.27
0.37000	0.36	0.36
0.39500	0.46	0.46
0.42500	0.56	0.56
0.47000	0.70	0.70
0.53100	0.86	0.86
0.60700	1.02	1.03
0.69800	1.18	1.21
0.82000	1.35	1.43
0.97200	1.53	1.68
1.15000	1.68	1.94
1.36000	1.83	2.21
1.58000	1.95	2.47
1.82000	2.04	2.73
2.12000	2.14	3.02
2.58000	2.24	3.41
3.03000	2.31	3.74
4.55000	2.44	4.63
6.07000	2.50	5.30
9.11000	2.55	6.27
15.10000	2.58	7.51
30.30000	2.59	9.27
60.70000	2.59	11.05
91.10000	2.59	12.09
151.00000	2.59	13.39
212.00000	2.59	14.27

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN C
Z= 6 A= 12.011

TD= 4.0 EV ET=0.021439 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.02160	9.27	9.27
0.02180	20.42	20.42
0.02220	41.55	41.55
0.02290	75.05	75.05
0.02370	108.58	108.58
0.02480	147.67	147.67
0.02610	185.31	185.31
0.02780	223.58	223.58
0.03000	259.43	259.43
0.03320	292.79	292.79
0.03750	316.10	316.10
0.04280	326.33	326.38
0.04930	325.34	328.77
0.05780	314.84	326.10
0.06860	297.20	318.84
0.08140	276.54	308.75
0.09640	255.39	297.27
0.11100	238.20	287.27
0.12800	221.76	277.22
0.15000	204.91	266.53
0.18200	186.67	254.67
0.21400	173.36	246.03
0.32100	147.43	230.65
0.42800	134.48	225.67
0.64300	122.05	227.19
1.07000	113.23	242.31
2.14000	107.96	282.46
4.28000	106.09	338.19
6.43000	105.61	375.37
10.70000	105.30	424.61
15.00000	105.20	458.34
21.40000	105.13	494.40
42.80000	105.08	565.80
85.70000	105.06	638.06
150.00000	105.05	696.59
214.00000	105.05	733.80

TD= 8.0 EV ET=0.042048 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.04240	2.63	2.63
0.04280	5.52	5.52
0.04370	11.64	11.64
0.04490	19.07	19.07
0.04660	28.34	28.34
0.04870	38.05	38.05
0.05120	47.56	47.56
0.05460	57.71	57.71
0.05880	66.93	66.93
0.06510	76.05	76.05
0.07350	82.79	82.79
0.08400	86.43	86.48
0.09670	87.35	88.45
0.11300	86.12	89.40
0.13400	83.23	89.44
0.15900	79.55	88.89
0.18900	75.63	88.06
0.21800	72.48	87.38
0.25200	69.49	86.81
0.29400	66.61	86.44
0.35700	63.48	86.48
0.42000	61.29	87.02
0.63000	57.33	90.69
0.84000	55.58	95.43
1.26000	54.12	105.07
2.10000	53.27	121.58
4.20000	52.85	149.83
8.40000	52.68	182.19
12.60000	52.62	202.19
21.00000	52.57	228.02
29.40000	52.55	245.28
42.00000	52.54	263.72
84.00000	52.53	299.73
168.00000	52.53	336.02
294.00000	52.52	365.35
420.00000	52.52	384.05

TD=12.0 EV ET=0.061915 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.06250	1.34	1.34
0.06310	2.66	2.66
0.06430	5.17	5.17
0.06620	8.79	8.79
0.06870	12.98	12.98
0.07180	17.41	17.41
0.07550	21.78	21.78
0.08040	26.37	26.37
0.08660	30.71	30.71
0.09590	35.11	35.11
0.10800	38.49	38.49
0.12300	40.61	40.65
0.14200	41.65	42.24
0.16700	41.77	43.49
0.19800	41.21	44.41
0.23500	40.32	45.15
0.27800	39.34	45.84
0.32100	38.52	46.48
0.37100	37.77	47.25
0.43300	37.08	48.24
0.52600	36.38	49.82
0.61900	35.93	51.45
0.92800	35.27	56.88
1.23000	35.09	61.83
1.85000	35.02	70.59
3.09000	35.06	83.84
6.19000	35.10	104.57
12.30000	35.07	126.88
18.50000	35.05	140.60
30.90000	35.04	158.13
43.30000	35.03	169.76
61.90000	35.02	182.15
123.00000	35.02	206.04
247.00000	35.02	230.38
433.00000	35.02	250.00
619.00000	35.01	262.50

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN C
Z= 6 A= 12.011

TD=16.0 EV ET=0.081117 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.08190	0.78	0.78
0.08270	1.55	1.55
0.08430	3.01	3.01
0.08670	5.01	5.01
0.09000	7.44	7.44
0.09400	9.96	9.96
0.09890	12.53	12.53
0.10500	15.11	15.11
0.11300	17.69	17.69
0.12500	20.38	20.38
0.14100	22.61	22.61
0.16200	24.21	24.25
0.18600	25.10	25.50
0.21900	25.60	26.70
0.25900	25.73	27.77
0.30800	25.68	28.81
0.36500	25.56	29.85
0.42100	25.46	30.80
0.48600	25.38	31.85
0.56700	25.33	33.12
0.68900	25.33	34.96
0.81100	25.37	36.73
1.21000	25.57	42.00
1.62000	25.76	46.64
2.43000	26.00	54.11
4.05000	26.19	64.87
8.11000	26.29	81.10
16.20000	26.29	98.30
24.30000	26.28	108.64
40.50000	26.27	121.81
56.70000	26.27	130.55
81.10000	26.27	139.87
162.00000	26.26	157.96

TD=20.0 EV ET=0.099715 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.10000	0.15	0.15
0.10100	0.67	0.67
0.10300	1.66	1.66
0.10600	3.02	3.02
0.11000	4.62	4.62
0.11500	6.33	6.33
0.12100	8.06	8.06
0.12900	9.91	9.91
0.13900	11.68	11.68
0.15400	13.56	13.56
0.17400	15.17	15.17
0.19900	16.38	16.41
0.22900	17.20	17.50
0.26900	17.80	18.59
0.31900	18.19	19.67
0.37800	18.46	20.73
0.44800	18.68	21.85
0.51800	18.85	22.87
0.59800	19.02	23.98
0.69800	19.21	25.28
0.84700	19.45	27.10
0.99700	19.66	28.80
1.49000	20.13	33.69
1.99000	20.42	37.79
2.99000	20.71	44.26
4.98000	20.93	53.27
9.97000	21.02	66.57
19.90000	21.03	80.48
29.90000	21.02	88.83
49.80000	21.02	99.39
69.80000	21.01	106.42
99.70000	21.01	113.87
199.00000	21.01	128.33

TD=24.0 EV ET=0.117763 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.11800	0.08	0.08
0.12000	0.69	0.69
0.12200	1.27	1.27
0.12500	2.33	2.33
0.13000	3.28	3.28
0.13600	4.52	4.52
0.14300	5.73	5.73
0.15300	7.14	7.14
0.16400	8.34	8.34
0.18200	9.77	9.77
0.20600	11.04	11.04
0.23500	12.01	12.05
0.27000	12.75	12.98
0.31700	13.38	13.99
0.37500	13.88	15.02
0.44700	14.29	16.08
0.52900	14.65	17.18
0.61200	14.94	18.19
0.70600	15.21	19.26
0.82400	15.49	20.52
1.00000	15.83	22.25
1.17000	16.08	23.78
1.76000	16.64	28.31
2.35000	16.94	31.96
3.53000	17.23	37.62
5.88000	17.43	45.36
11.70000	17.52	56.53
23.50000	17.52	68.30
35.30000	17.52	75.29
58.80000	17.51	84.11
82.40000	17.51	89.97
117.00000	17.51	96.08
235.00000	17.51	108.25

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN C
Z= 6 A= 12.011

TD=28.0 EV ET=0.135308 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.13600	0.14	0.14
0.13800	0.54	0.54
0.14000	0.91	0.91
0.14400	1.61	1.61
0.15000	2.54	2.54
0.15600	3.35	3.35
0.16500	4.37	4.37
0.17500	5.31	5.31
0.18900	6.34	6.34
0.20900	7.43	7.43
0.23600	8.45	8.45
0.27000	9.31	9.34
0.31100	10.00	10.19
0.36500	10.61	11.12
0.43200	11.15	12.08
0.51400	11.62	13.10
0.60800	12.04	14.15
0.70300	12.38	15.13
0.81100	12.69	16.15
0.94700	13.01	17.34
1.15000	13.37	18.97
1.35000	13.65	20.43
2.02000	14.20	24.52
2.70000	14.49	27.81
4.05000	14.76	32.81
6.76000	14.94	39.61
13.50000	15.01	49.34
27.00000	15.02	59.42
40.50000	15.01	65.41
67.60000	15.01	73.01
94.70000	15.01	78.04
135.00000	15.01	83.34
270.00000	15.01	93.71

TD=32.0 EV ET=0.152388 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.15300	0.09	0.09
0.15500	0.36	0.36
0.15800	0.75	0.75
0.16300	1.35	1.35
0.16900	1.98	1.98
0.17600	2.64	2.64
0.18500	3.36	3.36
0.19800	4.22	4.22
0.21300	5.00	5.00
0.23600	5.91	5.91
0.26600	6.76	6.76
0.30400	7.51	7.54
0.35000	8.14	8.31
0.41100	8.74	9.17
0.48700	9.29	10.08
0.57900	9.78	11.05
0.68500	10.22	12.05
0.79200	10.58	12.98
0.91400	10.90	13.95
1.06000	11.21	15.03
1.29000	11.59	16.56
1.52000	11.87	17.94
2.28000	12.41	21.72
3.04000	12.67	24.68
4.57000	12.92	29.18
7.61000	13.07	35.20
15.20000	13.13	43.79
30.40000	13.14	52.65
45.70000	13.14	57.92
76.10000	13.13	64.55
106.00000	13.13	68.88
152.00000	13.13	73.59
304.00000	13.13	82.67

TD=36.0 EV ET=0.169040 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.17000	0.10	0.10
0.17200	0.29	0.29
0.17500	0.58	0.58
0.18000	1.01	1.01
0.18700	1.56	1.56
0.19600	2.17	2.17
0.20600	2.75	2.75
0.21900	3.38	3.38
0.23600	4.05	4.05
0.26200	4.84	4.84
0.29500	5.57	5.57
0.33800	6.25	6.28
0.38800	6.83	6.97
0.45600	7.41	7.78
0.54000	7.95	8.64
0.64200	8.45	9.56
0.76000	8.89	10.51
0.87900	9.25	11.39
1.01000	9.56	12.28
1.18000	9.88	13.35
1.43000	10.24	14.75
1.69000	10.51	16.06
2.53000	11.02	19.53
3.38000	11.27	22.25
5.07000	11.49	26.31
8.45000	11.62	31.73
16.90000	11.67	39.43
33.80000	11.68	47.33
50.70000	11.68	51.99
84.50000	11.67	57.91
118.00000	11.67	61.79
169.00000	11.67	65.96
338.00000	11.67	74.03

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN C
Z= 6 A= 12.011

TD=40.0 EV ET=0.185293 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.18700	0.13	0.13
0.18800	0.20	0.20
0.19200	0.48	0.48
0.19800	0.87	0.87
0.20500	1.28	1.28
0.21400	1.75	1.75
0.22600	2.28	2.28
0.24000	2.80	2.80
0.25900	3.38	3.38
0.28700	4.05	4.05
0.32400	4.71	4.71
0.37000	5.31	5.34
0.42600	5.87	6.00
0.50000	6.42	6.75
0.59200	6.94	7.56
0.70400	7.43	8.43
0.83300	7.87	9.34
0.96300	8.22	10.17
1.11000	8.53	11.03
1.29000	8.84	12.00
1.57000	9.19	13.35
1.85000	9.44	14.55
2.77000	9.91	17.76
3.70000	10.14	20.25
5.55000	10.34	23.96
9.26000	10.46	28.90
18.50000	10.51	35.85
37.00000	10.51	42.97
55.50000	10.51	47.18
92.60000	10.51	52.52
129.00000	10.51	55.99
185.00000	10.51	59.76

TD=44.0 EV ET=0.201176 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.20300	0.11	0.11
0.20500	0.22	0.22
0.20900	0.43	0.43
0.21500	0.73	0.73
0.22300	1.09	1.09
0.23300	1.49	1.49
0.24500	1.91	1.91
0.26100	2.38	2.38
0.28100	2.87	2.87
0.31100	3.45	3.45
0.35200	4.05	4.05
0.40200	4.61	4.64
0.46200	5.13	5.24
0.54300	5.66	5.95
0.64300	6.17	6.72
0.76400	6.64	7.55
0.90500	7.07	8.41
1.04000	7.40	9.17
1.20000	7.70	9.99
1.40000	8.00	10.92
1.70000	8.33	12.18
2.01000	8.58	13.32
3.01000	9.02	16.31
4.02000	9.22	18.62
6.03000	9.40	22.04
10.00000	9.51	26.51
20.10000	9.55	32.90
40.20000	9.55	39.39
60.30000	9.55	43.22
100.00000	9.55	48.02
140.00000	9.55	51.22
201.00000	9.55	54.66

TD=48.0 EV ET=0.216712 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.21800	0.06	0.06
0.22100	0.19	0.19
0.22500	0.36	0.36
0.23100	0.60	0.60
0.24000	0.92	0.92
0.25100	1.27	1.27
0.26400	1.64	1.64
0.28100	2.04	2.04
0.30300	2.48	2.48
0.33500	2.99	2.99
0.37900	3.54	3.54
0.43300	4.06	4.09
0.49800	4.55	4.66
0.58500	5.06	5.32
0.69300	5.55	6.05
0.82300	6.01	6.84
0.97500	6.42	7.66
1.12000	6.74	8.38
1.30000	7.04	9.19
1.51000	7.32	10.05
1.84000	7.64	11.26
2.16000	7.86	12.29
3.25000	8.27	15.12
4.33000	8.46	17.25
6.50000	8.62	20.42
10.80000	8.72	24.55
21.60000	8.76	30.39
43.30000	8.76	36.37
65.00000	8.76	39.89
108.00000	8.76	44.31
151.00000	8.76	47.23
216.00000	8.75	50.35

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN C
Z= 6 A= 12.011

TD=52.0 EV	ET=0.231924 MEV		TD=56.0 EV	ET=0.246830 MEV		TD=60.0 EV	ET=0.261448 MEV	
ENERGY(MEV)	PRIMARY	CASCADE	ENERGY(MEV)	PRIMARY	CASCADE	ENERGY(MEV)	PRIMARY	CASCADE
0.23400	0.08	0.08	0.24900	0.06	0.06	0.26400	0.06	0.06
0.23600	0.15	0.15	0.25100	0.12	0.12	0.26600	0.11	0.11
0.24100	0.32	0.32	0.25600	0.26	0.26	0.27100	0.23	0.23
0.24800	0.54	0.54	0.26400	0.47	0.47	0.27900	0.40	0.40
0.25700	0.80	0.80	0.27300	0.69	0.69	0.29000	0.62	0.62
0.26900	1.11	1.11	0.28600	0.97	0.97	0.30300	0.86	0.86
0.28200	1.41	1.41	0.30100	1.25	1.25	0.31800	1.10	1.10
0.30100	1.78	1.78	0.32000	1.57	1.57	0.33900	1.39	1.39
0.32400	2.17	2.17	0.34500	1.92	1.92	0.36600	1.72	1.72
0.35900	2.64	2.64	0.38200	2.35	2.35	0.40500	2.11	2.11
0.40500	3.13	3.13	0.43100	2.80	2.80	0.45700	2.54	2.54
0.46300	3.62	3.64	0.49300	3.26	3.29	0.52200	2.97	2.99
0.53300	4.08	4.18	0.56700	3.70	3.79	0.60100	3.39	3.47
0.62600	4.57	4.81	0.66600	4.17	4.40	0.70500	3.83	4.04
0.74200	5.05	5.51	0.78900	4.63	5.06	0.83600	4.28	4.68
0.88100	5.49	6.26	0.93700	5.05	5.77	0.99300	4.69	5.37
1.04000	5.88	7.03	1.11000	5.44	6.52	1.17000	5.05	6.06
1.20000	6.19	7.73	1.28000	5.73	7.19	1.35000	5.33	6.70
1.39000	6.48	8.49	1.48000	6.01	7.91	1.56000	5.59	7.38
1.62000	6.75	9.33	1.72000	6.26	8.69	1.83000	5.85	8.17
1.97000	7.05	10.46	2.09000	6.54	9.75	2.22000	6.11	9.17
2.31000	7.25	11.42	2.46000	6.74	10.69	2.61000	6.29	10.05
3.47000	7.64	14.06	3.70000	7.10	13.18	3.92000	6.63	12.40
4.63000	7.81	16.06	4.93000	7.26	15.05	5.22000	6.78	14.16
6.95000	7.96	19.01	7.40000	7.40	17.81	7.84000	6.91	16.75
11.50000	8.05	22.82	12.30000	7.48	21.39	13.00000	6.98	20.10
23.10000	8.08	28.26	24.60000	7.51	26.43	26.10000	7.00	24.83
46.30000	8.08	33.79	49.30000	7.51	31.56	52.20000	7.01	29.61
69.50000	8.08	37.04	74.00000	7.51	34.58	78.40000	7.01	32.43
115.00000	8.08	41.08	123.00000	7.50	38.37	130.00000	7.00	35.96
162.00000	8.08	43.84	172.00000	7.50	40.88	183.00000	7.00	38.34

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN C
Z= 6 A= 12.011

TD=64.0 EV	ET=0.275795 MEV		TD=68.0 EV	ET=0.289885 MEV		TD=72.0 EV	ET=0.303732 MEV	
ENERGY(MEV)	PRIMARY	CASCADE	ENERGY(MEV)	PRIMARY	CASCADE	ENERGY(MEV)	PRIMARY	CASCADE
0.27800	0.05	0.05	0.29200	0.04	0.04	0.30600	0.03	0.03
0.28100	0.11	0.11	0.29500	0.09	0.09	0.30900	0.08	0.08
0.28600	0.21	0.21	0.30100	0.19	0.19	0.31500	0.17	0.17
0.29500	0.37	0.37	0.31000	0.33	0.33	0.32400	0.29	0.29
0.30600	0.56	0.56	0.32100	0.49	0.49	0.33700	0.45	0.45
0.31900	0.76	0.76	0.33600	0.69	0.69	0.35200	0.62	0.62
0.33600	0.99	0.99	0.35300	0.89	0.89	0.37000	0.81	0.81
0.35800	1.26	1.26	0.37600	1.13	1.13	0.39400	1.03	1.03
0.38600	1.55	1.55	0.40500	1.40	1.40	0.42500	1.28	1.28
0.42700	1.91	1.91	0.44900	1.75	1.75	0.47000	1.60	1.60
0.48200	2.31	2.31	0.50700	2.12	2.12	0.53100	1.96	1.96
0.55100	2.72	2.74	0.57900	2.51	2.53	0.60700	2.33	2.35
0.63400	3.12	3.20	0.66600	2.89	2.97	0.69800	2.70	2.77
0.74400	3.55	3.75	0.78200	3.31	3.49	0.82000	3.10	3.27
0.88200	3.98	4.36	0.92700	3.72	4.08	0.97100	3.49	3.84
1.04000	4.36	4.99	1.10000	4.10	4.71	1.15000	3.85	4.43
1.24000	4.73	5.70	1.30000	4.43	5.36	1.36000	4.18	5.06
1.43000	5.00	6.31	1.50000	4.70	5.94	1.57000	4.43	5.62
1.65000	5.24	6.95	1.73000	4.93	6.56	1.82000	4.66	6.23
1.93000	5.48	7.69	2.02000	5.16	7.26	2.12000	4.87	6.89
2.34000	5.73	8.65	2.46000	5.40	8.19	2.58000	5.10	7.78
2.75000	5.90	9.48	2.89000	5.56	8.98	3.03000	5.26	8.53
4.13000	6.22	11.71	4.34000	5.86	11.10	4.55000	5.54	10.55
5.51000	6.36	13.38	5.79000	5.99	12.68	6.07000	5.66	12.05
8.27000	6.48	15.82	8.69000	6.10	14.99	9.11000	5.76	14.24
13.70000	6.54	18.96	14.40000	6.16	17.95	15.10000	5.82	17.05
27.50000	6.57	23.40	28.90000	6.18	22.14	30.30000	5.84	21.01
55.10000	6.57	27.90	57.90000	6.18	26.37	60.70000	5.84	25.01
82.70000	6.57	30.54	86.90000	6.18	28.86	91.10000	5.84	27.37
137.00000	6.57	33.84	144.00000	6.18	31.97	151.00000	5.84	30.30
193.00000	6.57	36.08	202.00000	6.18	34.06	212.00000	5.84	32.28

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN C
Z= 6 A= 12.011

TD=76.0 EV ET=0.317346 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.32000	0.03	0.03
0.32300	0.07	0.07
0.33000	0.16	0.16
0.33900	0.27	0.27
0.35200	0.41	0.41
0.36800	0.57	0.57
0.38700	0.74	0.74
0.41200	0.95	0.95
0.44400	1.18	1.18
0.49100	1.48	1.48
0.55500	1.82	1.82
0.63400	2.17	2.19
0.72900	2.52	2.59
0.85600	2.91	3.08
1.01000	3.28	3.61
1.20000	3.64	4.19
1.42000	3.95	4.80
1.65000	4.21	5.37
1.90000	4.42	5.93
2.22000	4.62	6.57
2.69000	4.84	7.40
3.17000	4.99	8.14
4.76000	5.25	10.06
6.34000	5.37	11.49
9.52000	5.46	13.57
15.80000	5.51	16.25
31.70000	5.53	20.00
63.40000	5.53	23.79
95.20000	5.53	26.02
158.00000	5.53	28.81

TD=80.0 EV ET=0.330741 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.33400	0.04	0.04
0.33700	0.07	0.07
0.34300	0.14	0.14
0.35300	0.24	0.24
0.36700	0.37	0.37
0.38300	0.52	0.52
0.40300	0.68	0.68
0.42900	0.87	0.87
0.46300	1.09	1.09
0.51200	1.37	1.37
0.57800	1.69	1.70
0.66100	2.04	2.05
0.76000	2.38	2.44
0.89300	2.75	2.91
1.05000	3.10	3.41
1.25000	3.45	3.98
1.48000	3.75	4.57
1.71000	3.99	5.09
1.98000	4.20	5.65
2.31000	4.39	6.26
2.81000	4.60	7.08
3.30000	4.74	7.77
4.96000	4.99	9.62
6.61000	5.10	10.98
9.92000	5.19	12.96
16.50000	5.24	15.52
33.00000	5.25	19.07
66.10000	5.25	22.68
99.20000	5.25	24.80
165.00000	5.25	27.46

TD=84.0 EV ET=0.343926 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.34700	0.03	0.03
0.35000	0.06	0.06
0.35700	0.13	0.13
0.36800	0.23	0.23
0.38100	0.34	0.34
0.39800	0.47	0.47
0.41900	0.63	0.63
0.44700	0.81	0.81
0.48100	1.01	1.01
0.53300	1.28	1.28
0.60100	1.59	1.59
0.68700	1.91	1.93
0.79100	2.24	2.31
0.92800	2.60	2.76
1.10000	2.96	3.26
1.30000	3.28	3.79
1.54000	3.58	4.36
1.78000	3.80	4.87
2.06000	4.00	5.41
2.40000	4.19	5.99
2.92000	4.39	6.77
3.43000	4.52	7.44
5.15000	4.76	9.20
6.87000	4.86	10.51
10.30000	4.94	12.40
17.10000	4.99	14.83
34.30000	5.00	18.23
68.70000	5.00	21.67
103.00000	5.00	23.68
171.00000	5.00	26.21

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN C
Z= 6 A= 12.011

TD=88.0 EV ET=0.356911 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.36000	0.03	0.03
0.36400	0.06	0.06
0.37100	0.12	0.12
0.38100	0.20	0.20
0.39600	0.32	0.32
0.41400	0.44	0.44
0.43500	0.58	0.58
0.46300	0.75	0.75
0.49900	0.94	0.94
0.55300	1.20	1.20
0.62400	1.49	1.49
0.71300	1.81	1.82
0.82000	2.12	2.18
0.96300	2.47	2.62
1.14000	2.81	3.11
1.35000	3.13	3.62
1.60000	3.42	4.17
1.85000	3.63	4.67
2.14000	3.83	5.18
2.49000	4.00	5.74
3.03000	4.19	6.50
3.56000	4.32	7.14
5.35000	4.55	8.83
7.13000	4.64	10.08
10.70000	4.72	11.90
17.80000	4.76	14.23
35.60000	4.78	17.47
71.30000	4.78	20.75
107.00000	4.78	22.68
178.00000	4.78	25.10

TD=92.0 EV ET=0.369704 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.37300	0.03	0.03
0.37700	0.06	0.06
0.38400	0.11	0.11
0.39500	0.19	0.19
0.41000	0.29	0.29
0.42800	0.41	0.41
0.45100	0.54	0.54
0.48000	0.70	0.70
0.51700	0.88	0.88
0.57300	1.13	1.13
0.64600	1.41	1.41
0.73900	1.71	1.73
0.85000	2.02	2.08
0.99800	2.36	2.50
1.18000	2.69	2.97
1.40000	2.99	3.47
1.66000	3.27	4.01
1.92000	3.48	4.49
2.21000	3.66	4.97
2.58000	3.83	5.52
3.14000	4.01	6.24
3.69000	4.14	6.86
5.54000	4.35	8.49
7.39000	4.44	9.69
11.00000	4.52	11.40
18.40000	4.56	13.66
36.90000	4.57	16.77
73.90000	4.57	19.91
110.00000	4.57	21.71
184.00000	4.57	24.06

TD=96.0 EV ET=0.382314 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.38600	0.03	0.03
0.38900	0.05	0.05
0.39700	0.10	0.10
0.40900	0.18	0.18
0.42400	0.27	0.27
0.44300	0.38	0.38
0.46600	0.50	0.50
0.49700	0.66	0.66
0.53500	0.83	0.83
0.59200	1.06	1.06
0.66900	1.34	1.34
0.76400	1.63	1.64
0.87900	1.92	1.98
1.03000	2.25	2.38
1.22000	2.57	2.84
1.45000	2.87	3.34
1.72000	3.14	3.85
1.98000	3.33	4.30
2.29000	3.51	4.78
2.67000	3.68	5.31
3.24000	3.85	6.00
3.82000	3.97	6.61
5.73000	4.17	8.18
7.64000	4.26	9.33
11.40000	4.33	10.98
19.10000	4.37	13.15
38.20000	4.38	16.13
76.40000	4.38	19.13
114.00000	4.38	20.87
191.00000	4.38	23.12

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN O
Z= 8 A= 16.000

TD= 4.0 EV	ET=0.028371 MEV		TD= 8.0 EV	ET=0.055322 MEV		TD=12.0 EV	ET=0.081048 MEV	
ENERGY(MEV)	PRIMARY	CASCADE	ENERGY(MEV)	PRIMARY	CASCADE	ENERGY(MEV)	PRIMARY	CASCADE
0.02860	10.08	10.08	0.05580	2.76	2.76	0.08180	1.34	1.34
0.02890	22.81	22.81	0.05640	6.09	6.09	0.08260	2.72	2.72
0.02950	46.76	46.76	0.05750	11.86	11.86	0.08420	5.33	5.33
0.03030	75.83	75.83	0.05910	19.53	19.53	0.08670	9.06	9.06
0.03140	111.08	111.08	0.06140	29.23	29.23	0.08990	13.27	13.27
0.03290	151.69	151.69	0.06410	38.93	38.93	0.09400	17.90	17.90
0.03460	189.20	189.20	0.06740	48.74	48.74	0.09880	22.41	22.41
0.03680	227.26	227.26	0.07190	59.29	59.29	0.10500	27.10	27.10
0.03970	263.92	263.92	0.07740	68.88	68.88	0.11300	31.73	31.73
0.04390	298.35	298.35	0.08570	78.62	78.62	0.12500	36.57	36.57
0.04960	323.32	323.32	0.09680	86.14	86.14	0.14100	40.59	40.59
0.05670	335.28	335.38	0.11000	90.52	90.59	0.16200	43.50	43.58
0.06520	335.96	339.71	0.12700	92.47	93.73	0.18600	45.15	45.85
0.07660	327.19	339.30	0.14900	92.29	95.98	0.21800	46.06	48.01
0.09070	311.70	334.60	0.17700	90.51	97.47	0.25900	46.36	50.02
0.10700	293.60	327.39	0.21000	87.96	98.43	0.30700	46.30	51.89
0.12700	273.97	318.50	0.24800	85.24	99.22	0.36400	46.10	53.79
0.14700	257.62	310.53	0.28700	82.90	99.99	0.42100	45.92	55.55
0.17000	242.29	302.80	0.33100	80.79	100.94	0.48600	45.77	57.46
0.19800	227.51	295.29	0.38700	78.73	102.34	0.56700	45.68	59.75
0.24100	210.68	287.03	0.47000	76.59	104.71	0.68800	45.65	63.05
0.28300	198.80	281.79	0.55300	75.14	107.34	0.81000	45.69	66.23
0.42500	175.77	275.77	0.82900	72.73	116.71	1.21000	45.99	75.70
0.56700	164.59	278.35	1.10000	71.80	125.72	1.62000	46.26	84.01
0.85100	154.20	291.75	1.65000	71.11	142.01	2.43000	46.59	97.36
1.41000	147.13	323.12	2.76000	70.77	167.54	4.05000	46.84	116.56
2.83000	142.95	387.79	5.53000	70.55	208.19	8.10000	46.92	145.43
5.67000	141.35	468.51	11.00000	70.36	252.49	16.20000	46.86	176.12
8.51000	140.89	520.08	16.50000	70.27	279.66	24.30000	46.82	194.53
14.10000	140.57	586.82	27.60000	70.21	314.75	40.50000	46.79	217.98
19.80000	140.45	632.72	38.70000	70.18	338.05	56.70000	46.78	233.54
28.30000	140.38	681.59	55.30000	70.17	362.79	81.00000	46.77	250.08
56.70000	140.31	777.67	110.00000	70.15	410.68	162.00000	46.76	282.34
113.00000	140.29	873.74	221.00000	70.14	459.45	324.00000	46.76	314.67
198.00000	140.27	952.14	387.00000	70.13	498.67	567.00000	46.75	340.80

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN O
Z= 8 A= 16.000

TD=16.0 EV	ET=0.105701 MEV		TD=20.0 EV	ET=0.129406 MEV		TD=24.0 EV	ET=0.152265 MEV	
ENERGY(MEV)	PRIMARY	CASCADE	ENERGY(MEV)	PRIMARY	CASCADE	ENERGY(MEV)	PRIMARY	CASCADE
0.10600	0.24	0.24	0.13000	0.25	0.25	0.15300	0.19	0.19
0.10700	1.01	1.01	0.13100	0.66	0.66	0.15500	0.67	0.67
0.10900	2.49	2.49	0.13400	1.83	1.83	0.15800	1.37	1.37
0.11300	5.16	5.16	0.13800	3.26	3.26	0.16200	2.23	2.23
0.11700	7.51	7.51	0.14300	4.85	4.85	0.16900	3.57	3.57
0.12200	10.07	10.07	0.15000	6.77	6.77	0.17600	4.74	4.74
0.12800	12.66	12.66	0.15700	8.40	8.40	0.18500	6.04	6.04
0.13700	15.80	15.80	0.16800	10.51	10.51	0.19700	7.47	7.47
0.14700	18.49	18.49	0.18100	12.45	12.45	0.21300	8.99	8.99
0.16300	21.60	21.60	0.20000	14.55	14.55	0.23600	10.63	10.63
0.18400	24.27	24.27	0.22600	16.53	16.53	0.26600	12.17	12.17
0.21100	26.36	26.43	0.25800	18.14	18.20	0.30400	13.53	13.58
0.24300	27.83	28.32	0.29700	19.43	19.80	0.35000	14.69	14.99
0.28500	28.95	30.25	0.34900	20.58	21.54	0.41100	15.79	16.55
0.33800	29.77	32.19	0.41400	21.55	23.35	0.48700	16.78	18.21
0.40100	30.38	34.14	0.49100	22.38	25.20	0.57800	17.67	19.95
0.47500	30.89	36.16	0.58200	23.11	27.16	0.68500	18.47	21.78
0.54900	31.29	38.01	0.67200	23.69	28.92	0.79100	19.09	23.43
0.63400	31.67	40.00	0.77600	24.23	30.81	0.91300	19.67	25.19
0.73900	32.07	42.30	0.90500	24.78	32.99	1.06000	20.23	27.14
0.89800	32.56	45.55	1.09000	25.38	35.84	1.29000	20.89	29.90
1.05000	32.94	48.42	1.29000	25.87	38.65	1.52000	21.37	32.38
1.58000	33.82	57.05	1.94000	26.84	46.29	2.28000	22.29	39.14
2.11000	34.30	64.10	2.58000	27.32	52.28	3.04000	22.73	44.42
3.17000	34.76	75.13	3.88000	27.76	61.62	4.56000	23.13	52.43
5.28000	35.06	90.38	6.47000	28.03	74.26	7.61000	23.36	63.21
10.50000	35.16	112.51	12.90000	28.11	92.36	15.20000	23.42	78.51
21.10000	35.13	136.02	25.80000	28.09	111.19	30.40000	23.41	94.28
31.70000	35.11	149.98	38.80000	28.08	122.43	45.60000	23.40	103.62
52.80000	35.09	167.63	64.70000	28.07	136.62	76.10000	23.39	115.49
73.90000	35.08	179.32	90.50000	28.06	145.97	106.00000	23.39	123.19
105.00000	35.08	191.56	129.00000	28.06	155.87	152.00000	23.38	131.58
211.00000	35.07	215.95	258.00000	28.06	175.26	304.00000	23.38	147.75

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN O
Z= 8 A= 16.000

TD=28.0 EV ET=0.174361 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.17600	0.27	0.27
0.17700	0.43	0.43
0.18100	1.03	1.03
0.18600	1.73	1.73
0.19300	2.62	2.62
0.20200	3.61	3.61
0.21200	4.57	4.57
0.22600	5.69	5.69
0.24400	6.86	6.86
0.27000	8.17	8.17
0.30500	9.47	9.47
0.34800	10.64	10.69
0.40100	11.70	11.95
0.47000	12.73	13.36
0.55700	13.70	14.89
0.66200	14.60	16.53
0.78400	15.39	18.23
0.90600	16.02	19.77
1.04000	16.58	21.34
1.22000	17.16	23.26
1.48000	17.78	25.75
1.74000	18.23	27.97
2.61000	19.08	34.04
3.48000	19.48	38.73
5.23000	19.83	45.80
8.71000	20.02	55.14
17.40000	20.07	68.36
34.80000	20.06	81.93
52.30000	20.05	89.99
87.10000	20.05	100.13
122.00000	20.04	106.85
174.00000	20.04	113.94

TD=32.0 EV ET=0.195767 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.19700	0.14	0.14
0.19900	0.36	0.36
0.20300	0.78	0.78
0.20900	1.37	1.37
0.21700	2.07	2.07
0.22700	2.85	2.85
0.23800	3.59	3.59
0.25400	4.51	4.51
0.27400	5.45	5.45
0.30300	6.54	6.54
0.34200	7.65	7.65
0.39100	8.70	8.75
0.45000	9.67	9.89
0.52800	10.64	11.18
0.62600	11.58	12.61
0.74300	12.44	14.13
0.88000	13.22	15.71
1.01000	13.80	17.08
1.17000	14.37	18.63
1.37000	14.92	20.39
1.66000	15.50	22.66
1.95000	15.91	24.68
2.93000	16.70	30.20
3.91000	17.05	34.42
5.87000	17.35	40.70
9.78000	17.52	48.98
19.50000	17.56	60.58
39.10000	17.55	72.53
58.70000	17.55	79.58
97.80000	17.54	88.47
137.00000	17.54	94.35
195.00000	17.54	100.52

TD=36.0 EV ET=0.216543 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.21800	0.12	0.12
0.22000	0.28	0.28
0.22500	0.66	0.66
0.23100	1.08	1.08
0.24000	1.66	1.66
0.25100	2.29	2.29
0.26400	2.94	2.94
0.28100	3.67	3.67
0.30300	4.47	4.47
0.33500	5.39	5.39
0.37800	6.37	6.37
0.43300	7.33	7.38
0.49800	8.22	8.41
0.58400	9.14	9.61
0.69200	10.03	10.94
0.82200	10.86	12.36
0.97400	11.61	13.85
1.12000	12.17	15.15
1.29000	12.68	16.53
1.51000	13.20	18.16
1.84000	13.76	20.32
2.16000	14.14	22.17
3.24000	14.85	27.19
4.33000	15.17	31.04
6.49000	15.43	36.67
10.80000	15.57	44.08
21.60000	15.61	54.48
43.30000	15.60	65.12
64.90000	15.60	71.37
108.00000	15.59	79.26
151.00000	15.59	84.46
216.00000	15.59	90.02

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN O
Z= 8 A= 16.000

TD=40.0 EV ET=0.236743 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.23900	0.14	0.14
0.24100	0.26	0.26
0.24600	0.54	0.54
0.25300	0.92	0.92
0.26200	1.36	1.36
0.27400	1.88	1.88
0.28800	2.42	2.42
0.30700	3.06	3.06
0.33100	3.74	3.74
0.36600	4.56	4.56
0.41400	5.45	5.45
0.47300	6.31	6.35
0.54400	7.13	7.31
0.63900	8.01	8.44
0.75700	8.86	9.68
0.89900	9.65	11.01
1.06000	10.34	12.37
1.23000	10.90	13.66
1.42000	11.40	14.98
1.65000	11.86	16.42
2.01000	12.37	18.43
2.36000	12.73	20.14
3.55000	13.38	24.79
4.73000	13.66	28.27
7.10000	13.89	33.42
11.80000	14.02	40.11
23.60000	14.05	49.50
47.30000	14.04	59.10
71.00000	14.04	64.74
118.00000	14.03	71.83
165.00000	14.03	76.51

TD=44.0 EV ET=0.256411 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.25800	0.08	0.08
0.26100	0.21	0.21
0.26600	0.44	0.44
0.27400	0.77	0.77
0.28400	1.15	1.15
0.29700	1.59	1.59
0.31200	2.05	2.05
0.33300	2.62	2.62
0.35800	3.19	3.19
0.39700	3.94	3.94
0.44800	4.73	4.73
0.51200	5.53	5.56
0.58900	6.30	6.46
0.69200	7.13	7.52
0.82000	7.93	8.69
0.97400	8.69	9.94
1.15000	9.35	11.23
1.33000	9.87	12.42
1.53000	10.32	13.62
1.79000	10.77	15.03
2.17000	11.24	16.86
2.56000	11.58	18.49
3.84000	12.17	22.77
5.12000	12.43	25.98
7.69000	12.64	30.71
12.80000	12.75	36.84
25.60000	12.77	45.41
51.20000	12.76	54.12
76.90000	12.76	59.26
128.00000	12.76	65.72
179.00000	12.76	69.99

TD=48.0 EV ET=0.275587 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.27800	0.09	0.09
0.28100	0.20	0.20
0.28600	0.37	0.37
0.29400	0.64	0.64
0.30500	0.97	0.97
0.31900	1.36	1.36
0.33600	1.78	1.78
0.35800	2.26	2.26
0.38500	2.78	2.78
0.42700	3.45	3.45
0.48200	4.18	4.18
0.55100	4.92	4.96
0.63300	5.64	5.78
0.74400	6.43	6.78
0.88100	7.19	7.88
1.04000	7.88	9.03
1.24000	8.54	10.31
1.43000	9.03	11.41
1.65000	9.46	12.57
1.92000	9.87	13.85
2.34000	10.32	15.60
2.75000	10.62	17.10
4.13000	11.17	21.09
5.51000	11.40	24.07
8.26000	11.59	28.41
13.70000	11.68	34.02
27.50000	11.71	41.94
55.10000	11.70	49.95
82.60000	11.70	54.64
137.00000	11.69	60.53
192.00000	11.69	64.46

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN O
Z= 8 A= 16.000

TD=52.0 EV	ET=0.294307 MEV		TD=56.0 EV	ET=0.312601 MEV		TD=60.0 EV	ET=0.330498 MEV	
ENERGY(MEV)	PRIMARY	CASCADE	ENERGY(MEV)	PRIMARY	CASCADE	ENERGY(MEV)	PRIMARY	CASCADE
0.29700	0.08	0.08	0.31500	0.06	0.06	0.33300	0.05	0.05
0.30000	0.17	0.17	0.31800	0.13	0.13	0.33700	0.13	0.13
0.30600	0.34	0.34	0.32500	0.29	0.29	0.34300	0.25	0.25
0.31400	0.55	0.55	0.33400	0.49	0.49	0.35300	0.43	0.43
0.32600	0.85	0.85	0.34600	0.74	0.74	0.36600	0.66	0.66
0.34100	1.19	1.19	0.36200	1.04	1.04	0.38300	0.93	0.93
0.35900	1.56	1.56	0.38100	1.37	1.37	0.40300	1.22	1.22
0.38200	1.98	1.98	0.40600	1.76	1.76	0.42900	1.57	1.57
0.41200	2.46	2.46	0.43700	2.18	2.18	0.46200	1.96	1.96
0.45600	3.06	3.06	0.48400	2.74	2.74	0.51200	2.48	2.48
0.51500	3.73	3.73	0.54700	3.37	3.37	0.57800	3.07	3.07
0.58800	4.42	4.46	0.62500	4.02	4.06	0.66000	3.68	3.71
0.67600	5.11	5.24	0.71800	4.67	4.79	0.76000	4.30	4.42
0.79400	5.85	6.18	0.84400	5.38	5.69	0.89200	4.97	5.27
0.94100	6.58	7.23	1.00000	6.07	6.68	1.05000	5.61	6.17
1.11000	7.23	8.31	1.18000	6.7[illegible]	7.71	1.25000	6.24	7.20
1.32000	7.86	9.50	1.40000	7.28	8.83	1.48000	6.79	8.26
1.53000	8.33	10.58	1.62000	7.72	9.84	1.71000	7.20	9.21
1.76000	8.73	11.65	1.87000	8.11	10.88	1.98000	7.58	10.21
2.06000	9.13	12.90	2.18000	8.47	12.03	2.31000	7.92	11.31
2.50000	9.54	14.52	2.65000	8.86	13.56	2.80000	8.28	12.75
2.94000	9.82	15.93	3.12000	9.13	14.90	3.30000	8.53	14.01
4.41000	10.32	19.64	4.68000	9.59	18.39	4.95000	8.96	17.30
5.88000	10.53	22.41	6.25000	9.78	20.99	6.60000	9.14	19.73
8.82000	10.70	26.46	9.37000	9.94	24.76	9.91000	9.28	23.28
14.70000	10.79	31.70	15.60000	10.02	29.64	16.50000	9.35	27.85
29.40000	10.81	38.99	31.20000	10.03	36.41	33.00000	9.36	34.18
58.80000	10.80	46.37	62.50000	10.03	43.29	66.00000	9.36	40.59
88.20000	10.80	50.71	93.70000	10.03	47.32	99.10000	9.36	44.36
147.00000	10.79	56.20	156.00000	10.02	52.41	165.00000	9.35	49.11

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN O
Z= 8 A= 16.000

TD=64.0 EV	ET=0.348022 MEV		TD=68.0 EV	ET=0.365195 MEV		TD=72.0 EV	ET=0.382039 MEV	
ENERGY(MEV)	PRIMARY	CASCADE	ENERGY(MEV)	PRIMARY	CASCADE	ENERGY(MEV)	PRIMARY	CASCADE
0.35100	0.05	0.05	0.36800	0.04	0.04	0.38500	0.04	0.04
0.35400	0.10	0.10	0.37200	0.10	0.10	0.38900	0.09	0.09
0.36100	0.22	0.22	0.37900	0.20	0.20	0.39700	0.18	0.18
0.37200	0.39	0.39	0.39000	0.34	0.34	0.40800	0.31	0.31
0.38600	0.60	0.60	0.40500	0.54	0.54	0.42400	0.49	0.49
0.40300	0.83	0.83	0.42300	0.75	0.75	0.44300	0.68	0.68
0.42400	1.09	1.09	0.44500	0.99	0.99	0.46600	0.91	0.91
0.45200	1.42	1.42	0.47400	1.29	1.29	0.49600	1.18	1.18
0.48700	1.78	1.78	0.51100	1.63	1.63	0.53400	1.49	1.49
0.53900	2.26	2.26	0.56600	2.08	2.08	0.59200	1.92	1.92
0.60900	2.82	2.82	0.63900	2.60	2.60	0.66800	2.41	2.41
0.69600	3.40	3.43	0.73000	3.15	3.18	0.76400	2.95	2.98
0.80000	3.99	4.10	0.83900	3.72	3.82	0.87800	3.48	3.58
0.93900	4.63	4.90	0.98600	4.33	4.60	1.03000	4.07	4.32
1.11000	5.26	5.80	1.16000	4.92	5.42	1.22000	4.65	5.15
1.32000	5.85	6.77	1.38000	5.49	6.36	1.45000	5.19	6.04
1.56000	6.36	7.77	1.64000	5.99	7.35	1.71000	5.66	6.94
1.80000	6.76	8.67	1.89000	6.36	8.19	1.98000	6.02	7.78
2.08000	7.11	9.61	2.19000	6.70	9.11	2.29000	6.34	8.65
2.43000	7.43	10.66	2.55000	7.01	10.10	2.67000	6.63	9.59
2.95000	7.77	12.03	3.10000	7.33	11.41	3.24000	6.93	10.83
3.48000	8.01	13.24	3.65000	7.55	12.54	3.82000	7.13	11.92
5.22000	8.40	16.35	5.47000	7.92	15.48	5.73000	7.48	14.72
6.96000	8.57	18.64	7.30000	8.07	17.66	7.64000	7.63	16.78
10.40000	8.70	21.94	10.90000	8.19	20.77	11.40000	7.74	19.72
17.40000	8.77	26.28	18.20000	8.25	24.84	19.10000	7.79	23.60
34.80000	8.78	32.22	36.50000	8.26	30.46	38.20000	7.80	28.90
69.60000	8.77	38.23	73.00000	8.26	36.12	76.40000	7.80	34.24
104.00000	8.77	41.73	109.00000	8.26	39.41	114.00000	7.80	37.35
174.00000	8.77	46.22	182.00000	8.25	43.63	191.00000	7.80	41.35

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN O
Z= 8 A= 16.000

TD=76.0 EV ET=0.398570 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.40200	0.04	0.04
0.40600	0.08	0.08
0.41400	0.16	0.16
0.42600	0.29	0.29
0.44200	0.44	0.44
0.46200	0.62	0.62
0.48600	0.83	0.83
0.51800	1.09	1.09
0.55700	1.38	1.38
0.61700	1.78	1.78
0.69700	2.25	2.25
0.79700	2.76	2.79
0.91600	3.28	3.37
1.07000	3.83	4.06
1.27000	4.39	4.86
1.51000	4.91	5.72
1.79000	5.37	6.62
2.07000	5.71	7.41
2.39000	6.01	8.23
2.78000	6.28	9.13
3.38000	6.57	10.32
3.98000	6.77	11.35
5.97000	7.09	14.02
7.97000	7.23	15.99
11.90000	7.33	18.79
19.90000	7.38	22.45
39.80000	7.39	27.47
79.70000	7.39	32.55
119.00000	7.39	35.50
199.00000	7.38	39.28

TD=80.0 EV ET=0.414806 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.41800	0.03	0.03
0.42300	0.08	0.08
0.43100	0.15	0.15
0.44300	0.26	0.26
0.46000	0.40	0.40
0.48100	0.57	0.57
0.50600	0.77	0.77
0.53900	1.01	1.01
0.58000	1.28	1.28
0.64200	1.66	1.66
0.72500	2.11	2.11
0.82900	2.60	2.63
0.95400	3.10	3.19
1.11000	3.61	3.84
1.32000	4.16	4.62
1.57000	4.67	5.44
1.86000	5.10	6.30
2.15000	5.43	7.06
2.48000	5.71	7.84
2.90000	5.98	8.73
3.52000	6.25	9.86
4.14000	6.43	10.84
6.22000	6.74	13.40
8.29000	6.87	15.27
12.40000	6.97	17.94
20.70000	7.01	21.42
41.40000	7.02	26.19
82.90000	7.02	31.02
124.00000	7.02	33.83
207.00000	7.02	37.41

TD=84.0 EV ET=0.430763 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.43500	0.04	0.04
0.43900	0.07	0.07
0.44700	0.13	0.13
0.46000	0.24	0.24
0.47800	0.37	0.37
0.49900	0.53	0.53
0.52500	0.71	0.71
0.55900	0.93	0.93
0.60300	1.20	1.20
0.66700	1.56	1.56
0.75300	1.99	1.99
0.86100	2.46	2.48
0.99000	2.93	3.02
1.16000	3.45	3.67
1.37000	3.96	4.40
1.63000	4.45	5.20
1.93000	4.86	6.02
2.23000	5.18	6.75
2.58000	5.45	7.51
3.01000	5.70	8.35
3.66000	5.96	9.45
4.30000	6.13	10.38
6.46000	6.43	12.83
8.61000	6.55	14.61
12.90000	6.64	17.18
21.50000	6.68	20.48
43.00000	6.69	25.03
86.10000	6.68	29.63
129.00000	6.68	32.32
215.00000	6.68	35.72

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN O
Z= 8 A= 16.000

TD=88.0 EV ET=0.446454 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.45000	0.03	0.03
0.45500	0.06	0.06
0.46400	0.13	0.13
0.47700	0.22	0.22
0.49500	0.34	0.34
0.51700	0.49	0.49
0.54400	0.66	0.66
0.58000	0.87	0.87
0.62500	1.12	1.12
0.69200	1.47	1.47
0.78100	1.88	1.88
0.89200	2.33	2.35
1.02000	2.77	2.85
1.20000	3.28	3.50
1.42000	3.78	4.20
1.69000	4.25	4.97
2.00000	4.65	5.76
2.32000	4.95	6.49
2.67000	5.21	7.20
3.12000	5.45	8.01
3.79000	5.70	9.06
4.46000	5.86	9.97
6.69000	6.14	12.30
8.92000	6.25	14.01
13.30000	6.34	16.44
22.30000	6.38	19.63
44.60000	6.38	23.98
89.20000	6.38	28.36
133.00000	6.38	30.89
223.00000	6.38	34.18

TD=92.0 EV ET=0.461891 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.46600	0.03	0.03
0.47100	0.06	0.06
0.48000	0.12	0.12
0.49400	0.21	0.21
0.51200	0.32	0.32
0.53500	0.45	0.45
0.56300	0.61	0.61
0.60000	0.81	0.81
0.64600	1.05	1.05
0.71500	1.38	1.38
0.80800	1.78	1.78
0.92300	2.21	2.24
1.06000	2.65	2.74
1.24000	3.13	3.34
1.47000	3.62	4.03
1.75000	4.07	4.77
2.07000	4.45	5.53
2.40000	4.74	6.23
2.77000	4.99	6.93
3.23000	5.22	7.70
3.92000	5.46	8.71
4.61000	5.61	9.57
6.92000	5.87	11.82
9.23000	5.98	13.46
13.80000	6.06	15.80
23.00000	6.10	18.83
46.10000	6.11	23.00
92.30000	6.10	27.20
138.00000	6.10	29.64
230.00000	6.10	32.75

TD=96.0 EV ET=0.477087 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.48100	0.02	0.02
0.48600	0.05	0.05
0.49600	0.11	0.11
0.51000	0.19	0.19
0.52900	0.30	0.30
0.55300	0.43	0.43
0.58200	0.58	0.58
0.62000	0.77	0.77
0.66700	0.99	0.99
0.73900	1.31	1.31
0.83400	1.69	1.69
0.95400	2.11	2.14
1.09000	2.52	2.60
1.28000	3.00	3.19
1.52000	3.47	3.87
1.81000	3.90	4.59
2.14000	4.27	5.32
2.48000	4.55	5.99
2.86000	4.79	6.67
3.33000	5.01	7.40
4.05000	5.23	8.38
4.77000	5.38	9.23
7.15000	5.63	11.38
9.54000	5.73	12.96
14.30000	5.81	15.22
23.80000	5.85	18.11
47.70000	5.85	22.11
95.40000	5.85	26.13
143.00000	5.85	28.49
238.00000	5.85	31.46

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN MG
Z=12 A= 24.320

TD= 4.0 EV ET=0.042549 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.04290	10.24	10.24
0.04340	24.29	24.29
0.04420	45.51	45.51
0.04550	76.96	76.96
0.04720	113.08	113.08
0.04930	151.07	151.07
0.05190	189.79	189.79
0.05530	229.55	229.55
0.05950	265.93	265.93
0.06590	302.81	302.81
0.07440	330.28	330.28
0.08500	345.58	345.78
0.09780	350.10	354.48
0.11400	346.27	359.15
0.13600	335.26	360.35
0.16100	321.49	359.01
0.19100	306.54	356.55
0.22100	293.99	354.38
0.25500	282.41	352.70
0.29700	271.14	351.82
0.36100	258.55	352.60
0.42500	249.64	355.24
0.63800	233.21	370.96
0.85000	225.63	390.42
1.27000	218.86	429.05
2.12000	214.19	495.47
4.25000	211.07	608.43
8.50000	209.36	736.90
12.70000	208.77	815.41
21.20000	208.33	918.04
29.70000	208.16	986.52
42.50000	208.05	1059.85
85.00000	207.93	1202.59
170.00000	207.86	1346.01

TD= 8.0 EV ET=0.082054 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.08280	2.91	2.91
0.08360	5.93	5.93
0.08530	12.00	12.00
0.08770	19.83	19.83
0.09100	29.38	29.38
0.09510	39.56	39.56
0.10000	49.72	49.72
0.10600	59.80	59.80
0.11400	70.19	70.19
0.12700	81.92	81.92
0.14300	90.88	90.88
0.16400	97.55	97.72
0.18800	101.47	103.03
0.22100	103.86	108.26
0.26200	104.80	113.02
0.31100	104.89	117.53
0.36900	104.61	122.10
0.42600	104.31	126.20
0.49200	104.04	130.70
0.57400	103.85	136.04
0.69700	103.76	143.69
0.82000	103.80	150.97
1.23000	104.21	172.76
1.64000	104.56	191.32
2.46000	104.93	221.35
4.10000	105.06	264.36
8.20000	104.76	328.77
16.40000	104.35	397.09
24.60000	104.19	438.04
41.00000	104.07	490.20
57.40000	104.02	524.79
82.00000	103.99	561.57
164.00000	103.95	633.26
328.00000	103.92	705.13

TD=12.0 EV ET=0.119086 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.12000	1.13	1.13
0.12100	2.32	2.32
0.12300	4.62	4.62
0.12700	8.83	8.83
0.13200	13.49	13.49
0.13800	18.31	18.31
0.14500	23.07	23.07
0.15400	28.12	28.12
0.16500	33.42	33.42
0.18400	39.23	39.23
0.20800	44.48	44.48
0.23800	48.71	48.86
0.27300	51.89	52.82
0.32100	54.68	57.16
0.38100	56.92	61.59
0.45200	58.73	66.06
0.53500	60.27	70.68
0.61900	61.48	74.94
0.71400	62.57	79.40
0.83300	63.68	84.59
1.01000	64.93	91.66
1.19000	65.89	98.21
1.78000	67.76	116.36
2.38000	68.68	131.14
3.57000	69.44	153.73
5.95000	69.80	184.66
11.90000	69.71	229.33
23.80000	69.51	275.72
35.70000	69.42	303.29
59.50000	69.36	338.27
83.30000	69.34	361.41
119.00000	69.32	385.99
238.00000	69.29	433.86
476.00000	69.27	481.81

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN MG
Z=12 A= 24.320

TD=16.0 EV ET=0.154059 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.15500	0.52	0.52
0.15700	1.58	1.58
0.16000	3.10	3.10
0.16400	4.99	4.99
0.17100	7.94	7.94
0.17800	10.52	10.52
0.18700	13.39	13.39
0.20000	16.83	16.83
0.21500	20.01	20.01
0.23800	23.76	23.76
0.26900	27.40	27.40
0.30800	30.62	30.75
0.35400	33.32	33.99
0.41500	35.89	37.60
0.49200	38.24	41.48
0.58500	40.34	45.57
0.69300	42.19	49.79
0.80100	43.62	53.62
0.92400	44.92	57.64
1.07000	46.13	62.01
1.30000	47.54	68.24
1.54000	48.59	74.05
2.31000	50.47	89.33
3.08000	51.32	101.22
4.62000	51.99	119.17
7.70000	52.30	143.20
15.40000	52.24	177.34
30.80000	52.10	212.44
46.20000	52.05	233.21
77.00000	52.01	259.52
107.00000	52.00	276.52
154.00000	51.98	295.37

TD=20.0 EV ET=0.187283 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.18900	0.51	0.51
0.19100	1.08	1.08
0.19400	1.90	1.90
0.20000	3.43	3.43
0.20700	5.05	5.05
0.21700	7.10	7.10
0.22800	9.04	9.04
0.24300	11.30	11.30
0.26200	13.65	13.65
0.29000	16.39	16.39
0.32700	19.13	19.13
0.37400	21.74	21.85
0.43000	24.08	24.61
0.50500	26.46	27.78
0.59900	28.70	31.23
0.71100	30.73	34.85
0.84200	32.54	38.64
0.97300	33.94	42.06
1.12000	35.18	45.58
1.31000	36.41	49.72
1.59000	37.72	55.15
1.87000	38.64	59.97
2.80000	40.30	72.94
3.74000	41.02	82.96
5.61000	41.58	97.81
9.36000	41.82	117.47
18.70000	41.77	145.03
37.40000	41.67	173.25
56.10000	41.63	189.91
93.60000	41.61	211.05
131.00000	41.59	224.96
187.00000	41.59	239.70

TD=24.0 EV ET=0.218997 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.22100	0.36	0.36
0.22300	0.70	0.70
0.22700	1.37	1.37
0.23400	2.47	2.47
0.24300	3.74	3.74
0.25400	5.13	5.13
0.26700	6.58	6.58
0.28400	8.22	8.22
0.30500	10.00	10.00
0.33900	12.19	12.19
0.38300	14.47	14.47
0.43700	16.65	16.75
0.50300	18.74	19.17
0.59100	20.91	21.99
0.70000	22.97	25.06
0.83200	24.89	28.35
0.98500	26.58	31.76
1.13000	27.82	34.68
1.31000	29.02	37.99
1.53000	30.14	41.64
1.86000	31.33	46.49
2.18000	32.13	50.63
3.28000	33.59	62.03
4.37000	34.19	70.57
6.56000	34.65	83.23
10.90000	34.84	99.70
21.80000	34.80	122.87
43.70000	34.72	146.54
65.60000	34.69	160.48
109.00000	34.67	177.96
153.00000	34.66	189.66
218.00000	34.65	201.89

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN MG
Z=12 A= 24.320

TD=28.0 EV ET=0.249389 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.25100	0.19	0.19
0.25400	0.53	0.53
0.25900	1.08	1.08
0.26600	1.81	1.81
0.27600	2.76	2.76
0.28900	3.88	3.88
0.30400	5.02	5.02
0.32400	6.36	6.36
0.34900	7.79	7.79
0.38600	9.56	9.56
0.43600	11.50	11.50
0.49800	13.43	13.52
0.57300	15.30	15.67
0.67300	17.28	18.21
0.79800	19.20	21.00
0.94700	20.96	23.97
1.12000	22.51	27.04
1.29000	23.68	29.77
1.49000	24.75	32.68
1.74000	25.76	35.96
2.11000	26.81	40.24
2.49000	27.55	44.09
3.74000	28.81	54.12
4.98000	29.33	61.59
7.48000	29.71	72.63
12.40000	29.86	86.81
24.90000	29.82	106.88
49.80000	29.76	127.15
74.80000	29.73	139.13
124.00000	29.72	154.06
174.00000	29.71	164.09

TD=32.0 EV ET=0.278612 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.28100	0.19	0.19
0.28400	0.43	0.43
0.28900	0.82	0.82
0.29800	1.47	1.47
0.30900	2.21	2.21
0.32300	3.07	3.07
0.33900	3.96	3.96
0.36200	5.09	5.09
0.39000	6.29	6.29
0.43100	7.79	7.79
0.48700	9.50	9.50
0.55700	11.24	11.32
0.64000	12.92	13.25
0.75200	14.74	15.56
0.89100	16.51	18.11
1.05000	18.07	20.71
1.25000	19.56	23.63
1.44000	20.64	26.12
1.67000	21.64	28.85
1.95000	22.55	31.83
2.36000	23.48	35.66
2.78000	24.13	39.08
4.17000	25.23	48.03
5.57000	25.68	54.74
8.35000	26.00	64.46
13.90000	26.12	77.06
27.80000	26.09	94.59
55.70000	26.03	112.40
83.50000	26.01	122.84
139.00000	26.00	136.02
195.00000	25.99	144.79

TD=36.0 EV ET=0.306791 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.30900	0.13	0.13
0.31200	0.31	0.31
0.31900	0.70	0.70
0.32800	1.18	1.18
0.34000	1.78	1.78
0.35500	2.47	2.47
0.37400	3.27	3.27
0.39800	4.18	4.18
0.42900	5.22	5.22
0.47500	6.56	6.56
0.53500	8.06	8.06
0.61300	9.63	9.71
0.70500	11.19	11.48
0.82800	12.87	13.60
0.98100	14.51	15.95
1.16000	15.98	18.40
1.38000	17.35	21.08
1.59000	18.34	23.38
1.84000	19.24	25.85
2.14000	20.04	28.50
2.60000	20.90	32.07
3.06000	21.48	35.16
4.60000	22.46	43.30
6.13000	22.84	49.29
9.20000	23.12	58.03
15.30000	23.22	69.27
30.60000	23.18	84.89
61.30000	23.14	100.75
92.00000	23.12	110.06
153.00000	23.11	121.76
214.00000	23.11	129.49

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN MG
Z=12 A= 24.320

TD=40.0 EV ET=0.334032 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.33700	0.13	0.13
0.34000	0.26	0.26
0.34700	0.56	0.56
0.35700	0.97	0.97
0.37000	1.47	1.47
0.38700	2.08	2.08
0.40700	2.74	2.74
0.43400	3.55	3.55
0.46700	4.44	4.44
0.51700	5.63	5.63
0.58400	7.00	7.00
0.66800	8.44	8.52
0.76800	9.88	10.15
0.90100	11.42	12.10
1.06000	12.89	14.18
1.26000	14.31	16.52
1.50000	15.58	19.02
1.73000	16.50	21.16
2.00000	17.32	23.42
2.33000	18.06	25.89
2.83000	18.84	29.16
3.34000	19.37	32.05
5.01000	20.23	39.43
6.68000	20.57	44.89
10.00000	20.81	52.77
16.70000	20.89	63.01
33.40000	20.86	77.10
66.80000	20.82	91.35
100.00000	20.81	99.68
167.00000	20.80	110.30

TD=44.0 EV ET=0.360421 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.36400	0.12	0.12
0.36700	0.23	0.23
0.37400	0.46	0.46
0.38500	0.81	0.81
0.40000	1.27	1.27
0.41800	1.78	1.78
0.43900	2.34	2.34
0.46800	3.05	3.05
0.50400	3.85	3.85
0.55800	4.92	4.92
0.63000	6.17	6.17
0.72000	7.50	7.57
0.82800	8.84	9.08
0.97300	10.30	10.92
1.15000	11.70	12.92
1.36000	12.98	15.05
1.62000	14.17	17.38
1.87000	15.02	19.38
2.16000	15.77	21.47
2.52000	16.46	23.79
3.06000	17.16	26.81
3.60000	17.63	29.42
5.40000	18.41	36.21
7.20000	18.71	41.21
10.80000	18.93	48.44
18.00000	18.99	57.75
36.00000	18.96	70.58
72.00000	18.93	83.55
108.00000	18.92	91.17
180.00000	18.91	100.79

TD=48.0 EV ET=0.386034 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.38900	0.08	0.08
0.39300	0.19	0.19
0.40100	0.40	0.40
0.41300	0.71	0.71
0.42800	1.08	1.08
0.44700	1.52	1.52
0.47000	2.03	2.03
0.50100	2.66	2.66
0.54000	3.39	3.39
0.59800	4.37	4.37
0.67500	5.52	5.52
0.77200	6.76	6.83
0.88700	8.01	8.24
1.04000	9.36	9.93
1.23000	10.68	11.82
1.46000	11.91	13.85
1.73000	12.98	15.97
2.00000	13.78	17.86
2.31000	14.47	19.81
2.70000	15.11	21.99
3.28000	15.76	24.81
3.86000	16.19	27.24
5.79000	16.89	33.52
7.72000	17.16	38.14
11.50000	17.35	44.69
19.30000	17.41	53.36
38.60000	17.38	65.14
77.20000	17.35	77.03
115.00000	17.34	83.90
193.00000	17.33	92.84

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN MG
Z=12 A= 24.320

TD=52.0 EV ET=0.410936 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.41500	0.09	0.09
0.41900	0.18	0.18
0.42700	0.35	0.35
0.43900	0.60	0.60
0.45600	0.95	0.95
0.47600	1.33	1.33
0.50100	1.79	1.79
0.53400	2.36	2.36
0.57500	3.02	3.02
0.63600	3.92	3.92
0.71900	5.00	5.00
0.82100	6.15	6.21
0.94500	7.33	7.55
1.10000	8.55	9.07
1.31000	9.84	10.92
1.56000	11.01	12.87
1.84000	11.99	14.81
2.13000	12.74	16.60
2.46000	13.39	18.43
2.87000	13.97	20.44
3.49000	14.57	23.09
4.10000	14.96	25.33
6.16000	15.61	31.20
8.21000	15.85	35.48
12.30000	16.02	41.63
20.50000	16.07	49.55
41.00000	16.04	60.44
82.10000	16.02	71.44
123.00000	16.01	77.88
205.00000	16.00	86.02

TD=56.0 EV ET=0.435183 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.43900	0.07	0.07
0.44300	0.14	0.14
0.45200	0.30	0.30
0.46500	0.53	0.53
0.48300	0.84	0.84
0.50400	1.18	1.18
0.53000	1.59	1.59
0.56500	2.11	2.11
0.60900	2.72	2.72
0.67400	3.56	3.56
0.76100	4.56	4.56
0.87000	5.65	5.71
1.00000	6.75	6.96
1.17000	7.94	8.45
1.39000	9.15	10.17
1.65000	10.23	11.98
1.95000	11.15	13.83
2.26000	11.86	15.53
2.61000	12.46	17.25
3.04000	13.00	19.13
3.69000	13.55	21.59
4.35000	13.92	23.73
6.52000	14.50	29.19
8.70000	14.73	33.20
13.00000	14.88	38.90
21.70000	14.92	46.28
43.50000	14.90	56.44
87.00000	14.87	66.65
130.00000	14.86	72.58
217.00000	14.86	80.17

TD=60.0 EV ET=0.458823 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.46300	0.06	0.06
0.46700	0.12	0.12
0.47700	0.28	0.28
0.49000	0.47	0.47
0.50900	0.74	0.74
0.53200	1.06	1.06
0.55900	1.43	1.43
0.59600	1.91	1.91
0.64200	2.47	2.47
0.71100	3.26	3.26
0.80200	4.19	4.20
0.91700	5.22	5.28
1.05000	6.24	6.43
1.23000	7.37	7.85
1.46000	8.51	9.47
1.74000	9.55	11.23
2.06000	10.43	13.00
2.38000	11.09	14.57
2.75000	11.65	16.20
3.21000	12.16	18.00
3.89000	12.66	20.29
4.58000	13.00	22.30
6.88000	13.55	27.45
9.17000	13.75	31.19
13.70000	13.89	36.52
22.90000	13.93	43.45
45.80000	13.90	52.90
91.70000	13.88	62.45
137.00000	13.87	67.99
229.00000	13.86	75.09

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN MG
Z=12 A= 24.320

TD=64.0 EV ET=0.481901 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.48600	0.05	0.05
0.49100	0.12	0.12
0.50100	0.25	0.25
0.51500	0.42	0.42
0.53400	0.66	0.66
0.55900	0.96	0.96
0.58700	1.29	1.29
0.62600	1.74	1.74
0.67400	2.26	2.26
0.74600	2.99	2.99
0.84300	3.89	3.89
0.96300	4.86	4.91
1.10000	5.81	5.99
1.30000	6.94	7.41
1.54000	8.01	8.94
1.83000	8.98	10.58
2.16000	9.79	12.23
2.50000	10.41	13.74
2.89000	10.94	15.29
3.37000	11.42	16.98
4.09000	11.89	19.17
4.81000	12.20	21.05
7.22000	12.71	25.89
9.63000	12.90	29.42
14.40000	13.02	34.44
24.00000	13.06	40.91
48.10000	13.03	49.81
96.30000	13.01	58.76
144.00000	13.00	63.97

TD=68.0 EV ET=0.504455 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.50900	0.05	0.05
0.51400	0.11	0.11
0.52400	0.22	0.22
0.53900	0.38	0.38
0.55900	0.59	0.59
0.58500	0.87	0.87
0.61500	1.18	1.18
0.65500	1.59	1.59
0.70600	2.09	2.09
0.78100	2.78	2.78
0.88200	3.62	3.62
1.00000	4.49	4.54
1.16000	5.50	5.68
1.36000	6.53	6.97
1.61000	7.53	8.42
1.91000	8.45	9.97
2.27000	9.25	11.61
2.62000	9.82	13.02
3.02000	10.31	14.46
3.53000	10.76	16.09
4.28000	11.21	18.15
5.04000	11.50	19.94
7.56000	11.97	24.52
10.00000	12.14	27.76
15.10000	12.26	32.61
25.20000	12.29	38.71
50.40000	12.27	47.07
100.00000	12.25	55.39
151.00000	12.24	60.41

TD=72.0 EV ET=0.526518 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.53100	0.04	0.04
0.53700	0.10	0.10
0.54700	0.19	0.19
0.56300	0.35	0.35
0.58400	0.55	0.55
0.61000	0.79	0.79
0.64200	1.09	1.09
0.68400	1.47	1.47
0.73700	1.94	1.94
0.81500	2.59	2.59
0.92100	3.39	3.40
1.05000	4.26	4.31
1.21000	5.18	5.35
1.42000	6.16	6.59
1.68000	7.12	7.97
2.00000	8.00	9.48
2.36000	8.74	10.98
2.73000	9.29	12.35
3.15000	9.76	13.73
3.68000	10.18	15.27
4.47000	10.60	17.25
5.26000	10.87	18.95
7.89000	11.31	23.28
10.50000	11.47	26.42
15.70000	11.58	30.90
26.30000	11.60	36.72
52.60000	11.58	44.62
105.00000	11.56	52.54
157.00000	11.56	57.17

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN MG
Z=12 A= 24.320

TD=76.0 EV ET=0.548122 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.55300	0.04	0.04
0.55900	0.09	0.09
0.57000	0.18	0.18
0.58600	0.32	0.32
0.60800	0.50	0.50
0.63500	0.73	0.73
0.66800	1.00	1.00
0.71200	1.36	1.36
0.76700	1.80	1.80
0.84900	2.42	2.42
0.95900	3.19	3.19
1.09000	4.00	4.05
1.26000	4.90	5.06
1.47000	5.81	6.21
1.75000	6.76	7.58
2.08000	7.59	9.01
2.46000	8.30	10.46
2.85000	8.83	11.78
3.28000	9.26	13.08
3.83000	9.66	14.54
4.65000	10.05	16.43
5.48000	10.31	18.05
8.22000	10.72	22.18
10.90000	10.87	25.12
16.40000	10.97	29.44
27.40000	10.99	34.93
54.80000	10.97	42.42
109.00000	10.96	49.89
164.00000	10.95	54.34

TD=80.0 EV ET=0.569294 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.57400	0.03	0.03
0.58000	0.08	0.08
0.59200	0.17	0.17
0.60900	0.29	0.29
0.63100	0.46	0.46
0.66000	0.67	0.67
0.69400	0.93	0.93
0.74000	1.27	1.27
0.79700	1.69	1.69
0.88200	2.28	2.28
0.99600	3.01	3.02
1.13000	3.78	3.82
1.30000	4.61	4.76
1.53000	5.53	5.92
1.82000	6.43	7.23
2.16000	7.22	8.59
2.56000	7.90	10.00
2.96000	8.40	11.25
3.41000	8.81	12.50
3.98000	9.19	13.89
4.83000	9.56	15.69
5.69000	9.81	17.24
8.53000	10.19	21.16
11.30000	10.33	23.95
17.00000	10.42	28.06
28.40000	10.44	33.28
56.90000	10.42	40.42
113.00000	10.41	47.50
170.00000	10.40	51.73

TD=84.0 EV ET=0.590059 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.59500	0.03	0.03
0.60100	0.07	0.07
0.61300	0.15	0.15
0.63100	0.27	0.27
0.65400	0.42	0.42
0.68400	0.63	0.63
0.71900	0.86	0.86
0.76700	1.19	1.19
0.82600	1.59	1.59
0.91400	2.15	2.15
1.03000	2.84	2.84
1.18000	3.63	3.68
1.35000	4.40	4.55
1.59000	5.28	5.67
1.88000	6.12	6.88
2.24000	6.89	8.22
2.65000	7.54	9.56
3.06000	8.01	10.74
3.54000	8.41	11.97
4.13000	8.77	13.31
5.01000	9.12	15.02
5.90000	9.35	16.50
8.85000	9.71	20.26
11.80000	9.84	22.98
17.70000	9.93	26.87
29.50000	9.95	31.82
59.00000	9.93	38.60
118.00000	9.91	45.43
177.00000	9.91	49.43

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN MG
Z=12 A= 24.320

TD=88.0 EV ET=0.610440 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.61600	0.03	0.03
0.62200	0.07	0.07
0.63400	0.14	0.14
0.65300	0.25	0.25
0.67700	0.39	0.39
0.70800	0.58	0.58
0.74400	0.81	0.81
0.79300	1.12	1.12
0.85400	1.49	1.49
0.94600	2.04	2.04
1.06000	2.67	2.67
1.22000	3.45	3.50
1.40000	4.21	4.36
1.64000	5.03	5.40
1.95000	5.86	6.61
2.31000	6.58	7.85
2.74000	7.20	9.16
3.17000	7.66	10.31
3.66000	8.04	11.48
4.27000	8.38	12.76
5.18000	8.71	14.40
6.10000	8.93	15.82
9.15000	9.27	19.41
12.20000	9.40	22.02
18.30000	9.48	25.73
30.50000	9.49	30.47
61.00000	9.48	36.94
122.00000	9.46	43.45
183.00000	9.46	47.27

TD=92.0 EV ET=0.630457 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.63600	0.03	0.03
0.64300	0.06	0.06
0.65500	0.13	0.13
0.67400	0.23	0.23
0.69900	0.37	0.37
0.73100	0.55	0.55
0.76900	0.76	0.76
0.81900	1.05	1.05
0.88200	1.41	1.41
0.97700	1.94	1.94
1.10000	2.57	2.57
1.26000	3.30	3.34
1.45000	4.04	4.19
1.70000	4.84	5.20
2.01000	5.61	6.33
2.39000	6.31	7.55
2.83000	6.90	8.79
3.27000	7.33	9.89
3.78000	7.70	11.03
4.41000	8.02	12.26
5.35000	8.34	13.83
6.30000	8.55	15.19
9.45000	8.87	18.64
12.60000	8.99	21.14
18.90000	9.06	24.70
31.50000	9.08	29.23
63.00000	9.06	35.42
126.00000	9.05	41.65
189.00000	9.05	45.31

TD=96.0 EV ET=0.650128 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.65600	0.03	0.03
0.66300	0.06	0.06
0.67600	0.12	0.12
0.69500	0.21	0.21
0.72100	0.34	0.34
0.75400	0.51	0.51
0.79300	0.72	0.72
0.84500	1.00	1.00
0.91000	1.34	1.34
1.00000	1.81	1.81
1.13000	2.43	2.43
1.30000	3.16	3.20
1.49000	3.85	3.99
1.75000	4.63	4.98
2.08000	5.40	6.10
2.47000	6.07	7.28
2.92000	6.63	8.47
3.38000	7.05	9.54
3.90000	7.39	10.61
4.55000	7.70	11.80
5.52000	8.00	13.32
6.50000	8.20	14.62
9.75000	8.51	17.94
13.00000	8.62	20.33
19.50000	8.69	23.75
32.50000	8.70	28.09
65.00000	8.69	34.03
130.00000	8.67	40.00
195.00000	8.67	43.51

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN AL
Z=13 A= 26.980

TD= 4.0 EV ET=0.047006 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.04740	9.99	9.99
0.04790	22.23	22.23
0.04880	43.05	43.05
0.05020	72.63	72.63
0.05210	107.94	107.94
0.05450	145.81	145.81
0.05730	182.23	182.23
0.06110	221.17	221.17
0.06580	256.88	256.88
0.07280	292.50	292.50
0.08220	319.81	319.81
0.09400	335.65	335.91
0.10800	341.15	345.53
0.12600	338.83	351.63
0.15000	329.96	354.66
0.17800	318.07	355.33
0.21100	305.21	355.04
0.24400	294.37	354.82
0.28200	284.21	355.12
0.32900	274.37	356.45
0.39900	263.67	360.09
0.47000	256.02	365.23
0.70500	242.16	387.27
0.94000	235.82	411.40
1.41000	230.14	456.98
2.35000	226.20	531.28
4.70000	223.30	653.96
9.40000	221.54	791.71
14.10000	220.92	876.20
23.50000	220.45	984.91
32.90000	220.28	1057.43
47.00000	220.16	1134.79
94.00000	220.02	1285.97
188.00000	219.94	1437.79

TD= 8.0 EV ET=0.090349 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.09120	2.90	2.90
0.09210	5.87	5.87
0.09390	11.49	11.49
0.09660	19.21	19.21
0.10000	27.87	27.87
0.10400	36.75	36.75
0.11000	47.91	47.91
0.11700	58.32	58.32
0.12600	68.63	68.63
0.14000	79.95	79.95
0.15800	89.18	89.18
0.18000	95.89	96.07
0.20700	100.47	102.07
0.24300	103.58	108.00
0.28900	105.37	113.75
0.34300	106.29	119.23
0.40600	106.81	124.76
0.46900	107.14	129.81
0.54200	107.45	135.29
0.63200	107.81	141.68
0.76700	108.31	150.70
0.90300	108.78	159.21
1.35000	109.90	183.82
1.80000	110.55	204.51
2.71000	111.11	237.82
4.51000	111.29	284.30
9.03000	110.92	353.42
18.00000	110.45	425.78
27.10000	110.27	469.63
45.10000	110.13	524.77
63.20000	110.08	561.52
90.30000	110.04	600.48
180.00000	109.99	676.01
361.00000	109.95	752.37

TD=12.0 EV ET=0.130772 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.13200	1.33	1.33
0.13300	2.37	2.37
0.13600	5.36	5.36
0.13900	8.13	8.13
0.14500	13.09	13.09
0.15100	17.39	17.39
0.15900	22.29	22.29
0.17000	27.79	27.79
0.18300	32.92	32.92
0.20200	38.54	38.54
0.22800	43.91	43.91
0.26100	48.48	48.65
0.30000	52.10	53.07
0.35300	55.39	57.96
0.41800	58.13	62.94
0.49600	60.46	68.08
0.58800	62.50	73.46
0.68000	64.07	78.34
0.78400	65.49	83.43
0.91500	66.90	89.34
1.11000	68.47	97.36
1.30000	69.59	104.43
1.96000	71.83	124.93
2.61000	72.84	140.88
3.92000	73.65	165.46
6.53000	73.97	198.65
13.00000	73.81	245.97
26.10000	73.56	295.51
39.20000	73.47	324.82
65.30000	73.40	361.85
91.50000	73.37	386.42
130.00000	73.35	412.04
261.00000	73.32	462.99
523.00000	73.29	513.86

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN AL
Z=13 A= 26.980

TD=16.0 EV ET=0.168795 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.17000	0.58	0.58
0.17200	1.52	1.52
0.17500	2.87	2.87
0.18000	4.95	4.95
0.18700	7.58	7.58
0.19500	10.22	10.22
0.20500	13.09	13.09
0.21900	16.45	16.45
0.23600	19.76	19.76
0.26100	23.55	23.55
0.29500	27.36	27.36
0.33700	30.78	30.92
0.38800	33.83	34.54
0.45500	36.77	38.56
0.54000	39.53	42.95
0.64100	41.99	47.51
0.75900	44.16	52.27
0.87700	45.85	56.57
1.01000	47.34	61.02
1.18000	48.82	66.21
1.43000	50.40	73.05
1.68000	51.52	79.15
2.53000	53.60	96.04
3.37000	54.48	108.90
5.06000	55.16	128.28
8.43000	55.42	153.97
16.80000	55.31	190.11
33.70000	55.15	227.51
50.60000	55.09	249.57
84.30000	55.04	277.42
118.00000	55.02	295.82
168.00000	55.01	315.17

TD=20.0 EV ET=0.204801 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.20600	0.31	0.31
0.20800	0.83	0.83
0.21200	1.81	1.81
0.21900	3.39	3.39
0.22700	5.04	5.04
0.23700	6.87	6.87
0.24900	8.81	8.81
0.26600	11.15	11.15
0.28600	13.45	13.45
0.31700	16.33	16.33
0.35800	19.27	19.27
0.40900	22.07	22.19
0.47100	24.69	25.25
0.55200	27.34	28.72
0.65500	29.90	32.58
0.77800	32.23	36.65
0.92100	34.28	40.86
1.06000	35.83	44.57
1.22000	37.22	48.46
1.43000	38.62	53.10
1.74000	40.08	59.16
2.04000	41.06	64.34
3.07000	42.84	78.62
4.09000	43.57	89.35
6.14000	44.12	105.31
10.20000	44.32	126.12
20.40000	44.23	155.46
40.90000	44.10	185.49
61.40000	44.06	203.18
102.00000	44.03	225.37
143.00000	44.02	240.17
204.00000	44.00	255.74

TD=24.0 EV ET=0.239081 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.24100	0.30	0.30
0.24300	0.61	0.61
0.24800	1.36	1.36
0.25500	2.33	2.33
0.26500	3.61	3.61
0.27700	4.99	4.99
0.29100	6.42	6.42
0.31000	8.12	8.12
0.33400	9.95	9.95
0.37000	12.22	12.22
0.41800	14.65	14.65
0.47800	17.06	17.17
0.54900	19.33	19.79
0.64500	21.75	22.90
0.76500	24.09	26.33
0.90800	26.23	29.96
1.07000	28.07	33.63
1.24000	29.55	37.10
1.43000	30.83	40.62
1.67000	32.05	44.63
2.03000	33.33	49.94
2.39000	34.21	54.58
3.58000	35.71	66.80
4.78000	36.33	76.06
7.17000	36.77	89.60
11.90000	36.92	107.12
23.90000	36.84	131.87
47.80000	36.75	156.88
71.70000	36.71	171.61
119.00000	36.69	190.09
167.00000	36.68	202.46
239.00000	36.67	215.57

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN AL
Z=13 A= 26.980

TD=28.0 EV ET=0.271861 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.27400	0.22	0.22
0.27700	0.53	0.53
0.28200	1.02	1.02
0.29000	1.76	1.76
0.30100	2.71	2.71
0.31500	3.80	3.80
0.33100	4.93	4.93
0.35300	6.30	6.30
0.38000	7.76	7.76
0.42100	9.66	9.66
0.47500	11.71	11.71
0.54300	13.82	13.92
0.62500	15.89	16.29
0.73400	18.08	19.08
0.86900	20.20	22.14
1.03000	22.14	25.40
1.22000	23.88	28.82
1.41000	25.20	31.89
1.63000	26.37	35.11
1.90000	27.44	38.66
2.31000	28.58	43.39
2.71000	29.33	47.42
4.07000	30.64	58.25
5.43000	31.15	66.32
8.15000	31.52	78.10
13.50000	31.64	93.18
27.10000	31.57	114.47
54.30000	31.49	136.01
81.50000	31.47	148.67
135.00000	31.45	164.46
190.00000	31.44	175.16

TD=32.0 EV ET=0.303322 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.30600	0.19	0.19
0.30900	0.41	0.41
0.31500	0.82	0.82
0.32400	1.41	1.41
0.33600	2.14	2.14
0.35100	2.99	2.99
0.37000	3.96	3.96
0.39400	5.07	5.07
0.42400	6.30	6.30
0.47000	7.93	7.93
0.53000	9.72	9.72
0.60600	11.61	11.70
0.69700	13.48	13.83
0.81800	15.48	16.36
0.97000	17.44	19.18
1.15000	19.23	22.15
1.36000	20.80	25.24
1.57000	21.99	28.02
1.81000	23.03	30.88
2.12000	24.03	34.19
2.57000	25.03	38.39
3.03000	25.71	42.12
4.54000	26.84	51.73
6.06000	27.28	58.91
9.09000	27.59	69.30
15.10000	27.68	82.65
30.30000	27.62	101.34
60.60000	27.55	120.16
90.90000	27.53	131.24
151.00000	27.51	145.13
212.00000	27.51	154.43

TD=36.0 EV ET=0.333613 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.33600	0.13	0.13
0.34000	0.33	0.33
0.34500	0.64	0.64
0.35600	1.12	1.12
0.37000	1.76	1.76
0.38600	2.44	2.44
0.40700	3.26	3.26
0.43300	4.18	4.18
0.46700	5.28	5.28
0.51700	6.69	6.69
0.58300	8.29	8.30
0.66700	10.02	10.10
0.76700	11.72	12.04
0.90000	13.56	14.36
1.06000	15.31	16.85
1.26000	16.98	19.62
1.50000	18.48	22.57
1.73000	19.56	25.10
2.00000	20.52	27.77
2.33000	21.38	30.69
2.83000	22.29	34.55
3.33000	22.89	37.90
5.00000	23.88	46.62
6.67000	24.27	53.06
10.00000	24.53	62.36
16.60000	24.60	74.26
33.30000	24.54	90.91
66.70000	24.49	107.70
100.00000	24.47	117.54
166.00000	24.46	129.88
233.00000	24.45	138.14

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN AL
Z=13 A= 26.980

TD=40.0 EV ET=0.362854 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.36600	0.13	0.13
0.37000	0.28	0.28
0.37700	0.55	0.55
0.38800	0.96	0.96
0.40200	1.45	1.45
0.42000	2.04	2.04
0.44200	2.72	2.72
0.47100	3.55	3.55
0.50700	4.48	4.48
0.56200	5.76	5.76
0.63400	7.22	7.23
0.72500	8.79	8.88
0.83400	10.37	10.67
0.97900	12.08	12.81
1.16000	13.76	15.21
1.37000	15.24	17.68
1.63000	16.62	20.40
1.88000	17.61	22.74
2.17000	18.48	25.17
2.53000	19.27	27.87
3.08000	20.10	31.45
3.62000	20.63	34.49
5.44000	21.52	42.45
7.25000	21.85	48.28
10.80000	22.08	56.57
18.10000	22.14	67.52
36.20000	22.09	82.46
72.50000	22.04	97.59
108.00000	22.02	106.31
181.00000	22.01	117.63

TD=44.0 EV ET=0.391148 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.39500	0.12	0.12
0.39800	0.21	0.21
0.40600	0.45	0.45
0.41800	0.80	0.80
0.43400	1.25	1.25
0.45300	1.75	1.75
0.47700	2.35	2.35
0.50800	3.07	3.07
0.54700	3.91	3.91
0.60600	5.06	5.06
0.68400	6.40	6.41
0.78200	7.85	7.93
0.89900	9.31	9.59
1.05000	10.86	11.52
1.25000	12.46	13.81
1.48000	13.86	16.15
1.76000	15.13	18.67
2.03000	16.04	20.84
2.34000	16.83	23.08
2.73000	17.56	25.59
3.32000	18.30	28.88
3.91000	18.79	31.71
5.86000	19.58	38.98
7.82000	19.88	44.34
11.70000	20.07	51.99
19.50000	20.12	61.88
39.10000	20.08	75.53
78.20000	20.03	89.27
117.00000	20.02	97.28
195.00000	20.01	107.47

TD=48.0 EV ET=0.418581 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.42200	0.08	0.08
0.42600	0.18	0.18
0.43500	0.40	0.40
0.44700	0.68	0.68
0.46400	1.06	1.06
0.48500	1.52	1.52
0.51000	2.03	2.03
0.54400	2.70	2.70
0.58600	3.46	3.46
0.64800	4.50	4.50
0.73200	5.75	5.75
0.83700	7.10	7.17
0.96200	8.46	8.71
1.13000	9.95	10.59
1.33000	11.36	12.59
1.59000	12.74	14.91
1.88000	13.88	17.19
2.17000	14.73	19.23
2.51000	15.47	21.36
2.93000	16.14	23.70
3.55000	16.80	26.70
4.18000	17.25	29.32
6.27000	17.96	36.06
8.37000	18.23	41.00
12.50000	18.40	48.02
20.90000	18.44	57.16
41.80000	18.40	69.65
83.70000	18.36	82.27
125.00000	18.35	89.59
209.00000	18.34	98.98

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN AL
Z=13 A= 26.980

TD=52.0 EV ET=0.445227 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.44900	0.08	0.08
0.45400	0.17	0.17
0.46300	0.35	0.35
0.47600	0.60	0.60
0.49400	0.94	0.94
0.51600	1.33	1.33
0.54300	1.80	1.80
0.57800	2.39	2.39
0.62300	3.09	3.09
0.69000	4.06	4.06
0.77900	5.22	5.22
0.89000	6.47	6.54
1.02000	7.73	7.96
1.20000	9.15	9.74
1.42000	10.50	11.69
1.69000	11.77	13.81
2.00000	12.83	15.96
2.31000	13.62	17.88
2.67000	14.31	19.87
3.11000	14.92	22.03
3.78000	15.54	24.87
4.45000	15.95	27.31
6.67000	16.59	33.56
8.90000	16.84	38.15
13.30000	16.99	44.65
22.20000	17.02	53.08
44.50000	16.98	64.66
89.00000	16.95	76.30
133.00000	16.94	83.06
222.00000	16.93	91.71

TD=56.0 EV ET=0.471151 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.47500	0.06	0.06
0.48000	0.15	0.15
0.48900	0.29	0.29
0.50400	0.53	0.53
0.52200	0.81	0.81
0.54600	1.18	1.18
0.57400	1.60	1.60
0.61200	2.15	2.15
0.65900	2.79	2.79
0.73000	3.69	3.69
0.82400	4.77	4.78
0.94200	5.96	6.02
1.08000	7.14	7.36
1.27000	8.48	9.04
1.50000	9.74	10.86
1.79000	10.94	12.89
2.12000	11.95	14.93
2.44000	12.67	16.69
2.82000	13.31	18.56
3.29000	13.88	20.61
4.00000	14.45	23.27
4.71000	14.83	25.56
7.06000	15.42	31.40
9.42000	15.64	35.68
14.10000	15.78	41.76
23.50000	15.81	49.58
47.10000	15.77	60.34
94.20000	15.74	71.15
141.00000	15.73	77.46
235.00000	15.72	85.47

TD=60.0 EV ET=0.496408 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.50100	0.06	0.06
0.50600	0.13	0.13
0.51600	0.27	0.27
0.53100	0.47	0.47
0.55100	0.74	0.74
0.57500	1.06	1.06
0.60500	1.44	1.44
0.64500	1.94	1.94
0.69400	2.53	2.53
0.76900	3.38	3.38
0.86800	4.40	4.40
0.99200	5.52	5.58
1.14000	6.65	6.87
1.34000	7.91	8.45
1.58000	9.10	10.16
1.88000	10.21	12.05
2.23000	11.16	13.99
2.58000	11.86	15.72
2.97000	12.44	17.43
3.47000	12.98	19.38
4.21000	13.51	21.87
4.96000	13.86	24.02
7.44000	14.40	29.51
9.92000	14.60	33.51
14.80000	14.73	39.16
24.80000	14.75	46.54
49.60000	14.72	56.56
99.20000	14.69	66.66
148.00000	14.68	72.50
248.00000	14.67	80.05

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN AL
Z=13 A= 26.980

TD=64.0 EV ET=0.521047 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.52600	0.06	0.06
0.53100	0.12	0.12
0.54100	0.23	0.23
0.55700	0.42	0.42
0.57800	0.66	0.66
0.60400	0.96	0.96
0.63500	1.31	1.31
0.67700	1.77	1.77
0.72900	2.33	2.33
0.80700	3.12	3.12
0.91100	4.08	4.09
1.04000	5.13	5.19
1.19000	6.18	6.38
1.40000	7.38	7.89
1.66000	8.54	9.56
1.97000	9.58	11.33
2.34000	10.49	13.19
2.70000	11.13	14.79
3.12000	11.69	16.46
3.64000	12.19	18.28
4.42000	12.68	20.64
5.21000	13.01	22.68
7.81000	13.51	27.84
10.40000	13.69	31.59
15.60000	13.81	36.96
26.00000	13.83	43.82
52.10000	13.80	53.25
104.00000	13.77	62.69
156.00000	13.76	68.25

TD=68.0 EV ET=0.545111 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.55000	0.05	0.05
0.55600	0.11	0.11
0.56600	0.21	0.21
0.58300	0.38	0.38
0.60500	0.60	0.60
0.63200	0.87	0.87
0.66500	1.20	1.20
0.70800	1.63	1.63
0.76300	2.16	2.16
0.84400	2.89	2.89
0.95300	3.81	3.81
1.09000	4.82	4.88
1.25000	5.83	6.03
1.47000	6.97	7.47
1.74000	8.06	9.04
2.07000	9.06	10.75
2.45000	9.89	12.49
2.83000	10.51	14.02
3.27000	11.03	15.60
3.81000	11.49	17.32
4.63000	11.96	19.56
5.45000	12.26	21.48
8.17000	12.72	26.36
10.90000	12.89	29.91
16.30000	13.00	34.95
27.20000	13.02	41.43
54.50000	12.98	50.31
109.00000	12.96	59.22
163.00000	12.95	64.41

TD=72.0 EV ET=0.568639 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.57400	0.05	0.05
0.58000	0.10	0.10
0.59100	0.19	0.19
0.60800	0.34	0.34
0.63100	0.55	0.55
0.65900	0.80	0.80
0.69300	1.10	1.10
0.73900	1.51	1.51
0.79600	2.00	2.00
0.88100	2.71	2.71
0.99500	3.58	3.58
1.13000	4.49	4.55
1.30000	5.48	5.67
1.53000	6.57	7.04
1.81000	7.61	8.54
2.16000	8.57	10.20
2.55000	9.35	11.83
2.95000	9.94	13.31
3.41000	10.43	14.82
3.98000	10.87	16.47
4.83000	11.31	18.58
5.68000	11.59	20.39
8.52000	12.02	25.02
11.30000	12.18	28.32
17.00000	12.28	33.15
28.40000	12.29	39.29
56.80000	12.26	47.66
113.00000	12.24	56.02
170.00000	12.23	60.99

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN AL
Z=13 A= 26.980

TD=76.0 EV ET=0.591665 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.59700	0.04	0.04
0.60300	0.08	0.08
0.61500	0.18	0.18
0.63300	0.32	0.32
0.65600	0.50	0.50
0.68600	0.74	0.74
0.72100	1.02	1.02
0.76900	1.40	1.40
0.82800	1.87	1.87
0.91700	2.54	2.54
1.03000	3.33	3.34
1.18000	4.27	4.32
1.36000	5.22	5.41
1.59000	6.22	6.67
1.89000	7.24	8.15
2.24000	8.12	9.68
2.66000	8.89	11.29
3.07000	9.43	12.67
3.54000	9.90	14.09
4.14000	10.32	15.68
5.02000	10.72	17.69
5.91000	10.99	19.42
8.87000	11.40	23.83
11.80000	11.54	26.99
17.70000	11.63	31.55
29.50000	11.64	37.34
59.10000	11.62	45.30
118.00000	11.59	53.25
177.00000	11.59	57.93

TD=80.0 EV ET=0.614220 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.62000	0.04	0.04
0.62600	0.08	0.08
0.63800	0.16	0.16
0.65700	0.29	0.29
0.68100	0.46	0.46
0.71200	0.68	0.68
0.74900	0.95	0.95
0.79800	1.31	1.31
0.85900	1.75	1.75
0.95200	2.39	2.39
1.07000	3.15	3.16
1.22000	4.02	4.07
1.41000	4.95	5.13
1.65000	5.92	6.35
1.96000	6.88	7.76
2.33000	7.74	9.25
2.76000	8.46	10.77
3.19000	8.98	12.11
3.68000	9.42	13.47
4.29000	9.81	14.96
5.22000	10.20	16.90
6.14000	10.45	18.55
9.21000	10.83	22.75
12.20000	10.97	25.71
18.40000	11.05	30.10
30.70000	11.06	35.63
61.40000	11.04	43.17
122.00000	11.01	50.68
184.00000	11.01	55.18

TD=84.0 EV ET=0.636332 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.64200	0.03	0.03
0.64900	0.07	0.07
0.66100	0.14	0.14
0.68000	0.26	0.26
0.70600	0.43	0.43
0.73800	0.63	0.63
0.77600	0.89	0.89
0.82700	1.23	1.23
0.89000	1.64	1.64
0.98600	2.26	2.26
1.11000	3.00	3.00
1.27000	3.85	3.90
1.46000	4.71	4.88
1.71000	5.64	6.06
2.03000	6.56	7.41
2.41000	7.38	8.83
2.86000	8.07	10.30
3.30000	8.57	11.57
3.81000	8.98	12.88
4.45000	9.36	14.32
5.40000	9.72	16.16
6.36000	9.96	17.75
9.54000	10.32	21.75
12.70000	10.45	24.64
19.00000	10.52	28.74
31.80000	10.53	34.04
63.60000	10.51	41.22
127.00000	10.49	48.43
190.00000	10.48	52.63

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN AL
Z=13 A= 26.980

TD=88.0 EV ET=0.658025 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.66400	0.03	0.03
0.67100	0.07	0.07
0.68400	0.14	0.14
0.70400	0.25	0.25
0.73000	0.40	0.40
0.76300	0.59	0.59
0.80200	0.83	0.83
0.85500	1.15	1.15
0.92100	1.56	1.56
1.01000	2.09	2.09
1.15000	2.86	2.87
1.31000	3.66	3.70
1.51000	4.50	4.67
1.77000	5.40	5.81
2.10000	6.28	7.10
2.50000	7.07	8.49
2.96000	7.72	9.88
3.42000	8.20	11.11
3.94000	8.59	12.35
4.60000	8.94	13.73
5.59000	9.29	15.51
6.58000	9.51	17.02
9.87000	9.85	20.85
13.10000	9.97	23.58
19.70000	10.05	27.55
32.90000	10.06	32.59
65.80000	10.03	39.45
131.00000	10.01	46.30
197.00000	10.01	50.37

TD=92.0 EV ET=0.679324 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.68600	0.03	0.03
0.69200	0.06	0.06
0.70600	0.13	0.13
0.72600	0.22	0.22
0.75400	0.37	0.37
0.78800	0.55	0.55
0.82800	0.78	0.78
0.88300	1.09	1.09
0.95100	1.48	1.48
1.05000	2.02	2.02
1.18000	2.70	2.70
1.35000	3.48	3.53
1.56000	4.31	4.47
1.83000	5.18	5.58
2.17000	6.02	6.82
2.58000	6.77	8.15
3.05000	7.39	9.48
3.53000	7.85	10.67
4.07000	8.23	11.87
4.75000	8.57	13.19
5.77000	8.90	14.89
6.79000	9.11	16.34
10.10000	9.42	19.94
13.50000	9.54	22.62
20.30000	9.61	26.42
33.90000	9.62	31.24
67.90000	9.59	37.82
135.00000	9.58	44.36
203.00000	9.57	48.25

TD=96.0 EV ET=0.700247 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.70700	0.03	0.03
0.71400	0.06	0.06
0.72800	0.12	0.12
0.74900	0.21	0.21
0.77700	0.35	0.35
0.81200	0.52	0.52
0.85400	0.74	0.74
0.91000	1.03	1.03
0.98000	1.40	1.40
1.08000	1.92	1.92
1.22000	2.59	2.60
1.40000	3.37	3.42
1.61000	4.14	4.30
1.89000	4.98	5.37
2.24000	5.79	6.57
2.66000	6.50	7.84
3.15000	7.10	9.13
3.64000	7.54	10.27
4.20000	7.90	11.43
4.90000	8.22	12.70
5.95000	8.53	14.33
7.00000	8.73	15.72
10.50000	9.04	19.25
14.00000	9.15	21.80
21.00000	9.21	25.43
35.00000	9.22	30.04
70.00000	9.19	36.33
140.00000	9.18	42.65
210.00000	9.17	46.36

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN SI
Z=14 A= 28.090

TD= 4.0 EV ET=0.048856 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.04930	11.65	11.65
0.04980	24.28	24.28
0.05080	48.14	48.14
0.05220	78.63	78.63
0.05420	117.02	117.02
0.05660	156.25	156.25
0.05960	196.72	196.72
0.06350	238.17	238.17
0.06830	276.23	276.23
0.07570	315.64	315.64
0.08540	345.26	345.26
0.09770	362.96	363.25
0.11200	369.47	374.16
0.13100	367.71	381.67
0.15600	358.92	385.87
0.18500	346.89	387.54
0.21900	333.84	388.22
0.25400	322.49	388.88
0.29300	312.19	390.11
0.34100	302.22	392.51
0.41500	291.01	397.84
0.48800	283.24	404.48
0.73200	268.99	431.31
0.97700	262.45	459.76
1.46000	256.58	511.79
2.44000	252.33	596.66
4.88000	249.03	734.78
9.77000	246.95	889.22
14.60000	246.22	982.70
24.40000	245.67	1104.66
34.10000	245.46	1185.10
48.80000	245.32	1271.77
97.70000	245.15	1440.51
195.00000	245.04	1609.18

TD= 8.0 EV ET=0.093777 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.09470	3.26	3.26
0.09560	6.33	6.33
0.09750	12.48	12.48
0.10000	19.94	19.94
0.10400	30.54	30.54
0.10800	39.74	39.74
0.11400	51.38	51.38
0.12100	62.37	62.37
0.13100	74.43	74.43
0.14500	86.37	86.37
0.16400	96.80	96.80
0.18700	104.37	104.59
0.21500	109.64	111.42
0.25300	113.43	118.36
0.30000	115.74	124.97
0.35600	117.13	131.41
0.42100	118.04	137.90
0.48700	118.67	143.90
0.56200	119.25	150.28
0.65600	119.86	157.79
0.79700	120.65	168.33
0.93700	121.30	178.07
1.40000	122.74	206.23
1.87000	123.51	229.91
2.81000	124.11	267.40
4.68000	124.23	319.75
9.37000	123.69	397.13
18.70000	123.11	478.06
28.10000	122.89	526.75
46.80000	122.72	588.32
65.60000	122.66	629.31
93.70000	122.61	672.70
187.00000	122.55	757.01
375.00000	122.49	842.08

TD=12.0 EV ET=0.135586 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.13600	0.47	0.47
0.13800	2.67	2.67
0.14100	5.77	5.77
0.14500	9.57	9.57
0.15000	13.85	13.85
0.15700	19.09	19.09
0.16500	24.18	24.18
0.17600	29.97	29.97
0.18900	35.43	35.43
0.21000	42.04	42.04
0.23700	47.99	47.99
0.27100	53.09	53.28
0.31100	57.18	58.26
0.36600	61.02	63.87
0.43300	64.25	69.58
0.51500	67.08	75.61
0.61000	69.50	81.78
0.70500	71.37	87.38
0.81300	73.06	93.25
0.94900	74.71	100.05
1.15000	76.53	109.16
1.35000	77.84	117.35
2.03000	80.34	140.47
2.71000	81.45	158.65
4.06000	82.28	186.13
6.77000	82.57	223.40
13.50000	82.31	276.42
27.10000	81.99	331.69
40.60000	81.88	364.17
67.70000	81.79	405.53
94.90000	81.76	432.94
135.00000	81.73	461.59
271.00000	81.69	518.35
542.00000	81.65	574.87

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN SI
Z=14 A= 28.090

TD=16.0 EV ET=0.174850 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.17600	0.58	0.58
0.17800	1.56	1.56
0.18100	2.97	2.97
0.18700	5.57	5.57
0.19400	8.29	8.29
0.20200	11.06	11.06
0.21300	14.36	14.36
0.22700	17.89	17.89
0.24400	21.41	21.41
0.27100	25.78	25.78
0.30500	29.90	29.90
0.34900	33.82	33.98
0.40200	37.31	38.11
0.47200	40.74	42.74
0.55900	43.90	47.71
0.66400	46.77	52.97
0.78600	49.29	58.40
0.90900	51.24	63.36
1.04000	52.89	68.20
1.22000	54.62	74.26
1.48000	56.43	82.08
1.74000	57.69	89.03
2.62000	59.98	108.12
3.49000	60.93	122.59
5.24000	61.63	144.35
8.74000	61.86	173.17
17.40000	61.67	213.46
34.90000	61.46	255.17
52.40000	61.39	279.76
87.40000	61.33	310.87
122.00000	61.31	331.21
174.00000	61.29	352.88

TD=20.0 EV ET=0.211985 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.21400	0.55	0.55
0.21600	1.07	1.07
0.22000	2.09	2.09
0.22600	3.51	3.51
0.23500	5.46	5.46
0.24500	7.39	7.39
0.25800	9.60	9.60
0.27500	12.08	12.08
0.29600	14.66	14.66
0.32800	17.85	17.85
0.37000	21.13	21.13
0.42300	24.32	24.46
0.48700	27.32	27.94
0.57200	30.39	31.96
0.67800	33.32	36.33
0.80500	35.99	40.97
0.95300	38.35	45.78
1.10000	40.15	50.09
1.27000	41.76	54.63
1.48000	43.27	59.71
1.80000	44.91	66.56
2.11000	46.00	72.41
3.17000	47.94	88.44
4.23000	48.73	100.56
6.35000	49.29	118.45
10.50000	49.45	141.50
21.10000	49.31	174.47
42.30000	49.15	207.96
63.50000	49.10	227.67
105.00000	49.06	252.17
148.00000	49.04	268.93
211.00000	49.03	286.26

TD=24.0 EV ET=0.247304 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.24900	0.28	0.28
0.25200	0.76	0.76
0.25700	1.54	1.54
0.26400	2.56	2.56
0.27400	3.90	3.90
0.28600	5.35	5.35
0.30100	6.98	6.98
0.32100	8.87	8.87
0.34600	10.91	10.91
0.38300	13.42	13.42
0.43200	16.12	16.12
0.49400	18.86	18.98
0.56800	21.47	21.98
0.66700	24.23	25.52
0.79100	26.91	29.43
0.93900	29.35	33.57
1.11000	31.48	37.83
1.28000	33.11	41.64
1.48000	34.58	45.71
1.73000	35.95	50.28
2.10000	37.37	56.24
2.47000	38.33	61.45
3.70000	39.97	75.21
4.94000	40.62	85.60
7.41000	41.07	100.76
12.30000	41.20	120.34
24.70000	41.07	147.95
49.40000	40.95	175.84
74.10000	40.91	192.26
123.00000	40.88	212.85
173.00000	40.87	226.74
247.00000	40.86	241.24

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN SI
Z=14 A= 28.090

TD=28.0 EV ET=0.281049 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.28300	0.21	0.21
0.28600	0.53	0.53
0.29200	1.15	1.15
0.30000	1.92	1.92
0.31100	2.92	2.92
0.32600	4.16	4.16
0.34200	5.35	5.35
0.36500	6.88	6.88
0.39300	8.51	8.51
0.43500	10.61	10.61
0.49100	12.94	12.94
0.56200	15.35	15.47
0.64600	17.68	18.13
0.75800	20.17	21.29
0.89900	22.62	24.82
1.06000	24.76	28.41
1.26000	26.78	32.37
1.46000	28.29	35.92
1.68000	29.56	39.45
1.96000	30.78	43.49
2.38000	32.03	48.79
2.81000	32.89	53.52
4.21000	34.29	65.62
5.62000	34.84	74.69
8.43000	35.21	87.85
14.00000	35.30	104.78
28.10000	35.19	128.54
56.20000	35.10	152.49
84.30000	35.06	166.58
140.00000	35.04	184.26
196.00000	35.03	196.01

TD=32.0 EV ET=0.313415 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.31600	0.20	0.20
0.31900	0.42	0.42
0.32500	0.85	0.85
0.33500	1.54	1.54
0.34700	2.31	2.31
0.36300	3.27	3.27
0.38200	4.30	4.30
0.40700	5.54	5.54
0.43800	6.91	6.91
0.48500	8.72	8.72
0.54800	10.78	10.78
0.62600	12.91	13.01
0.72000	15.03	15.43
0.84600	17.32	18.32
1.00000	19.52	21.47
1.19000	21.59	24.92
1.41000	23.38	28.47
1.62000	24.68	31.51
1.88000	25.89	34.91
2.19000	26.96	38.52
2.66000	28.08	43.30
3.13000	28.82	47.45
4.70000	30.04	58.31
6.26000	30.50	66.29
9.40000	30.81	77.95
15.60000	30.88	92.83
31.30000	30.79	113.67
62.60000	30.71	134.66
94.00000	30.68	147.03
156.00000	30.66	162.49
219.00000	30.65	172.85

TD=36.0 EV ET=0.344556 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.34800	0.19	0.19
0.35100	0.35	0.35
0.35800	0.72	0.72
0.36800	1.23	1.23
0.38200	1.90	1.90
0.39900	2.67	2.67
0.42000	3.54	3.54
0.44700	4.58	4.58
0.48200	5.79	5.79
0.53400	7.39	7.39
0.60200	9.20	9.20
0.68900	11.16	11.26
0.79200	13.09	13.45
0.93000	15.19	16.10
1.10000	17.23	19.00
1.30000	19.06	22.05
1.55000	20.76	25.42
1.79000	21.98	28.31
2.06000	23.02	31.24
2.41000	24.01	34.62
2.92000	24.99	38.92
3.44000	25.66	42.71
5.16000	26.73	52.47
6.89000	27.13	59.71
10.30000	27.39	70.03
17.20000	27.45	83.48
34.40000	27.36	101.96
68.90000	27.29	120.68
103.00000	27.27	131.57
172.00000	27.25	145.48
241.00000	27.24	154.64

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN SI
Z=14 A= 28.090

TD=40.0 EV ET=0.374604 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.37800	0.14	0.14
0.38200	0.31	0.31
0.38900	0.59	0.59
0.40000	1.02	1.02
0.41500	1.57	1.57
0.43400	2.24	2.24
0.45700	3.00	3.00
0.48600	3.88	3.88
0.52400	4.95	4.95
0.58000	6.37	6.37
0.65500	8.04	8.04
0.74900	9.82	9.91
0.86100	11.60	11.94
1.01000	13.54	14.36
1.19000	15.38	16.99
1.42000	17.17	19.97
1.68000	18.66	22.95
1.94000	19.78	25.61
2.24000	20.75	28.37
2.62000	21.65	31.47
3.18000	22.54	35.45
3.74000	23.13	38.87
5.61000	24.08	47.77
7.49000	24.43	54.33
11.20000	24.66	63.69
18.70000	24.70	75.83
37.40000	24.62	92.50
74.90000	24.56	109.35
112.00000	24.54	119.16
187.00000	24.52	131.68

TD=44.0 EV ET=0.403665 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.40700	0.11	0.11
0.41100	0.24	0.24
0.41900	0.49	0.49
0.43100	0.86	0.86
0.44800	1.36	1.36
0.46800	1.92	1.92
0.49200	2.56	2.56
0.52400	3.37	3.37
0.56500	4.32	4.32
0.62500	5.60	5.60
0.70600	7.13	7.13
0.80700	8.77	8.86
0.92800	10.44	10.74
1.08000	12.15	12.89
1.29000	14.00	15.53
1.53000	15.60	18.21
1.81000	16.98	20.98
2.09000	18.01	23.45
2.42000	18.92	26.06
2.82000	19.71	28.86
3.43000	20.53	32.56
4.03000	21.06	35.70
6.05000	21.91	43.88
8.07000	22.22	49.87
12.10000	22.42	58.48
20.10000	22.45	69.44
40.30000	22.38	84.67
80.70000	22.33	100.00
121.00000	22.31	108.98
201.00000	22.29	120.26

TD=48.0 EV ET=0.431830 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.43600	0.11	0.11
0.44000	0.21	0.21
0.44900	0.44	0.44
0.46200	0.76	0.76
0.47900	1.16	1.16
0.50000	1.65	1.65
0.52600	2.23	2.23
0.56100	2.96	2.96
0.60400	3.82	3.82
0.66900	5.00	5.00
0.75500	6.40	6.41
0.86300	7.93	8.01
0.99300	9.49	9.78
1.16000	11.13	11.83
1.38000	12.82	14.26
1.64000	14.32	16.79
1.94000	15.60	19.38
2.24000	16.55	21.68
2.59000	17.38	24.09
3.02000	18.11	26.70
3.67000	18.86	30.13
4.31000	19.33	33.03
6.47000	20.10	40.59
8.63000	20.38	46.11
12.90000	20.55	53.96
21.50000	20.58	64.10
43.10000	20.51	78.08
86.30000	20.46	92.14
129.00000	20.45	100.32
215.00000	20.44	110.72

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN SI
Z=14 A= 28.090

TD=52.0 EV ET=0.459178 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.46300	0.08	0.08
0.46800	0.18	0.18
0.47700	0.37	0.37
0.49100	0.65	0.65
0.50900	1.01	1.01
0.53200	1.45	1.45
0.56000	1.98	1.98
0.59600	2.63	2.63
0.64200	3.41	3.41
0.71100	4.50	4.50
0.80300	5.82	5.82
0.91800	7.25	7.33
1.05000	8.65	8.91
1.23000	10.22	10.87
1.46000	11.79	13.12
1.74000	13.22	15.54
2.06000	14.42	17.98
2.38000	15.31	20.14
2.75000	16.07	22.38
3.21000	16.75	24.84
3.90000	17.43	28.03
4.59000	17.87	30.77
6.88000	18.57	37.77
9.18000	18.82	42.90
13.70000	18.97	50.15
22.90000	18.99	59.58
45.90000	18.93	72.49
91.80000	18.89	85.46
137.00000	18.87	92.97
229.00000	18.86	102.63

TD=56.0 EV ET=0.485777 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.49000	0.07	0.07
0.49500	0.16	0.16
0.50500	0.33	0.33
0.51900	0.57	0.57
0.53900	0.90	0.90
0.56300	1.29	1.29
0.59200	1.76	1.76
0.63100	2.37	2.37
0.68000	3.09	3.09
0.75200	4.10	4.10
0.85000	5.33	5.34
0.97100	6.67	6.75
1.11000	7.99	8.24
1.31000	9.53	10.18
1.55000	10.98	12.26
1.84000	12.29	14.49
2.18000	13.42	16.80
2.52000	14.25	18.84
2.91000	14.95	20.94
3.40000	15.59	23.26
4.12000	16.21	26.21
4.85000	16.62	28.77
7.28000	17.25	35.34
9.71000	17.48	40.11
14.50000	17.62	46.87
24.20000	17.63	55.62
48.50000	17.58	67.62
97.10000	17.54	79.68
145.00000	17.53	86.67
242.00000	17.52	95.62

TD=60.0 EV ET=0.511683 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.51600	0.06	0.06
0.52100	0.13	0.13
0.53200	0.29	0.29
0.54700	0.51	0.51
0.56700	0.79	0.79
0.59300	1.16	1.16
0.62400	1.59	1.59
0.66500	2.15	2.15
0.71600	2.82	2.82
0.79300	3.77	3.77
0.89500	4.92	4.93
1.02000	6.16	6.23
1.17000	7.44	7.67
1.38000	8.89	9.51
1.63000	10.24	11.45
1.94000	11.50	13.60
2.30000	12.56	15.79
2.66000	13.34	17.73
3.07000	13.99	19.70
3.58000	14.57	21.86
4.34000	15.15	24.64
5.11000	15.53	27.05
7.67000	16.11	33.21
10.20000	16.32	37.64
15.30000	16.44	44.03
25.50000	16.46	52.18
51.10000	16.41	63.39
102.00000	16.37	74.61
153.00000	16.36	81.21
255.00000	16.35	89.53

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN SI
Z=14 A= 28.090

TD=64.0 EV ET=0.536950 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.54200	0.06	0.06
0.54700	0.12	0.12
0.55800	0.26	0.26
0.57400	0.45	0.45
0.59600	0.72	0.72
0.62200	1.05	1.05
0.65500	1.45	1.45
0.69800	1.97	1.97
0.75100	2.58	2.58
0.83200	3.48	3.48
0.93900	4.57	4.57
1.07000	5.74	5.81
1.23000	6.97	7.20
1.44000	8.29	8.86
1.71000	9.61	10.77
2.04000	10.81	12.83
2.41000	11.79	14.87
2.79000	12.53	16.71
3.22000	13.14	18.58
3.75000	13.68	20.60
4.56000	14.23	23.27
5.36000	14.57	25.52
8.05000	15.11	31.33
10.70000	15.30	35.48
16.10000	15.42	41.54
26.80000	15.43	49.17
53.60000	15.38	59.66
107.00000	15.35	70.18
161.00000	15.33	76.42

TD=68.0 EV ET=0.561621 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.56700	0.06	0.06
0.57200	0.11	0.11
0.58400	0.23	0.23
0.60000	0.41	0.41
0.62300	0.65	0.65
0.65100	0.96	0.96
0.68500	1.32	1.32
0.73000	1.81	1.81
0.78600	2.39	2.39
0.87000	3.23	3.23
0.98200	4.26	4.27
1.12000	5.39	5.46
1.29000	6.57	6.80
1.51000	7.82	8.38
1.79000	9.06	10.18
2.13000	10.18	12.11
2.52000	11.12	14.06
2.92000	11.82	15.83
3.36000	12.38	17.56
3.93000	12.90	19.53
4.77000	13.41	22.04
5.61000	13.73	24.17
8.42000	14.23	29.65
11.20000	14.41	33.59
16.80000	14.51	39.25
28.00000	14.52	46.46
56.10000	14.47	56.36
112.00000	14.44	66.27
168.00000	14.43	72.10

TD=72.0 EV ET=0.585737 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.59100	0.05	0.05
0.59700	0.10	0.10
0.60900	0.21	0.21
0.62600	0.37	0.37
0.65000	0.60	0.60
0.67900	0.88	0.88
0.71400	1.21	1.21
0.76100	1.67	1.67
0.82000	2.23	2.23
0.90700	3.02	3.02
1.02000	3.97	3.97
1.17000	5.09	5.15
1.34000	6.17	6.38
1.58000	7.42	7.96
1.87000	8.58	9.66
2.22000	9.63	11.48
2.63000	10.53	13.36
3.04000	11.17	15.01
3.51000	11.72	16.70
4.10000	12.21	18.56
4.97000	12.68	20.92
5.85000	12.98	22.96
8.78000	13.45	28.15
11.70000	13.61	31.90
17.50000	13.71	37.22
29.20000	13.71	44.05
58.50000	13.67	53.41
117.00000	13.64	62.79
175.00000	13.63	68.26

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN SI
Z=14 A= 28.090

TD=76.0 EV ET=0.609335 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.61500	0.04	0.04
0.62100	0.09	0.09
0.63300	0.19	0.19
0.65100	0.34	0.34
0.67600	0.55	0.55
0.70600	0.80	0.80
0.74300	1.13	1.13
0.79200	1.55	1.55
0.85300	2.08	2.08
0.94400	2.84	2.84
1.06000	3.73	3.74
1.21000	4.76	4.82
1.40000	5.88	6.09
1.64000	7.02	7.54
1.94000	8.13	9.16
2.31000	9.15	10.93
2.74000	10.00	12.73
3.16000	10.60	14.29
3.65000	11.12	15.90
4.26000	11.58	17.66
5.17000	12.02	19.92
6.09000	12.31	21.87
9.14000	12.75	26.81
12.10000	12.90	30.29
18.20000	12.99	35.40
30.40000	12.99	41.90
60.90000	12.95	50.76
121.00000	12.92	59.57
182.00000	12.91	64.82

TD=80.0 EV ET=0.632445 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.63800	0.04	0.04
0.64500	0.09	0.09
0.65700	0.17	0.17
0.67600	0.31	0.31
0.70200	0.51	0.51
0.73300	0.75	0.75
0.77100	1.05	1.05
0.82200	1.45	1.45
0.88500	1.95	1.95
0.98000	2.67	2.67
1.10000	3.53	3.53
1.26000	4.54	4.60
1.45000	5.57	5.77
1.70000	6.67	7.16
2.02000	7.75	8.76
2.40000	8.71	10.44
2.84000	9.51	12.14
3.28000	10.09	13.64
3.79000	10.58	15.18
4.42000	11.01	16.86
5.37000	11.44	19.03
6.32000	11.70	20.88
9.48000	12.11	25.58
12.60000	12.26	28.93
18.90000	12.34	33.77
31.60000	12.34	39.95
63.20000	12.30	48.36
126.00000	12.27	56.77
189.00000	12.27	61.72

TD=84.0 EV ET=0.655098 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.66100	0.04	0.04
0.66800	0.08	0.08
0.68100	0.16	0.16
0.70000	0.28	0.28
0.72700	0.47	0.47
0.75900	0.69	0.69
0.79900	0.98	0.98
0.85100	1.36	1.36
0.91700	1.84	1.84
1.01000	2.49	2.49
1.14000	3.35	3.35
1.31000	4.34	4.40
1.50000	5.29	5.49
1.76000	6.35	6.83
2.09000	7.39	8.36
2.48000	8.30	9.96
2.94000	9.07	11.61
3.40000	9.63	13.06
3.93000	10.10	14.54
4.58000	10.50	16.38
5.56000	10.90	18.21
6.55000	11.16	19.98
9.82000	11.54	24.85
13.10000	11.68	27.71
19.60000	11.75	32.29
32.70000	11.75	38.16
65.50000	11.71	46.39
131.00000	11.63	54.23
196.00000	11.60	58.92

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN SI
Z=14 A= 28.090

TD=88.0 EV ET=0.677319 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.68400	0.04	0.04
0.69000	0.07	0.07
0.70400	0.15	0.15
0.72400	0.26	0.26
0.75100	0.43	0.43
0.78500	0.65	0.65
0.82600	0.92	0.92
0.88000	1.28	1.28
0.94800	1.74	1.74
1.04000	2.34	2.34
1.18000	3.19	3.20
1.35000	4.12	4.18
1.55000	5.05	5.24
1.82000	6.07	6.54
2.16000	7.07	8.01
2.57000	7.95	9.56
3.04000	8.68	11.13
3.52000	9.21	12.53
4.06000	9.65	13.93
4.74000	10.04	15.48
5.75000	10.42	17.46
6.77000	10.66	19.15
10.10000	11.02	23.39
13.50000	11.15	26.51
20.30000	11.22	30.94
33.80000	11.22	36.53
67.70000	11.18	44.19
135.00000	11.16	51.84
203.00000	11.15	56.38

TD=92.0 EV ET=0.699132 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.70600	0.03	0.03
0.71300	0.07	0.07
0.72700	0.14	0.14
0.74800	0.25	0.25
0.77600	0.41	0.41
0.81000	0.60	0.60
0.85200	0.86	0.86
0.90800	1.21	1.21
0.97800	1.64	1.64
1.08000	2.26	2.26
1.22000	3.06	3.06
1.39000	3.92	3.98
1.60000	4.83	5.02
1.88000	5.82	6.28
2.23000	6.77	7.68
2.65000	7.61	9.17
3.14000	8.32	10.69
3.63000	8.82	12.03
4.19000	9.24	13.38
4.89000	9.61	14.87
5.94000	9.98	16.78
6.99000	10.20	18.40
10.40000	10.54	22.43
13.90000	10.66	25.42
20.90000	10.73	29.66
34.90000	10.73	35.04
69.90000	10.69	42.37
139.00000	10.67	49.66
209.00000	10.67	54.00

TD=96.0 EV ET=0.720559 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.72700	0.03	0.03
0.73400	0.06	0.06
0.74900	0.13	0.13
0.77000	0.23	0.23
0.79900	0.38	0.38
0.83500	0.57	0.57
0.87900	0.82	0.82
0.93600	1.14	1.14
1.00000	1.52	1.52
1.11000	2.14	2.14
1.26000	2.98	2.98
1.44000	3.79	3.85
1.65000	4.68	4.82
1.94000	5.50	6.08
2.30300	6.51	7.39
2.73000	7.31	8.82
3.28000	7.99	10.30
3.74000	8.47	11.57
4.32000	8.87	12.88
5.04000	9.22	14.37
6.12000	9.57	15.18
7.20000	9.79	17.69
10.80000	10.11	21.58
14.40000	10.22	24.49
21.60000	10.28	28.58
36.00000	10.28	33.58
72.00000	10.25	40.69
144.00000	10.23	47.74
216.00000	10.22	51.87

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN K
Z=19 A= 39.100

TD= 4.0 EV ET=0.066879 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.06750	11.72	11.72
0.06820	24.45	24.45
0.06950	46.85	46.85
0.07150	78.38	78.38
0.07420	115.98	115.98
0.07750	155.37	155.37
0.08150	195.18	195.18
0.08690	238.04	238.04
0.09360	278.23	278.23
0.10300	317.72	317.72
0.11700	353.62	353.62
0.13300	375.60	376.01
0.15300	388.38	393.75
0.18000	393.55	409.41
0.21400	392.22	422.40
0.25400	387.24	433.35
0.30000	380.90	443.55
0.34700	375.07	452.93
0.40100	369.50	463.23
0.46800	364.06	475.79
0.56800	358.19	494.35
0.66800	354.11	512.65
1.00000	346.66	570.12
1.33000	343.06	621.17
2.00000	339.12	707.96
3.34000	335.27	836.11
6.68000	330.76	1031.96
13.30000	327.54	1241.27
20.00000	326.40	1369.09
33.40000	325.57	1531.99
46.80000	325.24	1640.03
66.80000	324.99	1754.44
133.00000	324.63	1976.55

TD= 8.0 EV ET=0.126783 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.12800	3.16	3.16
0.12900	5.69	5.69
0.13100	10.54	10.54
0.13500	19.53	19.53
0.14000	29.56	29.56
0.14700	41.72	41.72
0.15400	52.07	52.07
0.16400	64.37	64.37
0.17700	77.04	77.04
0.19600	90.85	90.85
0.22100	103.54	103.54
0.25300	114.45	114.81
0.29100	123.07	125.32
0.34200	130.74	136.69
0.40500	137.04	148.26
0.48100	142.26	160.14
0.57000	146.63	172.34
0.65900	149.90	183.35
0.76000	152.77	194.84
0.88700	155.53	208.11
1.07000	158.42	225.48
1.26000	160.52	241.78
1.90000	164.21	287.42
2.53000	165.56	322.95
3.80000	166.23	377.39
6.33000	165.82	450.97
12.60000	164.40	555.72
25.30000	163.28	665.41
38.00000	162.91	730.31
63.30000	162.63	812.28
88.70000	162.51	866.66
126.00000	162.41	923.33
253.00000	162.25	1036.04

TD=12.0 EV ET=0.181525 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.18300	1.24	1.24
0.18500	2.87	2.87
0.18800	5.21	5.21
0.19400	9.58	9.58
0.20100	14.19	14.19
0.21000	19.47	19.47
0.22100	25.09	25.09
0.23500	31.19	31.19
0.25400	38.04	38.04
0.28100	45.73	45.73
0.31700	53.53	53.53
0.36300	60.96	61.27
0.41700	67.50	68.93
0.49000	74.11	77.76
0.58000	80.15	87.13
0.68900	85.58	97.04
0.81600	90.28	107.25
0.94300	93.85	116.45
1.08000	96.82	125.49
1.27000	99.92	136.86
1.54000	102.97	151.20
1.81000	105.04	163.88
2.72000	108.51	198.31
3.63000	109.75	224.53
5.44000	110.41	263.30
9.07000	110.21	314.56
18.10000	109.36	386.25
36.30000	108.73	460.02
54.40000	108.53	503.30
90.70000	108.38	558.23
127.00000	108.31	594.48
181.00000	108.25	632.66
363.00000	108.14	707.74

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN K
Z=19 A= 39.100

TD=16.0 EV ET=0.232246 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.23400	0.67	0.67
0.23600	1.41	1.41
0.24100	3.20	3.20
0.24800	5.55	5.55
0.25700	8.33	8.33
0.26900	11.68	11.68
0.28300	15.15	15.15
0.30100	19.06	19.06
0.32500	23.53	23.53
0.35900	28.78	28.78
0.40600	34.61	34.61
0.46400	40.30	40.55
0.53400	45.72	46.79
0.62700	51.33	54.03
0.74300	56.68	61.92
0.88200	61.50	70.26
1.04000	65.61	78.66
1.20000	68.75	86.31
1.39000	71.58	94.52
1.62000	74.11	103.45
1.97000	76.75	115.40
2.32000	78.48	125.83
3.48000	81.25	153.25
4.64000	82.21	173.79
6.96000	82.70	203.91
11.60000	82.53	243.10
23.20000	81.92	297.61
46.40000	81.50	353.01
69.60000	81.37	385.63
116.00000	81.27	426.87
162.00000	81.22	453.86

TD=20.0 EV ET=0.279720 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.28200	0.47	0.47
0.28500	1.08	1.08
0.29000	2.07	2.07
0.29900	3.74	3.74
0.31000	5.65	5.65
0.32400	7.89	7.89
0.34100	10.35	10.35
0.36300	13.21	13.21
0.39100	16.42	16.42
0.43300	20.56	20.56
0.48900	25.16	25.16
0.55900	29.87	30.09
0.64300	34.46	35.33
0.75500	39.32	41.50
0.89500	44.02	48.32
1.06000	48.20	55.41
1.25000	51.80	62.67
1.45000	54.63	69.49
1.67000	56.96	76.24
1.95000	59.14	83.93
2.37000	61.35	94.01
2.79000	62.78	102.75
4.19000	65.01	125.60
5.59000	65.76	142.52
8.39000	66.12	167.12
13.90000	65.96	198.46
27.90000	65.49	242.57
55.90000	65.18	287.13
83.90000	65.08	313.31
139.00000	65.00	345.94
195.00000	64.97	367.85

TD=24.0 EV ET=0.324500 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.32700	0.32	0.32
0.33000	0.69	0.69
0.33700	1.54	1.54
0.34700	2.71	2.71
0.36000	4.13	4.13
0.37600	5.77	5.77
0.39500	7.58	7.58
0.42100	9.85	9.85
0.45400	12.44	12.44
0.50200	15.76	15.76
0.56700	19.62	19.63
0.64900	23.70	23.90
0.74600	27.69	28.43
0.87600	31.98	33.84
1.03000	35.94	39.53
1.23000	39.82	46.08
1.46000	43.09	52.71
1.68000	45.42	58.36
1.94000	47.47	64.37
2.27000	49.36	71.15
2.75000	51.19	79.72
3.24000	52.39	87.29
4.86000	54.21	106.75
6.49000	54.81	121.16
9.73000	55.08	141.86
16.20000	54.93	168.44
32.40000	54.54	205.16
64.90000	54.30	242.35
97.30000	54.22	264.13
162.00000	54.16	291.61
227.00000	54.13	309.80

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN K
Z=19 A= 39.100

TD=28.0 EV ET=0.367000 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.37000	0.25	0.25
0.37400	0.58	0.58
0.38100	1.15	1.15
0.39200	2.02	2.02
0.40700	3.15	3.15
0.42500	4.43	4.43
0.44700	5.91	5.91
0.47700	7.79	7.79
0.51300	9.87	9.87
0.56800	12.73	12.73
0.64200	16.09	16.10
0.73400	19.65	19.83
0.84400	23.20	23.85
0.99000	27.00	28.64
1.17000	30.65	33.89
1.39000	34.00	39.56
1.65000	36.90	45.47
1.90000	38.96	50.53
2.20000	40.78	55.95
2.56000	42.36	61.74
3.11000	43.96	69.39
3.67000	44.99	76.10
5.50000	46.50	93.05
7.38000	46.99	105.53
11.00000	47.20	123.41
18.30000	47.05	146.28
36.70000	46.73	177.97
73.40000	46.53	209.82
110.00000	46.47	228.49
183.00000	46.42	252.01

TD=32.0 EV ET=0.407536 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.41100	0.20	0.20
0.41500	0.44	0.44
0.42300	0.90	0.90
0.43600	1.63	1.63
0.45200	2.51	2.51
0.47200	3.56	3.56
0.49700	4.81	4.81
0.52900	6.34	6.34
0.57000	8.16	8.16
0.63100	10.65	10.65
0.71300	13.62	13.63
0.81500	16.80	16.96
0.93700	19.99	20.58
1.10000	23.44	24.93
1.30000	26.73	29.67
1.54000	29.69	34.71
1.83000	32.31	40.07
2.11000	34.15	44.66
2.44000	35.75	49.49
2.85000	37.17	54.80
3.46000	38.55	61.62
4.07000	39.42	67.48
6.11000	40.72	82.57
8.15000	41.13	93.58
12.20000	41.29	109.28
20.30000	41.15	129.38
40.70000	40.88	157.15
81.50000	40.71	185.10
122.00000	40.66	201.40
203.00000	40.62	222.00

TD=36.0 EV ET=0.446356 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.45000	0.16	0.16
0.45500	0.37	0.37
0.46400	0.76	0.76
0.47700	1.31	1.31
0.49500	2.05	2.05
0.51700	2.94	2.94
0.54400	4.00	4.00
0.58000	5.35	5.35
0.62400	6.92	6.92
0.69100	9.14	9.14
0.78100	11.81	11.82
0.89200	14.67	14.83
1.02000	17.47	17.99
1.20000	20.66	22.00
1.42000	23.68	26.36
1.69000	26.45	31.09
2.00000	28.75	35.86
2.32000	30.47	40.21
2.67000	31.85	44.45
3.12000	33.11	49.27
3.79000	34.33	55.44
4.46000	35.10	60.73
6.89000	36.22	74.27
8.92000	36.56	84.11
13.30000	36.69	98.00
22.30000	36.57	116.18
44.60000	36.32	140.83
89.20000	36.18	165.65
133.00000	36.14	180.00
223.00000	36.10	198.59

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN K
Z=19 A= 39.100

TD=40.0 EV ET=0.483663 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.48800	0.14	0.14
0.49300	0.31	0.31
0.50300	0.63	0.63
0.51700	1.09	1.09
0.53600	1.71	1.71
0.56100	2.51	2.51
0.59000	3.42	3.42
0.62800	4.58	4.58
0.67700	6.02	6.02
0.74900	8.00	8.00
0.84600	10.42	10.44
0.96700	13.06	13.21
1.11000	15.70	16.20
1.30000	18.55	19.79
1.54000	21.34	23.83
1.83000	23.84	28.14
2.17000	25.95	32.57
2.51000	27.48	36.48
2.90000	28.76	40.47
3.38000	29.87	44.80
4.11000	30.96	50.46
4.83000	31.63	55.24
7.25000	32.62	67.54
9.67000	32.91	76.46
14.50000	33.02	89.19
24.10000	32.90	105.32
48.30000	32.68	127.59
96.70000	32.56	149.98
145.00000	32.52	163.08

TD=44.0 EV ET=0.519620 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.52400	0.11	0.11
0.53000	0.27	0.27
0.54000	0.53	0.53
0.55500	0.91	0.91
0.57600	1.46	1.46
0.60200	2.14	2.14
0.63300	2.94	2.94
0.67500	4.02	4.02
0.72700	5.30	5.30
0.80500	7.13	7.13
0.90900	9.34	9.36
1.03000	11.62	11.75
1.19000	14.18	14.64
1.40000	16.89	18.06
1.66000	19.47	21.83
1.97000	21.74	25.79
2.33000	23.65	29.83
2.70000	25.06	33.49
3.11000	26.20	37.08
3.63000	27.21	41.11
4.41000	28.19	46.29
5.19000	28.80	50.70
7.79000	29.67	61.96
10.30000	29.92	69.87
15.50000	30.01	81.57
25.90000	29.90	96.42
51.90000	29.71	116.69
103.00000	29.60	136.79
155.00000	29.56	148.81

TD=48.0 EV ET=0.554364 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.55900	0.09	0.09
0.56500	0.22	0.22
0.57600	0.45	0.45
0.59300	0.81	0.81
0.61500	1.28	1.28
0.64300	1.89	1.89
0.67600	2.61	2.61
0.72000	3.56	3.56
0.77600	4.75	4.75
0.85900	6.42	6.42
0.97000	8.48	8.49
1.10000	10.61	10.73
1.27000	12.97	13.41
1.49000	15.45	16.55
1.77000	17.87	20.09
2.10000	19.97	23.78
2.49000	21.75	27.59
2.88000	23.03	30.94
3.32000	24.07	34.30
3.88000	25.00	38.05
4.71000	25.89	42.82
5.54000	26.43	46.89
8.31000	27.21	57.26
11.00000	27.43	64.56
16.60000	27.53	75.39
27.70000	27.40	88.99
55.40000	27.23	107.54
110.00000	27.13	125.99
166.00000	27.10	137.08

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN K
Z=19 A= 39.100

TD=52.0 EV ET=0.588011 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.59300	0.08	0.08
0.59900	0.18	0.18
0.61100	0.39	0.39
0.62900	0.71	0.71
0.65200	1.12	1.12
0.68200	1.67	1.67
0.71700	2.32	2.32
0.76400	3.20	3.20
0.82300	4.29	4.29
0.91100	5.84	5.84
1.02000	7.62	7.63
1.17000	9.79	9.91
1.35000	11.99	12.41
1.58000	14.27	15.31
1.88000	16.55	18.66
2.23000	18.50	22.11
2.64000	20.13	25.63
3.05000	21.30	28.74
3.52000	22.27	31.89
4.11000	23.12	35.37
4.99000	23.93	39.81
5.88000	24.43	43.63
8.82000	25.13	53.25
11.70000	25.33	60.07
17.60000	25.39	70.01
29.40000	25.29	82.61
58.80000	25.13	99.74
117.00000	25.04	116.83
176.00000	25.01	127.00

TD=56.0 EV ET=0.620657 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.62600	0.07	0.07
0.63300	0.17	0.17
0.64500	0.34	0.34
0.66400	0.62	0.62
0.68800	0.99	0.99
0.71900	1.48	1.48
0.75700	2.10	2.10
0.80600	2.89	2.89
0.86800	3.90	3.90
0.96200	5.37	5.37
1.08000	7.07	7.08
1.24000	9.13	9.25
1.42000	11.09	11.48
1.67000	13.29	14.28
1.98000	15.38	17.37
2.35000	17.20	20.62
2.79000	18.75	23.99
3.22000	19.83	26.88
3.72000	20.73	29.85
4.34000	21.51	33.09
5.27000	22.25	37.25
6.20000	22.70	40.78
9.30000	23.34	49.75
12.40000	23.52	56.21
18.60000	23.57	65.40
31.00000	23.48	77.05
62.00000	23.33	92.97
124.00000	23.25	108.97
186.00000	23.23	118.34

TD=60.0 EV ET=0.652388 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.65800	0.06	0.06
0.66500	0.15	0.15
0.67800	0.30	0.30
0.69800	0.56	0.56
0.72400	0.90	0.90
0.75600	1.34	1.34
0.79500	1.89	1.89
0.84800	2.66	2.66
0.91300	3.59	3.59
1.01000	4.94	4.94
1.14000	6.63	6.64
1.30000	8.47	8.58
1.50000	10.42	10.80
1.76000	12.46	13.42
2.08000	14.38	16.28
2.47000	16.10	19.35
2.93000	17.54	22.51
3.39000	18.56	25.28
3.91000	19.38	28.05
4.56000	20.10	31.08
5.54000	20.79	34.99
6.52000	21.21	38.31
9.78000	21.79	46.71
13.00000	21.96	52.70
19.50000	22.00	61.29
32.60000	21.91	72.24
65.20000	21.77	87.11
130.00000	21.70	101.97
195.00000	21.68	110.73

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN K
Z=19 A= 39.100

TD=64.0 EV ET=0.683276 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.69000	0.07	0.07
0.69600	0.13	0.13
0.71000	0.27	0.27
0.73100	0.50	0.50
0.75800	0.81	0.81
0.79200	1.22	1.22
0.83300	1.74	1.74
0.88800	2.44	2.44
0.95600	3.32	3.32
1.05000	4.50	4.50
1.19000	6.14	6.16
1.36000	7.91	8.02
1.57000	9.76	10.14
1.84000	11.68	12.59
2.18000	13.52	15.35
2.59000	15.14	18.26
3.07000	16.48	21.23
3.55000	17.43	23.84
4.09000	18.20	26.43
4.78000	18.88	29.34
5.80000	19.51	33.00
6.83000	19.90	36.13
10.20000	20.44	43.95
13.60000	20.59	49.63
20.40000	20.62	57.69
34.10000	20.54	67.97
68.30000	20.41	81.95
136.00000	20.34	95.86

TD=68.0 EV ET=0.713385 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.72000	0.06	0.06
0.72700	0.12	0.12
0.74100	0.24	0.24
0.76300	0.45	0.45
0.79100	0.73	0.73
0.82700	1.12	1.12
0.87000	1.60	1.60
0.92700	2.26	2.26
0.99800	3.09	3.09
1.10000	4.25	4.25
1.24000	5.74	5.75
1.42000	7.44	7.55
1.64000	9.21	9.57
1.92000	11.01	11.89
2.28000	12.77	14.54
2.71000	14.30	17.31
3.21000	15.56	20.12
3.70000	16.43	22.54
4.28000	17.17	25.06
4.99000	17.79	27.76
6.06000	18.39	31.24
7.13000	18.74	34.19
10.70000	19.24	41.65
14.20000	19.38	46.93
21.40000	19.41	54.61
35.60000	19.33	64.20
71.30000	19.21	77.36
142.00000	19.15	90.46

TD=72.0 EV ET=0.742771 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.75000	0.05	0.05
0.75700	0.10	0.10
0.77200	0.22	0.22
0.79400	0.41	0.41
0.82400	0.68	0.68
0.86100	1.03	1.03
0.90600	1.49	1.49
0.96500	2.10	2.10
1.03000	2.79	2.79
1.15000	4.04	4.04
1.29000	5.40	5.41
1.48000	7.04	7.14
1.70000	8.66	8.99
2.00000	10.42	11.27
2.37000	12.08	13.76
2.82000	13.54	16.42
3.34000	14.72	19.09
3.86000	15.56	21.43
4.45000	16.24	23.77
5.19000	16.82	26.34
6.31000	17.38	29.66
7.42000	17.72	32.44
11.10000	18.18	39.45
14.80000	18.30	44.52
22.20000	18.33	51.71
37.10000	18.25	60.86
74.20000	18.14	73.26
148.00000	18.08	85.67

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN K
Z=19 A= 39.100

TD=76.0 EV ET=0.771484 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.77900	0.05	0.05
0.78600	0.09	0.09
0.80200	0.20	0.20
0.82500	0.38	0.38
0.85600	0.63	0.63
0.89400	0.95	0.95
0.94100	1.39	1.39
1.00000	1.95	1.95
1.08000	2.72	2.72
1.19000	3.77	3.77
1.35000	5.19	5.20
1.54000	6.69	6.80
1.77000	8.24	8.57
2.08000	9.91	10.73
2.46000	11.46	13.09
2.93000	12.86	15.63
3.47000	13.98	18.18
4.01000	14.77	20.41
4.62000	15.40	22.62
5.40000	15.96	25.11
6.55000	16.48	28.22
7.71000	16.79	30.86
11.50000	17.22	37.49
15.40000	17.34	42.38
23.10000	17.36	49.19
38.50000	17.29	57.82
77.10000	17.18	69.60
154.00000	17.13	81.37

TD=80.0 EV ET=0.799568 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.80700	0.04	0.04
0.81500	0.09	0.09
0.83100	0.19	0.19
0.85500	0.35	0.35
0.88700	0.58	0.58
0.92700	0.89	0.89
0.97500	1.29	1.29
1.03000	1.77	1.77
1.11000	2.48	2.48
1.23000	3.54	3.54
1.39000	4.86	4.87
1.59000	6.32	6.42
1.83000	7.81	8.13
2.15000	9.41	10.20
2.55000	10.92	12.48
3.03000	12.23	14.89
3.59000	13.29	17.32
4.15000	14.05	19.45
4.79000	14.66	21.60
5.59000	15.18	23.94
6.79000	15.67	26.93
7.99000	15.96	29.46
11.90000	16.36	35.73
15.90000	16.47	40.34
23.90000	16.49	46.86
39.90000	16.42	55.08
79.90000	16.32	66.28
159.00000	16.27	77.40

TD=84.0 EV ET=0.827062 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.83500	0.04	0.04
0.84300	0.08	0.08
0.86000	0.17	0.17
0.88400	0.32	0.32
0.91800	0.54	0.54
0.95900	0.84	0.84
1.00000	1.15	1.15
1.07000	1.71	1.71
1.15000	2.36	2.36
1.28000	3.42	3.42
1.44000	4.64	4.65
1.65000	6.06	6.16
1.90000	7.49	7.81
2.23000	9.01	9.78
2.64000	10.43	11.95
3.14000	11.68	14.26
3.72000	12.69	16.60
4.30000	13.41	18.63
4.96000	13.98	20.68
5.78000	14.47	22.89
7.03000	14.94	25.77
8.27000	15.21	28.18
12.40000	15.59	34.27
16.50000	15.69	38.60
24.80000	15.71	44.81
41.30000	15.64	52.61
82.70000	15.55	63.27
165.00000	15.50	73.91

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN K
Z=19 A= 39.100

TD=88.0 EV ET=0.854003 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.86200	0.03	0.03
0.87100	0.08	0.08
0.88800	0.16	0.16
0.91300	0.30	0.30
0.94700	0.50	0.50
0.99000	0.78	0.78
1.04000	1.13	1.13
1.11000	1.65	1.65
1.19000	2.26	2.26
1.32000	3.24	3.24
1.49000	4.44	4.46
1.70000	5.77	5.86
1.96000	7.16	7.46
2.30000	8.61	9.35
2.73000	9.99	11.47
3.24000	11.17	13.66
3.84000	12.14	15.90
4.44000	12.82	17.86
5.12000	13.36	19.81
5.97000	13.83	21.95
7.25000	14.27	24.68
8.54000	14.53	27.00
12.80000	14.89	32.82
17.00000	14.98	36.93
25.60000	14.99	42.89
42.70000	14.93	50.36
85.40000	14.84	60.52
170.00000	14.79	70.65

TD=92.0 EV ET=0.880423 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.88900	0.03	0.03
0.89800	0.07	0.07
0.91500	0.15	0.15
0.94200	0.28	0.28
0.97700	0.47	0.47
1.02000	0.73	0.73
1.07000	1.06	1.06
1.14000	1.54	1.54
1.23000	2.18	2.18
1.36000	3.09	3.09
1.54000	4.28	4.29
1.76000	5.56	5.66
2.02000	6.85	7.15
2.37000	8.24	8.97
2.81000	9.56	10.99
3.34000	10.70	13.12
3.96000	11.63	15.28
4.57000	12.27	17.13
5.28000	12.80	19.03
6.16000	13.28	21.08
7.48000	13.66	23.70
8.80000	13.91	25.92
13.20000	14.24	31.49
17.60000	14.33	35.49
26.40000	14.34	41.14
44.00000	14.28	48.27
88.00000	14.19	58.00
176.00000	14.15	67.75

TD=96.0 EV ET=0.906350 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.91500	0.03	0.03
0.92400	0.06	0.06
0.94200	0.14	0.14
0.96900	0.26	0.26
1.00000	0.41	0.41
1.05000	0.69	0.69
1.10000	0.99	0.99
1.17000	1.44	1.44
1.26000	2.04	2.04
1.40000	2.95	2.95
1.58000	4.07	4.08
1.81000	5.33	5.42
2.08000	6.58	6.87
2.44000	7.92	8.62
2.90000	9.20	10.60
3.44000	10.28	12.62
4.07000	11.16	14.67
4.71000	11.78	16.49
5.43000	12.27	18.29
6.34000	12.70	20.27
7.70000	13.10	22.79
9.06000	13.33	24.92
13.50000	13.65	30.18
18.10000	13.73	34.09
27.10000	13.74	39.48
45.30000	13.68	46.36
90.60000	13.60	55.69
181.00000	13.56	65.02

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN TI
Z=22 A= 47.900

TD= 4.0 EV ET=0.080890 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.08160	10.18	10.18
0.08250	22.63	22.63
0.08410	43.57	43.57
0.08650	72.38	72.38
0.08970	106.49	106.49
0.09380	144.10	144.10
0.09860	180.97	180.97
0.10500	220.67	220.67
0.11300	258.84	258.84
0.12500	299.48	299.48
0.14100	334.03	334.03
0.16100	359.14	359.69
0.18600	375.73	381.54
0.21800	385.42	401.48
0.25800	389.65	419.77
0.30700	390.32	437.24
0.36400	389.15	454.31
0.42000	387.55	469.37
0.48500	385.79	485.68
0.56600	383.96	504.91
0.68700	381.90	532.06
0.80800	380.43	557.67
1.21000	377.37	633.50
1.61000	375.37	697.43
2.42000	372.28	801.71
4.04000	368.22	950.37
8.08000	362.72	1171.39
16.10000	358.85	1404.05
24.20000	357.54	1544.89
40.40000	356.56	1723.93
56.60000	356.16	1842.50
80.80000	355.83	1968.00
161.00000	355.31	2211.58

TD= 8.0 EV ET=0.151984 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.15300	2.04	2.04
0.15500	5.94	5.94
0.15800	11.50	11.50
0.16200	18.40	18.40
0.16800	27.79	27.79
0.17600	38.78	38.78
0.18500	49.42	49.42
0.19700	61.35	61.35
0.21200	73.49	73.49
0.23500	87.88	87.88
0.26500	101.59	101.59
0.30300	113.98	114.42
0.34900	124.65	127.09
0.41000	134.69	141.04
0.48600	143.54	155.66
0.57700	151.13	170.73
0.68300	157.57	186.18
0.79000	162.42	200.20
0.91100	166.59	214.65
1.06000	170.43	230.86
1.29000	174.56	253.25
1.51000	177.19	272.32
2.27000	181.59	326.15
3.03000	182.96	367.68
4.55000	183.32	430.00
7.59000	182.33	512.94
15.10000	180.29	629.14
30.30000	178.89	749.90
45.50000	178.44	821.17
75.90000	178.10	911.36
106.00000	177.94	970.37
151.00000	177.80	1032.94
303.00000	177.55	1156.22

TD=12.0 EV ET=0.216159 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.21800	1.20	1.20
0.22000	2.47	2.47
0.22400	4.93	4.93
0.23100	8.95	8.95
0.23900	13.17	13.17
0.25000	18.41	18.41
0.26300	23.89	23.89
0.28100	30.47	30.47
0.30200	37.00	37.00
0.33500	45.43	45.43
0.37800	54.13	54.13
0.43200	62.65	63.02
0.49700	70.64	72.24
0.58300	78.78	82.81
0.69100	86.48	94.34
0.82100	93.38	106.49
0.97200	99.30	118.95
1.12000	103.64	129.90
1.29300	107.41	141.28
1.51300	110.99	154.52
1.83000	114.51	171.47
2.16000	116.86	186.75
3.24000	120.40	226.44
4.32000	121.46	256.24
6.48000	121.79	300.01
10.80000	121.16	357.06
21.60000	119.91	436.51
43.20000	119.13	517.32
64.80000	118.88	564.92
108.00000	118.68	625.10
151.00000	118.59	664.63
216.00000	118.50	706.88
432.00000	118.33	788.72

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN TI
Z=22 A= 47.900

TD=16.0 EV ET=0.275113 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.27700	0.56	0.56
0.28000	1.44	1.44
0.28600	3.14	3.14
0.29400	5.28	5.28
0.30500	8.03	8.03
0.31900	11.25	11.25
0.33500	14.61	14.61
0.35700	18.75	18.75
0.38500	23.39	23.39
0.42600	29.23	29.23
0.48100	35.75	35.75
0.55000	42.43	42.74
0.63200	48.86	50.07
0.74200	55.68	58.74
0.88000	62.24	68.30
1.04000	67.94	78.06
1.23000	72.96	88.31
1.43000	76.84	97.92
1.65000	80.01	107.39
1.92000	82.82	117.79
2.33000	85.67	131.58
2.75000	87.53	143.81
4.12000	90.21	175.05
5.50000	91.00	198.35
8.25000	91.20	232.04
13.70000	90.71	275.19
27.50000	89.82	335.59
55.00000	89.29	396.43
82.50000	89.12	432.22
137.00000	88.99	477.09
192.00000	88.92	506.96

TD=20.0 EV ET=0.329944 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.33300	0.50	0.50
0.33600	0.98	0.98
0.34300	2.08	2.08
0.35300	3.59	3.59
0.36600	5.45	5.45
0.38200	7.60	7.60
0.40200	10.10	10.10
0.42800	13.10	13.10
0.46100	16.56	16.56
0.51100	21.19	21.19
0.57700	26.45	26.46
0.65900	31.95	32.21
0.75800	37.42	38.42
0.89000	43.25	45.78
1.05000	48.72	53.68
1.25000	53.83	62.38
1.48000	58.11	71.19
1.71000	61.26	79.01
1.97000	63.88	86.93
2.30000	66.27	95.88
2.80000	68.62	107.61
3.29000	70.07	117.52
4.94000	72.18	143.41
6.59000	72.77	162.42
9.89000	72.90	189.81
16.40000	72.48	224.55
32.90000	71.80	273.06
65.90000	71.40	321.96
98.90000	71.28	350.66
164.00000	71.18	386.48
230.00000	71.13	410.44

TD=24.0 EV ET=0.381413 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.38500	0.36	0.36
0.38900	0.76	0.76
0.39500	1.44	1.44
0.40800	2.59	2.59
0.42300	3.96	3.96
0.44200	5.63	5.63
0.46500	7.55	7.55
0.49500	9.91	9.91
0.53300	12.68	12.68
0.59100	16.52	16.52
0.66700	20.94	20.95
0.76200	25.67	25.91
0.87700	30.44	31.31
1.02000	35.24	37.34
1.22000	40.41	44.80
1.44000	44.63	52.03
1.71000	48.40	59.83
1.98000	51.13	66.74
2.28000	53.34	73.58
2.66000	55.34	81.26
3.24000	57.30	91.37
3.81000	58.49	99.89
5.72000	60.19	121.91
7.62000	60.64	137.89
11.40000	60.71	160.77
19.00000	60.34	190.18
38.10000	59.79	230.72
76.20000	59.49	271.44
114.00000	59.39	295.20
190.00000	59.31	325.36
266.00000	59.27	345.23

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN TI
Z=22 A= 47.900

TD=28.0 EV ET=0.430070 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.43400	0.26	0.26
0.43800	0.53	0.53
0.44700	1.12	1.12
0.46000	1.97	1.97
0.47700	3.05	3.05
0.49800	4.35	4.35
0.52400	5.91	5.91
0.55900	7.93	7.93
0.60200	10.26	10.26
0.66600	13.48	13.48
0.75200	17.33	17.35
0.86000	21.52	21.74
0.98900	25.71	26.49
1.16000	30.19	32.15
1.37000	34.44	38.32
1.63000	38.34	45.04
1.93000	41.57	51.84
2.23000	43.91	57.85
2.58000	45.89	64.09
3.01000	47.59	70.84
3.65000	49.21	79.50
4.30000	50.22	87.03
6.45000	51.61	106.14
8.60000	51.97	120.02
12.90000	52.01	139.90
21.50000	51.68	165.21
43.00000	51.23	199.91
86.00000	50.98	234.85
129.00000	50.90	255.36
215.00000	50.83	281.22

TD=32.0 EV ET=0.476333 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.48100	0.22	0.22
0.48500	0.41	0.41
0.49500	0.88	0.88
0.50900	1.54	1.54
0.52800	2.43	2.43
0.55200	3.54	3.54
0.58100	4.85	4.85
0.61900	6.53	6.53
0.66600	8.53	8.53
0.73800	11.39	11.39
0.83300	14.81	14.82
0.95200	18.53	18.73
1.09000	22.18	22.87
1.28000	26.24	27.99
1.52000	30.17	33.72
1.81000	33.65	39.80
2.14000	36.49	45.86
2.47000	38.53	51.21
2.85000	40.24	56.68
3.33000	41.73	62.76
4.04000	43.14	70.48
4.76000	44.01	77.17
7.14000	45.18	94.07
9.52000	45.48	106.31
14.20000	45.49	123.54
23.80000	45.20	146.01
47.60000	44.81	176.42
95.20000	44.60	207.02
142.00000	44.53	224.73
238.00000	44.47	247.61

TD=36.0 EV ET=0.520523 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.52500	0.16	0.16
0.53000	0.33	0.33
0.54100	0.72	0.72
0.55600	1.25	1.25
0.57700	2.00	2.00
0.60300	2.93	2.93
0.63500	4.08	4.08
0.67600	5.53	5.53
0.72800	7.31	7.31
0.80600	9.85	9.85
0.91000	12.93	12.94
1.04000	16.30	16.49
1.19000	19.59	20.23
1.40000	23.32	24.94
1.66000	26.84	30.11
1.97000	29.93	35.53
2.34000	32.54	41.18
2.70000	34.36	46.01
3.12000	35.88	51.01
3.64000	37.19	56.45
4.42000	38.43	63.44
5.20000	39.17	69.39
7.80000	40.18	84.54
10.40000	40.42	95.48
15.60000	40.42	111.08
26.00000	40.16	130.88
52.00000	39.82	157.95
104.00000	39.64	185.17
156.00000	39.58	201.13
260.00000	39.53	221.25

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN TI
Z=22 A= 47.900

TD=40.0 EV ET=0.562896 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.56800	0.13	0.13
0.57400	0.30	0.30
0.58500	0.59	0.59
0.60200	1.06	1.06
0.62400	1.69	1.69
0.65200	2.49	2.49
0.68600	3.48	3.48
0.73100	4.79	4.79
0.78800	6.41	6.41
0.87200	8.69	8.69
0.98500	11.51	11.53
1.12000	14.48	14.65
1.29000	17.64	18.24
1.51000	20.95	22.44
1.80000	24.26	27.33
2.13000	27.01	32.22
2.53000	29.38	37.39
2.92000	31.02	41.81
3.37000	32.37	46.33
3.94000	33.55	51.36
4.78000	34.64	57.69
5.62000	35.30	63.07
8.44000	36.17	76.84
11.20000	36.38	86.57
16.80000	36.37	100.65
28.10000	36.13	118.63
56.20000	35.83	143.02
112.00000	35.67	167.40
168.00000	35.62	181.77

TD=44.0 EV ET=0.603660 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.60900	0.11	0.11
0.61500	0.24	0.24
0.62700	0.49	0.49
0.64500	0.89	0.89
0.67000	1.47	1.47
0.70000	2.18	2.18
0.73600	3.05	3.05
0.78400	4.22	4.22
0.84500	5.69	5.69
0.93500	7.77	7.77
1.05000	10.24	10.26
1.20000	13.09	13.25
1.38000	15.98	16.53
1.62000	19.08	20.48
1.93000	22.11	24.99
2.29000	24.67	29.57
2.71000	26.78	34.24
3.13000	28.27	38.34
3.62000	29.51	42.56
4.22000	30.55	47.08
5.13000	31.54	52.95
6.03000	32.12	57.87
9.05000	32.90	70.44
12.00000	33.07	79.29
18.10000	33.05	92.30
30.10000	32.83	108.49
60.30000	32.56	130.73
120.00000	32.43	152.86
181.00000	32.38	166.11

TD=48.0 EV ET=0.642984 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.64900	0.10	0.10
0.65500	0.20	0.20
0.66800	0.43	0.43
0.68700	0.77	0.77
0.71300	1.27	1.27
0.74500	1.90	1.90
0.78400	2.70	2.70
0.83500	3.76	3.76
0.90000	5.11	5.11
0.99600	7.04	7.04
1.12000	9.35	9.37
1.28000	11.99	12.15
1.47000	14.65	15.18
1.73000	17.57	18.91
2.05000	20.28	22.97
2.44000	22.69	27.31
2.89000	24.63	31.66
3.34000	26.00	35.47
3.85000	27.10	39.29
4.50000	28.07	43.55
5.45000	28.95	48.91
6.42000	29.47	53.86
9.64000	30.16	65.05
12.80000	30.32	73.23
19.20000	30.29	85.02
32.10000	30.09	100.03
64.20000	29.85	120.39
128.00000	29.72	140.74
192.00000	29.68	152.72

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN TI
Z=22 A= 47.900

TD=52.0 EV	ET=0.681012 MEV		TD=56.0 EV	ET=0.717864 MEV		TD=60.0 EV	ET=0.753642 MEV	
ENERGY(MEV)	PRIMARY	CASCADE	ENERGY(MEV)	PRIMARY	CASCADE	ENERGY(MEV)	PRIMARY	CASCADE
0.68700	0.08	0.08	0.72500	0.08	0.08	0.76100	0.07	0.07
0.69400	0.18	0.18	0.73200	0.16	0.16	0.76800	0.14	0.14
0.70800	0.38	0.38	0.74600	0.33	0.33	0.78300	0.29	0.29
0.72800	0.68	0.68	0.76800	0.61	0.61	0.80600	0.54	0.54
0.75500	1.12	1.12	0.79600	1.00	1.00	0.83600	0.90	0.90
0.78900	1.69	1.69	0.83200	1.53	1.53	0.87400	1.39	1.39
0.83000	2.41	2.41	0.87500	2.19	2.19	0.91900	2.00	2.00
0.88500	3.41	3.41	0.93300	3.11	3.11	0.97900	2.85	2.85
0.95300	4.64	4.64	1.00000	4.18	4.18	1.05000	3.86	3.86
1.05000	6.35	6.35	1.11000	5.90	5.90	1.16000	5.40	5.40
1.19000	8.65	8.67	1.25000	7.94	7.96	1.31000	7.37	7.38
1.36000	11.11	11.27	1.43000	10.27	10.42	1.50000	9.58	9.72
1.56000	13.57	14.08	1.65000	12.67	13.17	1.73000	11.83	12.30
1.83000	16.23	17.50	1.93000	15.12	16.33	2.03000	14.17	15.34
2.17000	18.77	21.31	2.29000	17.50	19.92	2.41000	16.41	18.74
2.58000	20.98	25.34	2.72000	19.54	23.68	2.86000	18.31	22.26
3.06000	22.80	29.43	3.23000	21.24	27.54	3.39000	19.87	25.86
3.54000	24.07	33.01	3.73000	22.40	30.85	3.91000	20.94	28.94
4.08000	25.08	36.56	4.30000	23.33	34.17	4.52000	21.82	32.13
4.76000	25.95	40.47	5.02000	24.13	37.85	5.27000	22.56	35.54
5.78000	26.76	45.47	6.10000	24.88	42.53	6.40000	23.24	39.93
6.81000	27.24	49.74	7.17000	25.31	46.46	7.53000	23.64	43.63
10.20000	27.85	60.42	10.70000	25.86	56.31	11.30000	24.15	52.98
13.60000	27.99	68.10	14.30000	25.99	63.53	15.00000	24.25	59.57
20.40000	27.95	79.00	21.50000	25.95	73.72	22.60000	24.22	69.14
34.00000	27.77	92.79	35.80000	25.78	86.51	37.60000	24.05	81.08
68.10000	27.55	111.64	71.70000	25.57	104.02	75.30000	23.87	97.42
136.00000	27.43	130.47	143.00000	25.47	121.48	150.00000	23.77	113.69
204.00000	27.40	141.53	215.00000	25.44	131.81	226.00000	23.74	123.39

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN TI
Z=22 A= 47.900

TD=64.0 EV	ET=0.788436 MEV		TD=68.0 EV	ET=0.822321 MEV		TD=72.0 EV	ET=0.855367 MEV	
ENERGY(MEV)	PRIMARY	CASCADE	ENERGY(MEV)	PRIMARY	CASCADE	ENERGY(MEV)	PRIMARY	CASCADE
0.79600	0.06	0.06	0.83000	0.05	0.05	0.86300	0.04	0.04
0.80400	0.13	0.13	0.83800	0.11	0.11	0.87200	0.10	0.10
0.81900	0.26	0.26	0.85500	0.24	0.24	0.88900	0.22	0.22
0.84300	0.49	0.49	0.87900	0.44	0.44	0.91500	0.41	0.41
0.87500	0.82	0.82	0.91200	0.75	0.75	0.94900	0.69	0.69
0.91400	1.27	1.27	0.95300	1.16	1.16	0.99200	1.08	1.08
0.96100	1.83	1.83	1.00000	1.67	1.67	1.04000	1.55	1.55
1.02000	2.58	2.58	1.06000	2.35	2.35	1.11000	2.27	2.27
1.10000	3.60	3.60	1.15000	3.40	3.40	1.19000	3.12	3.12
1.22000	5.12	5.12	1.27000	4.77	4.77	1.32000	4.48	4.48
1.37000	6.89	6.91	1.43000	6.49	6.51	1.49000	6.15	6.17
1.57000	8.99	9.13	1.64000	8.49	8.63	1.71000	8.07	8.20
1.81000	11.11	11.57	1.89000	10.50	10.94	1.96000	9.90	10.32
2.12000	13.30	14.41	2.22000	12.60	13.69	2.30000	11.88	12.91
2.52000	15.42	17.65	2.63000	14.56	16.70	2.73000	13.76	15.81
2.99000	17.20	20.97	3.12000	16.24	19.85	3.25000	15.38	18.87
3.54000	18.66	24.34	3.70000	17.61	23.08	3.84000	16.65	21.86
4.09000	19.67	27.29	4.27000	18.55	25.84	4.44000	17.55	24.52
4.73000	20.49	30.30	4.93000	19.31	28.66	5.13000	18.27	27.21
5.51000	21.17	33.50	5.75000	19.95	31.71	5.98000	18.87	30.09
6.70000	21.81	37.65	6.98000	20.54	35.60	7.27000	19.42	33.80
7.88000	22.18	41.13	8.22000	20.88	38.90	8.55000	19.74	36.91
11.80000	22.64	49.87	12.30000	21.31	47.14	12.80000	20.13	44.71
15.70000	22.74	56.11	16.40000	21.40	53.06	17.10000	20.21	50.35
23.60000	22.70	65.05	24.60000	21.36	61.44	25.60000	20.17	58.23
39.40000	22.55	76.32	41.10000	21.22	72.07	42.70000	20.04	68.24
78.80000	22.37	91.62	82.20000	21.05	86.47	85.50000	19.88	81.88
157.00000	22.28	106.88	164.00000	20.97	100.87	171.00000	19.81	95.52

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN TI
Z=22 A= 47.900

TD=76.0 EV ET=0.887632 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.89600	0.04	0.04
0.90500	0.09	0.09
0.92300	0.20	0.20
0.94900	0.37	0.37
0.98500	0.64	0.64
1.02000	0.93	0.93
1.08000	1.46	1.46
1.15000	2.12	2.12
1.24000	2.99	2.99
1.37000	4.24	4.24
1.55000	5.86	5.88
1.77000	7.62	7.74
2.04000	9.43	9.85
2.39000	11.30	12.30
2.84000	13.10	15.09
3.37000	14.60	17.94
3.99000	15.82	20.83
4.61000	16.66	23.35
5.32000	17.33	25.89
6.21000	17.89	28.65
7.54000	18.41	32.15
8.87000	18.71	35.11
13.30000	19.08	42.54
17.70000	19.15	47.82
26.60000	19.11	55.37
44.30000	18.98	64.83
88.70000	18.84	77.75
177.00000	18.76	90.63

TD=80.0 EV ET=0.919170 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.92800	0.04	0.04
0.93700	0.08	0.08
0.95500	0.18	0.18
0.98300	0.35	0.35
1.02000	0.60	0.60
1.06000	0.89	0.89
1.12000	1.38	1.38
1.19000	1.99	1.99
1.28000	2.79	2.79
1.42000	4.03	4.03
1.60000	5.53	5.54
1.83000	7.23	7.35
2.11000	8.97	9.37
2.48000	10.79	11.76
2.94000	12.47	14.39
3.49000	13.90	17.12
4.13000	15.05	19.87
4.77000	15.84	22.27
5.51000	16.48	24.70
6.43000	17.02	27.33
7.81000	17.50	30.68
9.19000	17.78	33.49
13.70000	18.12	40.47
18.30000	18.19	45.55
27.50000	18.15	52.72
45.90000	18.03	61.75
91.90000	17.89	74.03
183.00000	17.83	86.24

TD=84.0 EV ET=0.950027 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.95900	0.04	0.04
0.96900	0.08	0.08
0.98800	0.17	0.17
1.01000	0.29	0.29
1.05000	0.53	0.53
1.10000	0.87	0.87
1.15000	1.24	1.24
1.23000	1.88	1.88
1.33000	2.70	2.70
1.47000	3.85	3.85
1.66000	5.31	5.33
1.90000	6.95	7.07
2.18000	8.56	8.94
2.56000	10.28	11.22
3.04000	11.91	13.76
3.61000	13.27	16.39
4.27000	14.36	19.01
4.94000	15.12	21.33
5.70000	15.72	23.64
6.65000	16.22	26.14
8.07000	16.68	29.32
9.50000	16.94	32.02
14.20000	17.26	38.71
19.00000	17.32	43.59
28.50000	17.28	50.39
47.50000	17.17	58.97
95.00000	17.04	70.65
190.00000	16.98	82.35

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN TI
Z=22 A= 47.900

TD=88.0 EV ET=0.980245 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.99000	0.03	0.03
0.99900	0.07	0.07
1.01000	0.12	0.12
1.04000	0.26	0.26
1.08000	0.47	0.47
1.13000	0.79	0.79
1.19000	1.20	1.20
1.27000	1.79	1.79
1.37000	2.55	2.55
1.51000	3.62	3.62
1.71000	5.06	5.07
1.96000	6.64	6.76
2.25000	8.19	8.56
2.64000	9.83	10.74
3.13000	11.37	13.16
3.72000	12.68	15.68
4.41000	13.73	18.23
5.09000	14.45	20.42
5.88000	15.02	22.64
6.86000	15.50	25.04
8.33000	15.93	28.10
9.80000	16.18	30.66
14.70000	16.48	37.12
19.60000	16.54	41.72
29.40000	16.50	48.22
49.00000	16.38	56.42
98.00000	16.26	67.56
196.00000	16.20	78.73

TD=92.0 EV ET=1.009863 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.01000	0.00	0.00
1.03000	0.07	0.07
1.05000	0.15	0.15
1.08000	0.28	0.28
1.12000	0.49	0.49
1.17000	0.78	0.78
1.23000	1.16	1.16
1.31000	1.71	1.71
1.41000	2.43	2.43
1.56000	3.49	3.49
1.76000	4.83	4.85
2.01000	6.32	6.43
2.32000	7.86	8.23
2.72000	9.43	10.31
3.23000	10.91	12.65
3.83000	12.15	15.05
4.54000	13.15	17.50
5.25000	13.84	19.62
6.05000	14.38	21.72
7.06000	14.83	24.02
8.58000	15.25	26.96
10.00000	15.47	29.28
15.10000	15.77	35.56
20.10000	15.82	39.95
30.20000	15.78	46.19
50.40000	15.67	54.05
100.00000	15.56	64.59
201.00000	15.50	75.36

TD=96.0 EV ET=1.038916 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.04000	0.00	0.00
1.05000	0.03	0.03
1.08000	0.13	0.13
1.11000	0.26	0.26
1.15000	0.45	0.45
1.20000	0.72	0.72
1.26000	1.07	1.07
1.35000	1.65	1.65
1.45000	2.32	2.32
1.61000	3.38	3.38
1.81000	4.63	4.65
2.07000	6.08	6.19
2.38000	7.52	7.87
2.80000	9.06	9.92
3.32000	10.47	12.16
3.94000	11.67	14.47
4.67000	12.62	16.82
5.40000	13.28	18.87
6.23000	13.80	20.90
7.27000	14.23	23.11
8.83000	14.62	25.92
10.30000	14.83	28.16
15.50000	15.11	34.14
20.70000	15.16	38.39
31.10000	15.12	44.38
51.90000	15.02	51.91
103.00000	14.91	62.02
207.00000	14.85	72.34

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN V
Z=23 A= 50.950

TD= 4.0 EV ET=0.085670 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.08650	10.95	10.95
0.08730	21.14	21.14
0.08900	41.72	41.72
0.09160	70.56	70.56
0.09500	104.04	104.04
0.09930	140.56	140.56
0.10400	174.31	174.31
0.11100	215.16	215.16
0.11900	251.34	251.34
0.13200	293.49	293.49
0.14900	328.86	328.86
0.17100	355.78	356.42
0.19700	373.15	379.04
0.23100	384.42	400.62
0.27400	390.44	421.03
0.32500	392.83	440.22
0.38500	393.30	459.35
0.44500	392.94	476.50
0.51400	392.31	494.83
0.59900	391.54	516.03
0.72800	390.57	546.14
0.85600	389.81	574.06
1.28000	387.87	655.43
1.71000	386.18	724.38
2.57000	383.15	834.27
4.28000	378.88	988.70
8.56000	372.96	1217.63
17.10000	368.85	1458.53
25.70000	367.48	1603.51
42.80000	366.46	1786.86
59.90000	366.03	1908.41
85.60000	365.67	2037.80
171.00000	365.08	2289.06

TD= 8.0 EV ET=0.160497 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.16200	2.79	2.79
0.16300	4.60	4.60
0.16600	9.82	9.82
0.17100	17.90	17.90
0.17800	28.06	28.06
0.18600	38.26	38.26
0.19500	48.26	48.26
0.20800	60.49	60.49
0.22400	72.79	72.79
0.24800	87.20	87.20
0.28000	101.45	101.45
0.32000	114.34	114.81
0.36900	125.77	128.30
0.43300	136.52	143.02
0.51300	146.16	158.60
0.60900	154.50	174.75
0.72200	161.65	191.45
0.83400	166.92	206.31
0.96200	171.48	221.75
1.12000	175.66	239.08
1.36000	180.03	262.55
1.60000	182.89	283.35
2.40000	187.36	339.63
3.20000	188.66	382.85
4.81000	188.85	447.80
8.02000	187.64	533.56
16.00000	185.37	653.91
32.00000	183.89	777.65
48.10000	183.41	851.13
80.20000	183.04	943.78
112.00000	182.87	1004.44
160.00000	182.71	1069.25
320.00000	182.42	1195.32

TD=12.0 EV ET=0.227784 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.23000	1.34	1.34
0.23200	2.52	2.52
0.23600	4.80	4.80
0.24300	8.57	8.57
0.25200	13.02	13.02
0.26400	18.38	18.38
0.27700	23.57	23.57
0.29600	30.20	30.20
0.31800	36.79	36.79
0.35300	45.50	45.50
0.39300	54.47	54.47
0.45500	63.44	63.83
0.52300	71.86	73.50
0.61500	80.66	84.86
0.72300	88.82	97.00
0.86500	96.19	109.90
1.02000	102.34	122.78
1.18000	107.07	134.68
1.36000	111.05	146.76
1.59000	114.75	160.60
1.93000	118.41	178.56
2.27000	120.76	194.22
3.41000	124.29	235.76
4.55000	125.27	266.80
6.83000	125.47	312.21
11.30000	124.69	370.26
22.70000	123.29	452.61
45.50000	122.45	536.00
68.30000	122.19	585.04
113.00000	121.98	646.02
159.00000	121.87	687.42
227.00000	121.77	730.59
455.00000	121.57	814.95

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN V
Z=23 A= 50.950

TD=16.0 EV ET=0.289435 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.29200	0.71	0.71
0.29500	1.53	1.53
0.30100	3.11	3.11
0.30900	5.12	5.12
0.32100	7.95	7.95
0.33500	11.01	11.01
0.35300	14.61	14.61
0.37600	18.77	18.77
0.40500	23.44	23.44
0.44800	29.44	29.44
0.50600	36.26	36.26
0.57800	43.23	43.55
0.66500	50.08	51.35
0.78100	57.32	60.53
0.92600	64.25	70.61
1.09000	70.13	80.67
1.30000	75.66	92.03
1.50000	79.51	101.64
1.73000	82.79	111.55
2.02000	85.76	122.70
2.46000	88.70	137.39
2.89000	90.51	149.80
4.34000	93.15	182.47
5.78000	93.85	206.41
8.68000	93.94	241.33
14.40000	93.33	285.75
28.90000	92.35	347.91
57.80000	91.78	410.50
86.80000	91.60	447.39
144.00000	91.46	493.43

TD=20.0 EV ET=0.346666 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.35000	0.51	0.51
0.35300	0.96	0.96
0.36000	1.99	1.99
0.37000	3.41	3.41
0.38400	5.31	5.31
0.40200	7.62	7.62
0.42200	10.03	10.03
0.45000	13.16	13.16
0.48500	16.74	16.74
0.53700	21.49	21.49
0.60600	26.96	26.97
0.69300	32.79	33.08
0.79700	38.55	39.61
0.93500	44.67	47.33
1.10000	50.33	55.51
1.31000	55.72	64.69
1.55000	60.18	73.90
1.80000	63.55	82.40
2.07000	66.22	90.60
2.42000	68.67	100.03
2.94000	71.03	112.14
3.46000	72.48	122.55
5.19000	74.52	149.36
6.93000	75.04	169.09
10.30000	75.08	196.70
17.30000	74.56	233.40
34.60000	73.81	283.12
69.30000	73.39	333.40
103.00000	73.27	362.20
173.00000	73.15	399.95

TD=24.0 EV ET=0.400309 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.40400	0.35	0.35
0.40800	0.72	0.72
0.41600	1.45	1.45
0.42800	2.53	2.53
0.44400	3.93	3.93
0.46400	5.62	5.62
0.48800	7.55	7.55
0.52000	10.00	10.00
0.56000	12.87	12.87
0.62000	16.81	16.81
0.70000	21.45	21.46
0.80000	26.43	26.68
0.92000	31.42	32.34
1.08000	36.77	39.08
1.28000	41.90	46.54
1.52000	46.45	54.42
1.80000	50.29	62.48
2.08000	53.06	69.61
2.40000	55.36	76.87
2.80000	57.38	84.89
3.40000	59.32	95.25
4.00000	60.50	104.13
6.00000	62.13	126.90
8.00000	62.52	143.48
12.00000	62.52	167.23
20.00000	62.08	197.53
40.00000	61.47	239.09
80.00000	61.15	280.96
120.00000	61.04	305.54
200.00000	60.95	336.54

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN V
Z=23 A= 50.950

TD=28.0 EV ET=0.450966 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.45500	0.25	0.25
0.45900	0.50	0.50
0.46900	1.12	1.12
0.48200	1.92	1.92
0.50000	3.02	3.02
0.52300	4.39	4.39
0.55000	5.97	5.97
0.58600	7.99	7.99
0.63100	10.41	10.41
0.69800	13.75	13.75
0.78900	17.83	17.85
0.90100	22.18	22.41
1.03000	26.41	27.20
1.21000	31.17	33.19
1.44000	35.82	39.97
1.71000	39.83	46.95
2.02000	43.14	53.97
2.34000	45.58	60.37
2.70000	47.57	66.75
3.15000	49.29	73.79
3.83000	50.95	82.92
4.50000	51.93	90.60
6.76000	53.27	110.45
9.01000	53.58	124.78
13.50000	53.56	145.22
22.50000	53.17	171.29
45.00000	52.67	206.98
90.10000	52.40	242.97
135.00000	52.31	263.99

TD=32.0 EV ET=0.499085 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.50400	0.22	0.22
0.50900	0.44	0.44
0.51900	0.88	0.88
0.53400	1.55	1.55
0.55300	2.40	2.40
0.57800	3.52	3.52
0.60800	4.85	4.85
0.64800	6.59	6.59
0.69800	8.69	8.69
0.77300	11.67	11.67
0.87300	15.26	15.28
0.99800	19.18	19.40
1.14000	22.94	23.67
1.34000	27.23	29.08
1.59000	31.32	35.07
1.89000	34.91	41.37
2.24000	37.89	47.79
2.59000	40.01	53.45
2.99000	41.75	59.17
3.49000	43.25	65.46
4.24000	44.67	73.54
4.99000	45.51	80.42
7.48000	46.63	97.88
9.98000	46.88	110.55
14.90000	46.84	128.36
24.90000	46.50	151.36
49.90000	46.07	182.73
99.80000	45.84	214.20
149.00000	45.77	232.44

TD=36.0 EV ET=0.545014 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.55000	0.16	0.16
0.55500	0.33	0.33
0.56600	0.69	0.69
0.58300	1.27	1.27
0.60400	1.99	1.99
0.63200	2.96	2.96
0.66400	4.08	4.08
0.70800	5.62	5.62
0.76300	7.49	7.49
0.84400	10.12	10.12
0.95300	13.35	13.37
1.09300	16.91	17.12
1.25000	20.42	21.11
1.47000	24.31	26.05
1.74000	27.94	31.42
2.07000	31.17	37.18
2.45000	33.81	42.96
2.83000	35.68	48.04
3.27000	37.23	53.24
3.81000	38.53	58.85
4.63000	39.77	66.13
5.45000	40.51	72.32
8.17000	41.46	87.96
10.90000	41.67	99.28
16.30000	41.62	115.23
27.20000	41.31	135.67
54.50000	40.94	163.58
109.00000	40.74	191.57
163.00000	40.68	207.85

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN V
Z=23 A= 50.950

TD=40.0 EV ET=0.589027 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.59400	0.12	0.12
0.60000	0.27	0.27
0.61200	0.58	0.58
0.63000	1.06	1.06
0.65300	1.68	1.68
0.68300	2.53	2.53
0.71800	3.52	3.52
0.76500	4.87	4.87
0.82400	6.54	6.54
0.91200	8.93	8.93
1.03000	11.89	11.90
1.17000	14.98	15.16
1.35000	18.34	18.98
1.59000	21.92	23.55
1.88000	25.20	28.45
2.23000	28.10	33.63
2.65000	30.54	39.04
3.06000	32.22	43.67
3.53000	33.58	48.36
4.12000	34.76	53.52
5.00000	35.85	60.10
5.89000	36.50	65.74
8.83000	37.33	79.91
11.70000	37.50	89.90
17.60000	37.44	104.51
29.40000	37.16	122.97
58.90000	36.83	148.11
117.00000	36.66	173.06
176.00000	36.61	187.94

TD=44.0 EV ET=0.631345 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.63700	0.11	0.11
0.64300	0.23	0.23
0.65600	0.49	0.49
0.67500	0.90	0.90
0.70000	1.45	1.45
0.73200	2.19	2.19
0.77000	3.09	3.09
0.82000	4.30	4.30
0.88300	5.81	5.81
0.97800	8.02	8.02
1.10000	10.64	10.66
1.26000	13.68	13.86
1.45000	16.71	17.33
1.70000	19.92	21.44
2.02000	23.02	26.09
2.39000	25.62	30.80
2.84000	27.85	35.79
3.28000	29.37	40.05
3.78000	30.60	44.33
4.41000	31.65	49.06
5.36000	32.64	55.13
6.31000	33.21	60.28
9.47000	33.94	73.26
12.60000	34.09	82.51
18.90000	34.03	95.73
31.50000	33.77	112.46
63.10000	33.48	135.34
126.00000	33.33	158.20
189.00000	33.28	171.63

TD=48.0 EV ET=0.672151 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.67800	0.09	0.09
0.68500	0.20	0.20
0.69900	0.43	0.43
0.71900	0.78	0.78
0.74600	1.28	1.28
0.77900	1.92	1.92
0.82000	2.75	2.75
0.87300	3.85	3.85
0.94100	5.26	5.26
1.04000	7.25	7.25
1.17000	9.68	9.70
1.34000	12.50	12.67
1.54000	15.29	15.86
1.81000	18.30	19.74
2.15000	21.17	24.06
2.55000	23.59	28.49
3.02000	25.59	33.03
3.49000	26.99	37.00
4.03000	28.12	41.01
4.70000	29.07	45.37
5.71000	29.96	50.96
6.72000	30.47	55.70
10.00000	31.12	67.40
13.40000	31.25	76.11
20.10000	31.18	88.25
33.60000	30.95	103.70
67.20000	30.68	124.63
134.00000	30.55	145.56
201.00000	30.50	157.87

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN V
Z=23 A= 50.950

TD=52.0 EV ET=0.711596 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.71800	0.08	0.08
0.72500	0.17	0.17
0.74000	0.38	0.38
0.76100	0.68	0.68
0.78900	1.12	1.12
0.82500	1.72	1.72
0.86800	2.47	2.47
0.92500	3.49	3.49
0.99600	4.78	4.78
1.10000	6.62	6.62
1.24000	8.92	8.94
1.42000	11.55	11.71
1.63000	14.13	14.67
1.92000	16.97	18.35
2.27000	19.56	22.27
2.70000	21.85	26.48
3.20000	23.70	30.73
3.70000	24.99	34.44
4.26000	26.00	38.10
4.98000	26.89	42.21
6.04000	27.69	47.36
7.11000	28.15	51.76
10.60000	28.73	62.65
14.20000	28.84	70.70
21.30000	28.78	81.93
35.50000	28.56	96.12
71.10000	28.32	115.50
142.00000	28.20	134.86

TD=56.0 EV ET=0.749807 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.75700	0.08	0.08
0.76400	0.15	0.15
0.77900	0.32	0.32
0.80200	0.61	0.61
0.83200	1.01	1.01
0.86900	1.54	1.54
0.91400	2.23	2.23
0.97400	3.18	3.18
1.04000	4.23	4.23
1.16000	6.12	6.12
1.31000	8.31	8.33
1.49000	10.65	10.80
1.72000	13.17	13.69
2.02000	15.78	17.08
2.39000	18.21	20.78
2.84000	20.33	24.71
3.37000	22.06	28.71
3.89000	23.24	32.14
4.49000	24.19	35.62
5.24000	25.00	39.42
6.37000	25.74	44.28
7.49000	26.16	48.36
11.20000	26.68	58.58
14.90000	26.78	65.90
22.40000	26.72	76.39
37.40000	26.52	89.63
74.90000	26.29	107.63
149.00000	26.18	125.51

TD=60.0 EV ET=0.786894 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.79400	0.06	0.06
0.80200	0.14	0.14
0.81300	0.29	0.29
0.84100	0.54	0.54
0.87300	0.91	0.91
0.91200	1.40	1.40
0.96000	2.05	2.05
1.02000	2.89	2.89
1.10000	4.03	4.03
1.21000	5.58	5.58
1.37000	7.69	7.70
1.57000	10.01	10.17
1.80000	12.27	12.76
2.12000	14.77	16.02
2.51000	17.05	19.51
2.99000	19.06	23.26
3.54000	20.65	26.98
4.09000	21.75	30.23
4.72000	22.63	33.49
5.50000	23.36	37.02
6.68000	24.04	41.56
7.86000	24.43	45.39
11.80000	24.91	55.05
15.70000	25.00	61.90
23.60000	24.93	71.71
39.30000	24.74	84.00
78.60000	24.54	100.78
157.00000	24.43	117.57

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN V
Z=23 A= 50.950

TD=64.0 EV ET=0.822950 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.83100	0.06	0.06
0.83900	0.12	0.12
0.85500	0.26	0.26
0.88000	0.49	0.49
0.91300	0.83	0.83
0.95400	1.29	1.29
1.00000	1.84	1.84
1.06000	2.59	2.59
1.15000	3.74	3.74
1.27000	5.26	5.26
1.44000	7.28	7.30
1.64000	9.38	9.53
1.89000	11.59	12.08
2.22000	13.90	15.11
2.63000	16.06	18.43
3.12000	17.89	21.89
3.70000	19.39	25.43
4.27000	20.42	28.46
4.93000	21.24	31.55
5.76000	21.94	34.93
6.99000	22.56	39.19
8.22000	22.92	42.78
12.30000	23.36	51.78
16.40000	23.43	58.26
24.60000	23.37	67.42
41.10000	23.19	79.03
82.20000	23.00	94.76
164.00000	22.91	110.48

TD=68.0 EV ET=0.858057 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.86600	0.05	0.05
0.87500	0.11	0.11
0.89200	0.24	0.24
0.91800	0.45	0.45
0.95200	0.76	0.76
0.99500	1.19	1.19
1.04000	1.67	1.67
1.11000	2.46	2.46
1.20000	3.51	3.51
1.32000	4.89	4.89
1.50000	6.84	6.85
1.71000	8.84	8.98
1.97000	10.93	11.40
2.31000	13.10	14.24
2.74000	15.14	17.41
3.26000	16.90	20.75
3.86000	18.30	24.07
4.46000	19.26	26.97
5.14000	20.02	29.85
6.00000	20.67	33.03
7.29000	21.25	37.07
8.58000	21.58	40.48
12.80000	21.98	48.91
17.10000	22.05	55.06
25.70000	21.99	63.72
42.90000	21.82	74.64
85.80000	21.65	89.45
171.00000	21.56	104.23

TD=72.0 EV ET=0.892285 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.90100	0.05	0.05
0.91000	0.10	0.10
0.92700	0.21	0.21
0.95400	0.41	0.41
0.99000	0.70	0.70
1.03000	1.06	1.06
1.08000	1.54	1.54
1.15000	2.26	2.26
1.24000	3.21	3.21
1.38000	4.68	4.68
1.56000	6.46	6.48
1.78000	8.38	8.52
2.05000	10.36	10.81
2.40000	12.39	13.49
2.85000	14.34	16.52
3.39000	16.00	19.69
4.01000	17.31	22.83
4.63000	18.21	25.56
5.35000	18.94	28.35
6.24000	19.54	31.35
7.58000	20.09	35.17
8.92000	20.40	38.39
13.30000	20.77	46.36
17.80000	20.83	52.21
26.70000	20.77	60.36
44.60000	20.61	70.69
89.20000	20.44	84.69
178.00000	20.36	98.67

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN V
Z=23 A= 50.950

TD=76.0 EV	ET=0.925699 MEV		TD=80.0 EV	ET=0.958353 MEV		TD=84.0 EV	ET=0.990297 MEV	
ENERGY(MEV)	PRIMARY	CASCADE	ENERGY(MEV)	PRIMARY	CASCADE	ENERGY(MEV)	PRIMARY	CASCADE
0.93400	0.04	0.04	0.96700	0.04	0.04	1.00000	0.04	0.04
0.94400	0.09	0.09	0.97700	0.08	0.08	1.01000	0.08	0.08
0.96200	0.20	0.20	0.99600	0.18	0.18	1.02000	0.12	0.12
0.99000	0.38	0.38	1.02000	0.32	0.32	1.05000	0.27	0.27
1.02000	0.59	0.59	1.06000	0.58	0.58	1.09000	0.51	0.51
1.07000	1.00	1.00	1.11000	0.95	0.95	1.14000	0.84	0.84
1.12000	1.44	1.44	1.16000	1.35	1.35	1.20000	1.29	1.29
1.20000	2.19	2.19	1.24000	2.04	2.04	1.28000	1.92	1.92
1.29000	3.06	3.06	1.34000	2.94	2.94	1.38000	2.75	2.75
1.43000	4.41	4.41	1.48000	4.18	4.18	1.53000	3.99	3.99
1.61000	6.05	6.06	1.67000	5.78	5.79	1.73000	5.54	5.55
1.85000	7.98	8.11	1.91000	7.55	7.68	1.98000	7.25	7.38
2.12000	9.79	10.23	2.20000	9.35	9.78	2.27000	8.91	9.32
2.49000	11.77	12.83	2.58000	11.22	12.25	2.67000	10.73	11.73
2.96000	13.63	15.74	3.06000	12.97	14.99	3.16000	12.37	14.33
3.51000	15.18	18.70	3.64000	14.46	17.87	3.76000	13.80	17.09
4.16000	16.43	21.73	4.31000	15.64	20.74	4.45000	14.92	19.82
4.81000	17.29	24.36	4.98000	16.45	23.24	5.14000	15.68	22.20
5.55000	17.97	26.98	5.75000	17.09	25.75	5.94000	16.29	24.62
6.47000	18.53	29.82	6.70000	17.62	28.45	6.93000	16.80	27.22
7.86000	19.04	33.45	8.14000	18.10	31.91	8.41000	17.25	30.50
9.25000	19.33	36.51	9.58000	18.37	34.83	9.90000	17.50	33.29
13.80000	19.67	44.09	14.30000	18.69	42.04	14.80000	17.81	40.20
18.50000	19.73	49.67	19.10000	18.74	47.28	19.80000	17.85	45.22
27.70000	19.67	57.36	28.70000	18.68	54.66	29.70000	17.79	52.22
46.20000	19.52	67.12	47.90000	18.54	63.95	49.50000	17.66	61.05
92.50000	19.36	80.40	95.80000	18.39	76.55	99.00000	17.52	73.05
185.00000	19.29	93.70	191.00000	18.32	89.12	198.00000	17.45	85.08

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN V
Z=23 A= 50.950

TD=88.0 EV	ET=1.021575 MEV		TD=92.0 EV	ET=1.052227 MEV		TD=96.0 EV	ET=1.082290 MEV	
ENERGY(MEV)	PRIMARY	CASCADE	ENERGY(MEV)	PRIMARY	CASCADE	ENERGY(MEV)	PRIMARY	CASCADE
1.03000	0.03	0.03	1.06000	0.02	0.02	1.09000	0.02	0.02
1.04000	0.06	0.06	1.07000	0.06	0.06	1.10000	0.05	0.05
1.06000	0.15	0.15	1.09000	0.13	0.13	1.12000	0.12	0.12
1.09000	0.29	0.29	1.12000	0.26	0.26	1.15000	0.23	0.23
1.13000	0.51	0.51	1.16000	0.46	0.46	1.20000	0.46	0.46
1.18000	0.82	0.82	1.22000	0.80	0.80	1.25000	0.73	0.73
1.24000	1.23	1.23	1.28000	1.19	1.19	1.32000	1.15	1.15
1.32000	1.82	1.82	1.36000	1.74	1.74	1.40000	1.66	1.66
1.43000	2.67	2.67	1.47000	2.52	2.52	1.51000	2.40	2.40
1.58000	3.82	3.82	1.63000	3.67	3.67	1.67000	3.47	3.47
1.78000	5.26	5.28	1.84000	5.08	5.10	1.89000	4.86	4.87
2.04000	6.92	7.04	2.10000	6.62	6.75	2.16000	6.36	6.48
2.34000	8.52	8.92	2.42000	8.21	8.61	2.48000	7.85	8.22
2.75000	10.25	11.21	2.84000	9.85	10.80	2.92000	9.46	10.38
3.26000	11.84	13.73	3.36000	11.35	13.19	3.46000	10.91	12.70
3.88000	13.20	16.38	3.99000	12.64	15.70	4.11000	12.14	15.12
4.59000	14.26	19.00	4.73000	13.66	18.24	4.87000	13.12	17.56
5.31000	15.00	21.30	5.47000	14.36	20.45	5.62000	13.78	19.65
6.12000	15.57	23.57	6.31000	14.91	22.64	6.49000	14.30	21.77
7.15000	16.05	26.07	7.36000	15.36	25.02	7.57000	14.73	24.05
8.68000	16.48	29.23	8.94000	15.77	28.04	9.19000	15.12	26.95
10.20000	16.71	31.86	10.50000	15.99	30.56	10.80000	15.33	29.37
15.30000	17.00	38.52	15.70000	16.26	36.89	16.20000	15.58	35.49
20.40000	17.04	43.26	21.00000	16.30	41.48	21.60000	15.62	39.84
30.60000	16.98	49.95	31.50000	16.24	47.88	32.40000	15.56	45.98
51.00000	16.85	58.38	52.60000	16.12	55.97	54.10000	15.44	53.74
102.00000	16.72	69.84	105.00000	15.99	66.91	108.00000	15.32	64.22
204.00000	16.65	81.32	210.00000	15.93	77.89	216.00000	15.27	74.75

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN CR
Z=24 A= 52.010

TD= 4.0 EV ET=0.087322 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.08810	10.62	10.62
0.08900	22.48	22.48
0.09080	44.95	44.95
0.09340	74.70	74.70
0.09690	110.29	110.29
0.10100	146.42	146.42
0.10600	183.78	183.78
0.11300	226.25	226.25
0.12200	268.21	268.21
0.13500	311.39	311.39
0.15200	348.14	348.14
0.17400	376.64	377.31
0.20000	395.50	401.57
0.23500	408.43	425.53
0.27900	415.61	448.11
0.33100	418.81	469.32
0.39200	419.87	490.42
0.45400	419.90	509.62
0.52300	419.57	529.41
0.61100	419.01	553.05
0.74200	418.22	585.87
0.87300	417.53	616.43
1.30000	415.51	703.74
1.74000	413.54	778.61
2.61000	410.01	896.21
4.36000	405.02	1062.80
8.73000	398.25	1308.11
17.40000	393.66	1564.58
26.10000	392.14	1718.61
43.60000	391.00	1915.46
61.10000	390.51	2045.66
87.30000	390.09	2183.63
174.00000	389.39	2450.75

TD= 8.0 EV ET=0.163431 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.16500	3.01	3.01
0.16600	4.88	4.88
0.16900	10.29	10.29
0.17400	18.68	18.68
0.18100	29.25	29.25
0.18900	39.90	39.90
0.19900	51.47	51.47
0.21200	64.17	64.17
0.22800	77.04	77.04
0.25300	92.80	92.80
0.28600	108.22	108.22
0.32600	121.87	122.38
0.37500	134.10	136.78
0.44100	146.02	153.00
0.52200	156.51	169.86
0.62100	165.76	187.64
0.73500	173.47	205.62
0.84900	179.20	221.75
0.98000	184.15	238.58
1.14000	188.61	257.23
1.38000	193.20	282.18
1.63000	196.29	305.17
2.45000	200.88	366.08
3.26000	202.07	412.17
4.90000	202.05	481.77
8.17000	200.51	573.53
16.30000	197.90	702.10
32.60000	196.23	834.20
49.00000	195.70	912.61
81.70000	195.29	1011.47
114.00000	195.09	1076.01
163.00000	194.90	1145.32
326.00000	194.55	1279.78

TD=12.0 EV ET=0.231782 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.23400	1.39	1.39
0.23600	2.61	2.61
0.24100	5.56	5.56
0.24800	9.44	9.44
0.25700	14.04	14.04
0.26800	19.16	19.16
0.28200	25.01	25.01
0.30100	31.97	31.97
0.32400	39.21	39.21
0.35300	48.41	48.41
0.40500	58.14	58.14
0.46300	67.86	68.28
0.53300	77.10	78.89
0.62500	86.49	91.01
0.74100	95.45	104.30
0.88000	103.41	118.24
1.04000	110.13	132.38
1.20000	115.12	145.03
1.39000	119.52	158.54
1.62000	123.36	173.19
1.97000	127.25	192.73
2.31000	129.64	209.27
3.47000	133.23	253.88
4.63000	134.15	287.15
6.95000	134.20	335.75
11.50000	133.22	397.81
23.10000	131.61	485.74
46.30000	130.67	574.75
69.50000	130.37	627.07
115.00000	130.13	692.15
162.00000	130.01	736.46
231.00000	129.89	782.35
463.00000	129.65	872.30

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN CR
Z=24 A= 52.010

TD=16.0 EV ET=0.294353 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.29700	0.76	0.76
0.30000	1.61	1.61
0.30600	3.25	3.25
0.31400	5.34	5.34
0.32600	8.30	8.30
0.34100	11.73	11.73
0.35900	15.50	15.50
0.38200	19.88	19.88
0.41200	24.98	24.98
0.45600	31.49	31.49
0.51500	38.85	38.86
0.58800	46.38	46.74
0.67700	53.86	55.24
0.79400	61.64	65.10
0.94100	69.11	76.00
1.11000	75.55	87.03
1.32000	81.39	99.10
1.53000	85.63	109.80
1.76000	89.05	120.30
2.06000	92.24	132.50
2.50000	95.28	148.02
2.94000	97.16	161.44
4.41000	99.82	196.38
5.88000	100.48	222.13
8.83000	100.46	259.49
14.70000	99.70	307.27
29.40000	98.57	373.31
58.80000	97.94	440.10
88.30000	97.74	479.47
147.00000	97.57	528.91

TD=20.0 EV ET=0.352401 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.35500	0.41	0.41
0.35900	1.04	1.04
0.36600	2.11	2.11
0.37700	3.73	3.73
0.39100	5.71	5.71
0.40800	8.00	8.00
0.42900	10.66	10.66
0.45800	14.08	14.08
0.49300	17.86	17.86
0.54600	23.01	23.01
0.61600	28.92	28.93
0.70400	35.21	35.51
0.81000	41.47	42.62
0.95100	48.13	51.03
1.12000	54.28	59.94
1.33000	59.98	69.70
1.58000	64.88	79.89
1.83000	68.41	88.89
2.11000	71.29	97.89
2.46000	73.83	107.86
2.99000	76.30	120.91
3.52000	77.81	132.11
5.28000	79.86	160.85
7.04000	80.33	181.86
10.50000	80.28	211.64
17.60000	79.65	250.69
35.20000	78.79	303.76
70.40000	78.32	357.31
105.00000	78.17	388.31
176.00000	78.04	428.42

TD=24.0 EV ET=0.406785 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.41000	0.31	0.31
0.41400	0.70	0.70
0.42300	1.56	1.56
0.43500	2.69	2.69
0.45100	4.15	4.15
0.47100	5.92	5.92
0.49600	8.05	8.05
0.52800	10.64	10.64
0.56900	13.76	13.76
0.63000	18.01	18.01
0.71100	23.02	23.04
0.81300	28.44	28.72
0.93500	33.85	34.85
1.09000	39.39	41.83
1.30000	45.15	50.19
1.54000	49.99	58.57
1.83000	54.18	67.45
2.11000	57.09	75.01
2.44000	59.56	82.94
2.84000	61.66	91.43
3.45000	63.70	102.58
4.06000	64.93	112.12
6.10000	66.56	136.61
8.13000	66.92	154.33
12.20000	66.84	179.75
20.30000	66.31	212.00
40.60000	65.61	256.36
81.30000	65.24	301.12
122.00000	65.13	327.37
203.00000	65.02	360.34

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN CR
Z=24 A= 52.010

TD=28.0 EV ET=0.458122 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.46200	0.25	0.25
0.46700	0.58	0.58
0.47600	1.16	1.16
0.49000	2.06	2.06
0.50800	3.21	3.21
0.53100	4.65	4.65
0.55800	6.31	6.31
0.59500	8.52	8.52
0.64100	11.14	11.14
0.71000	14.81	14.81
0.80100	19.16	19.17
0.91600	23.92	24.18
1.05000	28.59	29.46
1.23000	33.64	35.84
1.46000	38.58	43.06
1.74000	42.97	50.75
2.06000	46.54	58.43
2.38000	49.09	65.19
2.74000	51.16	71.95
3.20000	52.99	79.56
3.89000	54.71	89.35
4.58000	55.74	97.70
6.87000	57.07	118.89
9.16000	57.35	134.23
13.70000	57.26	155.97
22.90000	56.79	183.98
45.80000	56.21	222.08
91.60000	55.91	260.42
137.00000	55.82	282.75

TD=32.0 EV ET=0.506873 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.51100	0.19	0.19
0.51700	0.47	0.47
0.52700	0.93	0.93
0.54200	1.63	1.63
0.56200	2.57	2.57
0.58700	3.75	3.75
0.61800	5.20	5.20
0.65800	7.05	7.05
0.70900	9.33	9.33
0.78500	12.53	12.53
0.88700	16.44	16.46
1.01000	20.57	20.79
1.16000	24.81	25.60
1.36000	29.36	31.37
1.62000	33.86	37.99
1.92000	37.64	44.67
2.28000	40.86	51.68
2.63000	43.07	57.66
3.04000	44.92	63.87
3.54000	46.48	70.52
4.30000	47.96	79.18
5.06000	48.83	86.56
7.60000	49.95	105.34
10.10000	50.17	118.70
15.20000	50.07	138.11
25.30000	49.66	162.48
50.60000	49.17	195.87
101.00000	48.91	229.35
152.00000	48.83	249.19

TD=36.0 EV ET=0.553394 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.55800	0.16	0.16
0.56400	0.36	0.36
0.57500	0.74	0.74
0.59200	1.34	1.34
0.61400	2.14	2.14
0.64100	3.13	3.13
0.67500	4.39	4.39
0.71900	6.02	6.02
0.77400	8.01	8.01
0.85700	10.88	10.88
0.96800	14.40	14.42
1.10000	18.07	18.28
1.27000	22.06	22.81
1.49000	26.19	28.08
1.77000	30.18	34.00
2.10000	33.59	40.11
2.49000	36.44	46.40
2.87000	38.40	51.79
3.32000	40.04	57.82
3.87000	41.42	63.46
4.70000	42.71	71.25
5.53000	43.46	77.86
8.30000	44.41	94.66
11.00000	44.59	106.48
16.60000	44.49	123.91
27.60000	44.12	145.57
55.30000	43.69	175.37
110.00000	43.47	204.99
166.00000	43.40	222.76

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN CR
Z=24 A= 52.010

TD=40.0 EV ET=0.597964 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.60300	0.13	0.13
0.60900	0.29	0.29
0.62100	0.61	0.61
0.63900	1.11	1.11
0.66300	1.79	1.79
0.69300	2.68	2.68
0.72900	3.77	3.77
0.77700	5.23	5.23
0.83700	7.04	7.04
0.92600	9.62	9.62
1.04000	12.67	12.69
1.19000	16.21	16.41
1.37000	19.79	20.49
1.61000	23.61	25.36
1.91000	27.21	30.75
2.27000	30.34	36.40
2.69000	32.90	42.14
3.10000	34.66	47.05
3.58000	36.11	52.12
4.18000	37.35	57.68
5.08000	38.49	64.78
5.97000	39.15	70.74
8.96000	39.98	85.95
11.90000	40.13	96.72
17.90000	40.02	112.32
29.80000	39.69	131.90
59.70000	39.31	158.74
119.00000	39.12	185.49
179.00000	39.06	201.36

TD=44.0 EV ET=0.640812 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.64700	0.12	0.12
0.65300	0.25	0.25
0.66600	0.53	0.53
0.68500	0.95	0.95
0.71100	1.56	1.56
0.74300	2.34	2.34
0.78100	3.30	3.30
0.83300	4.63	4.63
0.89700	6.27	6.27
0.99300	8.65	8.65
1.12000	11.56	11.58
1.28000	14.79	14.99
1.47000	18.02	18.69
1.73000	21.56	23.23
2.05000	24.84	28.18
2.43000	27.66	33.31
2.88000	29.99	38.60
3.33000	31.62	43.22
3.84000	32.92	47.84
4.48000	34.02	52.91
5.44000	35.04	59.39
6.40000	35.63	64.88
9.61000	36.35	78.79
12.80000	36.48	88.72
19.20000	36.37	102.84
32.00000	36.07	120.70
64.00000	35.73	145.06
128.00000	35.56	169.51
192.00000	35.51	183.84

TD=48.0 EV ET=0.682121 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.68800	0.09	0.09
0.69500	0.21	0.21
0.70900	0.45	0.45
0.72900	0.82	0.82
0.75700	1.36	1.36
0.79100	2.06	2.06
0.83200	2.94	2.94
0.88600	4.13	4.13
0.95400	5.63	5.63
1.05000	7.70	7.70
1.19000	10.50	10.52
1.36000	13.50	13.68
1.56000	16.48	17.09
1.84000	19.80	21.37
2.18000	22.83	25.96
2.59000	25.45	30.79
3.06000	27.55	35.60
3.54000	29.04	39.90
4.09000	30.24	44.23
4.77000	31.24	48.90
5.79000	32.16	54.87
6.82000	32.69	59.97
10.20000	33.33	72.65
13.60000	33.43	81.81
20.40000	33.33	94.78
34.10000	33.05	111.26
68.20000	32.75	133.61
136.00000	32.59	155.94
204.00000	32.54	169.07

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN CR
Z=24 A= 52.010

TD=52.0 EV	ET=0.722047 MEV		TD=56.0 EV	ET=0.760721 MEV		TD=60.0 EV	ET=0.798252 MEV	
ENERGY(MEV)	PRIMARY	CASCADE	ENERGY(MEV)	PRIMARY	CASCADE	ENERGY(MEV)	PRIMARY	CASCADE
0.72900	0.09	0.09	0.76800	0.08	0.08	0.80600	0.07	0.07
0.73600	0.19	0.19	0.77500	0.16	0.16	0.81400	0.15	0.15
0.75000	0.39	0.39	0.79100	0.35	0.35	0.83000	0.31	0.31
0.77200	0.72	0.72	0.81300	0.64	0.64	0.85400	0.58	0.58
0.80100	1.20	1.20	0.84400	1.08	1.08	0.88600	0.98	0.98
0.83700	1.84	1.84	0.88200	1.66	1.66	0.92500	1.50	1.50
0.88000	2.63	2.63	0.92800	2.40	2.40	0.97300	2.19	2.19
0.93800	3.74	3.74	0.98800	3.41	3.41	1.03000	3.04	3.04
1.01000	5.13	5.13	1.06000	4.64	4.64	1.11000	4.26	4.26
1.11000	7.02	7.02	1.17000	6.49	6.49	1.23000	6.06	6.06
1.26000	9.67	9.69	1.33000	8.99	9.01	1.39000	8.31	8.33
1.44000	12.46	12.64	1.52000	11.61	11.79	1.59000	10.79	10.96
1.66000	15.34	15.94	1.74000	14.17	14.74	1.83000	13.30	13.84
1.94000	18.26	19.72	2.05000	17.05	18.47	2.15000	15.95	17.30
2.31000	21.15	24.14	2.43000	19.68	22.50	2.55000	18.42	21.12
2.74000	23.56	28.60	2.89000	21.95	26.75	3.03000	20.54	25.10
3.24000	25.50	33.11	3.42000	23.76	30.99	3.59000	22.23	29.11
3.75000	26.88	37.12	3.95000	25.02	34.70	4.15000	23.40	32.61
4.33000	27.97	41.13	4.56000	26.02	38.44	4.78000	24.32	36.07
5.05000	28.89	45.48	5.32000	26.86	42.50	5.58000	25.10	39.90
6.13000	29.72	51.02	6.46000	27.62	47.69	6.78000	25.81	44.77
7.22000	30.20	55.74	7.60000	28.06	52.06	7.98000	26.20	48.88
10.80000	30.77	67.50	11.40000	28.58	63.08	11.90000	26.67	59.05
14.40000	30.86	75.97	15.20000	28.65	70.97	15.90000	26.74	66.48
21.60000	30.76	87.96	22.80000	28.55	82.12	23.90000	26.64	76.95
36.10000	30.50	103.19	38.00000	28.31	96.20	39.90000	26.42	90.14
72.20000	30.22	123.83	76.00000	28.06	115.37	79.80000	26.19	108.04
144.00000	30.09	144.45	152.00000	27.93	134.60	159.00000	26.07	125.90

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN CR
Z=24 A= 52.010

TD=64.0 EV	ET=0.834738 MEV		TD=68.0 EV	ET=0.870260 MEV		TD=72.0 EV	ET=0.904891 MEV	
ENERGY(MEV)	PRIMARY	CASCADE	ENERGY(MEV)	PRIMARY	CASCADE	ENERGY(MEV)	PRIMARY	CASCADE
0.84300	0.06	0.06	0.87800	0.05	0.05	0.91300	0.05	0.05
0.85100	0.13	0.13	0.88700	0.12	0.12	0.92200	0.10	0.10
0.86800	0.28	0.28	0.90500	0.25	0.25	0.94100	0.23	0.23
0.89300	0.53	0.53	0.93100	0.48	0.48	0.96800	0.44	0.44
0.92600	0.88	0.88	0.96500	0.80	0.80	1.00000	0.71	0.71
0.96800	1.38	1.38	1.00000	1.17	1.17	1.04000	1.09	1.09
1.01000	1.92	1.92	1.06000	1.86	1.86	1.10000	1.71	1.71
1.08000	2.85	2.85	1.13000	2.70	2.70	1.17000	2.48	2.48
1.16000	3.95	3.95	1.21000	3.70	3.70	1.26000	3.49	3.49
1.29000	5.71	5.71	1.34000	5.30	5.30	1.40000	5.07	5.07
1.46000	7.86	7.88	1.52000	7.37	7.39	1.58000	6.96	6.98
1.66000	10.10	10.26	1.74000	9.61	9.77	1.80000	9.01	9.16
1.91000	12.46	12.98	2.00000	11.83	12.34	2.08000	11.20	11.70
2.25000	15.01	16.31	2.34000	14.13	15.37	2.44000	13.42	14.63
2.67000	17.34	19.93	2.78000	16.35	18.82	2.89000	15.48	17.85
3.17000	19.31	23.67	3.30000	18.20	22.36	3.43000	17.23	21.21
3.75000	20.88	27.43	3.91000	19.70	25.95	4.07000	18.65	24.65
4.34000	21.98	30.75	4.52000	20.72	29.07	4.70000	19.60	27.59
5.00000	22.84	34.02	5.22000	21.53	32.21	5.42000	20.36	30.54
5.84000	23.56	37.63	6.09000	22.20	35.61	6.33000	20.99	33.78
7.09000	24.21	42.20	7.39000	22.81	39.91	7.69000	21.56	37.88
8.34000	24.58	46.05	8.70000	23.15	43.56	9.04000	21.87	41.31
12.50000	25.01	55.73	13.00000	23.54	52.62	13.50000	22.23	49.86
16.60000	25.07	62.55	17.40000	23.59	59.23	18.00000	22.28	56.03
25.00000	24.97	72.43	26.10000	23.50	68.44	27.10000	22.19	64.82
41.70000	24.76	84.78	43.50000	23.30	80.06	45.20000	22.00	75.81
83.40000	24.55	101.57	87.00000	23.10	95.87	90.40000	21.82	90.75
166.00000	24.44	118.29	174.00000	23.00	111.71	180.00000	21.72	105.62

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN CR
Z=24 A= 52.010

TD=76.0 EV ET=0.938695 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.94800	0.05	0.05
0.95700	0.10	0.10
0.97600	0.21	0.21
1.00000	0.37	0.37
1.04000	0.68	0.68
1.08000	1.02	1.02
1.14000	1.59	1.59
1.22000	2.39	2.39
1.31000	3.33	3.33
1.45000	4.77	4.77
1.64000	6.61	6.63
1.87000	8.58	8.72
2.15000	10.59	11.06
2.53000	12.74	13.90
3.00000	14.71	17.00
3.56000	16.36	20.20
4.22000	17.70	23.45
4.88000	18.61	26.28
5.63000	19.32	29.09
6.57000	19.91	32.15
7.97000	20.43	36.02
9.38000	20.73	39.30
14.00000	21.06	47.41
18.70000	21.11	53.29
28.10000	21.02	61.58
46.90000	20.84	72.02
93.80000	20.67	86.17
187.00000	20.58	100.29

TD=80.0 EV ET=0.971728 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.98100	0.04	0.04
0.99100	0.09	0.09
1.01000	0.19	0.19
1.03000	0.31	0.31
1.07000	0.58	0.58
1.12000	0.97	0.97
1.18000	1.49	1.49
1.26000	2.23	2.23
1.36000	3.19	3.19
1.50000	4.52	4.52
1.70000	6.30	6.32
1.94000	8.19	8.34
2.23000	10.11	10.57
2.62000	12.14	13.27
3.10000	13.99	16.18
3.69000	15.59	19.30
4.37000	16.84	22.38
5.05000	17.70	25.07
5.83000	18.37	27.76
6.80000	18.93	30.67
8.25000	19.42	34.35
9.71000	19.70	37.47
14.50000	20.01	45.20
19.40000	20.05	50.83
29.10000	19.97	58.67
48.50000	19.80	68.56
97.10000	19.63	82.03
194.00000	19.55	95.49

TD=84.0 EV ET=1.004041 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.01000	0.02	0.02
1.02000	0.06	0.06
1.04000	0.16	0.16
1.07000	0.32	0.32
1.11000	0.57	0.57
1.16000	0.93	0.93
1.22000	1.41	1.41
1.30000	2.09	2.09
1.40000	2.98	2.98
1.55000	4.30	4.30
1.75000	5.96	5.98
2.00000	7.79	7.93
2.30000	9.63	10.07
2.71000	11.60	12.70
3.21000	13.37	15.51
3.81000	14.87	18.44
4.51000	16.06	21.38
5.22000	16.88	23.98
6.02000	17.52	26.53
7.02000	18.04	29.30
8.53000	18.51	32.85
10.00000	18.76	35.75
15.00000	19.06	43.20
20.00000	19.09	48.51
30.10000	19.01	56.04
50.20000	18.85	65.48
100.00000	18.69	78.22
200.00000	18.62	91.05

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN CR
Z=24 A= 52.010

TD=88.0 EV ET=1.035680 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.04000	0.01	0.01
1.05000	0.05	0.05
1.07000	0.13	0.13
1.10000	0.28	0.28
1.14000	0.51	0.51
1.20000	0.90	0.90
1.26000	1.35	1.35
1.34000	1.98	1.98
1.44000	2.80	2.80
1.60000	4.11	4.11
1.81000	5.73	5.75
2.07000	7.49	7.63
2.38000	9.25	9.69
2.79000	11.08	12.13
3.31000	12.79	14.86
3.93000	14.22	17.67
4.66000	15.36	20.52
5.38000	16.13	22.96
6.21000	16.74	25.42
7.24000	17.23	28.07
8.80000	17.68	31.46
10.30000	17.92	34.21
15.50000	18.20	41.39
20.70000	18.22	46.49
31.00000	18.15	53.60
51.70000	17.99	62.61
103.00000	17.84	74.77
207.00000	17.77	87.11

TD=92.0 EV ET=1.066684 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.07000	0.01	0.01
1.08000	0.04	0.04
1.10000	0.12	0.12
1.14000	0.30	0.30
1.18000	0.51	0.51
1.23000	0.82	0.82
1.30000	1.29	1.29
1.38000	1.88	1.88
1.49000	2.73	2.73
1.65000	3.95	3.95
1.86000	5.46	5.48
2.13000	7.17	7.31
2.45000	8.86	9.29
2.88000	10.64	11.68
3.41000	12.26	14.27
4.05000	13.63	16.97
4.80000	14.72	19.70
5.54000	15.45	22.04
6.40000	16.03	24.41
7.46000	16.50	26.95
9.06000	16.92	30.19
10.60000	17.14	32.81
16.00000	17.41	39.74
21.30000	17.43	44.56
32.00000	17.36	51.42
53.30000	17.21	60.02
106.00000	17.07	71.63
213.00000	17.00	83.43

TD=96.0 EV ET=1.097090 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.10000	0.01	0.01
1.11000	0.04	0.04
1.14000	0.14	0.14
1.17000	0.27	0.27
1.21000	0.46	0.46
1.27000	0.80	0.80
1.33000	1.18	1.18
1.42000	1.80	1.80
1.53000	2.59	2.59
1.70000	3.80	3.80
1.91000	5.22	5.24
2.19000	6.88	7.01
2.52000	8.51	8.93
2.96000	10.22	11.22
3.51000	11.78	13.73
4.16000	13.08	16.30
4.93000	14.12	18.92
5.70000	14.82	21.19
6.58000	15.37	23.46
7.67000	15.82	25.90
9.32000	16.22	29.02
10.90000	16.43	31.53
16.40000	16.68	38.12
21.90000	16.70	42.80
32.90000	16.63	49.38
54.80000	16.49	57.62
109.00000	16.36	68.75
219.00000	16.29	80.06

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN FE
Z=26 A= 55.850

TD= 4.0 EV ET=0.093269 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.09420	12.31	12.31
0.09510	23.80	23.80
0.09690	45.65	45.65
0.09970	76.90	76.90
0.10300	109.91	109.91
0.10800	153.24	153.24
0.11300	189.88	189.88
0.12100	237.58	237.58
0.13000	279.08	279.08
0.14400	325.88	325.88
0.16300	367.42	367.42
0.18600	398.19	398.98
0.21400	420.12	426.82
0.25100	435.96	454.39
0.29800	446.08	481.18
0.35400	451.85	506.87
0.41900	455.05	532.26
0.48400	456.64	554.97
0.55900	457.62	579.12
0.65200	458.22	606.95
0.79200	458.51	645.64
0.93200	458.43	681.32
1.39000	456.97	782.17
1.86000	454.78	867.09
2.79000	450.48	999.17
4.66000	444.26	1184.31
9.32000	436.02	1454.33
18.60000	430.61	1736.35
27.90000	428.85	1905.08
46.60000	427.51	2120.49
65.20000	426.92	2262.23
93.20000	426.40	2413.27
186.00000	425.48	2705.73

TD= 8.0 EV ET=0.173953 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.17500	1.97	1.97
0.17700	5.64	5.64
0.18000	10.91	10.91
0.18600	20.70	20.70
0.19300	31.01	31.01
0.20100	41.53	41.53
0.21200	54.19	54.19
0.22600	67.85	67.85
0.24300	81.64	81.64
0.26900	98.43	98.43
0.30400	115.53	115.53
0.34700	131.12	131.71
0.40000	145.35	148.36
0.46900	158.94	166.62
0.55600	171.36	186.21
0.66100	182.17	206.61
0.78200	191.17	227.25
0.90400	197.85	245.85
1.04000	203.41	264.65
1.21000	208.48	285.91
1.47000	213.67	314.74
1.73000	216.94	340.13
2.60000	221.60	408.38
3.47000	222.56	460.23
5.21000	222.05	537.14
8.69000	219.87	638.30
17.30000	216.62	778.98
34.70000	214.63	924.26
52.10000	214.00	1009.85
86.90000	213.50	1118.05
121.00000	213.26	1188.16
173.00000	213.02	1263.89
347.00000	212.55	1411.40

TD=12.0 EV ET=0.246087 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.24800	1.18	1.18
0.25100	2.98	2.98
0.25500	5.30	5.30
0.26300	9.70	9.70
0.27300	14.78	14.78
0.28500	20.35	20.35
0.30000	26.64	26.64
0.31900	33.71	33.71
0.34400	41.82	41.82
0.38100	51.95	51.95
0.43000	62.89	62.89
0.49200	73.98	74.46
0.56500	84.47	86.48
0.66400	95.28	100.35
0.78700	105.51	115.50
0.93500	114.61	131.43
1.10000	122.02	147.09
1.27000	127.65	161.48
1.47000	132.52	176.67
1.72000	136.84	193.61
2.09000	140.98	215.46
2.46000	143.54	234.42
3.69000	147.02	283.93
4.92000	147.73	320.69
7.38000	147.43	374.21
12.30000	146.01	443.41
24.60000	144.02	539.21
49.20000	142.91	636.34
73.80000	142.56	693.48
123.00000	142.26	765.66
172.00000	142.10	813.05
246.00000	141.94	863.62
492.00000	141.63	961.58

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN FE
Z=26 A= 55.850

TD=16.0 EV ET=0.311922 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.31500	0.87	0.87
0.31800	1.70	1.70
0.32400	3.32	3.32
0.33300	5.66	5.66
0.34600	8.86	8.86
0.36100	12.31	12.31
0.38000	16.38	16.38
0.40500	21.27	21.27
0.43600	26.76	26.76
0.48300	34.08	34.08
0.54500	42.31	42.31
0.62300	50.93	51.33
0.71700	59.41	60.97
0.84200	68.34	72.29
0.99800	76.83	84.68
1.18000	84.17	97.38
1.40000	90.60	110.86
1.62000	95.23	122.79
1.87000	99.06	134.90
2.18000	102.40	148.23
2.65000	105.63	165.73
3.11000	107.55	180.49
4.67000	110.13	219.34
6.23000	110.61	247.83
9.35000	110.34	288.90
15.50000	109.27	340.91
31.10000	107.87	413.59
62.30000	107.11	486.84
93.50000	106.87	529.84
155.00000	106.66	583.45

TD=20.0 EV ET=0.372867 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.37600	0.49	0.49
0.38000	1.10	1.10
0.38700	2.16	2.16
0.39800	3.79	3.79
0.41300	5.93	5.93
0.43200	9.53	9.53
0.45400	11.39	11.39
0.48400	15.06	15.06
0.52200	19.37	19.37
0.57700	25.02	25.02
0.65200	31.78	31.79
0.74500	38.90	39.25
0.85700	46.01	47.31
1.00000	53.28	56.48
1.19000	60.66	67.22
1.41000	66.94	78.12
1.67000	72.27	89.41
1.93000	76.09	99.37
2.23000	79.27	109.60
2.61000	82.05	121.03
3.16000	84.58	135.28
3.72000	86.12	147.73
5.59000	88.08	179.67
7.45000	88.41	202.81
11.10000	88.15	235.47
18.60000	87.27	278.28
37.20000	86.21	336.40
74.50000	85.65	395.09
111.00000	85.47	428.91
186.00000	85.31	472.74

TD=24.0 EV ET=0.429873 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.43400	0.40	0.40
0.43800	0.78	0.78
0.44700	1.63	1.63
0.45900	2.76	2.76
0.47700	4.43	4.43
0.49800	6.33	6.33
0.52400	8.62	8.62
0.55800	11.49	11.49
0.60100	14.94	14.94
0.66500	19.76	19.76
0.75200	25.45	25.47
0.85900	31.55	31.86
0.98800	37.68	38.82
1.16000	44.22	47.11
1.37000	50.32	56.04
1.63000	55.85	65.74
1.93000	60.38	75.51
2.23000	63.60	84.11
2.57000	66.21	92.77
3.00000	68.49	102.41
3.65000	70.62	114.91
4.29000	71.86	125.41
6.44000	73.39	152.42
8.59000	73.63	171.99
12.80000	73.38	199.43
21.40000	72.65	235.13
42.90000	71.79	283.85
85.90000	71.35	332.82
128.00000	71.21	361.03
214.00000	71.08	397.40

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN FE
Z=26 A= 55.850

TD=28.0 EV ET=0.483616 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.48800	0.28	0.28
0.49300	0.60	0.60
0.50200	1.18	1.18
0.51700	2.15	2.15
0.53600	3.39	3.39
0.56000	4.94	4.94
0.59000	6.86	6.86
0.62800	9.24	9.24
0.67700	12.19	12.19
0.74900	16.27	16.27
0.84600	21.24	21.26
0.96700	26.62	26.92
1.11000	31.95	32.97
1.30000	37.64	40.18
1.54000	43.11	48.23
1.83000	47.91	56.74
2.17000	51.89	65.44
2.51000	54.68	73.07
2.90000	56.95	80.81
3.38000	58.86	89.17
4.11000	60.65	100.06
4.83000	61.67	109.20
7.25000	62.91	132.63
9.67000	63.09	149.54
14.50000	62.84	173.57
24.10000	62.22	203.92
48.30000	61.50	245.75
96.70000	61.14	287.75
145.00000	61.03	312.33

TD=32.0 EV ET=0.534601 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.53900	0.20	0.20
0.54500	0.47	0.47
0.55500	0.94	0.94
0.57200	1.74	1.74
0.59300	2.75	2.75
0.62000	4.06	4.06
0.65200	5.63	5.63
0.69400	7.67	7.67
0.74800	10.24	10.24
0.82800	13.85	13.85
0.93500	18.25	18.27
1.06000	22.77	23.01
1.22000	27.64	28.54
1.44000	32.98	35.33
1.71000	37.91	42.66
2.03000	42.13	50.26
2.40000	45.56	57.90
2.77000	47.97	64.62
3.20000	49.95	71.51
3.74000	51.63	79.08
4.54000	53.15	88.66
5.34000	54.02	96.80
8.01000	55.05	117.45
10.60000	55.18	131.93
16.00000	54.95	153.39
26.70000	54.40	180.22
53.40000	53.79	216.77
106.00000	53.49	253.09
160.00000	53.39	274.95

TD=36.0 EV ET=0.583213 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.58900	0.19	0.19
0.59400	0.36	0.36
0.60600	0.78	0.78
0.62400	1.43	1.43
0.64700	2.28	2.28
0.67500	3.39	3.39
0.71100	4.75	4.75
0.75800	6.59	6.59
0.81500	8.83	8.83
0.90300	12.05	12.05
1.02000	16.03	16.05
1.16000	20.21	20.45
1.34000	24.73	25.60
1.57000	29.33	31.50
1.86000	33.72	38.06
2.21000	37.53	44.98
2.62000	40.64	52.02
3.03000	42.81	58.17
3.49000	44.52	64.26
4.08000	45.99	71.09
4.95000	47.31	79.67
5.83000	48.07	87.03
8.74000	48.94	105.49
11.60000	49.04	118.57
17.40000	48.82	137.41
29.10000	48.33	161.41
58.30000	47.80	194.02
116.00000	47.54	226.43
174.00000	47.46	245.58

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN FE
Z=26 A= 55.850

TD=40.0 EV ET=0.629755 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.63600	0.16	0.16
0.64200	0.32	0.32
0.65400	0.64	0.64
0.67300	1.17	1.17
0.69900	1.94	1.94
0.73000	2.90	2.90
0.76800	4.11	4.11
0.81800	5.73	5.73
0.88100	7.75	7.75
0.97600	10.71	10.71
1.10000	14.27	14.29
1.25000	18.07	18.29
1.44000	22.12	22.92
1.70000	26.53	28.58
2.01000	30.46	34.52
2.39000	33.92	40.88
2.83000	36.70	47.26
3.27000	38.63	52.83
3.77000	40.17	58.42
4.40000	41.46	64.56
5.35000	42.64	72.45
6.29000	43.30	79.05
9.44000	44.05	95.81
12.50000	44.13	107.52
18.80000	43.92	124.63
31.40000	43.47	146.21
62.90000	43.01	175.58
125.00000	42.78	204.72
188.00000	42.71	222.06

TD=44.0 EV ET=0.674471 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.68100	0.13	0.13
0.68700	0.25	0.25
0.70100	0.55	0.55
0.72100	1.01	1.01
0.74800	1.66	1.66
0.78200	2.53	2.53
0.82200	3.59	3.59
0.87600	5.07	5.07
0.94400	6.93	6.93
1.04000	9.49	9.49
1.18000	12.94	12.97
1.34000	16.42	16.64
1.55000	20.26	21.04
1.82000	24.17	26.09
2.15000	27.75	31.55
2.56000	30.94	37.45
3.03000	33.46	43.31
3.50000	35.21	48.43
4.04000	36.60	53.60
4.72000	37.77	59.27
5.73000	38.81	66.43
6.74000	39.39	72.49
10.10000	40.05	87.74
13.40000	40.11	98.49
20.20000	39.91	114.17
33.70000	39.50	133.77
67.40000	39.09	160.43
134.00000	38.89	186.94
202.00000	38.82	202.80

TD=48.0 EV ET=0.717561 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.72400	0.10	0.10
0.73100	0.22	0.22
0.74500	0.48	0.48
0.76700	0.87	0.87
0.79500	1.46	1.46
0.83200	2.23	2.23
0.87500	3.21	3.21
0.93200	4.55	4.55
1.00000	6.16	6.16
1.11000	8.70	8.70
1.25000	11.71	11.74
1.43000	15.13	15.34
1.65000	18.62	19.36
1.93000	22.15	23.94
2.29000	25.55	29.14
2.72000	28.44	34.54
3.22000	30.75	39.97
3.73000	32.37	44.80
4.30000	33.63	49.54
5.02000	34.68	54.75
6.09000	35.61	61.33
7.17000	36.14	66.94
10.70000	36.71	80.83
14.30000	36.76	90.97
21.50000	36.57	105.27
35.80000	36.20	123.20
71.70000	35.83	147.70
143.00000	35.64	172.12
215.00000	35.58	186.57

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN FE
Z=26 A= 55.850

TD=52.0 EV ET=0.759199 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.76600	0.09	0.09
0.77400	0.20	0.20
0.78900	0.42	0.42
0.81200	0.78	0.78
0.84200	1.29	1.29
0.88000	1.99	1.99
0.92600	2.90	2.90
0.98600	4.12	4.12
1.06000	5.66	5.66
1.17000	7.89	7.89
1.32000	10.74	10.76
1.51000	13.92	14.13
1.74000	17.15	17.84
2.04000	20.49	22.18
2.42000	23.64	27.03
2.88000	26.34	32.12
3.41000	28.47	37.19
3.94000	29.94	41.60
4.55000	31.10	46.06
5.31000	32.06	50.89
6.45000	32.91	57.04
7.59000	33.38	62.23
11.30000	33.89	75.01
15.10000	33.92	84.39
22.70000	33.74	97.61
37.90000	33.40	114.25
75.90000	33.06	136.88
151.00000	32.90	159.35

TD=56.0 EV ET=0.799497 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.80700	0.08	0.08
0.81500	0.17	0.17
0.83100	0.37	0.37
0.85500	0.69	0.69
0.88700	1.16	1.16
0.92700	1.80	1.80
0.97500	2.63	2.63
1.03000	3.62	3.62
1.11000	5.09	5.09
1.23000	7.26	7.26
1.39000	9.96	9.98
1.59000	12.94	13.14
1.83000	15.94	16.59
2.15000	19.10	20.72
2.55000	22.03	25.26
3.03000	24.52	29.99
3.59000	26.50	34.75
4.15000	27.86	38.89
4.79000	28.92	43.04
5.59000	29.80	47.55
6.79000	30.58	53.29
7.99000	31.01	58.12
11.90000	31.47	70.04
15.90000	31.50	78.76
23.90000	31.33	91.04
39.90000	31.01	106.51
79.90000	30.70	127.53
159.00000	30.55	148.40

TD=60.0 EV ET=0.838600 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.84600	0.07	0.07
0.85500	0.15	0.15
0.87200	0.33	0.33
0.89700	0.62	0.62
0.93000	1.04	1.04
0.97200	1.64	1.64
1.02000	2.37	2.37
1.09000	3.49	3.49
1.17000	4.80	4.80
1.29000	6.74	6.74
1.46000	9.32	9.34
1.67000	12.12	12.31
1.92000	14.92	15.55
2.26000	17.92	19.48
2.68000	20.65	23.75
3.18000	22.95	28.17
3.77000	24.80	32.66
4.36000	26.06	36.56
5.03000	27.05	40.44
5.87000	27.85	44.67
7.12000	28.57	50.01
8.38000	28.96	54.54
12.50000	29.37	65.73
16.70000	29.39	73.88
25.10000	29.23	85.36
41.90000	28.93	99.80
83.80000	28.65	119.39
167.00000	28.51	138.92

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN FE
Z=26 A= 55.850

TD=64.0 EV ET=0.876603 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.88500	0.06	0.06
0.89400	0.14	0.14
0.91100	0.29	0.29
0.93700	0.55	0.55
0.97300	0.96	0.96
1.01000	1.42	1.42
1.06000	2.10	2.10
1.13000	3.10	3.10
1.22000	4.43	4.43
1.35000	6.33	6.33
1.53000	8.79	8.81
1.75000	11.43	11.62
2.01000	14.05	14.66
2.36000	16.83	18.33
2.80000	19.41	22.37
3.33000	21.59	26.60
3.94000	23.30	30.78
4.55000	24.47	34.42
5.25000	25.38	38.08
6.13000	26.14	42.08
7.45000	26.80	47.15
8.76000	27.16	51.39
13.10000	27.54	61.97
17.50000	27.55	69.62
26.20000	27.40	80.29
43.80000	27.12	93.87
87.60000	26.85	112.24
175.00000	26.73	130.62

TD=68.0 EV ET=0.913592 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.92200	0.06	0.06
0.93100	0.12	0.12
0.95000	0.27	0.27
0.97700	0.51	0.51
1.01000	0.84	0.84
1.05000	1.28	1.28
1.11000	2.01	2.01
1.18000	2.92	2.92
1.27000	4.12	4.12
1.41000	5.98	5.98
1.59000	8.22	8.24
1.82000	10.74	10.92
2.10000	13.30	13.90
2.46000	15.89	17.33
2.92000	18.33	21.17
3.47000	20.37	25.16
4.11000	21.98	29.14
4.75000	23.08	32.61
5.48000	23.93	36.06
6.39000	24.63	39.81
7.76000	25.24	44.58
9.13000	25.57	48.59
13.70000	25.92	58.65
18.20000	25.93	65.72
27.40000	25.78	75.91
45.60000	25.52	88.59
91.30000	25.27	105.91
182.00000	25.15	123.16

TD=72.0 EV ET=0.949644 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.95900	0.05	0.05
0.96800	0.11	0.11
0.98700	0.24	0.24
1.01000	0.42	0.42
1.05000	0.78	0.78
1.10000	1.28	1.28
1.15000	1.83	1.83
1.23000	2.78	2.78
1.32000	3.87	3.87
1.47000	5.69	5.69
1.66000	7.85	7.87
1.89000	10.15	10.32
2.18000	12.57	13.15
2.56000	15.06	16.46
3.03000	17.33	20.05
3.60000	19.26	23.83
4.27000	20.80	27.65
4.93000	21.82	30.91
5.69000	22.62	34.19
6.64000	23.28	37.76
8.07000	23.86	42.29
9.49000	24.15	46.08
14.20000	24.48	55.53
18.90000	24.49	62.27
28.40000	24.34	71.85
47.40000	24.10	83.90
94.90000	23.87	100.26
189.00000	23.75	116.53

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN FE
Z=26 A= 55.850

TD=76.0 EV ET=0.984828 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.99400	0.05	0.05
1.00000	0.08	0.08
1.02000	0.20	0.20
1.05000	0.41	0.41
1.09000	0.73	0.73
1.14000	1.19	1.19
1.20000	1.79	1.79
1.28000	2.66	2.66
1.37000	3.67	3.67
1.52000	5.34	5.34
1.72000	7.43	7.45
1.96000	9.63	9.80
2.26000	11.94	12.49
2.65000	14.28	15.62
3.15000	16.49	19.13
3.74000	18.31	22.71
4.43000	19.74	26.32
5.12000	20.71	29.44
5.90000	21.46	32.53
6.89000	22.08	35.94
8.37000	22.61	40.23
9.84000	22.90	43.82
14.70000	23.19	52.76
19.60000	23.19	59.18
29.50000	23.06	68.30
49.20000	22.83	79.70
98.40000	22.61	95.19
196.00000	22.50	110.60

TD=80.0 EV ET=1.019203 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.02000	0.00	0.00
1.03000	0.05	0.05
1.05000	0.15	0.15
1.09000	0.40	0.40
1.13000	0.69	0.69
1.18000	1.11	1.11
1.24000	1.67	1.67
1.32000	2.47	2.47
1.42000	3.50	3.50
1.57000	5.04	5.04
1.78000	7.06	7.09
2.03000	9.18	9.35
2.34000	11.38	11.91
2.75000	13.64	14.94
3.26000	15.70	18.25
3.87000	17.43	21.67
4.58000	18.78	25.09
5.29000	19.69	28.05
6.11000	20.41	31.05
7.13000	20.99	34.27
8.66000	21.49	38.36
10.10000	21.75	41.61
15.20000	22.03	50.26
20.30000	22.03	56.40
30.50000	21.90	65.04
50.90000	21.68	75.89
101.00000	21.48	90.44
203.00000	21.38	105.27

TD=84.0 EV ET=1.052823 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.06000	0.03	0.03
1.07000	0.07	0.07
1.09000	0.17	0.17
1.12000	0.33	0.33
1.16000	0.60	0.60
1.22000	1.06	1.06
1.28000	1.57	1.57
1.36000	2.30	2.30
1.47000	3.35	3.35
1.63000	4.87	4.87
1.84000	6.75	6.77
2.10000	8.79	8.95
2.42000	10.88	11.40
2.84000	13.02	14.28
3.36000	14.96	17.41
4.00000	16.63	20.73
4.73000	17.91	23.98
5.47000	18.79	26.84
6.31000	19.46	29.68
7.36000	20.00	32.75
8.94000	20.48	36.65
10.50000	20.73	39.89
15.70000	20.98	48.01
21.00000	20.98	53.90
31.50000	20.85	62.09
52.60000	20.65	72.44
105.00000	20.45	86.42
210.00000	20.36	100.45

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN FE
Z=26 A= 55.850

TD=88.0 EV ET=1.085735 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.09000	0.01	0.01
1.10000	0.05	0.05
1.12000	0.13	0.13
1.16000	0.34	0.34
1.20000	0.59	0.59
1.25000	0.94	0.94
1.32000	1.49	1.49
1.41000	2.25	2.25
1.52000	3.23	3.23
1.68000	4.65	4.65
1.90000	6.47	6.49
2.17000	8.44	8.60
2.49000	10.38	10.88
2.93000	12.46	13.69
3.47000	14.33	16.70
4.12000	15.90	19.84
4.88000	17.13	22.99
5.64000	17.95	25.71
6.51000	18.59	28.44
7.60000	19.11	31.39
9.22000	19.56	35.10
10.80000	19.79	38.14
16.20000	20.03	45.97
21.70000	20.03	51.62
32.50000	19.90	59.41
54.20000	19.70	69.27
108.00000	19.52	82.58
217.00000	19.43	96.07

TD=92.0 EV ET=1.117982 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.12000	0.01	0.01
1.14000	0.07	0.07
1.16000	0.15	0.15
1.19000	0.30	0.30
1.24000	0.58	0.58
1.29000	0.91	0.91
1.36000	1.42	1.42
1.45000	2.13	2.13
1.56000	3.04	3.04
1.73000	4.45	4.45
1.95000	6.15	6.17
2.23000	8.06	8.21
2.57000	9.98	10.48
3.01000	11.92	13.10
3.57000	13.73	16.02
4.24000	15.23	19.03
5.03000	16.41	22.08
5.81000	17.19	24.69
6.70000	17.80	27.28
7.82000	18.29	30.11
9.50000	18.71	33.69
11.10000	18.93	36.56
16.70000	19.16	44.11
22.30000	19.15	49.46
33.50000	19.03	56.97
55.80000	18.85	66.38
111.00000	18.67	79.09
223.00000	18.59	91.98

TD=96.0 EV ET=1.149603 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.16000	0.03	0.03
1.17000	0.06	0.06
1.19000	0.13	0.13
1.23000	0.31	0.31
1.27000	0.52	0.52
1.33000	0.88	0.88
1.40000	1.36	1.36
1.49000	2.03	2.03
1.60000	2.88	2.88
1.78000	4.27	4.27
2.01000	5.94	5.96
2.29000	7.72	7.87
2.64000	9.57	10.05
3.10000	11.47	12.62
3.67000	13.18	15.40
4.36000	14.62	18.30
5.17000	15.74	21.23
5.97000	16.49	23.72
6.89000	17.07	26.23
8.04000	17.54	28.94
9.77000	17.94	32.38
11.40000	18.15	35.11
17.20000	18.36	42.40
22.90000	18.35	47.48
34.40000	18.24	54.68
57.40000	18.06	63.74
114.00000	17.89	75.88
229.00000	17.81	88.24

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN NI
Z=28 A= 58.710

TD= 4.0 EV ET=0.097661 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.09860	12.69	12.69
0.09960	25.74	25.74
0.10100	43.25	43.25
0.10400	78.01	78.01
0.10800	119.17	119.17
0.11300	163.57	163.57
0.11900	208.40	208.40
0.12600	251.44	251.44
0.13600	299.82	299.82
0.15100	352.16	352.16
0.17000	396.28	396.28
0.19500	432.51	433.46
0.22400	457.60	464.99
0.26300	476.82	497.16
0.31200	489.71	528.43
0.37100	497.83	558.93
0.43900	502.82	588.90
0.50700	505.64	615.66
0.58500	507.58	643.84
0.68300	508.97	676.57
0.83000	509.89	721.62
0.97600	510.08	762.60
1.46000	508.40	878.81
1.95000	505.54	974.39
2.92000	499.96	1122.23
4.88000	492.05	1329.11
9.76000	481.94	1628.81
19.50000	475.51	1941.39
29.20000	473.45	2127.07
48.80000	471.85	2365.23
68.30000	471.13	2521.85
97.60000	470.46	2688.35
195.00000	469.24	3011.41

TD= 8.0 EV ET=0.181686 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.18300	2.53	2.53
0.18500	6.28	6.28
0.18800	11.68	11.68
0.19400	21.78	21.78
0.20100	32.49	32.49
0.21000	44.80	44.80
0.22100	58.01	58.01
0.23600	73.39	73.39
0.25400	88.79	88.79
0.28100	107.34	107.34
0.31700	126.32	126.32
0.36300	144.51	145.20
0.41700	160.47	163.79
0.49000	176.43	185.06
0.58100	190.86	207.60
0.69000	203.31	230.92
0.81700	213.72	254.71
0.94400	221.32	275.94
1.09000	227.74	297.96
1.27000	233.40	322.41
1.54000	238.96	354.83
1.81000	242.38	383.30
2.72000	246.93	460.05
3.63000	247.51	518.05
5.45000	246.35	603.74
9.08000	243.38	715.77
18.10000	239.34	871.74
36.30000	236.97	1032.26
54.50000	236.23	1126.76
90.80000	235.62	1245.93
127.00000	235.30	1324.34
181.00000	234.99	1407.13
363.00000	234.37	1569.73

TD=12.0 EV ET=0.256568 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.25900	1.53	1.53
0.26100	2.77	2.77
0.26500	5.77	5.77
0.27400	10.32	10.32
0.28400	15.62	15.62
0.29700	21.94	21.94
0.31300	28.99	28.99
0.33300	36.86	36.86
0.35900	45.85	45.85
0.39700	57.04	57.04
0.44800	69.44	69.44
0.51300	82.17	82.72
0.59000	94.17	96.44
0.69200	106.55	112.29
0.82100	118.33	129.71
0.97400	128.58	147.75
1.15000	137.12	165.98
1.33000	143.45	182.53
1.53000	148.59	199.03
1.79000	153.31	218.14
2.18000	157.78	243.04
2.56000	160.39	264.03
3.84000	163.77	319.40
5.13000	164.22	360.63
7.69000	163.50	420.00
12.80000	161.57	496.45
25.60000	159.11	602.37
51.30000	157.78	709.95
76.90000	157.35	772.94
128.00000	156.99	852.39
179.00000	156.78	904.67
256.00000	156.58	960.44
513.00000	156.16	1068.74

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN NI
Z=28 A= 58.710

TD=16.0 EV ET=0.324768 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.32800	0.94	0.94
0.33100	1.80	1.80
0.33700	3.47	3.47
0.34700	6.17	6.17
0.36000	9.52	9.52
0.37600	13.39	13.39
0.39600	17.92	17.92
0.42200	23.35	23.35
0.45400	29.44	29.44
0.50300	37.72	37.72
0.56800	47.13	47.14
0.64900	56.94	57.41
0.74600	66.56	68.32
0.87600	76.75	81.23
1.03000	85.96	94.68
1.23000	94.77	109.97
1.46000	101.95	125.30
1.68000	106.89	138.28
1.94000	111.11	151.97
2.27000	114.81	167.33
2.76000	118.22	187.00
3.24000	120.19	203.56
4.87000	122.64	247.03
6.49000	122.91	278.60
9.74000	122.32	324.16
16.20000	120.87	382.10
32.40000	119.15	462.06
64.90000	118.25	542.95
97.40000	117.96	590.41
162.00000	117.70	649.96

TD=20.0 EV ET=0.387807 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.39100	0.51	0.51
0.39500	1.15	1.15
0.40300	2.41	2.41
0.41400	4.10	4.10
0.43000	6.49	6.49
0.44900	9.24	9.24
0.47300	12.57	12.57
0.50400	16.63	16.63
0.54200	21.30	21.30
0.60100	27.91	27.91
0.67800	35.50	35.52
0.77500	43.66	44.06
0.89100	51.73	53.22
1.04000	60.02	63.70
1.24000	68.46	76.05
1.47000	75.52	88.46
1.74000	81.41	101.19
2.01000	85.60	112.41
2.32000	89.02	123.84
2.71000	91.96	136.52
3.29000	94.66	152.71
3.87000	96.22	166.55
5.81000	98.04	202.06
7.75000	98.21	227.84
11.60000	97.70	264.46
19.30000	96.54	311.17
38.70000	95.22	375.63
77.50000	94.55	440.44
116.00000	94.34	478.19
193.00000	94.14	525.88

TD=24.0 EV ET=0.446706 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.45100	0.43	0.43
0.45500	0.82	0.82
0.46400	1.71	1.71
0.47700	2.99	2.99
0.49500	4.75	4.75
0.51800	6.96	6.96
0.54400	9.41	9.41
0.58000	12.70	12.70
0.62500	16.62	16.62
0.69200	22.05	22.05
0.78100	28.51	28.53
0.89300	35.52	35.89
1.02000	42.17	43.43
1.20000	49.71	52.96
1.42000	56.69	63.22
1.69000	62.90	74.22
2.01000	68.05	85.54
2.32000	71.55	95.17
2.68000	74.41	105.06
3.12000	76.79	115.69
3.79000	79.00	129.56
4.46000	80.26	141.37
6.70000	81.68	171.49
8.93000	81.78	193.15
13.40000	81.31	224.09
22.30000	80.34	263.21
44.60000	79.30	316.87
89.30000	78.77	370.93
134.00000	78.59	402.61
223.00000	78.43	442.38

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN NI
Z=28 A= 58.710

TD=28.0 EV	ET=0.502187 MEV		TD=32.0 EV	ET=0.554784 MEV		TD=36.0 EV	ET=0.604904 MEV	
ENERGY(MEV)	PRIMARY	CASCADE	ENERGY(MEV)	PRIMARY	CASCADE	ENERGY(MEV)	PRIMARY	CASCADE
0.50700	0.32	0.32	0.56000	0.24	0.24	0.61000	0.18	0.18
0.51200	0.65	0.65	0.56500	0.48	0.48	0.61700	0.42	0.42
0.52200	1.32	1.32	0.57600	1.01	1.01	0.62900	0.86	0.86
0.53700	2.34	2.34	0.59300	1.86	1.86	0.64700	1.54	1.54
0.55700	3.72	3.72	0.61500	2.98	2.98	0.67100	2.49	2.49
0.58200	5.44	5.44	0.64300	4.44	4.44	0.70100	3.72	3.72
0.61200	7.51	7.51	0.67600	6.19	6.19	0.73700	5.24	5.24
0.65200	10.22	10.22	0.72100	8.57	8.57	0.78500	7.33	7.33
0.70300	13.58	13.58	0.77600	11.42	11.42	0.84500	9.87	9.87
0.77800	18.24	18.24	0.85900	15.53	15.53	0.93700	13.57	13.57
0.87800	23.86	23.89	0.97000	20.56	20.58	1.05000	17.81	17.83
1.00000	29.84	30.16	1.10000	25.71	26.00	1.20000	22.76	23.04
1.15000	35.99	37.15	1.27000	31.38	32.43	1.39000	28.00	29.01
1.35000	42.53	45.47	1.49000	37.20	39.87	1.63000	33.22	35.74
1.60000	48.70	54.63	1.77000	42.75	48.19	1.93000	38.12	43.15
1.90000	54.05	64.22	2.10000	47.45	56.74	2.29000	42.33	50.89
2.25000	58.40	73.94	2.49000	51.31	65.50	2.72000	45.79	58.90
2.61000	61.52	82.70	2.88000	53.98	73.16	3.14000	48.12	65.72
3.01000	63.94	91.27	3.32000	56.08	80.77	3.62000	49.97	72.59
3.51000	65.98	100.67	3.88000	57.86	89.25	4.23000	51.53	80.20
4.26000	67.82	112.72	4.71000	59.43	99.94	5.14000	52.91	89.86
5.02000	68.87	123.08	5.54000	60.31	109.01	6.04000	53.65	97.94
7.53000	70.00	149.10	8.32000	61.24	132.03	9.07000	54.43	118.54
10.00000	70.05	167.58	11.00000	61.27	148.04	12.00000	54.44	132.87
15.00000	69.63	194.21	16.60000	60.88	171.78	18.10000	54.08	154.01
25.10000	68.80	228.21	27.70000	60.15	201.45	30.20000	53.44	180.43
50.20000	67.93	274.29	55.40000	59.41	241.82	60.40000	52.79	216.35
100.00000	67.50	320.32	110.00000	59.05	281.93	120.00000	52.48	252.06
150.00000	67.36	347.47	166.00000	58.93	306.05	181.00000	52.37	273.47

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN NI
Z=28 A= 58.710

TD=40.0 EV	ET=0.652868 MEV		TD=44.0 EV	ET=0.698932 MEV		TD=48.0 EV	ET=0.743305 MEV	
ENERGY(MEV)	PRIMARY	CASCADE	ENERGY(MEV)	PRIMARY	CASCADE	ENERGY(MEV)	PRIMARY	CASCADE
0.65900	0.16	0.16	0.70500	0.13	0.13	0.75000	0.11	0.11
0.66500	0.32	0.32	0.71200	0.28	0.28	0.75800	0.25	0.25
0.67800	0.69	0.69	0.72600	0.59	0.59	0.77300	0.53	0.53
0.69800	1.29	1.29	0.74700	1.10	1.10	0.79500	0.96	0.96
0.72400	2.11	2.11	0.77500	1.82	1.82	0.82500	1.61	1.61
0.75700	3.20	3.20	0.81000	2.78	2.78	0.86200	2.48	2.48
0.79600	4.55	4.55	0.85200	4.00	4.00	0.90500	3.57	3.57
0.84800	6.39	6.39	0.90800	5.68	5.68	0.96500	5.11	5.11
0.91400	8.72	8.72	0.97800	7.78	7.78	1.04000	7.04	7.04
1.01000	12.01	12.01	1.08000	10.77	10.77	1.15000	9.84	9.84
1.14000	16.12	16.15	1.22000	14.58	14.60	1.30000	13.38	13.41
1.30000	20.56	20.83	1.39000	18.64	18.89	1.48000	17.12	17.37
1.50000	25.21	26.16	1.60000	22.85	23.72	1.70000	20.96	21.79
1.76000	29.99	32.34	1.88000	27.28	29.48	2.00000	25.09	27.17
2.08000	34.39	39.05	2.23000	31.40	35.80	2.37000	28.87	33.00
2.48000	38.30	46.33	2.65000	34.90	42.38	2.82000	32.10	39.15
2.93000	41.31	53.41	3.14000	37.69	49.01	3.34000	34.64	45.27
3.39000	43.43	59.73	3.63000	39.59	54.77	3.85000	36.38	50.60
3.91000	45.09	66.00	4.19000	41.08	60.56	4.45000	37.72	55.89
4.57000	46.47	72.93	4.89000	42.31	66.85	5.20000	38.84	61.75
5.54000	47.66	81.59	5.94000	43.38	74.87	6.31000	39.80	69.10
6.52000	48.32	88.99	6.98000	43.96	81.56	7.43000	40.32	75.35
9.79000	48.99	107.62	10.40000	44.53	98.25	11.10000	40.82	90.80
13.00000	48.98	120.73	13.90000	44.51	110.48	14.80000	40.79	101.95
19.50000	48.64	139.55	20.90000	44.20	127.72	22.20000	40.50	117.68
32.60000	48.07	163.45	34.90000	43.68	149.42	37.10000	40.02	137.63
65.20000	47.50	195.81	69.80000	43.17	178.86	74.30000	39.57	164.69
130.00000	47.23	228.12	139.00000	42.93	208.20	148.00000	39.35	191.60
195.00000	47.13	247.14	209.00000	42.84	225.59	222.00000	39.27	207.45

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN NI
Z=28 A= 58.710

TD=52.0 EV ET=0.786162 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.79400	0.11	0.11
0.80100	0.21	0.21
0.81700	0.45	0.45
0.84100	0.85	0.85
0.87200	1.42	1.42
0.91100	2.21	2.21
0.95900	3.23	3.23
1.02000	4.60	4.60
1.10000	6.43	6.43
1.21000	8.89	8.89
1.37000	12.24	12.26
1.57000	15.90	16.15
1.80000	19.42	20.22
2.12000	23.29	25.28
2.51000	26.76	30.69
2.98000	29.71	36.35
3.53000	32.05	42.06
4.08000	33.64	47.01
4.71000	34.89	51.98
5.50000	35.90	57.40
6.68000	36.77	64.25
7.86000	37.23	70.01
11.70000	37.67	84.19
15.70000	37.64	94.74
23.50000	37.37	109.20
39.30000	36.93	127.65
78.60000	36.52	152.59
157.00000	36.32	177.54

TD=56.0 EV ET=0.827647 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.83500	0.08	0.08
0.84400	0.19	0.19
0.86000	0.40	0.40
0.88500	0.75	0.75
0.91800	1.28	1.28
0.96000	2.01	2.01
1.00000	2.76	2.76
1.07000	4.14	4.14
1.15000	5.75	5.75
1.28000	8.34	8.34
1.44000	11.31	11.34
1.65000	14.75	14.98
1.90000	18.15	18.92
2.23000	21.67	23.57
2.64000	24.91	29.64
3.14000	27.68	33.99
3.72000	29.85	39.34
4.30000	31.31	43.97
4.96000	32.45	48.59
5.79000	33.37	53.63
7.03000	34.17	60.01
8.27000	34.59	65.37
12.40000	34.98	78.82
16.50000	34.95	88.34
24.80000	34.69	101.93
41.30000	34.28	118.94
82.70000	33.90	142.15
165.00000	33.72	165.28

TD=60.0 EV ET=0.867884 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.87500	0.08	0.08
0.88500	0.17	0.17
0.90200	0.35	0.35
0.92900	0.68	0.68
0.96300	1.16	1.16
1.00000	1.73	1.73
1.05000	2.55	2.55
1.12000	3.78	3.78
1.21000	5.41	5.41
1.34000	7.72	7.72
1.51000	10.56	10.58
1.73000	13.78	14.01
1.99000	16.96	17.69
2.34000	20.30	22.12
2.77000	23.33	26.89
3.29000	25.89	31.89
3.90000	27.92	36.93
4.51000	29.28	41.29
5.20000	30.33	45.61
6.07000	31.18	50.34
7.37000	31.91	56.31
8.67000	32.30	61.33
13.00000	32.65	73.91
17.30000	32.61	82.82
26.00000	32.36	95.51
43.30000	31.99	111.39
86.70000	31.64	133.06
173.00000	31.47	154.66

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN NI
Z=28 A= 58.710

TD=64.0 EV ET=0.906981 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.91600	0.07	0.07
0.92500	0.15	0.15
0.94300	0.32	0.32
0.97000	0.61	0.61
1.00000	0.98	0.98
1.05000	1.66	1.66
1.10000	2.40	2.40
1.17000	3.50	3.50
1.26000	4.96	4.96
1.40000	7.22	7.22
1.58000	9.93	9.96
1.81000	12.97	13.19
2.08000	15.94	16.65
2.44000	19.05	20.78
2.90000	21.96	25.39
3.44000	24.34	30.07
4.08000	26.24	34.84
4.71000	27.49	38.90
5.44000	28.48	43.02
6.34000	29.26	47.42
7.70000	29.94	53.05
9.06000	30.29	57.77
13.60000	30.61	69.63
18.10000	30.57	77.99
27.20000	30.33	89.89
45.30000	29.98	104.79
90.60000	29.66	125.08
181.00000	29.50	145.37

TD=68.0 EV ET=0.945027 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.95400	0.06	0.06
0.96300	0.13	0.13
0.98200	0.29	0.29
1.01000	0.55	0.55
1.04000	0.87	0.87
1.09000	1.48	1.48
1.15000	2.28	2.28
1.22000	3.28	3.28
1.32000	4.76	4.76
1.46000	6.80	6.80
1.65000	9.40	9.43
1.89000	12.28	12.50
2.17000	15.07	15.76
2.55000	18.04	19.72
3.02000	20.72	24.00
3.59000	22.98	28.49
4.25000	24.74	32.95
4.91000	25.92	36.81
5.67000	26.84	40.70
6.61000	27.56	44.86
8.03000	28.19	50.18
9.45000	28.52	54.65
14.10000	28.81	65.65
18.90000	28.76	73.73
28.30000	28.54	84.85
47.20000	28.21	98.92
94.50000	27.91	118.05
189.00000	27.76	137.17

TD=72.0 EV ET=0.982105 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.99100	0.05	0.05
1.00000	0.11	0.11
1.02000	0.25	0.26
1.05000	0.51	0.51
1.09000	0.90	0.90
1.13000	1.34	1.34
1.19000	2.07	2.07
1.27000	3.10	3.10
1.37000	4.45	4.45
1.52000	6.46	6.46
1.71000	8.83	8.86
1.96000	11.58	11.79
2.25000	14.23	14.89
2.65000	17.08	18.70
3.14000	19.62	22.78
3.73000	21.75	27.03
4.41000	23.40	31.23
5.10000	24.51	34.92
5.99000	25.37	38.60
6.87000	26.06	42.56
8.34000	26.64	47.58
9.82000	26.94	51.82
14.70000	27.20	62.32
19.60000	27.16	69.82
29.40000	26.95	80.37
49.10000	26.64	93.70
98.20000	26.36	111.74
196.00000	26.22	129.75

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN NI
Z=28 A= 58.710

TD=76.0 EV ET=1.018284 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.02000	0.01	0.01
1.03000	0.06	0.06
1.05000	0.18	0.18
1.08000	0.40	0.40
1.13000	0.84	0.84
1.18000	1.34	1.34
1.24000	2.01	2.01
1.32000	2.96	2.96
1.42000	4.20	4.20
1.57000	6.04	6.04
1.78000	8.46	8.48
2.03000	10.98	11.18
2.34000	13.57	14.22
2.74000	16.18	17.73
3.25000	18.61	21.64
3.86300	20.63	25.67
4.58000	22.21	29.75
5.29000	23.26	33.23
6.10000	24.06	36.70
7.12000	24.70	40.48
8.65000	25.25	45.26
10.10000	25.52	49.08
15.20000	25.77	59.17
20.30000	25.73	66.32
30.50000	25.53	76.36
50.90000	25.23	88.98
101.00000	24.97	105.88
203.00000	24.84	123.12

TD=80.0 EV ET=1.053626 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.06000	0.03	0.03
1.07000	0.08	0.08
1.09000	0.19	0.19
1.12000	0.39	0.39
1.16000	0.70	0.70
1.22000	1.25	1.25
1.26000	1.86	1.86
1.36000	2.73	2.73
1.47000	3.99	3.99
1.63000	5.80	5.80
1.84000	8.03	8.06
2.10000	10.45	10.64
2.42000	12.92	13.54
2.84000	15.44	16.94
3.37000	17.75	20.69
4.00000	19.65	24.52
4.74000	21.14	28.39
5.47000	22.12	31.68
6.32000	22.88	35.03
7.37000	23.49	38.61
8.95000	24.00	43.16
10.50000	24.26	46.90
15.80000	24.48	56.50
21.00000	24.44	63.18
31.60000	24.24	72.76
52.60000	23.97	84.69
105.00000	23.72	100.89
210.00000	23.60	117.16

TD=84.0 EV ET=1.088188 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.09000	0.01	0.01
1.10000	0.05	0.05
1.13000	0.20	0.20
1.16000	0.38	0.38
1.20000	0.67	0.67
1.26000	1.17	1.17
1.32000	1.74	1.74
1.41000	2.65	2.65
1.52000	3.81	3.81
1.68000	5.49	5.49
1.90000	7.65	7.68
2.17000	9.98	10.17
2.50000	12.34	12.95
2.93000	14.72	16.17
3.48000	16.94	19.77
4.13000	18.75	23.44
4.89000	20.15	27.12
5.65000	21.09	30.29
6.52300	21.81	33.46
7.61000	22.38	36.90
9.24000	22.86	41.23
10.80000	23.10	44.72
16.30000	23.32	53.94
21.70000	23.27	60.35
32.60000	23.09	69.44
54.40000	22.82	80.86
108.00000	22.59	96.17
217.00000	22.47	111.76

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN NI
Z=28 A= 58.710

TD=88.0 EV ET=1.122019 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.13000	0.03	0.03
1.14000	0.07	0.07
1.16000	0.16	0.16
1.20000	0.38	0.38
1.24000	0.65	0.65
1.30000	1.12	1.12
1.36000	1.64	1.64
1.45000	2.48	2.48
1.57000	3.66	3.66
1.73000	5.22	5.22
1.96000	7.33	7.35
2.24000	9.57	9.76
2.58000	11.82	12.41
3.02000	14.08	15.48
3.59000	16.21	18.95
4.26000	17.93	22.47
5.04000	19.26	25.97
5.83000	20.16	29.03
6.73000	20.84	32.07
7.85000	21.38	35.35
9.53000	21.83	39.49
11.20000	22.06	42.94
16.80000	22.26	51.62
22.40000	22.21	57.77
33.60000	22.03	66.42
56.10000	21.78	77.34
112.00000	21.56	92.08
224.00000	21.45	106.86

TD=92.0 EV ET=1.155162 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.16000	0.02	0.02
1.17000	0.05	0.05
1.20000	0.17	0.17
1.23000	0.33	0.33
1.28000	0.64	0.64
1.33000	0.99	0.99
1.40000	1.55	1.55
1.50000	2.43	2.43
1.61000	3.44	3.44
1.79000	5.08	5.08
2.02000	7.04	7.06
2.31000	9.20	9.39
2.65000	11.30	11.87
3.11000	13.50	14.86
3.69000	15.52	18.16
4.38000	17.17	21.54
5.19000	18.45	24.93
6.00000	19.30	27.86
6.93000	19.95	30.78
8.08000	20.46	33.91
9.81000	20.89	37.88
11.50000	21.10	41.14
17.30000	21.29	49.50
23.10000	21.24	55.42
34.60000	21.07	63.67
57.70000	20.83	74.09
115.00000	20.62	88.16
231.00000	20.52	102.39

TD=96.0 EV ET=1.187659 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.19000	0.01	0.01
1.21000	0.07	0.07
1.23000	0.15	0.15
1.27000	0.34	0.34
1.31000	0.56	0.56
1.37000	0.96	0.96
1.44000	1.49	1.49
1.54000	2.30	2.30
1.66000	3.33	3.33
1.84000	4.87	4.87
2.07000	6.70	6.73
2.37000	8.80	8.98
2.73000	10.88	11.44
3.20000	12.98	14.31
3.80000	14.92	17.49
4.51000	16.49	20.74
5.34000	17.71	23.98
6.17000	18.52	26.79
7.12000	19.13	29.58
8.31000	19.62	32.60
10.00000	20.01	36.24
11.80000	20.23	39.49
17.80000	20.40	47.57
23.70000	20.36	53.19
35.60000	20.19	61.15
59.30000	19.96	71.12
118.00000	19.76	84.57
237.00000	19.66	98.21

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN CU
Z=29 A= 63.540

TD= 4.0 EV ET=0.105006 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.10600	11.59	11.59
0.10700	22.88	22.88
0.10900	44.39	44.39
0.11200	74.19	74.19
0.11600	109.85	109.85
0.12100	148.79	148.79
0.12800	194.73	194.73
0.13600	237.53	237.53
0.14700	283.75	283.75
0.16200	330.17	330.17
0.18300	374.50	374.50
0.21000	410.73	411.77
0.24100	436.51	443.79
0.28300	457.48	477.32
0.33600	472.70	510.58
0.39900	483.13	542.98
0.47200	490.34	575.17
0.54600	494.96	604.27
0.63000	498.42	634.48
0.73500	501.20	669.22
0.89200	503.53	716.54
1.05000	504.61	759.83
1.57000	504.21	880.27
2.10000	501.65	978.74
3.15000	496.12	1129.57
5.25000	488.07	1336.64
10.50000	477.76	1636.00
21.00000	471.34	1947.44
31.50000	469.29	2132.63
52.50000	467.71	2367.72
73.50000	466.96	2523.17
105.00000	466.25	2688.09
210.00000	464.93	3008.74

TD= 8.0 EV ET=0.194554 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.19600	2.42	2.42
0.19800	5.68	5.68
0.20200	11.94	11.94
0.20800	20.70	20.70
0.21500	30.09	30.09
0.22500	42.17	42.17
0.23700	54.92	54.92
0.25200	68.72	68.72
0.27200	84.24	84.24
0.30100	102.48	102.48
0.34000	121.58	121.58
0.38900	139.86	140.59
0.44700	156.29	159.64
0.52500	172.83	181.44
0.62200	187.88	204.63
0.73900	201.00	228.81
0.87500	211.92	253.42
1.01000	219.80	275.17
1.16000	226.24	296.99
1.36000	232.33	323.11
1.65000	237.98	356.36
1.94000	241.39	385.45
2.91000	245.70	462.87
3.89000	246.08	521.62
5.83000	244.67	607.13
9.72000	241.46	719.08
19.40000	237.28	874.51
38.90000	234.91	1033.86
58.30000	234.17	1127.20
97.20000	233.54	1245.54
136.00000	233.21	1323.35
194.00000	232.87	1405.60
389.00000	232.20	1566.67

TD=12.0 EV ET=0.273951 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.27600	1.13	1.13
0.27900	2.75	2.75
0.28400	5.38	5.38
0.29300	9.88	9.88
0.30400	15.02	15.02
0.31700	20.65	20.65
0.33400	27.40	27.40
0.35500	35.27	35.27
0.38300	43.84	43.84
0.42400	55.08	55.08
0.47900	67.66	67.66
0.54700	80.33	80.89
0.63000	92.75	95.05
0.73900	105.48	111.29
0.87500	117.53	129.07
1.04000	128.09	147.64
1.23000	136.87	166.49
1.42000	143.20	183.20
1.64000	148.50	200.50
1.91000	153.04	219.37
2.32000	157.38	244.26
2.73000	159.94	265.74
4.10000	163.03	321.61
5.47000	163.30	362.73
8.21000	162.37	422.19
13.60000	160.30	497.58
27.30000	157.76	603.36
54.70000	156.41	710.10
82.10000	155.98	772.76
136.00000	155.60	850.79
191.00000	155.38	903.27
273.00000	155.16	958.44
547.00000	154.71	1065.72

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN CU
Z=29 A= 63.540

TD=16.0 EV ET=0.346025 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.34900	0.76	0.76
0.35200	1.51	1.51
0.35900	3.24	3.24
0.37000	5.87	5.87
0.38400	9.08	9.08
0.40100	12.79	12.79
0.42200	17.11	17.11
0.44900	22.30	22.30
0.48400	28.49	28.49
0.53600	36.73	36.73
0.60500	46.21	46.22
0.69200	56.26	56.75
0.79500	66.04	67.84
0.93400	76.48	81.07
1.10000	85.95	94.95
1.31000	94.74	110.31
1.55000	101.86	125.63
1.79000	106.93	139.16
2.07000	111.15	153.17
2.42000	114.75	168.63
2.94000	118.03	188.39
3.46000	119.92	205.32
5.19000	122.08	248.69
6.92000	122.21	280.30
10.30000	121.48	324.78
17.30000	119.90	383.51
34.60000	118.13	462.92
69.20000	117.22	542.99
103.00000	116.93	589.09
173.00000	116.66	649.26

TD=20.0 EV ET=0.412490 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.41600	0.49	0.49
0.42000	1.05	1.05
0.42800	2.17	2.17
0.44100	3.95	3.95
0.45700	6.10	6.10
0.47800	8.86	8.86
0.50300	12.04	12.04
0.53600	16.06	16.06
0.57700	20.77	20.77
0.63900	27.33	27.33
0.72100	35.02	35.05
0.82400	43.31	43.73
0.94800	51.57	53.11
1.11000	60.17	64.01
1.31000	68.24	75.86
1.56000	75.57	88.80
1.85000	81.54	101.86
2.14000	85.73	113.33
2.47000	89.09	124.89
2.88000	91.93	137.52
3.50000	94.53	153.89
4.12000	96.00	167.85
6.18000	97.59	203.32
8.24000	97.65	229.00
12.30000	97.01	265.22
20.60000	95.76	312.24
41.20000	94.41	375.99
82.40000	93.73	440.16
123.00000	93.51	477.34
205.00000	93.30	525.22

TD=24.0 EV ET=0.474483 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.47900	0.39	0.39
0.48300	0.74	0.74
0.49300	1.62	1.62
0.50700	2.85	2.85
0.52500	4.53	4.53
0.55000	6.64	6.64
0.57300	9.08	9.08
0.61500	12.32	12.32
0.66400	16.26	16.26
0.73500	21.72	21.72
0.83000	28.30	28.32
0.94300	35.36	35.74
1.09000	42.45	43.80
1.28000	50.00	53.41
1.51000	56.90	63.66
1.80000	63.18	74.92
2.13000	68.16	86.06
2.46000	71.63	95.82
2.84000	74.44	105.75
3.32000	76.81	116.74
4.03000	78.90	130.61
4.74000	80.07	142.42
7.11000	81.29	172.41
9.48000	81.30	194.03
14.20000	80.73	224.68
23.70000	79.70	263.77
47.40000	78.62	317.02
94.80000	78.09	370.55
142.00000	77.91	401.82
237.00000	77.73	441.46

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN CU
Z=29 A= 63.540

TD=28.0 EV ET=0.532800 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.53800	0.30	0.30
0.54300	0.60	0.60
0.55400	1.26	1.26
0.57000	2.24	2.24
0.59100	3.55	3.55
0.61800	5.26	5.26
0.65000	7.31	7.31
0.69200	9.98	9.98
0.74500	13.28	13.28
0.82500	18.01	18.01
0.93200	23.76	23.79
1.06000	29.77	30.10
1.22000	36.06	37.25
1.43000	42.62	45.63
1.70000	48.94	55.09
2.02000	54.30	64.84
2.39000	58.60	74.63
2.77000	61.65	83.41
3.19000	63.99	91.95
3.72000	65.96	101.40
4.52000	67.72	113.55
5.32000	68.69	123.85
7.99000	69.66	149.90
10.60000	69.64	168.25
15.90000	69.13	194.73
26.60000	68.24	228.49
53.20000	67.35	274.21
106.00000	66.91	319.88
159.00000	66.77	346.79

TD=32.0 EV ET=0.588028 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.59300	0.21	0.21
0.59900	0.46	0.46
0.61100	0.98	0.98
0.62900	1.78	1.78
0.65200	2.86	2.86
0.68200	4.30	4.30
0.71700	6.03	6.03
0.76400	8.37	8.37
0.82300	11.28	11.28
0.91100	15.43	15.43
1.02000	20.17	20.20
1.17000	25.89	26.20
1.35000	31.60	32.72
1.58000	37.38	40.15
1.88000	43.02	48.68
2.23000	47.69	57.31
2.64000	51.47	66.08
3.05000	54.08	73.73
3.52000	56.14	81.45
4.11000	57.84	89.90
4.99000	59.34	100.62
5.88000	60.15	109.79
8.82000	60.94	132.70
11.70000	60.90	148.83
17.60000	60.44	172.25
29.40000	59.67	201.77
58.80000	58.91	241.82
117.00000	58.54	281.73
176.00000	58.41	305.45

TD=36.0 EV ET=0.640609 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.64700	0.20	0.20
0.65300	0.38	0.38
0.66500	0.81	0.81
0.68500	1.46	1.46
0.71100	2.40	2.40
0.74300	3.62	3.62
0.78100	5.12	5.12
0.83200	7.18	7.18
0.89500	9.75	9.75
0.99200	13.49	13.49
1.12000	18.07	18.11
1.28000	23.09	23.40
1.47000	28.08	29.12
1.72000	33.29	35.85
2.04000	38.26	43.42
2.43000	42.56	51.43
2.88000	45.93	59.40
3.33000	48.24	66.34
3.84000	50.04	73.25
4.48000	51.52	80.81
5.44000	52.81	90.44
6.40000	53.51	98.58
9.60000	54.16	119.06
12.80000	54.11	133.72
19.20000	53.68	154.45
32.00000	53.00	180.62
64.00000	52.34	216.26
128.00000	52.02	252.01
192.00000	51.91	272.96

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN CU
Z=29 A= 63.540

TD=40.0 EV ET=0.690893 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.69700	0.14	0.14
0.70400	0.31	0.31
0.71800	0.67	0.67
0.73900	1.24	1.24
0.76600	2.02	2.02
0.80100	3.10	3.10
0.84200	4.44	4.44
0.89800	6.31	6.31
0.96700	8.64	8.64
1.07000	12.01	12.01
1.20000	15.96	15.98
1.38000	20.75	21.04
1.58000	25.20	26.15
1.86000	30.13	32.55
2.21000	34.67	39.55
2.62000	38.43	46.67
3.10000	41.44	53.87
3.59000	43.53	60.26
4.14000	45.13	66.54
4.83000	46.44	73.41
5.87000	47.59	82.18
6.90000	48.18	89.51
10.30000	48.74	107.82
13.80000	48.68	121.28
20.70000	48.29	139.97
34.50000	47.68	163.55
69.00000	47.10	195.66
138.00000	46.82	227.85
207.00000	46.72	246.70

TD=44.0 EV ET=0.739156 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.74600	0.13	0.13
0.75300	0.26	0.26
0.76800	0.56	0.56
0.79000	1.05	1.05
0.82000	1.76	1.76
0.85700	2.72	2.72
0.90100	3.92	3.92
0.96000	5.59	5.59
1.03000	7.61	7.61
1.14000	10.70	10.70
1.29000	14.61	14.64
1.47000	18.74	19.00
1.70000	23.13	24.06
1.99000	27.48	29.76
2.36000	31.59	36.14
2.80000	35.04	42.72
3.32000	37.80	49.42
3.84000	39.67	55.24
4.43000	41.11	61.01
5.17000	42.29	67.32
6.28000	43.30	75.33
7.39000	43.83	82.07
11.00000	44.30	98.66
14.70000	44.24	110.82
22.10000	43.88	127.94
36.90000	43.32	149.48
73.90000	42.80	178.74
147.00000	42.56	207.78
221.00000	42.47	225.02

TD=48.0 EV ET=0.785623 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.79300	0.11	0.11
0.80100	0.23	0.23
0.81700	0.50	0.50
0.84000	0.92	0.92
0.87200	1.56	1.56
0.91100	2.41	2.41
0.95300	3.51	3.51
1.02000	5.03	5.03
1.09000	6.77	6.77
1.21000	9.71	9.71
1.37000	13.35	13.38
1.57000	17.33	17.60
1.80000	21.15	22.02
2.12000	25.33	27.51
2.51000	29.08	33.37
2.98000	32.25	39.49
3.53000	34.75	45.66
4.08000	36.45	51.01
4.71000	37.76	56.37
5.49000	38.81	62.14
6.67000	39.72	69.53
7.85000	40.19	75.74
11.70000	40.61	91.05
15.70000	40.54	102.38
23.50000	40.20	117.93
39.20000	39.70	137.65
78.50000	39.23	164.49
157.00000	39.00	191.33
235.00000	38.93	206.96

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN CU
Z=29 A= 63.540

TD=52.0 EV ET=0.830482 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.83800	0.09	0.09
0.84700	0.20	0.20
0.86300	0.43	0.43
0.88800	0.81	0.81
0.92100	1.37	1.37
0.96300	2.17	2.17
1.01000	3.12	3.12
1.07000	4.40	4.40
1.16000	6.36	6.36
1.28000	8.94	8.94
1.45000	12.35	12.38
1.56000	16.03	16.29
1.91000	19.68	20.53
2.24000	23.45	25.52
2.65000	26.91	30.96
3.15000	29.86	36.70
3.73000	32.16	42.42
4.31000	33.71	47.39
4.98000	34.91	52.40
5.81000	35.87	57.78
7.05000	36.69	64.59
8.30000	37.12	70.36
12.40000	37.48	84.62
16.60000	37.41	95.01
24.90000	37.09	109.46
41.50000	36.63	127.65
83.00000	36.21	152.39
166.00000	36.00	177.17

TD=56.0 EV ET=0.873889 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.88200	0.08	0.08
0.89100	0.18	0.18
0.90800	0.37	0.37
0.93500	0.73	0.73
0.97000	1.25	1.25
1.01000	1.90	1.90
1.06000	2.79	2.79
1.13000	4.11	4.11
1.22000	5.85	5.85
1.35000	8.33	8.33
1.52000	11.37	11.40
1.74000	14.82	15.06
2.00000	18.21	19.00
2.35000	21.79	23.73
2.79000	25.07	28.93
3.32000	27.82	34.34
3.93000	29.95	39.68
4.54000	31.37	44.31
5.24000	32.47	48.96
6.11000	33.35	53.96
7.42000	34.10	60.34
8.73000	34.48	65.69
13.10000	34.80	79.11
17.40000	34.73	88.52
26.20000	34.43	102.07
43.60000	34.00	118.92
87.30000	33.61	141.94
174.00000	33.43	164.84

TD=60.0 EV ET=0.915976 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.92500	0.08	0.08
0.93400	0.16	0.16
0.95200	0.34	0.34
0.98000	0.66	0.66
1.01000	1.04	1.04
1.06000	1.76	1.76
1.11000	2.55	2.55
1.19000	3.89	3.89
1.28000	5.45	5.45
1.41000	7.68	7.68
1.60000	10.72	10.75
1.83000	13.94	14.18
2.10000	17.09	17.85
2.47000	20.45	22.34
2.93000	23.51	27.21
3.48000	26.04	32.24
4.12000	28.01	37.26
4.75000	29.33	41.61
5.49000	30.34	45.94
6.41000	31.16	50.67
7.78000	31.84	56.63
9.15000	32.19	61.62
13.70000	32.48	74.10
18.30000	32.40	83.07
27.40000	32.13	95.56
45.70000	31.73	111.37
91.50000	31.37	132.86
183.00000	31.20	154.34

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN CU
Z=29 A= 63.540

TD=64.0 EV ET=0.956856 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.96600	0.07	0.07
0.97500	0.14	0.14
0.99500	0.31	0.31
1.02000	0.56	0.56
1.06000	1.01	1.01
1.10000	1.52	1.52
1.16000	2.36	2.36
1.24000	3.57	3.57
1.33000	4.98	4.98
1.48000	7.30	7.30
1.67000	10.04	10.07
1.91000	13.08	13.31
2.20000	16.12	16.87
2.58000	19.23	21.04
3.06000	22.10	25.63
3.63000	24.45	30.34
4.30000	26.31	35.09
4.97000	27.54	39.20
5.74000	28.49	43.32
6.69000	29.23	47.72
8.13000	29.87	53.35
9.56000	30.19	58.05
14.30000	30.45	69.74
19.10000	30.37	78.16
28.70000	30.11	89.98
47.80000	29.74	104.76
95.60000	29.40	124.89
191.00000	29.24	145.00

TD=68.0 EV ET=0.996629 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.00000	0.02	0.02
1.01000	0.08	0.08
1.03000	0.23	0.23
1.06000	0.48	0.48
1.10000	0.88	0.88
1.15000	1.46	1.46
1.21000	2.22	2.22
1.29000	3.31	3.31
1.39000	4.73	4.73
1.54000	6.84	6.84
1.74000	9.47	9.50
1.99000	12.35	12.57
2.29000	15.21	15.93
2.69000	18.17	19.91
3.18000	20.82	24.18
3.78000	23.07	28.69
4.48000	24.81	33.20
5.18000	25.96	37.09
5.97000	26.84	40.93
6.97000	27.54	45.13
8.47000	28.13	50.45
9.96000	28.42	54.87
14.90000	28.65	65.90
19.90000	28.58	73.83
29.80000	28.33	84.87
49.80000	27.98	98.88
99.60000	27.67	117.83
199.00000	27.52	136.76

TD=72.0 EV ET=1.035379 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.04000	0.02	0.02
1.05000	0.08	0.08
1.07000	0.21	0.21
1.10000	0.43	0.43
1.14000	0.79	0.79
1.20000	1.41	1.41
1.26000	2.11	2.11
1.34000	3.11	3.11
1.44000	4.40	4.40
1.60000	6.46	6.46
1.81000	8.98	9.02
2.07000	11.72	11.94
2.38000	14.41	15.11
2.79000	17.18	18.85
3.31000	19.74	22.99
3.93000	21.84	27.24
4.65000	23.46	31.48
5.38000	24.55	35.19
6.21000	25.38	38.86
7.24000	26.03	42.80
8.80000	26.58	47.84
10.30000	26.84	51.91
15.50000	27.06	62.49
20.70000	26.99	69.99
31.00000	26.75	80.42
51.70000	26.42	93.61
103.00000	26.13	111.41
207.00000	25.99	129.44

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN CU
Z=29 A= 63.540

TD=76.0 EV ET=1.073181 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.08000	0.03	0.03
1.09000	0.08	0.08
1.11000	0.20	0.20
1.14000	0.40	0.40
1.19000	0.81	0.81
1.24000	1.28	1.28
1.30000	1.92	1.92
1.39000	2.94	2.94
1.50000	4.25	4.25
1.66000	6.14	6.14
1.87000	8.46	8.49
2.14000	11.08	11.29
2.46000	13.64	14.30
2.89000	16.31	17.91
3.43000	18.74	21.87
4.07000	20.72	25.90
4.82000	22.26	29.95
5.58000	23.30	33.49
6.43000	24.06	36.94
7.51000	24.68	40.73
9.12000	25.19	45.49
10.70000	25.44	49.41
16.00000	25.63	59.30
21.40000	25.56	66.44
32.10000	25.34	76.37
53.60000	25.03	88.90
107.00000	24.75	105.81
214.00000	24.62	122.78

TD=80.0 EV ET=1.110102 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.12000	0.04	0.04
1.13000	0.09	0.09
1.15000	0.19	0.19
1.18000	0.38	0.38
1.23000	0.75	0.75
1.28000	1.18	1.18
1.35000	1.86	1.86
1.44000	2.81	2.81
1.55000	4.01	4.01
1.72000	5.87	5.87
1.94000	8.11	8.14
2.22000	10.60	10.81
2.55000	13.03	13.68
2.99000	15.54	17.09
3.55000	17.85	20.87
4.21000	19.73	24.71
4.99000	21.19	28.59
5.77000	22.16	31.93
6.66000	22.89	35.26
7.77000	23.46	38.84
9.43000	23.94	43.36
11.10000	24.18	47.17
16.60000	24.35	56.57
22.20000	24.28	63.36
33.30000	24.06	72.80
55.50000	23.77	84.66
111.00000	23.51	100.77
222.00000	23.39	116.90

TD=84.0 EV ET=1.146201 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.15000	0.01	0.01
1.16000	0.05	0.05
1.19000	0.19	0.19
1.22000	0.36	0.36
1.27000	0.70	0.70
1.32000	1.10	1.10
1.39000	1.72	1.72
1.49000	2.70	2.70
1.60000	3.81	3.81
1.77000	5.53	5.53
2.00000	7.71	7.74
2.29000	10.11	10.31
2.63000	12.42	13.05
3.09000	14.85	16.35
3.66000	17.02	19.92
4.35000	18.83	23.64
5.15000	20.21	27.32
5.96000	21.13	30.53
6.87000	21.81	33.68
8.02000	22.36	37.11
9.74000	22.81	41.44
11.40000	23.02	44.94
17.10000	23.19	53.98
22.90000	23.12	60.48
34.30000	22.92	69.44
57.30000	22.64	80.79
114.00000	22.39	96.02
229.00000	22.28	111.48

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN CU
Z=29 A= 63.540

TD=88.0 EV ET=1.181530 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.19000	0.03	0.03
1.20000	0.06	0.06
1.22000	0.15	0.15
1.26000	0.35	0.35
1.31000	0.67	0.67
1.37000	1.11	1.11
1.44000	1.70	1.70
1.53000	2.51	2.51
1.65000	3.64	3.64
1.83000	5.34	5.34
2.06000	7.36	7.39
2.36000	9.66	9.86
2.71000	11.88	12.49
3.19000	14.23	15.69
3.78000	16.30	19.12
4.48000	17.99	22.63
5.31000	19.32	26.18
6.18000	20.19	29.23
7.08000	20.84	32.25
8.27000	21.35	35.55
10.00000	21.77	39.59
11.80000	21.98	43.11
17.70000	22.13	51.74
23.60000	22.07	57.86
35.40000	21.87	66.45
59.00000	21.60	77.24
118.00000	21.37	91.89
236.00000	21.26	106.55

TD=92.0 EV ET=1.216136 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.22000	0.01	0.01
1.24000	0.07	0.07
1.26000	0.15	0.15
1.30000	0.34	0.34
1.34000	0.58	0.58
1.41000	1.05	1.05
1.48000	1.60	1.60
1.58000	2.44	2.44
1.70000	3.50	3.50
1.88000	5.08	5.08
2.12000	7.05	7.08
2.43000	9.27	9.47
2.79000	11.40	11.99
3.28000	13.63	15.04
3.89000	15.62	18.35
4.62000	17.25	21.75
5.47000	18.50	25.14
6.32000	19.33	28.05
7.29000	19.95	30.95
8.51000	20.44	34.10
10.30000	20.83	37.99
12.10000	21.03	41.28
18.20000	21.17	49.59
24.30000	21.11	55.48
36.40000	20.92	63.66
60.80000	20.66	74.04
121.00000	20.44	87.95
243.00000	20.34	102.06

TD=96.0 EV ET=1.250063 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.26000	0.03	0.03
1.27000	0.06	0.06
1.30000	0.16	0.16
1.33000	0.29	0.29
1.38000	0.56	0.56
1.45000	1.01	1.01
1.52000	1.51	1.51
1.62000	2.30	2.30
1.75000	3.37	3.37
1.93000	4.85	4.85
2.18000	6.77	6.80
2.50000	8.92	9.11
2.87000	10.96	11.54
3.37000	13.08	14.45
4.00000	15.00	17.65
4.75000	16.56	20.92
5.62000	17.75	24.16
6.50000	18.54	26.98
7.50000	19.13	29.77
8.75000	19.60	32.78
10.60000	19.97	36.53
12.50000	20.16	39.76
18.70000	20.29	47.63
25.00000	20.22	53.29
37.50000	20.04	61.17
62.50000	19.80	71.07
125.00000	19.59	84.51
250.00000	19.49	97.95

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ZN
Z=30 A= 65.380

TD= 4.0 EV ET=0.107782 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.10800	2.57	2.57
0.10900	14.10	14.10
0.11200	46.60	46.60
0.11500	76.21	76.21
0.11900	111.77	111.77
0.12500	157.96	157.96
0.13100	197.07	197.07
0.14000	245.32	245.32
0.15000	287.74	287.74
0.16700	341.00	341.00
0.18800	385.63	385.63
0.21500	422.89	423.92
0.24700	450.71	458.21
0.29100	473.90	494.71
0.34400	490.30	529.45
0.40900	502.21	564.51
0.48500	510.62	599.60
0.56000	515.92	630.46
0.64600	519.97	662.77
0.75400	523.23	700.01
0.91600	525.94	750.74
1.07000	527.12	794.52
1.61000	526.63	923.75
2.15000	523.70	1026.82
3.23000	517.45	1185.66
5.38000	508.53	1401.95
10.70000	497.38	1711.58
21.50000	490.41	2038.06
32.30000	488.21	2231.55
53.80000	486.50	2475.86
75.40000	485.68	2638.07
107.00000	484.91	2806.39
215.00000	483.41	3142.01

TD= 8.0 EV ET=0.199394 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.20100	2.67	2.67
0.20300	5.93	5.93
0.20700	12.17	12.17
0.21300	20.95	20.95
0.22100	31.67	31.67
0.23100	43.72	43.72
0.24300	56.53	56.53
0.25900	71.35	71.35
0.27900	87.03	87.03
0.30900	106.23	106.23
0.34800	125.82	125.82
0.39800	145.13	145.88
0.45800	162.78	166.29
0.53800	180.42	189.47
0.63800	196.54	214.23
0.75700	210.39	239.71
0.89700	222.01	265.93
1.03000	230.04	288.12
1.19000	237.10	312.18
1.39000	243.29	339.11
1.69000	249.19	374.55
1.99000	252.66	405.45
2.99000	256.79	487.07
3.98000	256.91	547.69
5.98000	255.13	637.61
9.96000	251.50	754.12
19.90000	246.93	916.27
39.80000	244.40	1081.51
59.80000	243.59	1179.24
99.60000	242.91	1302.09
139.00000	242.54	1382.39
199.00000	242.16	1468.79
398.00000	241.41	1635.62

TD=12.0 EV ET=0.280473 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.28300	1.39	1.39
0.28500	3.01	3.01
0.29100	5.63	5.63
0.30300	10.14	10.14
0.31100	15.32	15.32
0.32500	21.44	21.44
0.34200	28.26	28.26
0.36400	36.27	36.27
0.39200	45.37	45.37
0.43400	57.19	57.19
0.49300	70.40	70.40
0.56300	83.90	84.50
0.64500	97.07	99.50
0.75700	110.61	116.77
0.89700	123.33	135.57
1.06000	134.19	154.68
1.26000	143.70	175.19
1.45000	150.17	192.43
1.68000	155.80	211.05
1.96000	160.52	231.15
2.38000	164.91	257.28
2.80000	167.45	279.79
4.20000	170.36	338.12
5.60000	170.45	381.00
8.41000	169.28	443.15
14.00000	166.91	522.48
28.00000	164.16	632.04
56.00000	162.72	742.82
84.10000	162.26	808.11
140.00000	161.84	890.05
196.00000	161.59	944.12
280.00000	161.34	1001.39
560.00000	160.83	1112.62

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ZN
Z=30 A= 65.380

TD=16.0 EV ET=0.353985 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.35700	0.77	0.77
0.36100	1.77	1.77
0.36800	3.50	3.50
0.37800	5.90	5.90
0.39200	9.15	9.15
0.41000	13.13	13.13
0.43100	17.54	17.54
0.46000	23.24	23.24
0.49500	29.58	29.58
0.54800	38.24	38.24
0.61900	48.32	48.33
0.70700	58.85	59.36
0.81400	69.37	71.29
0.95500	80.31	85.18
1.13000	90.58	100.28
1.34000	99.56	116.11
1.59000	107.12	132.55
1.84000	112.44	147.01
2.12000	116.66	161.39
2.47000	120.28	177.27
3.00000	123.61	197.97
3.53000	125.50	215.68
5.30000	127.54	261.13
7.07000	127.54	294.19
10.60000	126.61	341.42
17.60000	124.87	401.24
35.30000	122.93	484.22
70.70000	121.95	567.71
106.00000	121.63	616.55
176.00000	121.33	677.73

TD=20.0 EV ET=0.421721 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.42500	0.46	0.46
0.43000	1.16	1.16
0.43800	2.28	2.28
0.45100	4.08	4.08
0.46800	6.39	6.39
0.48900	9.19	9.19
0.51400	12.44	12.44
0.54800	16.68	16.68
0.59000	21.65	21.65
0.65300	28.53	28.53
0.73800	36.78	36.81
0.84300	45.52	45.97
0.96900	54.20	55.83
1.13000	63.06	67.06
1.34000	71.81	79.94
1.60000	79.60	93.81
1.89000	85.67	107.25
2.19000	90.06	119.45
2.53000	93.54	131.67
2.95000	96.42	144.93
3.58000	99.02	161.97
4.21000	100.46	176.49
6.32000	101.94	213.63
8.43000	101.89	240.46
12.60000	101.11	278.34
21.00000	99.71	326.85
42.10000	98.24	393.42
84.30000	97.51	460.30
126.00000	97.27	499.10
210.00000	97.04	548.43

TD=24.0 EV ET=0.484861 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.48900	0.36	0.36
0.49400	0.80	0.80
0.50400	1.68	1.68
0.51800	2.93	2.93
0.53800	4.72	4.72
0.56200	6.87	6.87
0.59100	9.46	9.46
0.63000	12.88	12.88
0.67800	16.94	16.94
0.75100	22.74	22.74
0.84300	29.70	29.73
0.96900	37.20	37.61
1.11000	44.50	45.91
1.30000	52.35	55.88
1.55000	60.07	67.39
1.84000	66.47	78.99
2.18000	71.68	90.79
2.52000	75.29	101.12
2.90000	78.10	111.31
3.39000	80.52	122.83
4.12000	82.64	137.45
4.84000	83.78	149.70
7.27000	84.90	181.13
9.69000	84.82	203.66
14.50000	84.14	235.52
24.20000	82.98	276.22
48.40000	81.81	331.63
96.90000	81.23	387.41
145.00000	81.04	419.86
242.00000	80.85	461.08

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ZN
Z=30 A= 65.380

TD=28.0 EV ET=0.544229 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.54900	0.28	0.28
0.55500	0.63	0.63
0.56500	1.24	1.24
0.58200	2.29	2.29
0.60400	3.69	3.69
0.63100	5.44	5.44
0.66300	7.54	7.54
0.70700	10.43	10.43
0.76100	13.90	13.90
0.84300	18.91	18.91
0.95200	24.98	25.02
1.08000	31.21	31.56
1.25000	38.12	39.42
1.46000	44.88	48.08
1.74000	51.61	58.20
2.06000	57.08	68.26
2.44000	61.59	78.61
2.82000	64.68	87.65
3.26000	67.15	96.86
3.80000	69.15	106.73
4.62000	70.92	119.49
5.44000	71.87	130.28
8.16000	72.75	157.40
10.80000	72.65	176.37
16.30000	72.04	204.39
27.20000	71.05	239.36
54.40000	70.08	286.94
108.00000	69.61	334.20
163.00000	69.45	362.62

TD=32.0 EV ET=0.600430 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.60600	0.23	0.23
0.61200	0.48	0.48
0.62400	1.01	1.01
0.64200	1.83	1.83
0.66600	2.97	2.97
0.69600	4.45	4.45
0.73200	6.28	6.28
0.78000	8.74	8.74
0.84000	11.80	11.80
0.93000	16.20	16.20
1.05000	21.59	21.62
1.20000	27.46	27.82
1.38000	33.34	34.55
1.62000	39.54	42.56
1.92000	45.31	51.34
2.28000	50.22	60.50
2.70000	54.14	69.73
3.12000	56.82	77.77
3.60000	58.92	85.85
4.20000	60.64	94.66
5.10000	62.14	105.89
6.00000	62.93	115.38
9.00000	63.64	139.29
12.00000	63.52	156.41
18.00000	62.98	180.64
30.00000	62.12	211.23
60.00000	61.30	252.91
120.00000	60.90	294.74
180.00000	60.76	319.24

TD=36.0 EV ET=0.653924 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.66000	0.19	0.19
0.66700	0.41	0.41
0.68000	0.84	0.84
0.69900	1.50	1.50
0.72500	2.46	2.46
0.75800	3.75	3.75
0.79700	5.33	5.33
0.85000	7.54	7.54
0.91500	10.25	10.25
1.01000	14.08	14.08
1.14000	18.92	18.95
1.30000	24.15	24.46
1.50000	29.59	30.70
1.76000	35.16	37.93
2.09000	40.40	45.97
2.48000	44.77	54.21
2.94000	48.28	62.60
3.40000	50.66	69.89
3.92000	52.50	77.12
4.57000	53.99	85.00
5.55000	55.29	95.08
6.53000	55.97	103.59
9.80000	56.55	124.99
13.00000	56.44	140.00
19.60000	55.94	161.86
32.60000	55.18	188.99
65.30000	54.47	226.17
130.00000	54.12	263.11
196.00000	54.00	285.17

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ZN
Z=30 A= 65.380

TD=40.0 EV ET=0.705066 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.71200	0.16	0.16
0.71900	0.33	0.33
0.73300	0.69	0.69
0.75400	1.27	1.27
0.78200	2.10	2.10
0.81700	3.22	3.22
0.86000	4.66	4.66
0.91600	6.60	6.60
0.98700	9.07	9.07
1.09000	12.57	12.57
1.23000	16.98	17.01
1.41000	21.93	22.25
1.62000	26.74	27.79
1.90000	31.79	34.39
2.25000	36.46	41.62
2.67000	40.41	49.15
3.17000	43.59	56.86
3.66000	45.70	63.42
4.23000	47.36	70.11
4.93000	48.67	77.25
5.99000	49.81	86.41
7.05000	50.40	94.13
10.50000	50.89	113.12
14.10000	50.77	127.26
21.10000	50.31	146.62
35.20000	49.64	171.21
70.50000	49.00	204.68
141.00000	48.70	238.17
211.00000	48.59	257.66

TD=44.0 EV ET=0.754143 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.76100	0.13	0.13
0.76900	0.28	0.28
0.78400	0.59	0.59
0.80600	1.08	1.08
0.83700	1.84	1.84
0.87400	2.82	2.82
0.92000	4.12	4.12
0.98000	5.88	5.88
1.05000	7.97	7.97
1.16000	11.18	11.18
1.31000	15.25	15.28
1.50000	19.77	20.06
1.73000	24.32	25.30
2.03000	28.97	31.40
2.41000	33.30	38.16
2.86000	36.89	45.09
3.39000	39.74	52.11
3.92000	41.66	58.20
4.52000	43.13	64.23
5.27000	44.31	70.78
6.41000	45.33	79.21
7.54000	45.84	86.24
11.30000	46.25	103.84
15.00000	46.14	116.23
22.60000	45.71	134.15
37.70000	45.10	156.53
75.40000	44.54	186.92
150.00000	44.27	217.14
226.00000	44.17	235.16

TD=48.0 EV ET=0.801385 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.80900	0.11	0.11
0.81700	0.24	0.24
0.83300	0.51	0.51
0.85700	0.95	0.95
0.88900	1.61	1.61
0.92900	2.51	2.51
0.97700	3.67	3.67
1.04000	5.26	5.26
1.12000	7.33	7.33
1.24000	10.37	10.37
1.40000	14.14	14.17
1.60000	18.26	18.55
1.84000	22.38	23.32
2.16000	26.68	29.00
2.56000	30.63	35.20
3.04000	33.93	41.64
3.60000	36.52	48.10
4.16000	38.26	53.70
4.80000	39.60	59.29
5.60000	40.67	65.37
6.81000	41.58	73.13
8.01000	42.04	79.59
12.00000	42.39	95.77
16.00000	42.28	107.32
24.00000	41.89	123.59
40.00000	41.33	144.09
80.10000	40.82	172.01
160.00000	40.53	199.88
240.00000	40.49	216.23

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ZN
Z=30 A= 65.380

TD=52.0 EV ET=0.846986 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.85500	0.10	0.10
0.86300	0.20	0.20
0.88000	0.44	0.44
0.90600	0.84	0.84
0.94000	1.44	1.44
0.98200	2.26	2.26
1.03000	3.26	3.26
1.10000	4.81	4.81
1.18000	6.62	6.62
1.31000	9.52	9.52
1.48000	13.05	13.09
1.69000	16.87	17.14
1.94000	20.65	21.54
2.28000	24.68	26.87
2.71000	28.40	32.75
3.21000	31.40	38.66
3.81000	33.81	44.75
4.40000	35.40	49.94
5.08000	36.62	55.15
5.92000	37.59	60.75
7.19000	38.41	67.90
8.46000	38.81	73.90
12.70000	39.13	88.95
16.90000	39.01	99.56
25.40000	38.65	114.67
42.30000	38.13	133.57
84.60000	37.67	159.32
169.00000	37.45	185.05

TD=56.0 EV ET=0.891104 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.90000	0.09	0.09
0.90800	0.18	0.18
0.92600	0.39	0.39
0.95300	0.75	0.75
0.98900	1.30	1.30
1.03000	1.99	1.99
1.08000	2.91	2.91
1.15000	4.27	4.27
1.24000	6.08	6.08
1.38000	8.86	8.86
1.55000	12.00	12.03
1.78000	15.73	16.00
2.04000	19.22	20.07
2.40000	23.01	25.10
2.85000	26.44	30.58
3.38000	29.25	36.15
4.00000	31.45	41.75
4.63000	32.93	46.67
5.34000	34.05	51.50
6.23000	34.94	56.76
7.57000	35.69	63.44
8.91000	36.06	69.04
13.30000	36.33	82.85
17.80000	36.22	92.92
26.70000	35.87	106.89
44.50000	35.40	124.49
89.10000	34.97	148.44
178.00000	34.77	172.34

TD=60.0 EV ET=0.933875 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.94300	0.08	0.08
0.95200	0.16	0.16
0.97100	0.35	0.35
0.99300	0.68	0.68
1.03000	1.09	1.09
1.08000	1.83	1.83
1.13000	2.64	2.64
1.21000	4.03	4.03
1.30000	5.65	5.65
1.44000	8.14	8.14
1.63000	11.30	11.33
1.86000	14.64	14.89
2.14000	18.02	18.83
2.52000	21.58	23.60
2.98000	24.72	28.63
3.54000	27.36	33.91
4.20000	29.43	39.25
4.85000	30.79	43.79
5.60000	31.82	48.36
6.53000	32.64	53.27
7.93000	33.32	59.50
9.33000	33.66	64.73
14.00000	33.90	77.82
18.60000	33.79	86.99
28.00000	33.47	100.16
46.60000	33.03	116.55
93.30000	32.64	138.91
186.00000	32.45	161.15

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ZN
Z=30 A= 65.380

TD=64.0 EV ET=0.975416 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.98500	0.07	0.07
0.99400	0.14	0.14
1.01000	0.28	0.28
1.04000	0.58	0.58
1.08000	1.04	1.04
1.13000	1.71	1.71
1.19000	2.59	2.59
1.26000	3.69	3.69
1.36000	5.31	5.31
1.51000	7.72	7.72
1.70000	10.57	10.60
1.95000	13.85	14.10
2.24000	16.99	17.79
2.63000	20.28	22.20
3.12000	23.28	27.05
3.70000	25.72	31.98
4.38000	27.63	36.94
5.07000	28.91	41.29
5.85000	29.87	45.57
6.82000	30.63	50.18
8.29000	31.26	56.08
9.75000	31.57	60.98
14.60000	31.78	73.21
19.50000	31.67	81.98
29.20000	31.37	94.18
48.70000	30.96	109.61
97.50000	30.59	130.58
195.00000	30.42	151.53

TD=68.0 EV ET=1.015828 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.02000	0.03	0.03
1.03000	0.09	0.09
1.05000	0.24	0.24
1.08000	0.50	0.50
1.12000	0.91	0.91
1.17000	1.50	1.50
1.23000	2.29	2.29
1.32000	3.56	3.56
1.42000	5.04	5.04
1.57000	7.23	7.23
1.77000	9.96	9.99
2.03000	13.06	13.30
2.33000	16.01	16.78
2.74000	19.15	21.00
3.25000	21.97	25.58
3.86000	24.29	30.30
4.57000	26.07	34.99
5.28000	27.25	39.05
6.09000	28.14	43.08
7.11000	28.85	47.48
8.63000	29.43	53.00
10.10000	29.71	57.48
15.20000	29.91	69.15
20.30000	29.80	77.41
30.40000	29.52	88.90
50.70000	29.13	103.43
101.00000	28.79	123.03
203.00000	28.63	142.90

TD=72.0 EV ET=1.055197 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.06000	0.02	0.02
1.07000	0.08	0.08
1.09000	0.21	0.21
1.12000	0.44	0.44
1.17000	0.91	0.91
1.22000	1.45	1.45
1.28000	2.17	2.17
1.37000	3.33	3.33
1.47000	4.68	4.68
1.63000	6.82	6.82
1.84000	9.44	9.47
2.11000	12.38	12.62
2.42000	15.17	15.90
2.84000	18.10	19.87
3.37000	20.78	24.23
4.00000	22.95	28.68
4.74000	24.65	33.16
5.48000	25.77	37.02
6.33000	26.61	40.89
7.38000	27.27	45.01
8.96000	27.81	50.24
10.50000	28.07	54.52
15.80000	28.24	65.56
21.10000	28.14	73.36
31.60000	27.87	84.22
52.70000	27.50	97.95
105.00000	27.19	116.47
211.00000	27.04	135.23

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ZN
Z=30 A= 65.380

TD=76.0 EV ET=1.093600 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.10000	0.03	0.03
1.11000	0.08	0.08
1.13000	0.20	0.20
1.17000	0.48	0.48
1.21000	0.82	0.82
1.26000	1.31	1.31
1.33000	2.07	2.07
1.42000	3.14	3.14
1.53000	4.50	4.50
1.69000	6.47	6.47
1.91000	8.99	9.02
2.18000	11.69	11.92
2.51000	14.42	15.14
2.95000	17.23	18.95
3.49000	19.72	23.03
4.15000	21.81	27.32
4.92000	23.40	31.59
5.68000	24.44	35.23
6.56000	25.23	38.89
7.65000	25.85	42.81
9.29000	26.36	47.79
10.90000	26.60	51.88
16.40000	26.75	62.34
21.80000	26.66	69.63
32.80000	26.39	80.04
54.60000	26.05	93.00
109.00000	25.76	110.60
218.00000	25.61	128.25

TD=80.0 EV ET=1.131106 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.14000	0.04	0.04
1.15000	0.08	0.08
1.17000	0.19	0.19
1.21000	0.44	0.44
1.25000	0.75	0.75
1.31000	1.29	1.29
1.37000	1.90	1.90
1.47000	2.99	2.99
1.58000	4.24	4.24
1.75000	6.17	6.17
1.97000	8.50	8.53
2.26000	11.18	11.41
2.60000	13.76	14.46
3.05000	16.40	18.06
3.61000	18.78	21.97
4.29000	20.75	26.04
5.08000	22.25	30.09
5.88000	23.25	33.62
6.78000	23.99	37.07
7.91000	24.57	40.81
9.61000	25.05	45.56
11.30000	25.27	49.50
16.90000	25.41	59.31
22.60000	25.32	66.38
33.90000	25.07	76.21
56.50000	24.75	88.55
113.00000	24.47	105.32
226.00000	24.33	122.09

TD=84.0 EV ET=1.167774 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.17000	0.01	0.01
1.19000	0.09	0.09
1.21000	0.18	0.18
1.24000	0.35	0.35
1.29000	0.70	0.70
1.35000	1.20	1.20
1.42000	1.85	1.85
1.51000	2.76	2.76
1.63000	4.02	4.02
1.81000	5.91	5.91
2.04000	8.17	8.20
2.33000	10.65	10.87
2.68000	13.12	13.79
3.15000	15.67	17.27
3.73000	17.93	21.02
4.43000	19.80	24.90
5.25000	21.23	28.79
6.07000	22.17	32.13
7.00000	22.87	35.43
8.17000	23.42	39.01
9.92000	23.85	43.53
11.60000	24.07	47.16
17.50000	24.20	56.71
23.30000	24.11	63.35
35.00000	23.87	72.74
58.30000	23.56	84.49
116.00000	23.30	100.38
233.00000	23.17	116.42

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ZN
Z=30 A= 65.380

TD=88.0 EV ET=1.203658 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.21000	0.02	0.02
1.22000	0.06	0.06
1.25000	0.18	0.18
1.28000	0.34	0.34
1.33000	0.66	0.66
1.39000	1.12	1.12
1.46000	1.72	1.72
1.56000	2.66	2.66
1.68000	3.84	3.84
1.86000	5.60	5.60
2.10000	7.79	7.82
2.40000	10.18	10.39
2.76000	12.54	13.19
3.24000	14.96	16.50
3.85000	17.17	20.17
4.57000	18.94	23.87
5.41000	20.29	27.57
6.25000	21.18	30.75
7.22000	21.85	33.94
8.42000	22.36	37.36
10.20000	22.78	41.62
12.00000	22.98	45.23
18.00000	23.10	54.22
24.00000	23.01	60.60
36.10000	22.78	69.60
60.10000	22.49	80.80
120.00000	22.24	96.01
240.00000	22.12	111.26

TD=92.0 EV ET=1.238806 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.25000	0.03	0.03
1.26000	0.07	0.07
1.28000	0.14	0.14
1.32000	0.34	0.34
1.37000	0.63	0.63
1.43000	1.06	1.06
1.51000	1.70	1.70
1.61000	2.58	2.58
1.73000	3.68	3.68
1.92000	5.41	5.41
2.16000	7.45	7.48
2.47000	9.76	9.96
2.84000	12.02	12.65
3.34000	14.36	15.87
3.96000	16.45	19.34
4.70000	18.14	22.90
5.57000	19.43	26.46
6.44000	20.28	29.53
7.43000	20.91	32.57
8.67000	21.40	35.85
10.50000	21.80	39.93
12.30000	21.98	43.29
18.50000	22.09	51.96
24.70000	22.01	58.09
37.10000	21.79	66.67
61.90000	21.51	77.44
123.00000	21.27	91.89
247.00000	21.16	106.56

TD=96.0 EV ET=1.273262 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.28000	0.02	0.02
1.29000	0.05	0.05
1.32000	0.15	0.15
1.36000	0.33	0.33
1.41000	0.61	0.61
1.47000	1.01	1.01
1.55000	1.61	1.61
1.65000	2.43	2.43
1.78000	3.54	3.54
1.97000	5.16	5.16
2.22000	7.16	7.19
2.54000	9.38	9.58
2.92000	11.55	12.16
3.43000	13.78	15.24
4.07000	15.79	18.60
4.83000	17.40	22.01
5.72000	18.64	25.42
6.62000	19.46	28.39
7.63000	20.05	31.28
8.91000	20.52	34.45
10.80000	20.90	38.38
12.70000	21.07	41.68
19.00000	21.17	49.89
25.40000	21.09	55.79
38.10000	20.88	63.99
63.50000	20.61	74.33
127.00000	20.38	88.27
254.00000	20.27	102.25

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN GE
Z=32 A= 72.600

TD= 4.0 EV ET=0.118554 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.11900	4.50	4.50
0.12000	14.39	14.39
0.12300	42.43	42.43
0.12600	68.26	68.26
0.13100	106.99	106.99
0.13700	147.37	147.37
0.14400	187.59	187.59
0.15400	234.91	234.91
0.16500	276.46	276.46
0.18300	327.77	327.77
0.20700	375.20	375.20
0.23700	414.56	415.78
0.27200	444.70	452.43
0.32000	471.14	492.17
0.37900	491.41	531.39
0.45000	506.74	570.61
0.53300	518.20	610.04
0.61600	525.81	645.09
0.71100	531.75	681.56
0.82900	536.59	722.87
1.00000	540.65	776.88
1.18000	542.71	827.99
1.77000	542.80	966.81
2.37000	539.48	1077.74
3.55000	532.40	1244.03
5.92000	522.29	1470.09
11.80000	510.01	1791.31
23.70000	502.66	2127.14
35.50000	500.38	2324.40
59.20000	498.53	2575.65
82.90000	497.60	2741.53
118.00000	496.69	2915.45
237.00000	494.89	3258.89

TD= 8.0 EV ET=0.218078 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.22000	2.78	2.78
0.22200	5.60	5.60
0.22600	11.06	11.06
0.23300	20.05	20.05
0.24200	30.68	30.68
0.25200	41.42	41.42
0.26600	54.88	54.88
0.28300	69.19	69.19
0.30500	85.13	85.13
0.33800	104.96	104.96
0.38100	125.61	125.61
0.43600	146.26	147.11
0.50100	165.16	168.85
0.58800	184.35	193.81
0.69700	202.02	220.64
0.82800	217.32	248.51
0.98100	229.96	276.92
1.13000	238.77	301.46
1.30000	246.04	326.62
1.52000	252.55	355.68
1.85000	258.55	393.69
2.18000	261.94	426.64
3.27000	265.44	512.26
4.36000	265.02	575.99
6.54000	262.56	669.04
10.90000	258.25	789.57
21.80000	253.20	956.68
43.60000	250.51	1126.36
65.40000	249.65	1226.20
109.00000	248.89	1352.31
152.00000	248.46	1434.37
218.00000	248.00	1523.28
436.00000	247.10	1694.05

TD=12.0 EV ET=0.305561 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.30800	1.17	1.17
0.31100	2.59	2.59
0.31700	5.37	5.37
0.32500	9.37	9.37
0.33900	14.85	14.85
0.35400	20.79	20.79
0.37200	27.42	27.42
0.39700	35.88	35.88
0.42700	45.06	45.06
0.47300	57.45	57.45
0.53400	71.42	71.42
0.61100	85.98	86.65
0.70200	99.91	102.49
0.82500	114.63	121.24
0.97700	128.25	141.40
1.16000	140.13	162.52
1.37000	149.77	183.68
1.58000	156.61	202.36
1.83000	162.36	222.13
2.13000	167.04	243.10
2.59000	171.36	270.85
3.05000	173.75	294.64
4.58000	176.10	355.74
6.11000	175.80	400.37
9.16000	174.16	464.37
15.20000	171.38	545.59
30.50000	168.33	658.71
61.10000	166.79	772.66
91.50000	166.29	839.32
152.00000	165.81	922.77
213.00000	165.53	978.30
305.00000	165.22	1037.33
611.00000	164.61	1151.43

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN GE
Z=32 A= 72.600

TD=16.0 EV ET=0.384538 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.38800	0.77	0.77
0.39200	1.66	1.66
0.39900	3.19	3.19
0.41100	5.77	5.77
0.42600	8.92	8.92
0.44600	12.97	12.97
0.46900	17.46	17.46
0.49900	23.02	23.02
0.53800	29.78	29.78
0.59600	38.95	38.95
0.67200	49.50	49.53
0.76900	60.94	61.50
0.88400	72.08	74.16
1.03000	83.31	88.40
1.23000	94.84	105.45
1.46000	104.33	122.47
1.73000	112.10	139.83
1.99000	117.34	154.52
2.30000	121.71	170.05
2.69000	125.36	187.19
3.26000	128.51	208.67
3.84000	130.24	227.31
5.76000	131.80	274.49
7.69000	131.51	308.82
11.50000	130.24	357.26
19.20000	128.17	419.48
38.40000	126.05	504.36
76.90000	125.00	589.99
115.00000	124.65	639.74
192.00000	124.30	703.11

TD=20.0 EV ET=0.457093 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.46100	0.48	0.48
0.46600	1.10	1.10
0.47500	2.22	2.22
0.48900	3.97	3.97
0.50700	6.21	6.21
0.53000	9.06	9.06
0.55700	12.36	12.36
0.59400	16.77	16.77
0.63900	21.91	21.91
0.70800	29.26	29.26
0.79900	37.95	37.98
0.91400	47.39	47.89
1.05000	56.64	58.41
1.23000	66.33	70.78
1.46000	75.59	84.62
1.73000	83.37	98.73
2.05000	89.75	113.25
2.37000	94.14	125.94
2.74000	97.63	138.86
3.19000	100.43	152.64
3.88000	102.93	170.66
4.57000	104.24	185.94
6.85000	105.32	224.34
9.14000	105.03	252.12
13.70000	103.97	291.43
22.80000	102.34	341.17
45.70000	100.73	409.50
91.40000	99.95	477.97
137.00000	99.68	518.03
228.00000	99.41	568.42

TD=24.0 EV ET=0.524578 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.52900	0.34	0.34
0.53500	0.81	0.81
0.54500	1.60	1.60
0.56100	2.89	2.89
0.58200	4.63	4.63
0.60300	6.81	6.81
0.63900	9.44	9.44
0.68100	12.98	12.98
0.73400	17.34	17.34
0.81300	23.50	23.50
0.91800	30.92	30.95
1.04000	38.43	38.84
1.20000	46.64	48.17
1.41000	55.13	59.04
1.67000	62.95	70.83
1.99000	69.76	83.40
2.36000	75.13	95.94
2.72000	78.70	106.59
3.14000	81.56	117.52
3.67000	83.90	129.57
4.45000	85.87	144.64
5.24000	86.90	157.57
7.86000	87.70	190.03
10.40000	87.43	212.70
15.70000	86.52	246.22
26.20000	85.17	288.04
52.40000	83.88	344.92
104.00000	83.27	401.40
157.00000	83.05	435.39
262.00000	82.82	477.60

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN GE
Z=32 A= 72.600

TD=28.0 EV ET=0.587926 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.59300	0.26	0.26
0.59900	0.58	0.58
0.61100	1.23	1.23
0.62900	2.25	2.25
0.65200	3.61	3.61
0.68100	5.38	5.38
0.71700	7.64	7.64
0.76400	10.63	10.63
0.82300	14.33	14.33
0.91100	19.63	19.63
1.02000	25.65	25.68
1.17000	32.89	33.29
1.35000	40.08	41.51
1.58000	47.31	50.85
1.88000	54.29	61.51
2.23000	60.02	72.27
2.64000	64.59	83.16
3.05000	67.69	92.64
3.52000	70.10	102.17
4.11000	72.05	112.59
4.99000	73.69	125.79
5.87000	74.52	136.93
8.81000	75.13	165.04
11.70000	74.87	184.85
17.60000	74.07	213.45
29.30000	72.93	249.22
58.70000	71.86	298.17
117.00000	71.35	346.91
176.00000	71.17	375.80

TD=32.0 EV ET=0.647816 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.65400	0.23	0.23
0.66000	0.45	0.45
0.67300	0.97	0.97
0.69300	1.80	1.80
0.71900	2.96	2.96
0.75100	4.46	4.46
0.79000	6.37	6.37
0.84200	8.97	8.97
0.90600	12.17	12.17
1.00000	16.71	16.71
1.13000	22.50	22.54
1.29000	28.72	29.09
1.48000	34.87	36.14
1.74000	41.49	44.74
2.07000	47.66	54.25
2.46000	52.76	63.96
2.91000	56.73	73.61
3.36000	59.40	82.01
3.88000	61.49	90.50
4.53000	63.16	99.73
5.50000	64.55	111.41
6.47000	65.24	121.24
9.71000	65.70	146.00
12.90000	65.46	163.44
19.40000	64.75	188.52
32.30000	63.76	219.88
64.70000	62.85	262.75
129.00000	62.42	305.44
194.00000	62.26	330.71

TD=36.0 EV ET=0.704760 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.71100	0.17	0.17
0.71300	0.37	0.37
0.73200	0.78	0.78
0.75400	1.49	1.49
0.78200	2.47	2.47
0.81700	3.77	3.77
0.85900	5.43	5.43
0.91500	7.74	7.74
0.98600	10.62	10.62
1.09000	14.76	14.76
1.23000	19.92	19.96
1.40000	25.41	25.75
1.62000	31.29	32.54
1.90000	37.14	40.20
2.25000	42.51	48.58
2.67000	47.02	57.28
3.17000	50.62	66.17
3.66000	52.97	73.72
4.22000	54.78	81.28
4.93000	56.23	89.60
5.99000	57.43	100.10
7.04000	58.01	108.86
10.50000	58.38	130.64
14.00000	58.15	146.39
21.10000	57.51	168.85
35.20000	56.63	196.88
70.40000	55.85	234.93
140.00000	55.47	272.75
211.00000	55.34	295.34

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN GE
Z=32 A= 72.600

TD=40.0 EV ET=0.759153 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.76600	0.14	0.14
0.77400	0.32	0.32
0.78900	0.67	0.67
0.81200	1.26	1.26
0.84200	2.10	2.10
0.88000	3.26	3.26
0.92600	4.76	4.76
0.98600	6.79	6.79
1.06000	9.34	9.34
1.17000	13.05	13.05
1.32000	17.74	17.77
1.51000	22.93	23.27
1.74000	28.14	29.29
2.04000	33.45	36.27
2.42000	38.37	44.00
2.88000	42.50	52.06
3.41000	45.67	60.03
3.94000	47.79	66.93
4.55000	49.41	73.87
5.31000	50.68	81.37
6.45000	51.73	90.87
7.59000	52.23	98.85
11.30000	52.53	118.45
15.10000	52.30	132.78
22.70000	51.72	152.91
37.90000	50.94	178.20
75.90000	50.25	212.53
151.00000	49.92	246.60
227.00000	49.80	266.81

TD=44.0 EV ET=0.811310 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.81900	0.13	0.13
0.82700	0.26	0.26
0.84300	0.56	0.56
0.86800	1.09	1.09
0.90000	1.83	1.83
0.94100	2.88	2.88
0.98900	4.20	4.20
1.05000	5.96	5.96
1.13000	8.31	8.31
1.25000	11.78	11.78
1.41000	16.09	16.12
1.62000	21.02	21.35
1.86000	25.67	26.76
2.19000	30.65	33.36
2.59000	35.05	40.35
3.08000	38.78	47.73
3.65000	41.66	55.08
4.21000	43.54	61.34
4.86000	44.99	67.68
5.67000	46.12	74.52
6.89000	47.06	83.23
8.11000	47.50	90.53
12.10000	47.74	108.51
16.20000	47.52	121.65
24.30000	46.99	139.87
40.50000	46.29	162.80
81.10000	45.67	194.04
162.00000	45.37	225.20
243.00000	45.27	243.47

TD=48.0 EV ET=0.861487 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.87000	0.11	0.11
0.87800	0.22	0.22
0.89500	0.49	0.49
0.92100	0.94	0.94
0.95500	1.62	1.62
0.99900	2.56	2.56
1.05000	3.76	3.76
1.11000	5.26	5.26
1.20000	7.56	7.56
1.33000	10.83	10.83
1.50000	14.81	14.85
1.72000	19.31	19.62
1.98000	23.69	24.73
2.32000	28.14	30.68
2.75000	32.25	37.24
3.27000	35.66	44.06
3.87000	38.27	50.80
4.47000	39.99	56.64
5.16000	41.30	62.48
6.03000	42.34	68.86
7.32000	43.16	76.84
8.61000	43.55	83.53
12.90000	43.75	100.23
17.20000	43.54	112.12
25.80000	43.05	128.85
43.00000	42.41	149.89
86.10000	41.85	178.53
172.00000	41.59	207.10
258.00000	41.49	223.85

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN GE
Z=32 A= 72.600

TD=52.0 EV ET=0.909894 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.91800	0.09	0.09
0.92800	0.20	0.20
0.94600	0.44	0.44
0.97300	0.83	0.83
1.00000	1.28	1.28
1.05000	2.20	2.20
1.11000	3.44	3.44
1.18000	4.97	4.97
1.27000	6.99	6.99
1.41000	10.09	10.09
1.59000	13.79	13.83
1.81000	17.76	18.05
2.09000	21.92	22.92
2.45000	26.07	28.47
2.91000	29.91	34.66
3.45000	33.00	40.90
4.09000	35.42	47.23
4.73000	37.01	52.70
5.45000	38.18	58.05
6.36000	39.11	63.92
7.73000	39.86	71.35
9.09000	40.21	77.54
13.60000	40.38	92.94
18.10000	40.18	103.87
27.20000	39.72	119.39
45.40000	39.14	138.88
90.90000	38.63	165.33
181.00000	38.39	191.59

TD=56.0 EV ET=0.956704 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.96600	0.08	0.08
0.97500	0.17	0.17
0.99400	0.38	0.38
1.02000	0.70	0.70
1.06000	1.28	1.28
1.10000	1.93	1.93
1.16000	3.01	3.01
1.24000	4.55	4.55
1.33000	6.35	6.35
1.48000	9.31	9.31
1.67000	12.79	12.83
1.91000	16.63	16.93
2.20000	20.45	21.41
2.58000	24.33	26.63
3.06000	27.86	32.37
3.63000	30.73	38.23
4.30000	32.96	44.12
4.97000	34.42	49.20
5.74000	35.51	54.28
6.69000	36.35	59.71
8.13000	37.04	66.63
9.56000	37.34	72.39
14.30000	37.48	86.71
19.10000	37.30	97.00
28.70000	36.87	111.43
47.80000	36.33	129.46
95.60000	35.86	153.98
191.00000	35.64	178.49

TD=60.0 EV ET=1.002067 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.01000	0.06	0.06
1.02000	0.14	0.14
1.04000	0.33	0.33
1.07000	0.65	0.65
1.11000	1.16	1.16
1.16000	1.89	1.89
1.22000	2.86	2.86
1.30000	4.24	4.24
1.40000	6.03	6.03
1.55000	8.68	8.68
1.75000	11.97	12.01
2.00000	15.56	15.85
2.30000	19.11	20.02
2.70000	22.75	24.95
3.20000	26.05	30.33
3.80000	28.75	35.86
4.50000	30.81	41.38
5.21000	32.18	46.20
6.01000	33.18	50.93
7.01000	33.96	56.03
8.51000	34.58	62.48
10.00000	34.86	67.84
15.00000	34.98	81.32
20.00000	34.80	90.88
30.00000	34.40	104.30
50.10000	33.89	121.23
100.00000	33.47	144.06
200.00000	33.26	166.97

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN GE
Z=32 A= 72.600

TD=64.0 EV ET=1.046109 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.05000	0.02	0.02
1.06000	0.09	0.09
1.08000	0.25	0.25
1.11000	0.52	0.52
1.16000	1.08	1.08
1.21000	1.73	1.73
1.27000	2.60	2.60
1.35000	3.84	3.84
1.46000	5.61	5.61
1.62000	8.17	8.17
1.83000	11.29	11.33
2.09000	14.66	14.93
2.40000	17.96	18.83
2.82000	21.41	23.52
3.34000	24.49	28.57
3.97000	27.02	33.82
4.70000	28.94	39.01
5.43000	30.20	43.48
6.27000	31.14	47.96
7.32000	31.86	52.79
8.89000	32.43	58.86
10.40000	32.68	63.76
15.60000	32.79	76.42
20.90000	32.62	85.54
31.30000	32.24	98.08
52.30000	31.77	113.97
104.00000	31.37	135.27
209.00000	31.18	156.90

TD=68.0 EV ET=1.088939 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.09000	0.01	0.01
1.11000	0.12	0.12
1.13000	0.27	0.27
1.16000	0.52	0.52
1.20000	0.92	0.92
1.26000	1.61	1.61
1.32000	2.39	2.39
1.41000	3.66	3.66
1.52000	5.27	5.27
1.68000	7.60	7.60
1.90000	10.58	10.62
2.17000	13.77	14.04
2.50000	16.97	17.82
2.94000	20.24	22.28
3.48000	23.12	27.04
4.13000	25.48	31.96
4.90000	27.30	36.93
5.66000	28.47	41.15
6.53000	29.34	45.35
7.62000	30.01	49.90
9.25000	30.53	55.61
10.80000	30.76	60.18
16.30000	30.85	72.29
21.70000	30.69	80.70
32.60000	30.33	92.60
54.40000	29.89	107.52
108.00000	29.52	127.52
217.00000	29.35	147.88

TD=72.0 EV ET=1.130652 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.14000	0.04	0.04
1.15000	0.10	0.10
1.17000	0.22	0.22
1.20000	0.44	0.44
1.25000	0.89	0.89
1.31000	1.52	1.52
1.37000	2.23	2.23
1.46000	3.39	3.39
1.58000	4.99	4.99
1.75000	7.26	7.26
1.97000	9.98	10.02
2.26000	13.11	13.38
2.60000	16.11	16.93
3.05000	19.16	21.11
3.61000	21.83	25.63
4.29000	24.12	30.34
5.08000	25.81	34.99
5.87000	26.91	39.00
6.78000	27.73	43.01
7.91000	28.36	47.31
9.61000	28.85	52.74
11.30000	29.06	57.26
16.90000	29.14	68.46
22.60000	28.98	76.53
33.90000	28.64	87.73
56.50000	28.22	101.80
113.00000	27.88	120.89
226.00000	27.71	139.99

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN GE
Z=32 A= 72.600

TD=76.0 EV ET=1.171331 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.18000	0.04	0.04
1.19000	0.08	0.08
1.21000	0.19	0.19
1.25000	0.46	0.46
1.30000	0.87	0.87
1.35000	1.35	1.35
1.42000	2.11	2.11
1.52000	3.29	3.29
1.63000	4.64	4.64
1.81000	6.85	6.85
2.04000	9.47	9.50
2.34000	12.44	12.70
2.69000	15.28	16.07
3.16000	18.20	20.08
3.74000	20.78	24.38
4.45000	22.91	28.89
5.27000	24.50	33.32
6.09000	25.54	37.14
7.02000	26.29	40.89
8.19000	26.88	44.97
9.95000	27.34	50.13
11.70000	27.54	54.41
17.50000	27.60	65.04
23.40000	27.45	72.69
35.10000	27.13	83.30
58.50000	26.73	96.63
117.00000	26.41	114.73
234.00000	26.25	132.92

TD=80.0 EV ET=1.211050 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.22000	0.03	0.03
1.23000	0.07	0.07
1.25000	0.17	0.17
1.29000	0.41	0.41
1.34000	0.78	0.78
1.40000	1.31	1.31
1.47000	2.01	2.01
1.57000	3.10	3.10
1.69000	4.46	4.46
1.87000	6.50	6.50
2.11000	9.02	9.06
2.42000	11.86	12.11
2.78000	14.55	15.31
3.26000	17.30	19.10
3.87000	19.79	23.28
4.60000	21.80	27.55
5.44000	23.30	31.74
6.29000	24.28	35.38
7.26000	25.00	38.99
8.47000	25.55	42.88
10.20000	25.96	47.56
12.10000	26.16	51.86
18.10000	26.22	61.97
24.20000	26.07	69.24
36.30000	25.76	79.32
60.50000	25.39	91.99
121.00000	25.09	109.19
242.00000	24.94	126.38

TD=84.0 EV ET=1.249873 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.26000	0.03	0.03
1.27000	0.07	0.07
1.29000	0.16	0.16
1.33000	0.37	0.37
1.38000	0.71	0.71
1.44000	1.20	1.20
1.52000	1.93	1.93
1.62000	2.94	2.94
1.74000	4.20	4.20
1.93000	6.19	6.19
2.18000	8.63	8.67
2.49000	11.26	11.50
2.87000	13.90	14.64
3.37000	16.54	18.29
3.99000	18.87	22.23
4.74000	20.78	26.30
5.62000	22.22	30.36
6.49000	23.14	33.81
7.49000	23.83	37.25
8.74000	24.34	40.96
10.60000	24.74	45.60
12.40000	24.91	49.36
18.70000	24.96	59.19
24.90000	24.82	66.02
37.40000	24.53	75.67
62.40000	24.18	87.76
124.00000	23.89	103.99
249.00000	23.75	120.46

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN GE
Z=32 A= 72.600

TD=88.0 EV ET=1.287858 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.30000	0.04	0.04
1.31000	0.07	0.07
1.33000	0.15	0.15
1.37000	0.35	0.35
1.42000	0.66	0.66
1.49000	1.18	1.18
1.57000	1.87	1.87
1.67000	2.81	2.81
1.80000	4.08	4.08
1.99000	5.93	5.93
2.25000	8.29	8.33
2.57000	10.81	11.04
2.96000	13.31	14.04
3.47000	15.81	17.51
4.12000	18.08	21.34
4.89000	19.88	25.22
5.79000	21.24	29.07
6.69000	22.11	32.39
7.72000	22.76	35.68
9.01000	23.25	39.23
10.90000	23.62	43.61
12.80000	23.79	47.29
19.30000	23.83	56.68
25.70000	23.69	63.20
38.60000	23.41	72.41
64.30000	23.08	83.92
128.00000	22.80	99.45
257.00000	22.67	115.17

TD=92.0 EV ET=1.325057 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.33000	0.01	0.01
1.35000	0.07	0.07
1.37000	0.15	0.15
1.41000	0.33	0.33
1.47000	0.68	0.68
1.53000	1.10	1.10
1.61000	1.74	1.74
1.72000	2.70	2.70
1.85000	3.89	3.89
2.05000	5.71	5.71
2.31000	7.91	7.94
2.65000	10.40	10.64
3.04000	12.74	13.43
3.57000	15.16	16.80
4.24000	17.33	20.48
5.03000	19.04	24.19
5.96000	20.34	27.91
6.89000	21.18	31.10
7.95000	21.79	34.25
9.27000	22.25	37.63
11.20000	22.60	41.79
13.20000	22.75	45.40
19.80000	22.79	54.27
26.50000	22.66	60.63
39.70000	22.39	69.38
66.20000	22.07	80.42
132.00000	21.81	95.31
265.00000	21.68	110.34

TD=96.0 EV ET=1.361518 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.37000	0.02	0.02
1.38000	0.05	0.05
1.41000	0.14	0.14
1.45000	0.32	0.32
1.51000	0.64	0.64
1.57000	1.03	1.03
1.66000	1.70	1.70
1.76000	2.52	2.52
1.90000	3.72	3.72
2.11000	5.51	5.51
2.38000	7.64	7.68
2.72000	9.98	10.20
3.13000	12.27	12.95
3.67000	14.56	16.16
4.35000	16.62	19.66
5.17000	18.27	23.26
6.12000	19.51	26.81
7.07000	20.30	29.86
8.16000	20.89	32.89
9.53000	21.33	36.17
11.50000	21.66	40.14
13.60000	21.81	43.67
20.40000	21.84	52.18
27.20000	21.71	58.19
40.80000	21.45	66.61
68.00000	21.15	77.18
136.00000	20.90	91.51
272.00000	20.78	105.84

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN RB
Z=37 A= 85.480

TD= 4.0 EV	ET=0.137326 MEV		TD= 8.0 EV	ET=0.250270 MEV		TD=12.0 EV	ET=0.348499 MEV	
ENERGY(MEV)	PRIMARY	CASCADE	ENERGY(MEV)	PRIMARY	CASCADE	ENERGY(MEV)	PRIMARY	CASCADE
0.13800	6.03	6.03	0.25200	2.25	2.25	0.35100	1.09	1.09
0.14000	23.36	23.36	0.25500	6.09	6.09	0.35500	2.82	2.82
0.14200	39.91	39.91	0.26000	12.26	12.26	0.36200	5.80	5.80
0.14600	70.87	70.87	0.26700	20.50	20.50	0.37200	9.95	9.95
0.15200	112.54	112.54	0.27700	31.52	31.52	0.38500	15.58	15.58
0.15900	155.02	155.02	0.29000	44.69	44.69	0.40100	22.52	22.52
0.16700	196.94	196.94	0.30500	58.52	58.52	0.42500	30.20	30.20
0.17800	245.36	245.36	0.32500	75.05	75.05	0.45300	39.83	39.83
0.19200	295.21	295.21	0.35000	93.24	93.24	0.48700	50.65	50.65
0.21200	350.11	350.11	0.38700	116.23	116.23	0.54000	65.82	65.82
0.24000	405.73	405.73	0.43700	141.75	141.75	0.60300	82.91	82.93
0.27400	452.80	454.32	0.50000	167.45	168.52	0.69500	100.94	101.79
0.31500	492.05	501.07	0.57500	191.46	195.99	0.80100	118.58	121.85
0.37000	527.60	551.71	0.67500	215.86	227.50	0.94000	136.72	145.06
0.43900	556.88	603.53	0.80000	238.17	261.29	1.11000	153.17	169.71
0.52100	579.59	655.08	0.95100	257.26	296.44	1.32000	167.59	196.04
0.61700	596.95	706.98	1.12000	272.10	330.62	1.56000	178.88	222.08
0.71400	608.58	753.33	1.30000	283.05	362.67	1.81000	186.88	245.79
0.82300	617.32	800.27	1.50000	291.40	394.29	2.09000	192.93	269.19
0.96100	624.30	853.90	1.75000	298.27	429.29	2.43000	197.68	294.19
1.16000	629.67	922.76	2.12000	304.06	474.17	2.96000	201.76	327.53
1.37000	631.87	987.15	2.50000	307.00	513.85	3.48000	203.66	355.39
2.05000	629.69	1156.59	3.75000	308.36	615.21	5.22000	204.36	426.71
2.74000	623.45	1289.03	5.00000	306.18	689.75	6.96000	202.87	478.37
4.11000	612.04	1486.31	7.50000	301.48	797.61	10.40000	199.80	551.48
6.86000	597.15	1749.82	12.50000	294.92	936.09	17.40000	195.57	645.97
13.70000	580.56	2120.23	25.00000	288.13	1127.03	34.80000	191.52	774.39
27.40000	571.43	2501.64	50.00000	284.73	1320.31	69.60000	189.55	903.75
41.10000	568.56	2727.10	75.00000	283.61	1433.84	104.00000	188.89	978.88
68.60000	566.09	3013.30	125.00000	282.52	1577.02	174.00000	188.17	1075.11
96.10000	564.70	3201.79	175.00000	281.84	1671.15	243.00000	187.72	1137.39
137.00000	563.27	3399.81	250.00000	281.12	1770.76	348.00000	187.23	1204.26

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN RB
Z=37 A= 85.480

TD=16.0 EV	ET=0.436599 MEV		TD=20.0 EV	ET=0.517177 MEV		TD=24.0 EV	ET=0.591885 MEV	
ENERGY(MEV)	PRIMARY	CASCADE	ENERGY(MEV)	PRIMARY	CASCADE	ENERGY(MEV)	PRIMARY	CASCADE
0.44000	0.69	0.69	0.52200	0.55	0.55	0.59700	0.36	0.36
0.44500	1.71	1.71	0.52700	1.12	1.12	0.60300	0.80	0.80
0.45400	3.55	3.55	0.53700	2.30	2.30	0.61500	1.70	1.70
0.46700	6.21	6.21	0.55300	4.22	4.22	0.63300	3.12	3.12
0.48400	9.67	9.67	0.57400	6.81	6.81	0.65500	5.03	5.03
0.50600	14.12	14.12	0.59900	9.95	9.95	0.68500	7.63	7.63
0.53200	19.29	19.29	0.63000	13.89	13.89	0.72200	10.85	10.85
0.56700	26.06	26.06	0.67200	19.20	19.20	0.76900	15.10	15.10
0.61100	34.17	34.17	0.72400	25.60	25.60	0.82300	20.39	20.39
0.67600	45.28	45.28	0.80100	34.57	34.57	0.91700	28.03	28.03
0.76400	58.65	58.70	0.90500	45.49	45.55	1.03000	36.87	36.92
0.87300	72.75	73.50	1.03000	56.81	57.44	1.18000	47.04	47.62
1.00000	86.26	88.87	1.18000	68.04	70.24	1.36000	57.04	59.11
1.17000	100.46	107.03	1.39000	80.31	86.06	1.59000	66.99	72.09
1.39000	114.00	127.46	1.65000	91.38	103.04	1.89000	76.45	86.80
1.65000	125.22	148.28	1.96000	100.55	120.47	2.24000	84.05	101.56
1.96000	134.24	169.67	2.32000	107.68	137.88	2.66000	90.11	116.75
2.27000	140.26	188.25	2.68000	112.41	153.00	3.07000	93.98	129.58
2.61000	144.69	206.18	3.10000	116.06	168.45	3.55000	96.95	142.70
3.05000	148.32	226.47	3.62000	118.84	185.06	4.14000	99.17	156.69
3.71000	151.23	252.32	4.39000	121.00	205.93	5.03000	100.89	174.54
4.36000	152.53	273.90	5.17000	121.96	223.78	5.91000	101.60	189.40
6.54000	152.80	328.80	7.75000	122.00	268.32	8.87000	101.52	227.01
8.73000	151.62	368.44	10.30000	121.03	299.88	11.80000	100.68	253.59
13.00000	149.32	423.47	15.50000	119.12	345.38	17.70000	99.09	291.38
21.80000	146.21	495.18	25.80000	116.73	402.18	29.50000	97.13	338.96
43.60000	143.40	591.91	51.70000	114.59	479.98	59.10000	95.42	403.89
87.30000	142.05	689.28	103.00000	113.58	557.40	118.00000	94.61	468.66
130.00000	141.58	745.20	155.00000	113.21	603.34	177.00000	94.31	506.65
218.00000	141.05	817.70	258.00000	112.79	660.50	295.00000	93.97	554.40

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN RB
Z=37 A= 85.480

TD=28.0 EV ET=0.661843 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.66800	0.29	0.29
0.67500	0.64	0.64
0.68800	1.32	1.32
0.70800	2.44	2.44
0.73400	4.00	4.00
0.76700	6.11	6.11
0.80700	8.79	8.79
0.85000	12.44	12.44
0.92600	16.99	16.99
1.02000	23.26	23.26
1.15000	31.22	31.27
1.32000	40.24	40.78
1.52000	48.92	50.81
1.78000	57.67	62.33
2.11000	65.74	75.03
2.51000	72.43	88.24
2.97000	77.48	101.24
3.44000	80.83	112.71
3.97000	83.27	123.98
4.63000	85.11	136.14
5.62000	86.51	151.54
6.61000	87.07	164.48
9.92000	86.92	196.95
13.20000	86.18	219.87
19.80000	84.81	252.36
33.00000	83.15	293.23
66.10000	81.74	348.94
132.00000	81.07	404.49
198.00000	80.82	437.07

TD=32.0 EV ET=0.727857 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.73500	0.24	0.24
0.74200	0.49	0.49
0.75600	1.03	1.03
0.77800	1.94	1.94
0.80700	3.26	3.26
0.84400	5.10	5.10
0.88700	7.36	7.36
0.94600	10.58	10.58
1.01000	14.11	14.11
1.12000	20.03	20.03
1.27000	27.45	27.50
1.45000	35.15	35.65
1.67000	42.87	44.61
1.96000	50.73	55.03
2.32000	57.77	66.26
2.76000	63.63	78.02
3.27000	68.04	89.66
3.78000	70.90	99.69
4.36000	72.99	109.63
5.09000	74.56	120.45
6.18000	75.73	134.07
7.27000	76.18	145.49
10.90000	75.99	173.99
14.50000	75.33	194.09
21.80000	74.12	222.75
36.30000	72.69	258.50
72.70000	71.49	307.28
145.00000	70.92	355.82
218.00000	70.70	384.49

TD=36.0 EV ET=0.790527 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.79300	0.19	0.19
0.80500	0.40	0.40
0.82200	0.87	0.87
0.84500	1.61	1.61
0.87700	2.77	2.77
0.91700	4.36	4.36
0.96400	6.36	6.36
1.02000	8.86	8.86
1.10000	12.50	12.50
1.22000	17.83	17.83
1.38000	24.38	24.44
1.58000	31.46	31.96
1.81000	38.15	39.74
2.13000	45.31	49.31
2.52000	51.57	59.41
3.00000	56.79	70.06
3.55000	60.66	80.45
4.11000	63.19	89.56
4.74000	65.00	98.47
5.53000	66.35	108.13
6.71000	67.34	120.28
7.90000	67.71	130.53
11.80000	67.51	155.74
15.80000	66.89	174.07
23.70000	65.82	199.44
39.50000	64.56	231.32
79.00000	63.52	274.63
158.00000	63.03	317.96
237.00000	62.83	343.30

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN RB
Z=37 A= 85.480

TD=40.0 EV ET=0.850314 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.85800	0.15	0.15
0.86700	0.34	0.34
0.88400	0.73	0.73
0.90900	1.37	1.37
0.94300	2.37	2.37
0.98600	3.78	3.78
1.03000	5.33	5.33
1.10000	7.95	7.95
1.19000	11.39	11.39
1.31000	15.90	15.90
1.48000	21.80	21.86
1.70000	28.41	28.88
1.95000	34.53	36.05
2.29000	40.94	44.67
2.72000	46.71	54.09
3.23000	51.31	63.64
3.82000	54.75	73.06
4.42000	56.98	81.29
5.10000	58.59	89.40
5.95000	59.77	98.15
7.22000	60.63	109.15
8.50000	60.94	118.42
12.70000	60.72	141.20
17.00000	60.15	157.72
25.50000	59.18	180.58
42.50000	58.07	209.30
85.00000	57.15	248.30
170.00000	56.72	287.31

TD=44.0 EV ET=0.907585 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.91600	0.13	0.13
0.92500	0.28	0.28
0.94300	0.61	0.61
0.97100	1.21	1.21
1.00000	1.91	1.91
1.05000	3.27	3.27
1.10000	4.77	4.77
1.17000	7.00	7.00
1.27000	10.28	10.28
1.40000	14.47	14.47
1.58000	19.85	19.90
1.81000	25.80	26.24
2.08000	31.49	32.92
2.45000	37.45	41.00
2.90000	42.59	49.48
3.44000	46.75	58.18
4.08000	49.90	66.96
4.71000	51.88	74.39
5.44000	53.33	81.86
6.35000	54.38	89.88
7.71000	55.13	99.95
9.07000	55.39	108.37
13.60000	55.16	129.32
18.10000	54.65	144.07
27.20000	53.77	164.98
45.30000	52.76	191.07
90.70000	51.94	226.59
181.00000	51.55	261.95

TD=48.0 EV ET=0.962631 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.97200	0.12	0.12
0.98100	0.24	0.24
1.00000	0.53	0.53
1.03000	1.06	1.06
1.06000	1.68	1.68
1.11000	2.84	2.84
1.17000	4.39	4.39
1.25000	6.60	6.60
1.38000	9.18	9.18
1.49000	13.39	13.39
1.68000	18.33	18.39
1.92000	23.73	24.15
2.21000	29.04	30.42
2.59000	34.36	37.66
3.08000	39.21	45.72
3.65000	42.98	53.72
4.33000	45.86	61.84
5.00000	47.65	68.70
5.77000	48.94	75.54
6.73000	49.88	82.89
8.18000	50.55	92.21
9.62000	50.77	99.94
14.40000	50.54	119.11
19.20000	50.07	132.74
28.80000	49.26	151.83
48.10000	48.34	175.89
96.20000	47.60	208.42
192.00000	47.25	240.85

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN RB
Z=37 A= 85.480

TD=52.0 EV ET=1.015694 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.02000	0.04	0.04
1.03000	0.15	0.15
1.05000	0.39	0.39
1.08000	0.83	0.83
1.12000	1.53	1.53
1.17000	2.54	2.54
1.23000	3.89	3.89
1.32000	6.08	6.08
1.42000	8.59	8.59
1.57000	12.31	12.31
1.77000	16.90	16.95
2.03000	22.05	22.47
2.33000	26.88	28.19
2.74000	31.91	35.08
3.25000	36.31	42.47
3.85000	39.77	49.89
4.57000	42.42	57.45
5.28000	44.06	63.84
6.09000	45.23	70.16
7.10000	46.07	76.95
8.63000	46.67	85.59
10.10000	46.86	92.52
15.20000	46.64	110.49
20.30000	46.19	123.16
30.40000	45.44	140.73
50.70000	44.61	162.89
101.00000	43.94	192.76
203.00000	43.61	222.99

TD=56.0 EV ET=1.066973 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.07000	0.02	0.02
1.08000	0.11	0.11
1.10000	0.31	0.31
1.14000	0.82	0.82
1.18000	1.44	1.44
1.23000	2.33	2.33
1.30000	3.73	3.73
1.38000	5.46	5.46
1.49000	7.92	7.92
1.65000	11.45	11.45
1.86000	15.75	15.80
2.13000	20.51	20.90
2.45000	25.08	26.34
2.88000	29.75	32.77
3.41000	33.79	39.61
4.05000	37.05	46.65
4.80000	39.46	53.64
5.54000	40.96	59.56
6.40000	42.04	65.52
7.46000	42.81	71.84
9.06000	43.35	79.85
10.60000	43.51	86.29
16.00000	43.29	103.12
21.30000	42.87	114.77
32.00000	42.17	131.22
53.30000	41.40	151.76
106.00000	40.79	179.43
213.00000	40.49	207.51

TD=60.0 EV ET=1.116638 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.12000	0.02	0.02
1.13000	0.10	0.10
1.16000	0.37	0.37
1.19000	0.71	0.71
1.23000	1.25	1.25
1.29000	2.19	2.19
1.36000	3.44	3.44
1.45000	5.19	5.19
1.56000	7.39	7.39
1.73000	10.76	10.76
1.95000	14.79	14.85
2.23000	19.22	19.60
2.56000	23.45	24.64
3.01000	27.82	30.69
3.57000	31.64	37.18
4.24000	34.66	43.78
5.02000	36.88	50.30
5.80000	38.28	55.89
6.69000	39.26	61.41
7.81000	39.98	67.38
9.49000	40.47	74.89
11.10000	40.61	80.91
16.70000	40.39	96.52
22.30000	40.00	107.51
33.40000	39.35	122.76
55.80000	38.63	142.05
111.00000	38.07	167.90
223.00000	37.79	194.10

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN RB
Z=37 A= 85.480

TD=64.0 EV ET=1.164831 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.17000	0.03	0.03
1.19000	0.09	0.09
1.21000	0.33	0.33
1.24000	0.63	0.63
1.29000	1.24	1.24
1.35000	2.10	2.10
1.42000	3.23	3.23
1.51000	4.80	4.80
1.63000	6.97	6.97
1.80000	10.02	10.02
2.03000	13.84	13.89
2.32000	17.99	18.35
2.67000	22.05	23.19
3.14000	26.16	28.91
3.72000	29.72	34.98
4.42000	32.55	41.22
5.24000	34.64	47.40
6.05000	35.93	52.64
6.98000	36.84	57.83
8.15000	37.50	63.46
9.90000	37.94	70.50
11.60000	38.07	76.21
17.40000	37.85	90.76
23.20000	37.49	101.03
34.90000	36.87	115.49
58.20000	36.21	133.51
116.00000	35.68	157.82
232.00000	35.43	182.22

TD=68.0 EV ET=1.211677 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.22000	0.04	0.04
1.23000	0.10	0.10
1.26000	0.31	0.31
1.29000	0.58	0.58
1.34000	1.12	1.12
1.40000	1.89	1.89
1.47000	2.91	2.91
1.57000	4.49	4.49
1.69000	6.47	6.47
1.87000	9.41	9.41
2.12000	13.18	13.23
2.42000	17.07	17.43
2.78000	20.84	21.95
3.27000	24.72	27.37
3.87000	28.04	33.08
4.60000	30.70	38.99
5.45000	32.65	44.81
6.30000	33.86	49.79
7.27000	34.70	54.70
8.48000	35.31	59.97
10.20000	35.70	66.28
12.10000	35.83	72.08
18.10000	35.62	85.70
24.20000	35.27	95.46
36.30000	34.69	108.98
60.50000	34.07	125.93
121.00000	33.58	148.92
242.00000	33.34	171.89

TD=72.0 EV ET=1.257282 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.26000	0.01	0.01
1.28000	0.11	0.11
1.30000	0.24	0.24
1.34000	0.55	0.55
1.39000	1.04	1.04
1.45000	1.74	1.74
1.53000	2.80	2.80
1.63000	4.24	4.24
1.76000	6.21	6.21
1.94000	8.89	8.89
2.20000	12.48	12.54
2.51000	16.15	16.50
2.89000	19.79	20.87
3.39000	23.39	25.93
4.02000	26.56	31.41
4.77000	29.04	36.95
5.65000	30.86	42.46
6.53000	32.00	47.17
7.54000	32.80	51.84
8.80000	33.36	56.85
10.60000	33.73	62.86
12.50000	33.84	68.16
18.80000	33.63	81.21
25.10000	33.30	90.38
37.70000	32.75	103.20
62.80000	32.17	119.20
125.00000	31.71	140.77
251.00000	31.48	162.59

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN RB
Z=37 A= 85.480

TD=76.0 EV ET=1.301740 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.31000	0.03	0.03
1.32000	0.08	0.08
1.35000	0.24	0.24
1.39000	0.53	0.53
1.44000	0.98	0.98
1.51000	1.73	1.73
1.58000	2.58	2.58
1.69000	4.05	4.05
1.82000	5.85	5.85
2.01000	8.46	8.46
2.27000	11.76	11.81
2.60000	15.36	15.70
2.99000	18.78	19.83
3.51000	22.22	24.66
4.16000	25.20	29.86
4.94000	27.56	35.15
5.85000	29.28	40.38
6.76000	30.34	44.85
7.81000	31.09	49.30
9.11000	31.61	54.04
11.00000	31.96	59.82
13.00000	32.05	64.91
19.50000	31.85	77.19
26.00000	31.53	85.85
39.00000	31.02	97.96
65.00000	30.47	113.14
130.00000	30.04	133.72
260.00000	29.83	154.27

TD=80.0 EV ET=1.345134 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.35000	0.02	0.02
1.37000	0.10	0.10
1.39000	0.20	0.20
1.43000	0.45	0.45
1.49000	0.94	0.94
1.56000	1.63	1.63
1.64000	2.53	2.53
1.74000	3.76	3.76
1.88000	5.55	5.55
2.08000	8.09	8.09
2.35000	11.25	11.30
2.69000	14.66	15.00
3.09000	17.89	18.91
3.63000	21.17	23.54
4.30000	24.00	28.48
5.11000	26.23	33.55
6.05000	27.85	38.52
6.99000	28.85	42.77
8.07000	29.55	46.99
9.41000	30.04	51.49
11.40000	30.37	57.08
13.40000	30.45	61.76
20.10000	30.25	73.45
26.90000	29.95	81.79
40.30000	29.46	93.25
67.20000	28.94	107.69
134.00000	28.53	127.16
269.00000	28.33	146.79

TD=84.0 EV ET=1.387536 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.40000	0.04	0.04
1.41000	0.08	0.08
1.44000	0.21	0.21
1.48000	0.45	0.45
1.54000	0.91	0.91
1.60000	1.45	1.45
1.69000	2.38	2.38
1.80000	3.64	3.64
1.94000	5.30	5.30
2.15000	7.77	7.77
2.42000	10.70	10.75
2.77000	13.96	14.29
3.19000	17.10	18.09
3.74000	20.19	22.46
4.44000	22.91	27.24
5.27000	25.02	32.05
6.24000	26.55	36.80
7.21000	27.50	40.86
8.32000	28.16	44.87
9.71000	28.62	49.19
11.70000	28.92	54.37
13.80000	29.00	58.93
20.80000	28.80	70.20
27.70000	28.52	78.01
41.60000	28.05	89.00
69.30000	27.55	102.73
138.00000	27.17	121.24
277.00000	26.98	139.93

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN RB
Z=37 A= 85.480

TD=88.0 EV ET=1.429011 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.44000	0.03	0.03
1.45000	0.06	0.06
1.48000	0.18	0.18
1.52000	0.40	0.40
1.58000	0.81	0.81
1.65000	1.40	1.40
1.74000	2.26	2.26
1.85000	3.43	3.43
2.00000	5.09	5.09
2.21000	7.39	7.39
2.50000	10.31	10.36
2.85000	13.34	13.65
3.28000	16.33	17.28
3.85000	19.30	21.50
4.57000	21.90	26.07
5.43000	23.92	30.71
6.43000	25.37	35.25
7.43000	26.27	39.14
8.57000	26.89	42.96
10.00000	27.33	47.08
12.10000	27.61	52.14
14.20000	27.68	56.37
21.40000	27.49	67.13
28.50000	27.21	74.59
42.80000	26.77	85.08
71.40000	26.30	98.22
142.00000	25.93	115.86

TD=92.0 EV ET=1.469618 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.48000	0.03	0.03
1.49000	0.05	0.05
1.52000	0.16	0.16
1.57000	0.41	0.41
1.63000	0.81	0.81
1.70000	1.36	1.36
1.79000	2.17	2.17
1.91000	3.35	3.35
2.05000	4.80	4.80
2.27000	7.05	7.05
2.57000	9.88	9.93
2.93000	12.79	13.09
3.38000	15.70	16.63
3.96000	18.50	20.63
4.70000	20.98	25.02
5.58000	22.90	29.44
6.61000	24.29	33.81
7.64000	25.15	37.53
8.81000	25.73	41.19
10.20000	26.13	44.94
12.40000	26.41	49.91
14.60000	26.48	54.03
22.00000	26.29	64.33
29.30000	26.03	71.47
44.00000	25.60	81.51
73.40000	25.15	94.08
146.00000	24.81	110.96

TD=96.0 EV ET=1.509410 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.52000	0.02	0.02
1.53000	0.05	0.05
1.56000	0.15	0.15
1.61000	0.38	0.38
1.67000	0.74	0.74
1.75000	1.32	1.32
1.84000	2.09	2.09
1.96000	3.20	3.20
2.11000	4.65	4.65
2.33000	6.76	6.76
2.64000	9.49	9.54
3.01000	12.29	12.58
3.47000	15.07	15.97
4.07000	17.78	19.85
4.83000	20.15	24.06
5.73000	21.97	28.29
6.79000	23.30	32.49
7.84000	24.11	36.04
9.05000	24.67	39.58
10.50000	25.05	43.22
12.80000	25.31	48.06
15.00000	25.37	51.90
22.60000	25.19	61.77
30.10000	24.94	68.62
45.20000	24.53	78.24
75.40000	24.10	90.29
150.00000	23.77	106.47

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ZR
Z=40 A= 91.220

TD= 4.0 EV	ET=0.145519 MEV		TD= 8.0 EV	ET=0.264186 MEV		TD=12.0 EV	ET=0.366958 MEV	
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.14600	4.35	4.35	0.26600	2.40	2.40	0.37000	1.35	1.35
0.14800	21.96	21.96	0.26900	6.29	6.29	0.37400	3.11	3.11
0.15100	47.01	47.01	0.27400	12.60	12.60	0.38100	6.17	6.17
0.15500	78.09	78.09	0.28200	22.25	22.25	0.39200	10.89	10.89
0.16100	120.30	120.30	0.29300	34.70	34.70	0.40700	17.17	17.17
0.16800	163.82	163.82	0.30600	48.36	48.36	0.42500	24.45	24.46
0.17700	212.30	212.30	0.32200	63.80	63.80	0.44700	33.03	33.03
0.18900	266.53	266.53	0.34300	82.14	82.14	0.47700	44.10	44.10
0.20300	318.31	318.31	0.36900	102.33	102.33	0.51300	56.48	56.48
0.22500	381.75	381.75	0.40900	129.08	129.08	0.56300	73.64	73.64
0.25400	443.02	443.02	0.46200	158.41	158.41	0.64200	93.71	93.74
0.29100	498.34	500.21	0.52800	187.79	189.06	0.73300	114.36	115.37
0.33400	543.36	553.60	0.60700	215.48	220.71	0.84400	134.73	138.57
0.39200	585.03	612.17	0.71300	243.71	257.21	0.99300	155.42	165.19
0.46500	619.81	672.52	0.84500	269.22	296.11	1.17000	174.11	193.56
0.55200	646.89	732.74	1.00000	290.28	335.38	1.39000	190.08	223.41
0.65400	667.41	793.30	1.18000	307.02	374.88	1.65000	202.71	253.76
0.75600	680.79	846.66	1.37000	318.97	411.40	1.90000	210.81	279.19
0.87300	690.78	901.58	1.58000	327.81	447.10	2.20000	217.24	306.05
1.01000	697.92	959.50	1.84000	334.78	486.15	2.56000	222.01	334.24
1.23000	703.48	1041.85	2.24000	340.45	537.88	3.11000	225.75	371.01
1.45000	704.96	1114.25	2.64000	342.85	582.16	3.65000	227.27	402.24
2.18000	699.55	1307.67	3.96000	342.35	695.05	5.50000	226.67	481.68
2.91000	690.48	1455.24	5.28000	338.75	777.65	7.33000	224.26	538.66
4.36000	675.38	1674.00	7.92000	332.31	896.72	11.00000	220.05	620.05
7.27000	656.69	1964.63	13.20000	324.04	1049.06	18.30000	214.80	722.71
14.50000	636.80	2371.36	26.40000	315.93	1258.67	36.60000	209.98	863.60
29.10000	626.19	2792.11	52.80000	311.98	1470.59	73.30000	207.68	1005.66
43.60000	622.86	3038.57	79.20000	310.65	1594.95	110.00000	206.86	1088.82
72.70000	619.86	3351.44	132.00000	309.27	1751.67	183.00000	205.96	1192.95
101.00000	618.12	3552.60	184.00000	308.39	1853.27	256.00000	205.37	1261.39
145.00000	616.21	3773.40	264.00000	307.43	1963.47	366.00000	204.73	1334.11

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ZR
Z=40 A= 91.220

TD=16.0 EV	ET=0.458900 MEV		TD=20.0 EV	ET=0.542851 MEV		TD=24.0 EV	ET=0.620591 MEV	
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.46300	0.85	0.85	0.54800	0.60	0.60	0.62500	0.39	0.39
0.46800	1.90	1.90	0.55300	1.19	1.19	0.63300	0.92	0.92
0.47700	3.79	3.79	0.56400	2.53	2.53	0.64500	1.86	1.86
0.49100	6.77	6.77	0.58000	4.54	4.54	0.66400	3.44	3.44
0.50900	10.63	10.63	0.60200	7.42	7.42	0.68800	5.57	5.57
0.53200	15.58	15.58	0.62900	11.06	11.06	0.71300	8.46	8.46
0.55900	21.35	21.35	0.66200	15.59	15.59	0.75700	12.16	12.16
0.59600	29.09	29.09	0.70500	21.51	21.51	0.80500	17.02	17.02
0.64200	38.34	38.34	0.75900	28.82	28.82	0.86800	23.14	23.14
0.71100	51.27	51.27	0.84100	39.33	39.33	0.96100	31.94	31.94
0.80300	66.63	66.69	0.94900	51.82	51.89	1.08300	42.22	42.28
0.91700	82.82	83.69	1.08000	64.85	65.59	1.24000	54.10	54.81
1.05000	98.28	101.33	1.24000	77.92	80.55	1.42000	65.02	67.40
1.23000	114.57	122.32	1.46000	91.79	98.60	1.67000	76.71	82.80
1.46000	129.73	145.52	1.73000	104.06	117.74	1.98000	87.11	99.27
1.74000	142.41	169.73	2.06000	114.30	137.77	2.35000	95.53	116.11
2.06000	151.98	193.45	2.44000	121.99	157.49	2.79000	102.01	133.18
2.38000	158.26	214.02	2.82000	126.96	174.53	3.22000	106.05	147.56
2.75000	162.97	234.85	3.25000	130.58	191.39	3.72000	109.04	162.14
3.21000	166.50	257.37	3.79000	133.28	209.76	4.34000	111.19	177.76
3.90000	169.12	286.02	4.61000	135.24	233.34	5.27000	112.70	197.54
4.58000	170.09	309.89	5.42000	135.92	252.93	6.20000	113.18	214.13
6.88000	169.36	370.86	8.14000	135.15	302.39	9.30000	112.43	255.61
9.17000	167.51	414.35	10.80000	133.67	336.96	12.40000	111.15	285.12
13.70000	164.40	475.39	16.20000	131.15	386.59	18.60000	109.04	326.64
22.90000	160.56	553.63	27.10000	128.16	449.53	31.00000	106.62	378.85
45.80000	157.21	659.73	54.20000	125.63	534.62	62.00000	104.60	449.87
91.70000	155.63	766.41	108.00000	124.44	619.46	124.00000	103.65	520.99
137.00000	155.04	828.15	162.00000	123.97	669.36	186.00000	103.27	562.59
229.00000	154.37	906.96	271.00000	123.43	732.50	310.00000	102.82	614.81

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ZR
Z=40 A= 91.220

TD=28.0 EV ET=0.693323 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.70000	0.33	0.33
0.70700	0.69	0.69
0.72100	1.45	1.45
0.74100	2.63	2.63
0.76900	4.43	4.43
0.80400	6.86	6.86
0.84500	9.87	9.87
0.90100	14.11	14.11
0.97000	19.36	19.36
1.07000	26.73	26.73
1.21000	36.16	36.23
1.38000	46.04	46.68
1.59000	56.00	58.22
1.87000	66.14	71.72
2.21000	74.95	85.89
2.63000	82.28	100.85
3.11000	87.66	115.41
3.60000	91.15	128.19
4.15000	93.60	140.68
4.85000	95.39	154.39
5.89000	96.61	171.53
6.93000	96.96	185.89
10.30000	96.26	220.87
13.80000	95.13	246.71
20.70000	93.33	282.39
34.60000	91.28	327.49
69.30000	89.61	388.56
138.00000	88.82	449.17
207.00000	88.50	484.83

TD=32.0 EV ET=0.761907 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.76900	0.25	0.25
0.77700	0.54	0.54
0.79200	1.14	1.14
0.81500	2.16	2.16
0.84500	3.64	3.64
0.88300	5.69	5.69
0.92900	8.34	8.34
0.99000	12.02	12.02
1.06000	16.29	16.29
1.18000	23.42	23.42
1.33000	31.57	31.64
1.52000	40.48	41.10
1.75000	49.26	51.34
2.05000	58.01	63.08
2.43000	65.89	75.91
2.89000	72.27	89.16
3.42000	76.96	102.14
3.96000	79.96	113.49
4.57000	82.05	124.62
5.33000	83.54	136.58
6.47000	84.54	151.67
7.61000	84.80	164.29
11.40000	84.11	195.66
15.20000	83.13	217.96
22.80000	81.55	249.25
38.00000	79.79	288.54
76.10000	78.37	342.02
152.00000	77.69	395.30
228.00000	77.41	426.50

TD=36.0 EV ET=0.826979 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.83500	0.21	0.21
0.84300	0.43	0.43
0.86000	0.95	0.95
0.88400	1.78	1.78
0.91700	3.07	3.07
0.95900	4.89	4.89
1.00000	6.81	6.81
1.07000	10.25	10.25
1.15000	14.28	14.28
1.28000	20.67	20.67
1.44000	27.90	27.97
1.65000	36.09	36.67
1.90000	43.97	45.92
2.23000	51.89	56.64
2.64000	58.85	68.13
3.14000	64.50	80.07
3.72000	68.64	91.81
4.30000	71.22	101.88
4.96000	73.04	111.83
5.78000	74.31	122.48
7.02000	75.15	136.01
8.25000	75.35	147.31
12.40000	74.69	175.45
16.50000	73.81	195.19
24.80000	72.40	223.19
41.30000	70.86	258.09
82.60000	69.63	305.57
165.00000	69.04	352.95
248.00000	68.80	380.83

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ZR
Z=40 A= 91.220

TD=40.0 EV ET=0.889030 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.89700	0.16	0.16
0.90600	0.35	0.35
0.92800	0.79	0.79
0.95100	1.54	1.54
0.98600	2.65	2.65
1.03000	4.23	4.23
1.08000	6.18	6.18
1.15000	9.08	9.08
1.24000	12.90	12.90
1.37000	18.31	18.31
1.55000	25.21	25.28
1.77000	32.46	33.01
2.04000	39.68	41.49
2.40000	46.95	51.41
2.84000	53.20	61.85
3.37000	58.20	72.56
4.00000	61.93	83.34
4.62000	64.21	92.43
5.33000	65.81	101.45
6.22000	66.92	111.18
7.55000	67.64	123.39
8.89000	67.79	133.64
13.30000	67.17	158.84
17.70000	66.38	176.65
26.60000	65.11	201.87
44.40000	63.73	233.45
88.90000	62.65	276.27
177.00000	62.13	318.73

TD=44.0 EV ET=0.948445 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.95700	0.13	0.13
0.96700	0.31	0.31
0.98600	0.68	0.68
1.01000	1.22	1.22
1.05000	2.27	2.27
1.10000	3.79	3.79
1.15000	5.44	5.44
1.23000	8.28	8.28
1.32000	11.56	11.56
1.47000	16.92	16.92
1.65000	22.85	22.91
1.89000	29.66	30.18
2.18000	36.29	38.03
2.56000	42.85	47.04
3.03000	48.54	56.63
3.60000	53.09	66.53
4.26000	56.40	76.23
4.93000	58.47	84.66
5.69000	59.89	92.94
6.63000	60.87	101.74
8.06000	61.49	112.97
9.48000	61.61	122.26
14.20000	61.02	145.29
18.90000	60.29	161.52
28.40000	59.14	184.46
47.40000	57.91	213.19
94.80000	56.94	252.07
189.00000	56.47	290.75

TD=48.0 EV ET=1.005534 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.01000	0.05	0.05
1.02000	0.19	0.19
1.04000	0.50	0.50
1.07000	1.06	1.06
1.11000	1.95	1.95
1.16000	3.23	3.23
1.22000	4.94	4.94
1.30000	7.40	7.40
1.40000	10.57	10.57
1.55000	15.25	15.25
1.75000	21.01	21.07
2.01000	27.42	27.94
2.31000	33.38	35.03
2.71000	39.38	43.31
3.21000	44.62	52.22
3.82000	48.82	61.44
4.52000	51.81	70.39
5.22000	53.66	78.05
6.03000	54.95	85.72
7.03000	55.83	93.85
8.54000	56.37	104.15
10.00000	56.46	112.45
15.00000	55.91	133.68
20.10000	55.22	148.93
30.10000	54.18	169.80
50.20000	53.06	196.11
100.30000	52.19	231.56
201.00000	51.76	267.44

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ZR
Z=40 A= 91.220

TD=52.0 EV ET=1.060551 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.07000	0.10	0.10
1.08000	0.21	0.21
1.10000	0.48	0.48
1.13000	0.97	0.97
1.17000	1.73	1.73
1.23000	3.08	3.08
1.29000	4.59	4.59
1.37000	6.75	6.75
1.48000	9.82	9.82
1.64000	14.23	14.23
1.85000	19.55	19.61
2.12000	25.41	25.91
2.43000	30.83	32.37
2.86000	36.50	40.24
3.39000	41.35	48.56
4.03000	45.18	57.07
4.77000	47.92	65.40
5.51000	49.61	72.52
6.36000	50.77	79.58
7.42000	51.56	87.15
9.01000	52.04	96.66
10.60000	52.11	104.57
15.90000	51.57	124.21
21.20000	50.94	138.06
31.80000	49.98	157.41
53.00000	48.95	181.68
106.00000	48.16	214.61
212.00000	47.77	247.49

TD=56.0 EV ET=1.113706 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.12000	0.05	0.05
1.13000	0.15	0.15
1.15000	0.37	0.37
1.19000	0.92	0.92
1.23000	1.60	1.60
1.29000	2.78	2.78
1.35000	4.11	4.11
1.44000	6.27	6.27
1.55000	9.00	9.00
1.72000	13.17	13.17
1.94000	18.14	18.21
2.22000	23.57	24.03
2.56000	28.85	30.35
3.00000	33.98	37.52
3.56000	38.51	45.34
4.23000	42.04	53.27
5.01000	44.57	61.07
5.79000	46.12	67.73
6.68000	47.18	74.29
7.79000	47.89	81.32
9.46000	48.32	90.18
11.10000	48.38	97.42
16.70000	47.87	115.82
22.20000	47.29	128.55
33.40000	46.38	146.68
55.60000	45.44	169.17
111.00000	44.71	199.67
222.00000	44.35	230.21

TD=60.0 EV ET=1.165176 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.17000	0.03	0.03
1.18000	0.11	0.11
1.21000	0.40	0.40
1.24000	0.77	0.77
1.29000	1.51	1.51
1.35000	2.57	2.57
1.42000	3.97	3.97
1.51000	5.90	5.90
1.63000	8.58	8.58
1.80000	12.32	12.32
2.03000	16.99	17.05
2.33000	22.19	22.65
2.67000	26.92	28.33
3.14000	31.82	35.21
3.72000	36.01	42.48
4.42000	39.29	49.92
5.24000	41.66	57.27
6.05000	43.08	63.47
6.99000	44.07	69.67
8.15000	44.72	76.25
9.90000	45.10	84.54
11.60000	45.14	91.25
17.40000	44.66	108.32
23.30000	44.10	120.52
34.90000	43.27	137.26
58.20000	42.39	158.34
116.00000	41.72	186.75
233.00000	41.39	215.43

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ZR
Z=40 A= 91.220

TD=64.0 EV ET=1.215112 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.22000	0.03	0.03
1.23000	0.10	0.10
1.26000	0.35	0.35
1.30000	0.78	0.78
1.34000	1.32	1.32
1.40000	2.25	2.25
1.48000	3.68	3.68
1.57000	5.43	5.43
1.70000	8.05	8.05
1.88000	11.63	11.63
2.12000	16.02	16.09
2.43000	20.87	21.32
2.79000	25.38	26.76
3.28000	29.97	33.23
3.88000	33.84	40.02
4.61000	36.91	47.02
5.46000	39.10	53.90
6.31000	40.43	59.77
7.29000	41.34	65.60
8.50000	41.94	71.78
10.30000	42.28	79.47
12.10000	42.31	85.88
18.20000	41.85	102.01
24.30000	41.33	113.34
36.40000	40.55	129.04
60.70000	39.73	148.81
121.00000	39.11	175.45
243.00000	38.80	202.34

TD=68.0 EV ET=1.263643 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.27000	0.03	0.03
1.28000	0.09	0.09
1.31000	0.31	0.31
1.35000	0.70	0.70
1.40000	1.30	1.30
1.46000	2.16	2.16
1.54000	3.46	3.46
1.64000	5.23	5.23
1.76000	7.43	7.43
1.95000	10.88	10.88
2.21000	15.21	15.27
2.52000	19.61	20.04
2.90000	23.95	25.27
3.41000	28.27	31.40
4.04000	31.95	37.88
4.80000	34.82	44.50
5.68000	36.85	50.96
6.57000	38.10	56.53
7.58000	38.93	61.98
8.84000	39.48	67.82
10.70000	39.79	75.03
12.60000	39.82	81.16
18.90000	39.38	96.25
25.20000	38.89	106.87
37.90000	38.15	121.80
63.10000	37.38	140.35
126.00000	36.80	165.50
252.00000	36.52	190.65

TD=72.0 EV ET=1.310882 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.32000	0.04	0.04
1.33000	0.09	0.09
1.36000	0.29	0.29
1.40000	0.64	0.64
1.45000	1.19	1.19
1.52000	2.10	2.10
1.59000	3.13	3.13
1.70000	4.91	4.91
1.83000	7.09	7.09
2.03000	10.41	10.41
2.29000	14.37	14.43
2.62000	18.65	19.07
3.01000	22.70	23.98
3.53000	26.72	29.70
4.19000	30.24	35.91
4.98000	32.94	42.20
5.89000	34.84	48.30
6.91000	36.00	53.56
7.86000	36.78	58.73
9.17000	37.30	64.27
11.10000	37.58	71.09
13.10000	37.60	76.97
19.50000	37.18	91.14
26.20000	36.71	101.27
39.30000	36.01	115.29
65.50000	35.30	132.85
131.00000	34.75	156.65
262.00000	34.49	180.41

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ZR
Z=40 A= 91.220

TD=76.0 EV ET=1.356927 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.37000	0.05	0.05
1.38000	0.10	0.10
1.41000	0.29	0.29
1.45000	0.60	0.60
1.50000	1.10	1.10
1.57000	1.93	1.93
1.65000	3.02	3.02
1.76000	4.65	4.65
1.89000	6.66	6.66
2.10000	9.86	9.86
2.37000	13.64	13.70
2.71000	17.70	18.11
3.12000	21.60	22.84
3.66000	25.42	28.30
4.34000	28.71	34.18
5.15000	31.24	40.09
6.10000	33.05	45.94
7.05000	34.14	50.92
8.14000	34.87	55.85
9.49000	35.34	61.08
11.50000	35.61	67.59
13.50000	35.62	72.98
20.30000	35.21	86.59
27.10000	34.77	96.15
40.70000	34.11	109.47
67.80000	33.43	126.09
135.00000	32.92	148.50
271.00000	32.67	171.13

TD=80.0 EV ET=1.401863 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.41000	0.03	0.03
1.42000	0.07	0.07
1.45000	0.22	0.22
1.49000	0.50	0.50
1.55000	1.04	1.04
1.62000	1.80	1.80
1.71000	2.93	2.93
1.82000	4.44	4.44
1.96000	6.44	6.44
2.17000	9.39	9.39
2.45000	13.01	13.08
2.80000	16.86	17.26
3.22000	20.55	21.75
3.78000	24.19	26.97
4.48000	27.31	32.56
5.32000	29.72	38.22
6.30000	31.43	43.78
7.28000	32.45	48.52
8.41000	33.14	53.22
9.81000	33.58	58.22
11.90000	33.83	64.44
14.00000	33.83	69.64
21.00000	33.44	82.50
28.00000	33.02	91.54
42.00000	32.39	104.16
70.00000	31.75	119.98
140.00000	31.27	141.41
280.00000	31.03	162.79

TD=84.0 EV ET=1.445768 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.46000	0.05	0.05
1.47000	0.09	0.09
1.50000	0.23	0.23
1.54000	0.49	0.49
1.60000	0.99	0.99
1.67000	1.70	1.70
1.76000	2.74	2.74
1.87000	4.13	4.13
2.02000	6.12	6.12
2.24000	8.99	8.99
2.53000	12.46	12.53
2.89000	16.13	16.52
3.32000	19.61	20.77
3.90000	23.10	25.79
4.62000	26.06	31.11
5.49000	28.35	36.54
6.50000	29.96	41.84
7.51000	30.93	46.36
8.67000	31.57	50.82
10.10000	31.99	55.55
12.20000	32.21	61.35
14.40000	32.22	66.40
21.60000	31.84	78.66
28.90000	31.44	87.38
43.30000	30.84	99.38
72.20000	30.24	114.45
144.00000	29.78	134.78
289.00000	29.55	155.25

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ZR
Z=40 A= 91.220

TD=88.0 EV ET=1.488710 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.50000	0.03	0.03
1.51000	0.07	0.07
1.54000	0.20	0.20
1.59000	0.49	0.49
1.65000	0.96	0.96
1.72000	1.61	1.61
1.81000	2.58	2.58
1.93000	4.00	4.00
2.08000	5.85	5.85
2.30000	8.52	8.52
2.60000	11.87	11.93
2.97000	15.38	15.75
3.42000	18.78	19.90
4.01000	22.07	24.65
4.76000	24.92	29.81
5.65000	27.09	34.97
6.69000	28.62	40.04
7.74000	29.54	44.40
8.93000	30.15	48.65
10.40000	30.54	53.16
12.60000	30.75	58.79
14.80000	30.75	63.48
22.30000	30.38	75.32
29.70000	30.00	83.51
44.60000	29.43	95.03
74.40000	28.86	109.43
148.00000	28.43	128.77

TD=92.0 EV ET=1.530748 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.54000	0.02	0.02
1.56000	0.09	0.09
1.59000	0.21	0.21
1.63000	0.43	0.43
1.69000	0.86	0.86
1.77000	1.55	1.55
1.86000	2.45	2.45
1.98000	3.77	3.77
2.14000	5.61	5.61
2.37000	8.23	8.23
2.67000	11.35	11.41
3.06000	14.80	15.17
3.52000	18.02	19.12
4.13000	21.18	23.70
4.89000	23.86	28.57
5.81000	25.94	33.55
6.88000	27.40	38.41
7.95000	28.27	42.55
9.18000	28.85	46.65
10.70000	29.22	50.99
13.00000	29.41	56.46
15.30000	29.41	61.00
22.90000	29.06	72.15
30.60000	28.69	80.08
45.90000	28.14	91.07
76.50000	27.60	104.82
153.00000	27.19	123.46

TD=96.0 EV ET=1.571938 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.58000	0.02	0.02
1.60000	0.07	0.07
1.63000	0.19	0.19
1.68000	0.45	0.45
1.74000	0.85	0.85
1.82000	1.50	1.50
1.91000	2.35	2.35
2.04000	3.69	3.69
2.20000	5.41	5.41
2.43000	7.86	7.86
2.75000	10.98	11.04
3.14000	14.20	14.56
3.61000	17.28	18.34
4.24000	20.33	22.77
5.03000	22.93	27.50
5.97000	24.89	32.25
7.07000	26.28	36.93
8.17000	27.11	40.90
9.43000	27.65	44.82
11.00000	28.01	49.01
13.30000	28.19	54.12
15.70000	28.18	58.56
23.50000	27.84	69.25
31.40000	27.49	76.85
47.10000	26.97	87.38
78.50000	26.44	100.57
157.00000	26.05	118.43

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN NB
Z=41 A= 92.910

TD= 4.0 EV ET=0.147912 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.14900	9.88	9.88
0.15000	18.76	18.76
0.15300	44.34	44.34
0.15800	83.66	83.66
0.16400	126.06	126.06
0.17100	169.94	169.94
0.18000	219.01	219.01
0.19200	274.16	274.16
0.20700	330.48	330.48
0.22900	394.92	394.92
0.25800	457.73	457.73
0.29500	514.97	516.84
0.34000	563.77	574.59
0.39900	607.57	636.06
0.47300	644.07	699.26
0.56200	672.69	762.88
0.66500	694.01	825.99
0.76900	707.96	882.09
0.88700	718.16	939.16
1.03000	725.53	1001.30
1.25000	730.77	1085.81
1.47000	731.89	1160.14
2.21000	725.20	1361.16
2.95000	715.04	1514.18
4.43000	698.43	1742.00
7.39000	678.29	2042.77
14.70000	657.23	2461.17
29.50000	646.07	2895.39
44.30000	642.54	3151.11
73.90000	639.33	3474.10
103.00000	637.42	3683.55
147.00000	635.37	3907.45

TD= 8.0 EV ET=0.268236 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.27000	2.36	2.36
0.27300	6.31	6.31
0.27800	12.71	12.71
0.28700	23.71	23.71
0.29700	35.22	35.22
0.31100	50.22	50.22
0.32700	65.98	65.98
0.34800	84.77	84.77
0.37500	106.30	106.30
0.41500	133.84	133.84
0.46900	164.71	164.71
0.53600	195.54	196.87
0.61600	224.54	230.01
0.72400	254.23	268.43
0.85800	280.88	309.16
1.01000	302.15	348.94
1.20000	320.21	391.91
1.39000	332.26	429.42
1.60000	341.15	466.11
1.87000	348.30	507.70
2.28000	353.84	561.90
2.68000	355.96	607.13
4.02000	354.73	724.13
5.36000	350.59	809.61
8.04000	343.50	932.71
13.40000	334.59	1090.04
26.80000	326.01	1306.40
53.60000	321.86	1525.06
80.40000	320.44	1653.34
134.00000	318.95	1814.95
187.00000	317.99	1920.05
268.00000	316.94	2033.28

TD=12.0 EV ET=0.372319 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.37500	1.65	1.65
0.37900	3.00	3.00
0.38700	6.54	6.54
0.39900	11.34	11.34
0.41300	17.75	17.75
0.43100	25.21	25.21
0.45400	34.40	34.40
0.48400	45.78	45.78
0.52100	58.91	58.91
0.57700	76.93	76.93
0.65100	97.68	97.72
0.74400	119.51	120.58
0.85500	140.75	144.79
1.00000	161.86	171.95
1.19000	182.15	202.84
1.41000	198.41	233.55
1.67000	211.27	264.77
1.93000	219.75	291.93
2.23000	226.15	319.46
2.60000	230.95	349.13
3.16000	234.56	387.38
3.72000	235.90	419.82
5.58000	234.78	501.69
7.44000	232.02	560.71
11.10000	227.47	643.59
18.60000	221.75	751.07
37.20000	216.66	896.47
74.40000	214.25	1042.74
111.00000	213.38	1127.28
186.00000	212.39	1236.17
260.00000	211.75	1306.55
372.00000	211.05	1381.68

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN NB
Z=41 A= 92.910

TD=16.0 EV ET=0.465369 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.47000	0.98	0.98
0.47400	1.82	1.82
0.48300	3.75	3.75
0.49700	6.79	6.79
0.51600	10.96	10.96
0.53900	16.04	16.04
0.56700	22.19	22.19
0.60400	30.18	30.18
0.65100	39.96	39.96
0.72100	53.54	53.54
0.81400	69.61	69.67
0.93000	86.66	87.58
1.07000	103.40	106.73
1.25000	120.06	128.33
1.48000	135.57	152.22
1.76000	148.54	177.16
2.09000	158.55	202.30
2.41000	164.86	223.42
2.79000	169.68	245.35
3.25000	173.13	268.42
3.95000	175.65	298.17
4.65000	176.50	323.27
6.98000	175.38	386.24
9.30000	173.28	431.13
13.90000	169.87	494.24
23.20000	165.76	574.77
46.50000	162.21	684.59
93.00000	160.55	794.48
139.00000	159.92	858.22
232.00000	159.18	939.25

TD=20.0 EV ET=0.550292 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.55500	0.55	0.55
0.56100	1.28	1.28
0.57200	2.64	2.64
0.58800	4.70	4.70
0.61000	7.65	7.65
0.63800	11.53	11.53
0.67100	16.21	16.21
0.71500	22.48	22.48
0.77000	30.17	30.17
0.85200	41.06	41.06
0.96300	54.36	54.43
1.10000	68.40	69.23
1.26000	81.82	84.64
1.48000	96.05	103.25
1.76000	109.04	123.66
2.09000	119.40	144.23
2.47000	127.18	164.48
2.86000	132.30	182.43
3.30000	135.95	200.07
3.85000	138.60	219.19
4.67000	140.44	243.28
5.50000	141.01	263.78
8.25000	139.94	314.78
11.00000	138.23	351.13
16.50000	135.47	402.37
27.50000	132.29	466.87
55.00000	129.62	554.66
110.00000	128.36	642.66
165.00000	127.87	694.12
275.00000	127.28	758.75

TD=24.0 EV ET=0.628905 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.63500	0.45	0.45
0.64100	0.91	0.91
0.65400	1.95	1.95
0.57200	3.48	3.48
0.69800	5.85	5.85
0.72900	8.83	8.83
0.76700	12.65	12.65
0.81700	17.79	17.79
0.88000	24.23	24.23
0.97400	33.46	33.46
1.10000	44.70	44.77
1.25000	56.22	56.94
1.44000	68.16	70.70
1.69000	80.20	86.59
2.01000	91.18	104.10
2.38000	99.73	121.41
2.83000	106.42	139.33
3.27000	110.54	154.39
3.77000	113.48	169.30
4.40000	115.59	185.55
5.34000	117.01	205.97
6.28000	117.40	223.11
9.43000	116.39	266.11
12.50000	114.98	295.98
18.80000	112.67	339.13
31.40000	110.06	393.24
62.80000	107.93	466.52
125.00000	106.93	539.38
188.00000	106.52	582.56
314.00000	106.03	636.63

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN NB
Z=41 A= 92.910

TD=28.0 EV ET=0.702437 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.70900	0.33	0.33
0.71600	0.69	0.69
0.73000	1.47	1.47
0.75100	2.74	2.74
0.77900	4.60	4.60
0.81400	7.10	7.10
0.85600	10.28	10.28
0.91300	14.76	14.76
0.98300	20.29	20.29
1.08000	27.70	27.70
1.22000	37.53	37.59
1.40000	48.37	49.05
1.61000	58.64	60.98
1.89000	69.09	74.93
2.24000	78.39	89.96
2.66000	85.85	105.35
3.16000	91.50	120.90
3.85000	94.96	133.99
4.21000	97.42	146.99
4.91000	99.15	161.02
5.97000	100.29	178.88
7.02000	100.55	193.69
10.50000	99.62	230.43
14.00000	98.38	256.68
21.00000	96.41	293.52
35.10000	94.22	340.05
70.20000	92.45	402.93
140.00000	91.62	465.59
210.00000	91.27	502.36

TD=32.0 EV ET=0.771760 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.77900	0.26	0.26
0.78700	0.56	0.56
0.80200	1.17	1.17
0.82500	2.22	2.22
0.85600	3.79	3.79
0.89500	5.96	5.96
0.94100	8.71	8.71
1.00000	12.40	12.40
1.08000	17.46	17.46
1.19000	24.24	24.24
1.35000	33.27	33.34
1.58000	42.47	43.12
1.77000	51.53	53.71
2.08000	60.81	66.22
2.46000	68.87	79.43
2.93000	75.49	93.35
3.47000	80.28	106.90
4.01000	83.27	118.53
4.63000	85.37	130.11
5.40000	86.82	142.50
6.55000	87.75	158.06
7.71000	87.94	171.18
11.50000	87.08	203.26
15.40000	85.96	226.65
23.10000	84.24	258.96
38.50000	82.36	299.50
77.10000	80.86	354.67
154.00000	80.14	409.64
231.00000	79.84	441.82

TD=36.0 EV ET=0.837524 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.84500	0.20	0.20
0.85400	0.45	0.45
0.87100	0.99	0.99
0.89500	1.87	1.87
0.92900	3.21	3.21
0.97100	5.09	5.09
1.02000	7.47	7.47
1.08000	10.54	10.54
1.17000	15.25	15.25
1.29000	21.37	21.37
1.46000	29.35	29.42
1.67000	37.81	38.42
1.92000	45.96	47.99
2.26000	54.36	59.40
2.68000	61.62	71.50
3.18000	67.34	83.75
3.76000	71.52	95.81
4.35000	74.16	106.33
5.02000	75.97	116.68
5.86000	77.22	127.84
7.11000	77.99	141.79
8.37000	78.13	153.50
12.50000	77.32	182.22
16.70000	76.32	202.89
25.10000	74.79	231.79
41.80000	73.15	267.81
83.70000	71.85	316.88
167.00000	71.22	365.67
251.00000	70.96	394.42

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN NB
Z=41 A= 92.910

TD=40.0 EV ET=0.900226 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.90900	0.18	0.18
0.91800	0.38	0.38
0.93600	0.82	0.82
0.96300	1.60	1.60
0.99900	2.78	2.78
1.04000	4.30	4.30
1.09000	6.32	6.32
1.17000	9.75	9.75
1.26000	13.72	13.72
1.39000	19.33	19.33
1.57000	26.47	26.55
1.80000	34.29	34.90
2.07000	41.69	43.64
2.43000	49.15	53.86
2.88000	55.67	64.84
3.42000	60.81	76.04
4.05000	64.56	87.09
4.68000	66.87	96.56
5.40000	68.46	105.92
6.30000	69.54	115.99
7.65000	70.20	128.64
9.00000	70.29	139.20
13.50000	69.51	165.40
18.00000	68.62	183.92
27.00000	67.25	209.83
45.00000	65.78	242.33
90.00000	64.64	286.44
180.00000	64.09	330.51

TD=44.0 EV ET=0.960259 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.96900	0.14	0.14
0.97900	0.32	0.32
0.99800	0.70	0.70
1.02000	1.21	1.21
1.06000	2.28	2.28
1.11000	3.83	3.83
1.17000	5.90	5.90
1.24000	8.48	8.48
1.34000	12.26	12.26
1.48000	17.46	17.46
1.68000	24.29	24.36
1.92000	31.29	31.86
2.20000	37.89	39.69
2.59000	44.83	49.25
3.07000	50.77	59.33
3.64000	55.39	69.50
4.32000	58.82	79.76
4.99000	60.88	88.40
5.76000	62.29	96.98
6.72000	63.25	106.18
8.16000	63.81	117.73
9.60000	63.87	127.35
14.40000	63.15	151.24
19.20000	62.33	168.10
28.80000	61.09	191.68
48.00000	59.77	221.24
96.00000	58.75	261.36
192.00000	58.25	301.43

TD=48.0 EV ET=1.017937 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.02000	0.03	0.03
1.03000	0.16	0.16
1.05000	0.47	0.47
1.08000	1.03	1.03
1.12000	1.94	1.94
1.18000	3.53	3.53
1.24000	5.33	5.33
1.32000	7.89	7.89
1.42000	11.18	11.18
1.57000	16.04	16.04
1.78000	22.29	22.37
2.03000	28.66	29.20
2.34000	35.02	36.77
2.74000	41.18	45.31
3.25000	46.65	54.67
3.86000	50.92	64.16
4.58000	54.02	73.60
5.29000	55.88	81.56
6.10000	57.15	89.41
7.12000	58.00	97.90
8.65000	58.49	108.56
10.10000	58.54	116.99
15.20000	57.86	139.11
20.30000	57.10	154.68
30.50000	55.96	176.40
50.80000	54.76	203.48
101.00000	53.85	239.95
203.00000	53.39	276.96

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN NB
Z=41 A= 92.910

TD=52.0 EV ET=1.073516 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.08000	0.07	0.07
1.09000	0.18	0.18
1.11000	0.45	0.45
1.14000	0.94	0.94
1.19000	1.93	1.93
1.24000	3.10	3.10
1.30000	4.65	4.65
1.39000	7.18	7.18
1.50000	10.37	10.37
1.66000	14.94	14.94
1.87000	20.46	20.53
2.14000	26.54	27.05
2.46000	32.32	33.96
2.89000	38.15	42.08
3.43000	43.21	50.81
4.07000	47.11	59.57
4.83000	49.95	68.35
5.58000	51.65	75.74
6.44000	52.80	83.06
7.51000	53.56	90.88
9.12000	53.99	100.72
10.70000	54.02	108.76
16.10000	53.37	129.21
21.40000	52.68	143.35
32.20000	51.62	163.49
53.60000	50.53	188.47
107.00000	49.69	222.35
214.00000	49.28	256.27

TD=56.0 EV ET=1.127211 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.13000	0.02	0.02
1.14000	0.11	0.11
1.17000	0.46	0.46
1.20000	0.89	0.89
1.25000	1.76	1.76
1.30000	2.79	2.79
1.37000	4.40	4.40
1.46000	6.64	6.64
1.57000	9.49	9.49
1.74000	13.82	13.82
1.97000	19.19	19.27
2.25000	24.78	25.29
2.59000	30.22	31.81
3.04000	35.60	39.36
3.60000	40.23	47.42
4.28000	43.87	55.69
5.07000	46.45	63.80
5.86000	48.01	70.71
6.76000	49.06	77.51
7.89000	49.75	84.83
9.58000	50.13	93.98
11.20000	50.15	101.30
16.90000	49.53	120.45
22.50000	48.88	133.67
33.80000	47.91	152.31
56.30000	46.90	175.54
112.00000	46.13	206.85
225.00000	45.75	238.55

TD=60.0 EV ET=1.179201 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.19000	0.08	0.08
1.20000	0.17	0.17
1.22000	0.37	0.37
1.25000	0.87	0.87
1.30000	1.49	1.49
1.36000	2.57	2.57
1.43000	4.01	4.01
1.53000	6.24	6.24
1.65000	9.03	9.03
1.82000	12.91	12.91
2.06000	17.95	18.02
2.35000	23.15	23.63
2.71000	28.31	29.84
3.18000	33.33	36.92
3.77000	37.67	44.53
4.48000	41.03	52.27
5.30000	43.41	59.80
6.13000	44.86	66.31
7.07000	45.82	72.66
8.25000	46.45	79.51
10.00000	46.79	87.99
11.70000	46.80	94.87
17.50000	46.22	112.63
23.50000	45.60	125.11
35.30000	44.69	142.51
58.90000	43.76	164.28
117.00000	43.05	193.44
235.00000	42.70	223.03

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN NB
Z=41 A= 92.910

TD=64.0 EV ET=1.229639 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.24000	0.07	0.07
1.25000	0.14	0.14
1.27000	0.31	0.31
1.31000	0.75	0.75
1.36000	1.43	1.43
1.42000	2.42	2.42
1.50000	3.90	3.90
1.59000	5.72	5.72
1.72000	8.45	8.45
1.90000	12.17	12.17
2.15000	16.91	16.98
2.45000	21.77	22.23
2.82000	26.56	28.01
3.32000	31.37	34.82
3.93000	35.39	41.93
4.67000	38.53	49.21
5.53000	40.76	56.35
6.39000	42.09	62.42
7.37000	42.98	68.40
8.60000	43.56	74.83
10.40000	43.86	82.70
12.20000	43.86	89.27
18.40000	43.30	106.04
24.50000	42.73	117.64
36.80000	41.88	133.95
61.40000	41.01	154.37
122.00000	40.36	181.73
245.00000	40.03	209.46

TD=68.0 EV ET=1.278656 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.29000	0.06	0.06
1.30000	0.13	0.13
1.32000	0.28	0.28
1.36000	0.66	0.66
1.41000	1.27	1.27
1.48000	2.31	2.31
1.55000	3.48	3.48
1.66000	5.50	5.50
1.79000	7.98	7.98
1.98000	11.55	11.55
2.23000	15.87	15.94
2.55000	20.58	21.04
2.94000	25.16	26.57
3.45000	29.59	32.89
4.09000	33.40	39.66
4.85000	36.31	46.47
5.75000	38.41	53.25
6.64000	39.64	58.96
7.67000	40.47	64.66
8.95000	41.01	70.72
10.80000	41.28	78.06
12.70000	41.27	84.34
19.10000	40.74	100.04
25.50000	40.20	111.06
38.30000	39.40	125.42
63.90000	38.59	145.64
127.00000	37.98	171.40
255.00000	37.67	197.50

TD=72.0 EV ET=1.326365 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.33000	0.02	0.02
1.35000	0.12	0.12
1.37000	0.26	0.26
1.41000	0.60	0.60
1.47000	1.28	1.28
1.53000	2.08	2.08
1.61000	3.31	3.31
1.72000	5.15	5.15
1.85000	7.43	7.43
2.05000	10.87	10.87
2.32000	15.13	15.20
2.65000	19.56	20.01
3.05000	23.83	25.20
3.58000	28.03	31.20
4.24000	31.60	37.59
5.04000	34.37	44.13
5.96000	36.31	50.46
6.89000	37.47	55.91
7.95000	38.24	61.26
9.28000	38.74	67.01
11.20000	38.99	73.96
13.20000	38.97	79.98
19.80000	38.47	94.72
26.50000	37.95	105.22
39.70000	37.20	119.64
66.30000	36.43	137.83
132.00000	35.86	162.23
265.00000	35.57	186.87

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN NB
Z=41 A= 92.910

TD=76.0 EV ET=1.372867 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.38000	0.03	0.03
1.40000	0.13	0.13
1.42000	0.25	0.25
1.46000	0.57	0.57
1.52000	1.18	1.18
1.59000	2.05	2.05
1.67000	3.18	3.18
1.79000	4.87	4.87
1.92000	7.12	7.12
2.12000	10.29	10.29
2.40000	14.36	14.43
2.74000	18.55	18.98
3.15000	22.58	23.88
3.70000	26.58	29.62
4.39000	30.00	35.76
5.21000	32.59	41.91
6.17000	34.43	47.98
7.13000	35.52	53.14
8.23000	36.24	58.23
9.61000	36.71	63.70
11.60000	36.93	70.30
13.70000	36.91	76.08
20.50000	36.43	89.97
27.40000	35.94	99.88
41.10000	35.23	113.59
68.60000	34.51	130.81
137.00000	33.97	154.03
274.00000	33.70	177.25

TD=80.0 EV ET=1.418248 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.43000	0.04	0.04
1.44000	0.09	0.09
1.47000	0.25	0.25
1.51000	0.54	0.54
1.57000	1.10	1.10
1.64000	1.90	1.90
1.73000	3.07	3.07
1.84000	4.64	4.64
1.98000	6.72	6.72
2.19000	9.80	9.80
2.48000	13.69	13.75
2.83000	17.67	18.09
3.26000	21.56	22.83
3.82000	25.30	28.22
4.53000	28.53	34.05
5.38000	31.00	39.94
6.38000	32.75	45.76
7.37000	33.77	50.66
8.50000	34.45	55.48
9.92000	34.88	60.67
12.00000	35.09	67.01
14.10000	35.06	72.34
21.20000	34.60	85.71
28.30000	34.13	95.09
42.50000	33.45	108.15
70.90000	32.77	124.50
141.00000	32.27	146.43
283.00000	32.01	168.60

TD=84.0 EV ET=1.462586 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.47000	0.02	0.02
1.49000	0.10	0.10
1.52000	0.26	0.26
1.56000	0.53	0.53
1.62000	1.05	1.05
1.69000	1.79	1.79
1.78000	2.87	2.87
1.90000	4.46	4.46
2.04000	6.38	6.38
2.26000	9.37	9.37
2.55000	12.98	13.04
2.92000	16.89	17.29
3.36000	20.57	21.79
3.94000	24.15	26.97
4.68000	27.25	32.60
5.55000	29.57	38.17
6.58000	31.22	43.72
7.60000	32.18	48.39
8.77000	32.82	53.01
10.20000	33.22	57.84
12.40000	33.41	64.05
14.60000	33.39	69.20
21.90000	32.94	81.86
29.20000	32.50	90.76
43.80000	31.85	103.17
73.10000	31.21	118.75
146.00000	30.73	139.77
292.00000	30.49	160.78

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN NB
Z=41 A= 92.910

TD=88.0 EV ET=1.505950 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.52000	0.04	0.04
1.53000	0.08	0.08
1.56000	0.21	0.21
1.61000	0.53	0.53
1.67000	1.01	1.01
1.74000	1.70	1.70
1.83000	2.70	2.70
1.95000	4.17	4.17
2.10000	6.10	6.10
2.33000	9.00	9.00
2.63000	12.47	12.53
3.01000	16.19	16.59
3.46000	19.68	20.87
4.06000	23.11	25.85
4.81000	26.03	31.16
5.72000	28.27	36.58
6.77000	29.82	41.83
7.83000	30.74	46.34
9.03000	31.34	50.73
10.50000	31.71	55.35
12.80000	31.90	61.36
15.00000	31.87	66.14
22.50000	31.44	78.23
30.10000	31.01	86.83
45.10000	30.40	98.64
75.20000	29.78	113.49
150.00000	29.33	133.52

TD=92.0 EV ET=1.548400 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.56000	0.03	0.03
1.57000	0.06	0.06
1.61000	0.23	0.23
1.65000	0.46	0.46
1.71000	0.90	0.90
1.79000	1.62	1.62
1.88000	2.56	2.56
2.01000	4.05	4.05
2.16000	5.85	5.85
2.40000	8.68	8.68
2.70000	11.92	11.98
3.09000	15.48	15.87
3.56000	18.88	20.05
4.18000	22.17	24.84
4.95000	24.94	29.92
5.88000	27.07	35.08
6.96000	28.55	40.12
8.05000	29.42	44.44
9.29000	29.99	48.67
10.80000	30.34	53.08
13.10000	30.51	58.69
15.40000	30.48	63.35
23.20000	30.06	75.05
30.90000	29.65	83.15
46.40000	29.07	94.52
77.40000	28.48	108.74
154.00000	28.05	127.83

TD=96.0 EV ET=1.589994 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.60000	0.02	0.02
1.62000	0.08	0.08
1.65000	0.20	0.20
1.70000	0.47	0.47
1.76000	0.89	0.89
1.84000	1.57	1.57
1.93000	2.45	2.45
2.06000	3.84	3.84
2.22000	5.63	5.63
2.46000	8.29	8.29
2.78000	11.52	11.58
3.17000	14.85	15.23
3.65000	18.10	19.22
4.29000	21.28	23.86
5.08000	23.93	28.73
6.04000	25.97	33.72
7.15000	27.38	38.56
8.26000	28.21	42.67
9.53000	28.74	46.72
11.10000	29.08	51.01
13.50000	29.24	56.47
15.80000	29.20	60.81
23.90000	28.80	72.03
31.70000	28.41	79.79
47.60000	27.85	90.69
79.40000	27.29	104.32
158.00000	26.88	122.61

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN MO
Z=42 A= 95.950

TD= 4.0 EV ET=0.152194 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.15300	7.13	7.13
0.15500	24.33	24.33
0.15800	48.89	48.89
0.16200	79.50	79.50
0.16800	121.33	121.33
0.17600	170.60	170.60
0.18500	218.68	218.68
0.19700	273.13	273.13
0.21300	332.57	332.57
0.23500	396.62	396.62
0.26600	463.61	463.61
0.30400	522.37	524.38
0.35000	572.66	583.81
0.41000	618.00	647.04
0.48700	656.81	713.65
0.57800	686.73	779.55
0.68400	709.15	845.33
0.79100	723.74	903.72
0.91300	734.35	963.29
1.06000	741.86	1027.66
1.29000	747.04	1116.40
1.52000	747.82	1194.14
2.28000	739.92	1399.98
3.04000	728.83	1556.30
4.56000	711.11	1788.65
7.60000	689.90	2094.85
15.20000	667.88	2524.21
30.40000	656.52	2963.73
45.60000	652.90	3222.94
76.00000	649.52	3550.55
106.00000	647.48	3763.74
152.00000	645.25	3994.12

TD= 8.0 EV ET=0.275468 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.27800	3.29	3.29
0.28000	5.85	5.85
0.28600	13.35	13.35
0.29400	22.93	22.93
0.30500	35.38	35.38
0.31900	50.17	50.17
0.33600	66.74	66.74
0.35800	86.26	86.26
0.38500	107.70	107.70
0.42600	136.01	136.01
0.48200	168.19	168.20
0.55000	199.76	201.14
0.63300	230.14	235.35
0.74300	260.66	275.35
0.88100	288.29	317.68
1.04000	310.51	359.56
1.23000	328.47	402.77
1.43000	340.98	442.44
1.65000	349.98	480.89
1.92000	356.81	522.48
2.34000	362.09	578.01
2.75000	363.95	624.32
4.13000	361.94	744.35
5.50000	357.32	831.24
8.26000	349.65	957.09
13.70000	340.32	1115.70
27.50000	331.34	1336.90
55.00000	327.07	1559.18
82.60000	325.58	1689.93
137.00000	324.02	1852.53
192.00000	322.98	1960.62
275.00000	321.86	2075.39

TD=12.0 EV ET=0.381882 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.38500	1.37	1.37
0.38900	3.12	3.12
0.39700	6.59	6.59
0.40300	11.31	11.31
0.42300	17.64	17.64
0.44200	25.45	25.45
0.46500	34.61	34.61
0.49500	46.38	46.38
0.53400	59.92	59.92
0.59100	78.42	78.42
0.66800	100.22	100.27
0.75300	122.75	123.86
0.87300	144.75	148.96
1.03000	167.09	177.83
1.22000	187.35	208.91
1.45000	204.25	241.17
1.71000	216.95	272.52
1.98000	225.60	300.82
2.29000	231.99	329.28
2.67000	236.66	359.72
3.24000	240.02	398.58
3.81000	241.15	431.53
5.72000	239.50	515.30
7.63000	236.41	575.55
11.40000	231.49	660.25
19.00000	225.52	768.45
38.10000	220.21	916.85
76.30000	217.71	1065.80
114.00000	216.80	1152.01
190.00000	215.76	1261.45
267.00000	215.05	1334.06
381.00000	214.31	1409.75

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN MO
Z=42 A= 95.950

TD=16.0 EV ET=0.476899 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.48100	0.84	0.84
0.48600	1.88	1.88
0.49500	3.77	3.77
0.51000	6.99	6.99
0.52900	11.12	11.12
0.55300	16.40	16.40
0.58100	22.56	22.56
0.61900	30.80	30.80
0.66700	40.86	40.86
0.73900	54.97	54.97
0.83400	71.57	71.63
0.95300	89.24	90.20
1.09000	105.84	109.19
1.28000	123.63	132.25
1.52000	139.80	157.34
1.81000	153.07	183.24
2.14000	162.90	208.44
2.47000	169.26	230.26
2.86000	174.02	252.78
3.33000	177.35	276.33
4.05000	179.70	306.87
4.76000	180.39	332.25
7.15000	178.86	396.60
9.53000	176.53	442.39
14.30000	172.82	507.25
23.80000	168.53	588.70
47.60000	164.87	700.01
95.30000	163.14	811.85
143.00000	162.47	877.24
238.00000	161.69	959.08

TD=20.0 EV ET=0.563547 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.56900	0.63	0.63
0.57400	1.22	1.22
0.58600	2.68	2.68
0.60200	4.72	4.72
0.62500	7.79	7.79
0.65300	11.67	11.67
0.68700	16.51	16.51
0.73200	22.97	22.97
0.78800	30.88	30.88
0.87300	42.30	42.30
0.98600	56.00	56.07
1.12000	69.94	70.75
1.29000	84.38	87.33
1.52000	99.29	106.93
1.80000	112.24	127.46
2.14000	122.86	148.77
2.53000	130.72	169.62
2.93000	135.82	188.04
3.38000	139.41	206.09
3.94000	141.96	225.55
4.79000	143.66	250.45
5.63000	144.09	271.12
8.45000	142.69	323.19
11.20000	140.84	359.45
16.90000	137.85	412.35
28.10000	134.52	477.63
56.30000	131.74	567.11
112.00000	130.44	655.84
169.00000	129.91	708.89
281.00000	129.29	774.22

TD=24.0 EV ET=0.643710 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.65000	0.45	0.45
0.65500	0.90	0.90
0.66300	1.93	1.93
0.68300	3.53	3.53
0.71400	5.89	5.89
0.74500	8.99	8.99
0.78500	12.93	12.93
0.83500	18.22	18.22
0.90100	24.95	24.95
0.99700	34.48	34.48
1.12000	45.62	45.69
1.28000	58.09	58.84
1.48000	70.70	73.45
1.73000	82.74	89.44
2.05000	93.74	107.09
2.44000	102.71	125.43
2.89000	109.29	143.41
3.38000	113.41	158.87
3.86000	116.35	174.39
4.50000	118.37	190.88
5.47000	119.67	211.92
6.43000	119.94	229.35
9.65000	118.67	273.12
12.80000	117.11	303.60
19.30000	114.62	347.76
32.10000	111.91	402.33
64.30000	109.69	476.99
128.00000	108.65	551.05
193.00000	108.22	595.18
321.00000	107.70	649.64

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN MO
Z=42 A= 95.950

TD=28.0 EV ET=0.718659 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.72500	0.31	0.31
0.73300	0.72	0.72
0.74700	1.49	1.49
0.76800	2.75	2.75
0.79700	4.67	4.67
0.83300	7.26	7.26
0.87600	10.55	10.55
0.93400	15.16	15.16
1.00000	20.44	20.44
1.11000	28.96	28.96
1.25000	38.88	38.95
1.43000	49.84	50.55
1.65000	60.68	63.16
1.94000	71.49	77.70
2.29000	80.74	92.81
2.73000	88.47	108.98
3.23000	94.00	124.56
3.73000	97.44	137.95
4.31000	99.87	151.42
5.03000	101.53	165.82
6.10000	102.55	183.81
7.18000	102.72	199.00
10.70000	101.58	236.10
14.30000	100.20	263.03
21.50000	98.09	300.72
35.90000	95.79	347.94
71.80000	93.97	411.86
143.00000	93.10	475.41
215.00000	92.73	512.98

TD=32.0 EV ET=0.789295 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.79700	0.27	0.27
0.80500	0.57	0.57
0.82000	1.17	1.17
0.84400	2.26	2.26
0.87600	3.89	3.89
0.91500	6.08	6.08
0.96200	8.91	8.91
1.02000	12.58	12.58
1.10000	17.72	17.72
1.22000	25.21	25.21
1.38000	34.35	34.43
1.57000	43.67	44.34
1.81000	53.22	55.50
2.13000	62.82	68.52
2.52000	71.04	82.14
2.99000	77.61	96.12
3.55000	82.50	110.23
4.10000	85.45	122.09
4.73000	87.49	133.86
5.52000	88.89	146.57
6.70000	89.72	162.51
7.89000	89.82	175.92
11.80000	88.76	208.82
15.70000	87.56	232.10
23.60000	85.71	265.13
39.40000	83.74	306.46
78.90000	82.18	362.56
157.00000	81.44	418.11
236.00000	81.12	450.97

TD=36.0 EV ET=0.856287 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.86400	0.20	0.20
0.87300	0.45	0.45
0.89300	0.98	0.98
0.91500	1.90	1.90
0.95000	3.28	3.28
0.99300	5.22	5.22
1.04000	7.53	7.53
1.11000	11.16	11.16
1.19000	15.41	15.41
1.32000	22.14	22.14
1.49000	30.23	30.30
1.71000	39.18	39.84
1.96000	47.40	49.51
2.31000	56.08	61.35
2.74000	63.50	73.82
3.25000	69.28	86.37
3.85000	73.51	98.87
4.45000	76.10	109.57
5.13000	77.86	120.07
5.99000	79.05	131.49
7.27000	79.74	145.73
8.56000	79.79	157.70
12.83000	78.81	187.04
17.10000	77.72	208.08
25.60000	76.10	237.18
42.80000	74.37	274.09
85.60000	73.02	323.88
171.00000	72.37	373.55
256.00000	72.09	402.46

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN MO
Z=42 A= 95.950

TD=40.0 EV ET=0.920146 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.92900	0.18	0.18
0.93800	0.37	0.37
0.95600	0.81	0.81
0.98400	1.61	1.61
1.02000	2.80	2.80
1.06000	4.29	4.29
1.12000	6.74	6.74
1.19000	9.79	9.79
1.28000	13.82	13.82
1.42000	19.96	19.96
1.61000	27.58	27.67
1.84000	35.47	36.10
2.11000	42.94	44.95
2.48000	50.65	55.56
2.94000	57.32	66.86
3.49000	62.52	78.33
4.14000	66.32	89.77
4.78000	68.60	99.40
5.52000	70.16	109.02
6.44000	71.18	119.30
7.82000	71.76	132.22
9.20000	71.78	142.97
13.80000	70.86	169.66
18.40000	69.88	188.50
27.60000	68.42	214.85
46.00000	66.88	247.89
92.00000	65.70	292.72
184.00000	65.12	337.51

TD=44.0 EV ET=0.981275 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.99100	0.15	0.15
1.00000	0.31	0.31
1.02000	0.71	0.71
1.04000	1.17	1.17
1.08000	2.24	2.24
1.13000	3.79	3.79
1.19000	5.87	5.87
1.27000	8.85	8.85
1.37000	12.70	12.70
1.52000	18.34	18.34
1.71000	24.91	24.99
1.96000	32.30	32.91
2.25000	39.20	41.10
2.64000	46.16	50.74
3.14000	52.34	61.31
3.72000	56.99	71.70
4.41000	60.40	82.13
5.10000	62.46	91.04
5.88000	63.83	99.74
6.86000	64.73	109.13
8.34000	65.23	120.99
9.81000	65.23	130.79
14.70000	64.37	155.05
19.60000	63.47	172.20
29.40000	62.15	196.18
49.00000	60.77	226.23
98.10000	59.71	267.07
196.00000	59.19	307.73

TD=48.0 EV ET=1.039997 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.05000	0.13	0.13
1.06000	0.27	0.27
1.08000	0.60	0.60
1.11000	1.19	1.19
1.15000	2.12	2.12
1.20000	3.47	3.47
1.25000	5.27	5.27
1.35000	8.19	8.19
1.45000	11.54	11.54
1.61000	16.79	16.79
1.81000	22.83	22.90
2.07000	29.55	30.11
2.39000	36.17	38.00
2.80000	42.50	46.84
3.32000	48.06	56.43
3.95000	52.41	66.26
4.67000	55.45	75.74
5.40000	57.31	83.94
6.23000	58.55	91.99
7.27000	59.36	100.64
8.83000	59.79	111.49
10.30000	59.78	120.03
15.50000	58.98	142.55
20.70000	58.15	158.39
31.10000	56.93	180.47
51.90000	55.68	208.11
103.00000	54.73	245.08
207.00000	54.25	282.68

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN MO
Z=42 A= 95.950

TD=52.0 EV ET=1.096575 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.10000	0.03	0.03
1.11000	0.14	0.14
1.14000	0.55	0.55
1.17000	1.05	1.05
1.21000	1.86	1.86
1.27000	3.27	3.27
1.33000	4.85	4.85
1.42000	7.42	7.42
1.53000	10.66	10.66
1.69000	15.31	15.31
1.91000	21.17	21.25
2.19000	27.53	28.09
2.52000	33.52	35.26
2.96000	39.46	43.62
3.50000	44.49	52.39
4.16000	48.47	61.47
4.93000	51.29	70.38
5.70000	52.98	77.98
6.57000	54.09	85.39
7.67000	54.81	93.43
9.32000	55.18	103.50
10.90000	55.16	111.53
16.40000	54.40	132.35
21.90000	53.63	146.97
32.80000	52.52	167.22
54.80000	51.37	192.79
109.00000	50.50	227.05
219.00000	50.07	261.74

TD=56.0 EV ET=1.151228 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.16000	0.07	0.07
1.17000	0.17	0.17
1.19000	0.40	0.40
1.23000	0.97	0.97
1.27000	1.68	1.68
1.33000	2.92	2.92
1.40000	4.56	4.56
1.49000	6.84	6.84
1.61000	9.99	9.99
1.78000	14.38	14.38
2.01000	19.83	19.90
2.30000	25.68	26.21
2.64000	31.16	32.80
3.10000	36.69	40.60
3.68000	41.47	48.99
4.37000	45.11	57.42
5.18000	47.71	65.75
5.98000	49.24	72.76
6.90000	50.26	79.71
8.05000	50.91	87.16
9.78000	51.24	96.53
11.50000	51.20	104.26
17.20000	50.49	123.33
23.00000	49.77	136.99
34.50000	48.74	155.87
57.50000	47.68	179.52
115.00000	46.88	211.58
230.00000	46.49	243.59

TD=60.0 EV ET=1.204141 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.21000	0.04	0.04
1.22000	0.12	0.12
1.25000	0.42	0.42
1.28000	0.79	0.79
1.33000	1.56	1.56
1.39000	2.67	2.67
1.46000	4.13	4.13
1.56000	6.40	6.40
1.68000	9.23	9.23
1.86000	13.41	13.41
2.10000	18.51	18.59
2.40000	23.95	24.46
2.76000	29.17	30.74
3.25000	34.42	38.18
3.85000	38.81	45.96
4.57000	42.18	53.85
5.41000	44.57	61.59
6.26000	46.01	68.26
7.22000	46.94	74.75
8.42000	47.53	81.71
10.20000	47.82	90.34
12.00000	47.78	97.59
18.00000	47.10	115.54
24.00000	46.43	128.17
36.10000	45.46	145.92
60.20000	44.48	168.03
120.00000	43.75	197.82
240.00000	43.39	227.70

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN MO
Z=42 A= 95.950

TD=64.0 EV ET=1.255470 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.26000	0.03	0.03
1.28000	0.17	0.17
1.30000	0.35	0.35
1.34000	0.79	0.79
1.39000	1.49	1.49
1.45000	2.49	2.49
1.53000	4.00	4.00
1.63000	6.06	6.06
1.75000	8.62	8.62
1.94000	12.61	12.61
2.19000	17.42	17.49
2.51000	22.65	23.15
2.88000	27.46	28.98
3.38000	32.29	35.85
4.01000	36.44	43.25
4.77000	39.63	50.76
5.64000	41.84	58.00
6.52000	43.16	64.23
7.53000	44.03	70.39
8.78000	44.57	76.92
10.60000	44.82	84.87
12.50000	44.78	91.78
18.80000	44.13	108.74
25.10000	43.50	120.65
37.60000	42.60	137.13
62.70000	41.69	157.85
125.00000	41.01	185.80
251.00000	40.67	213.97

TD=68.0 EV ET=1.305348 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.31000	0.02	0.02
1.33000	0.15	0.15
1.35000	0.30	0.30
1.39000	0.69	0.69
1.44000	1.31	1.31
1.51000	2.36	2.36
1.59000	3.74	3.74
1.69000	5.60	5.60
1.82000	8.12	8.12
2.02000	11.95	11.95
2.28000	16.49	16.57
2.61000	21.39	21.88
3.00000	25.98	27.46
3.52000	30.51	33.96
4.17000	34.38	40.88
4.96000	37.37	47.98
5.87000	39.43	54.85
6.78000	40.65	60.70
7.83000	41.46	66.50
9.13000	41.95	72.66
11.00000	42.18	80.08
13.00000	42.14	86.68
19.50000	41.52	102.55
26.10000	40.93	113.86
39.10000	40.08	129.38
65.20000	39.23	148.89
130.00000	38.59	175.20
261.00000	38.27	201.71

TD=72.0 EV ET=1.353893 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.36000	0.03	0.03
1.38000	0.14	0.14
1.40000	0.27	0.27
1.44000	0.63	0.63
1.50000	1.30	1.30
1.57000	2.27	2.27
1.65000	3.53	3.53
1.76000	5.41	5.41
1.89000	7.72	7.72
2.09000	11.22	11.22
2.36000	15.55	15.62
2.70000	20.17	20.64
3.11000	24.60	26.02
3.65000	28.89	32.19
4.33000	32.56	38.81
5.14000	35.33	45.46
6.09000	37.29	52.01
7.04000	38.43	57.58
8.12000	39.17	63.02
9.47000	39.63	68.86
11.50000	39.84	76.17
13.50000	39.78	82.16
20.30000	39.20	97.25
27.00000	38.64	107.71
40.60000	37.84	122.51
67.50000	37.04	140.89
135.00000	36.45	165.79
270.00000	36.15	190.70

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN MO
Z=42 A= 95.950

TD=76.0 EV ET=1.401206 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.41000	0.04	0.04
1.42000	0.08	0.08
1.45000	0.26	0.26
1.49000	0.58	0.58
1.55000	1.19	1.19
1.62000	2.07	2.07
1.70000	3.22	3.22
1.82000	5.10	5.10
1.96000	7.39	7.39
2.17000	10.76	10.76
2.45000	14.88	14.95
2.80000	19.23	19.69
3.22000	23.38	24.75
3.78000	27.45	30.63
4.48000	30.90	36.89
5.32000	33.52	43.23
6.30000	35.35	49.43
7.28000	36.43	54.70
8.40000	37.12	59.88
9.80000	37.55	65.43
11.90000	37.74	72.37
14.00000	37.68	78.12
21.00000	37.12	92.35
28.00000	36.59	102.34
42.00000	35.83	116.28
70.00000	35.08	133.73
140.00000	34.52	157.38
280.00000	34.24	180.98

TD=80.0 EV ET=1.447376 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.46000	0.05	0.05
1.47000	0.09	0.09
1.50000	0.25	0.25
1.54000	0.55	0.55
1.60000	1.11	1.11
1.67000	1.92	1.92
1.76000	3.10	3.10
1.88000	4.84	4.84
2.02000	6.96	6.96
2.24000	10.23	10.23
2.53000	14.16	14.23
2.89000	18.30	18.74
3.32000	22.22	23.53
3.90000	26.11	29.16
4.63000	29.41	35.19
5.50000	31.90	41.23
6.51000	33.62	47.12
7.52000	34.63	52.13
8.68000	35.28	57.08
10.10000	35.67	62.26
12.30000	35.85	68.96
14.40000	35.79	74.27
21.70000	35.25	87.95
28.90000	34.75	97.41
43.40000	34.03	110.69
72.30000	33.32	127.26
144.00000	32.79	149.59
289.00000	32.53	172.12

TD=84.0 EV ET=1.492483 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.50000	0.02	0.02
1.52000	0.10	0.10
1.55000	0.26	0.26
1.59000	0.53	0.53
1.65000	1.05	1.05
1.73000	1.91	1.91
1.82000	3.02	3.02
1.94000	4.63	4.63
2.08000	6.59	6.59
2.31000	9.76	9.76
2.61000	13.54	13.61
2.98000	17.47	17.90
3.43000	21.26	22.55
4.02000	24.91	27.85
4.77000	28.04	33.59
5.67000	30.41	39.39
6.71000	32.04	45.00
7.76000	33.00	49.82
8.95000	33.61	54.51
10.40000	33.98	59.41
12.60000	34.14	65.63
14.90000	34.08	71.01
22.30000	33.57	83.83
29.80000	33.09	92.95
44.70000	32.40	105.57
74.50000	31.73	121.40
149.00000	31.23	142.77
298.00000	30.98	164.11

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN MO
Z=42 A= 95.950

TD=88.0 EV ET=1.536596 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.55000	0.04	0.04
1.56000	0.07	0.07
1.59000	0.21	0.21
1.64000	0.52	0.52
1.70000	1.01	1.01
1.78000	1.80	1.80
1.87000	2.83	2.83
1.99000	4.33	4.33
2.15000	6.41	6.41
2.38000	9.36	9.36
2.68000	12.88	12.94
3.07000	16.74	17.16
3.53000	20.33	21.58
4.14000	23.83	26.68
4.91000	26.81	32.16
5.83000	29.05	37.67
6.91000	30.61	43.09
7.99000	31.52	47.69
9.21000	32.09	52.15
10.70000	32.44	56.83
13.00000	32.59	62.86
15.30000	32.53	67.85
23.00000	32.03	80.23
30.70000	31.57	88.91
46.00000	30.92	100.92
76.80000	30.28	116.05
153.00000	29.81	136.37

TD=92.0 EV ET=1.579779 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.59000	0.03	0.03
1.61000	0.09	0.09
1.64000	0.22	0.22
1.69000	0.52	0.52
1.75000	0.97	0.97
1.83000	1.71	1.71
1.92000	2.67	2.67
2.05000	4.19	4.19
2.21000	6.14	6.14
2.44000	8.89	8.89
2.76000	12.40	12.46
3.15000	16.00	16.40
3.63000	19.50	20.71
4.26000	22.85	25.62
5.05000	25.69	30.86
6.00000	27.83	36.16
7.10000	29.30	41.31
8.21000	30.16	45.71
9.47000	30.71	50.01
11.00000	31.03	54.49
13.40000	31.17	60.34
15.70000	31.11	64.98
23.60000	30.63	76.83
31.50000	30.19	85.13
47.30000	29.57	96.68
78.90000	28.96	111.14
157.00000	28.51	130.54

TD=96.0 EV ET=1.622087 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.63000	0.02	0.02
1.65000	0.07	0.07
1.68000	0.19	0.19
1.73000	0.46	0.46
1.80000	0.95	0.95
1.88000	1.65	1.65
1.97000	2.54	2.54
2.10000	3.96	3.96
2.27000	5.90	5.90
2.51000	8.59	8.59
2.83000	11.87	11.94
3.24000	15.41	15.81
3.73000	18.74	19.92
4.37000	21.92	24.60
5.19000	24.66	29.69
6.16000	26.70	34.74
7.29000	28.10	39.68
8.43000	28.92	43.91
9.73000	29.44	48.06
11.30000	29.74	52.35
13.70000	29.87	57.82
16.20000	29.81	62.54
24.30000	29.35	73.83
32.40000	28.93	81.76
48.60000	28.33	92.81
81.10000	27.75	106.67
162.00000	27.32	125.37

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN AG
Z=47 A=107.880

TD= 4.0 EV ET=0.168740 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.17000	10.77	10.77
0.17200	27.38	27.38
0.17500	51.27	51.27
0.18000	88.55	88.55
0.18700	136.03	136.03
0.19500	184.52	184.52
0.20500	237.93	237.93
0.21900	301.87	301.87
0.23600	366.38	366.38
0.26100	442.19	442.19
0.29500	520.32	520.32
0.33700	591.09	593.64
0.38800	653.04	666.32
0.45500	709.90	744.59
0.53900	757.69	825.40
0.64100	795.20	907.42
0.75900	822.29	988.25
0.87700	839.03	1058.89
1.01000	850.33	1129.71
1.18000	857.75	1210.18
1.43000	860.79	1313.45
1.68000	858.98	1403.33
2.53000	842.54	1645.07
3.37000	825.26	1824.00
5.06000	800.12	2089.11
8.43000	772.04	2434.12
16.80000	744.86	2912.84
33.70000	731.45	3405.97
50.60000	727.03	3695.60
84.30000	722.53	4059.86
118.00000	719.61	4299.16
168.00000	716.48	4549.60

TD= 8.0 EV ET=0.303231 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.30600	3.53	3.53
0.30900	7.30	7.30
0.31500	14.69	14.69
0.32400	25.43	25.43
0.33600	39.14	39.14
0.35100	55.38	55.38
0.36900	73.67	73.67
0.39400	97.16	97.16
0.42400	122.73	122.73
0.47000	157.23	157.23
0.53000	195.20	195.22
0.60600	234.29	236.07
0.69700	271.11	278.21
0.81800	307.90	326.17
0.97000	340.65	377.34
1.15000	366.85	428.90
1.36000	386.63	480.36
1.57000	399.21	525.03
1.81000	408.13	569.90
2.12000	414.49	620.49
2.57000	417.99	683.06
3.03000	418.16	737.42
4.54000	411.45	873.56
6.06000	403.77	972.74
9.09000	392.75	1114.02
15.10000	380.41	1292.26
30.30000	369.41	1539.29
60.60000	364.33	1787.16
90.90000	362.43	1932.29
151.00000	360.24	2113.54
212.00000	358.75	2234.09
303.00000	357.17	2360.56

TD=12.0 EV ET=0.418461 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.42200	1.53	1.53
0.42500	3.26	3.26
0.43500	7.17	7.17
0.44700	12.41	12.41
0.46400	19.81	19.81
0.48500	28.90	28.90
0.51000	39.52	39.52
0.54300	53.12	53.12
0.58500	69.57	69.57
0.64300	92.24	92.24
0.73200	118.74	118.82
0.83500	146.17	147.61
0.96200	172.77	178.11
1.12000	198.21	211.30
1.33000	222.31	249.08
1.59000	242.07	288.68
1.88000	255.96	326.19
2.17000	264.60	358.57
2.51000	270.71	391.67
2.92000	274.63	426.30
3.55000	276.75	471.33
4.18000	276.65	509.25
6.27000	271.80	604.00
8.36000	266.81	671.81
12.50000	259.78	767.03
20.90000	251.94	888.77
41.80000	245.49	1053.81
83.60000	242.49	1219.49
125.00000	241.29	1315.59
209.00000	239.81	1437.90
292.00000	238.82	1517.04
418.00000	237.77	1601.69

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN AG
Z=47 A=107.880

TD=16.0 EV ET=0.520902 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.52600	1.04	1.04
0.53100	2.08	2.08
0.54100	4.21	4.21
0.55700	7.74	7.74
0.57800	12.55	12.55
0.60400	18.67	18.67
0.63500	26.10	26.10
0.67700	36.14	36.14
0.72900	48.27	48.27
0.80700	65.38	65.38
0.91100	85.74	85.83
1.04000	107.08	108.32
1.19000	127.12	131.39
1.40000	148.37	159.44
1.66000	166.81	189.07
1.97000	181.33	219.05
2.34000	192.12	249.36
2.70000	198.48	274.67
3.12000	202.87	300.32
3.64000	205.63	327.73
4.42000	206.94	362.34
5.20000	206.67	391.37
7.81000	202.77	464.05
10.40000	199.07	515.39
15.60000	193.85	587.97
26.00000	188.26	679.22
52.00000	183.79	803.42
104.00000	181.69	927.83
156.00000	180.80	1000.50

TD=20.0 EV ET=0.614055 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.62000	0.68	0.68
0.62600	1.39	1.39
0.63800	2.89	2.89
0.65700	5.41	5.41
0.68100	8.83	8.83
0.71200	13.50	13.50
0.74900	19.31	19.31
0.79800	27.15	27.15
0.85900	36.83	36.83
0.95100	50.75	50.75
1.07000	66.99	67.08
1.22000	84.42	85.48
1.41000	102.11	106.01
1.65000	118.89	128.50
1.96000	134.01	153.31
2.33000	145.73	178.35
2.76000	154.09	202.93
3.19000	159.09	223.98
3.68000	162.38	244.75
4.29000	164.40	267.04
5.21000	165.25	295.25
6.14000	164.90	319.08
9.21000	161.64	377.71
12.20000	158.74	418.34
18.40000	154.56	477.48
30.70000	150.22	550.86
61.40000	146.86	650.43
122.00000	145.26	749.08
184.00000	144.55	808.01

TD=24.0 EV ET=0.700063 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.70700	0.50	0.50
0.71400	1.03	1.03
0.72300	2.17	2.17
0.74900	4.04	4.04
0.77700	6.79	6.79
0.81200	10.51	10.51
0.85400	15.24	15.24
0.91000	21.76	21.76
0.98000	29.94	29.94
1.08000	41.18	41.18
1.22000	55.46	55.56
1.40000	71.00	72.05
1.61000	85.46	89.01
1.89000	99.87	108.64
2.24000	112.32	129.55
2.65000	121.96	150.77
3.15000	128.79	171.65
3.64000	132.82	189.49
4.20000	135.43	207.11
4.90000	136.98	226.03
5.95000	137.54	249.82
7.00000	137.15	269.65
10.50000	134.35	318.88
14.00000	131.88	353.71
21.00000	128.47	402.48
35.00000	124.96	463.64
70.00000	122.28	546.72
140.00000	120.98	629.75
210.00000	120.40	678.21

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN AG
Z=47 A=107.880

TD=28.0 EV	ET=0.780355 MEV		TD=32.0 EV	ET=0.855940 MEV		TD=36.0 EV	ET=0.927558 MEV	
ENERGY(MEV)	PRIMARY	CASCADE	ENERGY(MEV)	PRIMARY	CASCADE	ENERGY(MEV)	PRIMARY	CASCADE
0.78800	0.37	0.37	0.86400	0.28	0.28	0.93500	0.22	0.22
0.79500	0.74	0.74	0.87300	0.62	0.62	0.94500	0.51	0.51
0.81100	1.65	1.65	0.89000	1.34	1.34	0.96400	1.09	1.09
0.83400	3.12	3.12	0.91500	2.56	2.56	0.99200	2.16	2.16
0.86600	5.43	5.43	0.95000	4.51	4.51	1.02000	3.39	3.39
0.90500	8.54	8.54	0.99200	7.13	7.13	1.07000	5.88	5.88
0.95200	12.57	12.57	1.04000	10.39	10.39	1.13000	9.21	9.21
1.01000	17.76	17.76	1.11000	15.41	15.41	1.20000	13.34	13.34
1.09000	25.02	25.02	1.19000	21.25	21.25	1.29000	18.78	18.78
1.20000	34.68	34.68	1.32000	30.47	30.47	1.43000	27.02	27.02
1.36000	47.46	47.56	1.49000	41.45	41.55	1.62000	37.19	37.30
1.56000	60.95	61.93	1.71000	53.46	54.38	1.85000	47.59	48.44
1.79000	73.33	76.52	1.96000	64.33	67.26	2.13000	57.64	60.42
2.10000	85.78	93.62	2.31000	75.59	82.89	2.50000	67.43	74.15
2.49000	96.55	111.93	2.73000	84.81	98.84	2.96000	75.70	88.65
2.96000	104.84	130.55	3.25000	92.07	115.48	3.52000	82.07	103.51
3.51000	110.66	148.86	3.85000	97.05	131.59	4.17000	86.43	117.97
4.05000	113.99	164.19	4.45000	99.91	145.31	4.82000	88.92	130.26
4.68000	116.16	179.63	5.13000	101.70	158.71	5.56000	90.45	142.31
5.46000	117.39	196.02	5.99000	102.71	173.24	6.49000	91.29	155.28
6.63000	117.78	216.58	7.27000	102.98	191.31	7.88000	91.48	171.45
7.30000	117.39	233.70	8.55000	102.59	206.33	9.27000	91.10	184.88
11.70000	114.92	276.13	12.80000	100.41	243.42	13.90000	89.12	218.08
15.60000	112.81	306.09	17.10000	98.55	269.88	18.50000	87.49	241.34
23.40000	109.91	347.98	25.60000	96.04	306.42	27.80000	85.25	274.16
39.00000	106.97	400.48	42.70000	93.50	352.48	46.30000	83.04	315.02
78.00000	104.75	471.76	85.50000	91.61	415.01	92.70000	81.40	370.63
156.00000	103.66	542.95	171.00000	90.68	477.31	185.00000	80.58	425.84

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN AG
Z=47 A=107.880

TD=40.0 EV	ET=0.995776 MEV		TD=44.0 EV	ET=1.061037 MEV		TD=48.0 EV	ET=1.123694 MEV	
ENERGY(MEV)	PRIMARY	CASCADE	ENERGY(MEV)	PRIMARY	CASCADE	ENERGY(MEV)	PRIMARY	CASCADE
1.00000	0.08	0.08	1.07000	0.14	0.14	1.13000	0.08	0.08
1.01000	0.29	0.29	1.08000	0.32	0.32	1.14000	0.22	0.22
1.03000	0.79	0.79	1.10000	0.73	0.73	1.16000	0.55	0.55
1.06000	1.69	1.69	1.13000	1.49	1.49	1.20000	1.39	1.39
1.10000	3.13	3.13	1.17000	2.69	2.69	1.24000	2.43	2.43
1.15000	5.22	5.22	1.23000	4.82	4.82	1.30000	4.26	4.26
1.21000	8.00	8.00	1.29000	7.21	7.21	1.37000	6.68	6.68
1.29000	11.98	11.98	1.37000	10.62	10.62	1.46000	10.03	10.03
1.39000	17.09	17.09	1.48000	15.45	15.45	1.57000	14.25	14.25
1.54000	24.56	24.56	1.64000	22.31	22.31	1.74000	20.60	20.60
1.74000	33.60	33.71	1.85000	30.50	30.60	1.96000	28.08	28.18
1.99000	43.14	43.97	2.12000	39.37	40.16	2.24000	36.11	36.85
2.29000	52.20	54.84	2.44000	47.65	50.16	2.58000	43.78	46.13
2.68000	60.87	67.10	2.86000	55.62	61.51	3.03000	51.19	56.75
3.18000	68.40	80.45	3.39000	62.40	73.68	3.59000	57.37	67.95
3.78000	74.07	93.91	4.03000	67.51	86.00	4.27000	62.03	79.36
4.48000	77.94	107.05	4.77000	70.95	97.93	5.05000	65.13	90.30
5.17000	80.10	118.07	5.51000	72.89	108.07	5.84000	66.89	99.71
5.97000	81.45	129.05	6.36000	74.07	118.07	6.74000	67.93	108.90
6.97000	82.16	140.79	7.42000	74.69	128.74	7.86000	68.47	118.69
8.46000	82.29	155.38	9.01000	74.77	142.07	9.55000	68.51	130.98
9.95000	81.92	167.48	10.60000	74.42	153.13	11.20000	68.18	140.94
14.90000	80.12	197.35	15.90000	72.76	180.44	16.80000	66.65	166.02
19.90000	78.64	218.57	21.20000	71.42	199.65	22.40000	65.42	183.65
29.80000	76.65	247.88	31.80000	69.61	226.43	33.70000	63.75	208.39
49.70000	74.68	284.79	53.00000	67.85	259.95	56.10000	62.16	239.07
99.50000	73.23	334.85	106.00000	66.56	305.41	112.00000	61.00	280.64
199.00000	72.51	384.71	212.00000	65.90	350.75	224.00000	60.40	322.20

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN AG
Z=47 A=107.880

TD=52.0 EV ET=1.184037 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.19000	0.06	0.06
1.20000	0.17	0.17
1.23000	0.61	0.61
1.26000	1.15	1.15
1.31000	2.28	2.28
1.37000	3.89	3.89
1.44000	6.01	6.01
1.53000	8.95	8.95
1.65000	13.00	13.00
1.83000	18.95	18.95
2.07000	26.14	26.25
2.36000	33.45	34.16
2.72000	40.59	42.84
3.19000	47.38	52.63
3.78000	53.08	63.04
4.49000	57.33	73.54
5.32000	60.19	83.80
6.15000	61.78	92.49
7.10000	62.73	101.03
8.28000	63.20	110.09
10.00000	63.23	121.11
11.80000	62.90	130.68
17.70000	61.47	153.87
23.60000	60.34	170.15
35.50000	58.81	192.99
59.20000	57.35	221.42
118.00000	56.29	259.72
236.00000	55.75	298.08

TD=56.0 EV ET=1.242304 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.25000	0.07	0.07
1.26000	0.16	0.16
1.29000	0.53	0.53
1.32000	1.01	1.01
1.37000	1.98	1.98
1.44000	3.64	3.64
1.51000	5.52	5.52
1.61000	8.43	8.43
1.73000	12.04	12.04
1.92000	17.64	17.64
2.17000	24.31	24.41
2.48000	31.26	31.95
2.85000	37.77	39.90
3.35000	44.16	49.17
3.97000	49.43	58.90
4.72000	53.36	68.74
5.59000	55.98	78.28
6.45000	57.41	86.28
7.45000	58.26	94.25
8.69000	58.68	102.70
10.50000	58.69	112.98
12.40000	58.37	121.92
18.60000	57.04	143.48
24.80000	55.99	158.61
37.20000	54.58	179.68
62.10000	53.23	206.14
124.00000	52.26	241.81
248.00000	51.76	277.43

TD=60.0 EV ET=1.298696 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.31000	0.08	0.08
1.32000	0.17	0.17
1.35000	0.50	0.50
1.38000	0.92	0.92
1.44000	1.97	1.97
1.50000	3.24	3.24
1.58000	5.16	5.16
1.68000	7.77	7.77
1.81000	11.29	11.29
2.01000	16.57	16.57
2.27000	22.80	22.90
2.59000	29.23	29.90
2.98000	35.38	37.42
3.50000	41.32	46.09
4.15000	46.24	55.23
4.93000	49.87	64.41
5.84000	52.29	73.36
6.75000	53.62	80.93
7.79000	54.40	88.35
9.09000	54.77	96.27
11.00000	54.76	105.96
12.90000	54.46	113.96
19.40000	53.21	134.23
25.90000	52.22	148.43
38.90000	50.91	168.17
64.90000	49.66	192.85
129.00000	48.77	225.92
259.00000	48.30	259.36

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN AG
Z=47 A=107.880

TD=64.0 EV ET=1.353384 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.36000	0.04	0.04
1.38000	0.19	0.19
1.40000	0.38	0.38
1.44000	0.87	0.87
1.50000	1.81	1.81
1.56000	2.95	2.95
1.65000	4.90	4.90
1.75000	7.26	7.26
1.89000	10.69	10.69
2.09000	15.47	15.47
2.36000	21.33	21.43
2.70000	27.51	28.16
3.11000	33.33	35.31
3.65000	38.86	43.43
4.33000	43.47	52.06
5.14000	46.83	60.67
6.09000	49.08	69.09
7.03000	50.30	76.15
8.12000	51.01	83.16
9.47000	51.35	90.57
11.50000	51.32	99.83
13.50000	51.03	107.39
20.30000	49.84	126.41
27.00000	48.93	139.55
40.60000	47.70	158.12
67.60000	46.54	181.16
135.00000	45.71	212.39
270.00000	45.28	243.57

TD=68.0 EV ET=1.406512 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.42000	0.07	0.07
1.43000	0.14	0.14
1.46000	0.39	0.39
1.50000	0.84	0.84
1.56000	1.70	1.70
1.63000	2.92	2.92
1.71000	4.50	4.50
1.82000	6.86	6.86
1.96000	9.98	9.98
2.18000	14.77	14.77
2.46000	20.28	20.38
2.81000	26.04	26.67
3.23000	31.44	33.33
3.79000	36.64	41.00
4.50000	40.99	49.20
5.34000	44.13	57.31
6.32000	46.22	65.21
7.31000	47.37	71.95
8.43000	48.02	78.49
9.84000	48.32	85.52
11.90000	48.29	94.06
14.00000	48.01	101.28
21.00000	46.90	119.09
28.10000	46.03	131.73
42.10000	44.88	149.05
70.30000	43.79	170.87
140.00000	43.02	200.15
281.00000	42.61	229.64

TD=72.0 EV ET=1.458207 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.47000	0.05	0.06
1.48000	0.11	0.11
1.51000	0.33	0.33
1.56000	0.84	0.84
1.61000	1.49	1.49
1.69000	2.74	2.74
1.77000	4.19	4.19
1.89000	6.54	6.54
2.04000	9.60	9.60
2.26000	13.98	13.98
2.55000	19.20	19.30
2.91000	24.62	25.23
3.35000	29.79	31.62
3.93000	34.69	38.88
4.66000	38.76	46.59
5.54000	41.74	54.35
6.56000	43.70	61.85
7.58000	44.76	68.19
8.74000	45.36	74.37
10.20000	45.64	81.01
12.30000	45.60	88.97
14.50000	45.33	95.88
21.80000	44.27	112.81
29.10000	43.45	124.65
43.70000	42.37	141.11
72.90000	41.35	161.68
145.00000	40.63	189.28
291.00000	40.24	217.14

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN AG
Z=47 A=107.880

TD=76.0 EV ET=1.508580 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.52000	0.05	0.05
1.53000	0.10	0.10
1.56000	0.29	0.29
1.61000	0.74	0.74
1.67000	1.45	1.45
1.74000	2.46	2.46
1.84000	4.11	4.11
1.96000	6.29	6.29
2.11000	9.10	9.10
2.33000	13.14	13.14
2.64000	18.28	18.37
3.01000	23.39	23.98
3.46000	28.24	29.99
4.07000	32.97	37.01
4.82000	36.78	44.28
5.73000	39.59	51.66
6.78000	41.42	58.75
7.84000	42.42	64.79
9.05000	42.98	70.70
10.50000	43.23	76.76
12.80000	43.18	84.75
15.00000	42.93	91.06
22.60000	41.92	107.20
30.10000	41.15	118.33
45.20000	40.12	133.93
75.40000	39.16	153.42
150.00000	38.48	179.58

TD=80.0 EV ET=1.557726 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.57000	0.05	0.05
1.58000	0.09	0.09
1.62000	0.33	0.33
1.66000	0.67	0.67
1.72000	1.32	1.32
1.80000	2.37	2.37
1.90000	3.90	3.90
2.02000	5.91	5.91
2.18000	8.68	8.68
2.41000	12.58	12.58
2.72000	17.33	17.42
3.11000	22.30	22.88
3.58000	26.96	28.67
4.20000	31.37	35.25
4.98000	35.00	42.23
5.91000	37.64	49.18
7.00000	39.38	55.97
8.10000	40.32	61.76
9.34000	40.84	67.34
10.90000	41.07	73.33
13.20000	41.02	80.66
15.50000	40.77	86.74
23.30000	39.81	101.99
31.10000	39.07	112.65
46.70000	38.10	127.47
77.80000	37.20	145.95
155.00000	36.55	170.85

TD=84.0 EV ET=1.605732 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.62000	0.05	0.05
1.63000	0.09	0.09
1.66000	0.25	0.25
1.71000	0.62	0.62
1.78000	1.32	1.32
1.86000	2.31	2.31
1.95000	3.58	3.58
2.08000	5.60	5.60
2.24000	8.17	8.17
2.48000	11.95	11.95
2.81000	16.63	16.72
3.21000	21.34	21.91
3.69000	25.73	27.39
4.33000	29.93	33.68
5.13000	33.37	40.32
6.10000	35.90	47.03
7.22000	37.53	53.48
8.34000	38.41	58.93
9.63000	38.90	64.30
11.20000	39.11	69.89
13.60000	39.06	76.98
16.00000	38.81	82.85
24.00000	37.90	97.30
32.10000	37.19	107.53
48.10000	36.28	121.57
80.20000	35.42	139.20
160.00000	34.81	162.97

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN AG
Z=47 A=107.880

TD=88.0 EV ET=1.652672 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.66000	0.02	0.02
1.68000	0.09	0.09
1.71000	0.24	0.24
1.76000	0.59	0.59
1.83000	1.23	1.23
1.91000	2.14	2.14
2.01000	3.46	3.46
2.14000	5.33	5.33
2.31000	7.88	7.88
2.56000	11.54	11.54
2.89000	15.89	15.98
3.30000	20.38	20.93
3.80000	24.63	26.24
4.46000	28.64	32.27
5.28000	31.90	38.60
6.28000	34.30	45.02
7.43000	35.85	51.18
8.59000	36.68	56.42
9.91000	37.14	61.52
11.50000	37.33	66.78
14.00000	37.27	73.65
16.50000	37.04	79.31
24.70000	36.17	93.04
33.00000	35.49	102.77
49.50000	34.62	116.22
82.60000	33.80	133.07
165.00000	33.22	155.80

TD=92.0 EV ET=1.698616 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.71000	0.03	0.03
1.73000	0.10	0.10
1.76000	0.24	0.24
1.81000	0.56	0.56
1.88000	1.16	1.16
1.97000	2.13	2.13
2.07000	3.36	3.36
2.20000	5.11	5.11
2.37000	7.49	7.49
2.63000	11.04	11.05
2.97000	15.23	15.32
3.39000	19.53	20.06
3.90000	23.57	25.12
4.58000	27.43	30.93
5.43000	30.56	37.04
6.45000	32.83	43.15
7.64000	34.31	49.09
8.83000	35.09	54.10
10.10000	35.51	58.69
11.80000	35.71	63.96
14.40000	35.65	70.61
16.90000	35.42	75.89
25.40000	34.58	89.17
33.90000	33.94	98.44
50.90000	33.10	111.34
84.90000	32.32	127.45
169.00000	31.78	149.08

TD=96.0 EV ET=1.743624 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.76000	0.04	0.04
1.77000	0.07	0.07
1.81000	0.24	0.24
1.86000	0.55	0.55
1.93000	1.11	1.11
2.02000	2.01	2.01
2.12000	3.16	3.16
2.26000	4.93	4.93
2.44000	7.29	7.29
2.70000	10.61	10.61
3.05000	14.64	14.74
3.48000	18.76	19.28
4.01000	22.68	24.20
4.70000	26.32	29.71
5.57000	29.32	35.56
6.62000	31.49	41.45
7.84000	32.90	47.14
9.06000	33.64	51.95
10.40000	34.04	56.47
12.20000	34.22	61.65
14.80000	34.15	67.84
17.40000	33.93	72.96
26.10000	33.13	85.62
34.80000	32.52	94.48
52.30000	31.71	106.87
87.10000	30.97	122.26
174.00000	30.45	143.11

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN SN
Z=50 A=118.700

TD= 4.0 EV ET=0.183405 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.18500	12.37	12.37
0.18700	27.47	27.47
0.19000	49.29	49.29
0.19600	90.22	90.22
0.20300	133.89	133.89
0.21200	184.50	184.50
0.22300	239.28	239.28
0.23300	303.83	303.83
0.25600	369.18	369.18
0.28400	451.44	451.44
0.32000	532.89	532.89
0.36600	610.56	613.41
0.42100	678.33	692.49
0.49500	742.39	779.93
0.58600	795.13	868.53
0.69600	836.14	958.08
0.82500	865.64	1047.23
0.95300	883.16	1124.21
1.10000	894.58	1202.41
1.28000	901.03	1287.18
1.55000	902.33	1397.66
1.83300	898.43	1496.61
2.75000	876.42	1751.32
3.66000	855.56	1938.61
5.50000	826.51	2215.82
9.17000	795.15	2574.08
18.30000	766.01	3069.56
36.60000	752.17	3575.62
55.00000	747.40	3874.21
91.70000	742.24	4249.04
128.00000	738.83	4492.54
183.00000	735.13	4752.37

TD= 8.0 EV ET=0.327616 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.33000	2.79	2.79
0.33400	7.42	7.42
0.34000	14.27	14.27
0.35000	25.41	25.41
0.36300	39.43	39.43
0.38000	56.97	56.97
0.39900	75.59	75.59
0.42500	99.46	99.46
0.45800	127.30	127.30
0.50700	164.05	164.05
0.57300	206.12	206.16
0.65500	248.68	250.71
0.75300	288.64	296.55
0.88400	328.51	348.88
1.04000	362.00	401.81
1.24000	390.52	459.31
1.47000	410.95	515.38
1.70000	423.37	563.72
1.96000	431.59	611.49
2.29000	436.80	664.26
2.78000	438.77	730.73
3.27000	437.57	787.02
4.91000	427.62	929.92
6.55000	418.19	1032.78
9.82000	405.42	1178.90
16.30000	391.71	1362.59
32.70000	379.99	1617.12
65.50000	374.63	1872.79
98.20000	372.52	2021.78
163.00000	369.96	2207.56
229.00000	368.20	2331.43
327.00000	366.38	2460.76

TD=12.0 EV ET=0.450433 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.45400	1.42	1.42
0.45900	3.43	3.43
0.46800	7.09	7.09
0.48100	12.46	12.46
0.49900	19.99	19.99
0.52200	29.67	29.67
0.54900	40.99	40.99
0.58300	55.76	55.76
0.63000	73.47	73.47
0.69300	98.22	98.22
0.78300	127.01	127.11
0.90000	156.91	158.55
1.03000	184.65	190.45
1.21000	213.53	228.55
1.44000	239.09	269.79
1.71000	258.57	310.64
2.02000	272.35	350.39
2.34000	280.82	385.58
2.70000	286.19	419.95
3.15000	289.35	457.07
3.82000	290.30	503.65
4.50000	289.23	543.36
6.75000	282.27	641.86
9.00000	276.18	712.11
13.50000	267.99	811.25
22.50000	259.38	935.98
45.00000	252.53	1105.97
90.00000	249.33	1276.41
135.00000	247.96	1375.95
225.00000	246.23	1500.68
315.00000	245.07	1582.32
450.00000	243.87	1668.61

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN SN
Z=50 A=118.700

TD=16.0 EV ET=0.559248 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.56400	0.89	0.89
0.57000	2.06	2.06
0.58100	4.27	4.27
0.59800	7.86	7.86
0.62000	12.76	12.76
0.64800	19.28	19.28
0.68200	27.41	27.41
0.72700	38.26	38.26
0.78200	51.28	51.28
0.86600	70.05	70.05
0.97800	92.38	92.50
1.11000	114.61	115.94
1.28000	137.51	142.43
1.50000	159.59	171.99
1.78000	179.00	203.95
2.12000	194.10	236.62
2.51000	204.50	268.17
2.90000	210.55	295.14
3.35000	214.39	322.07
3.91000	216.49	350.87
4.75000	216.90	387.10
5.59000	215.90	417.39
8.38000	210.48	492.43
11.10000	206.09	544.55
16.70000	200.02	620.01
27.90000	193.82	714.46
55.90000	189.06	842.68
111.00000	186.83	969.31
167.00000	185.80	1044.53

TD=20.0 EV ET=0.657978 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.66400	0.64	0.64
0.67100	1.42	1.42
0.68400	2.96	2.96
0.70400	5.54	5.54
0.73000	9.18	9.18
0.76300	14.14	14.14
0.80200	20.31	20.31
0.85500	28.93	28.93
0.92100	39.62	39.62
1.01000	53.43	53.43
1.15000	72.97	73.10
1.31000	91.75	93.00
1.51000	110.41	114.83
1.77000	128.38	139.32
2.10000	143.97	165.70
2.50000	155.93	192.55
2.96000	164.05	218.49
3.42000	168.68	240.60
3.94000	171.49	262.19
4.60000	172.97	285.72
5.59000	173.11	315.23
6.57000	172.18	339.58
9.86000	167.72	400.40
13.10000	164.20	442.83
19.70000	159.43	503.38
32.80000	154.68	578.66
65.70000	151.08	681.39
131.00000	149.35	783.36
197.00000	148.53	843.46

TD=24.0 EV ET=0.748994 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.75500	0.47	0.47
0.76300	0.97	0.97
0.77300	2.13	2.13
0.80100	4.13	4.13
0.83100	7.04	7.04
0.86800	10.99	10.99
0.91300	16.13	16.13
0.97300	23.26	23.26
1.04000	31.29	31.29
1.16000	45.13	45.13
1.31000	60.68	60.82
1.49000	76.45	77.60
1.72000	92.42	96.43
2.02000	107.71	117.59
2.39000	120.50	139.71
2.84000	130.30	162.32
3.37000	137.03	184.63
3.89000	140.72	203.24
4.49000	142.95	221.74
5.24000	144.03	241.54
6.36000	144.01	266.24
7.48000	143.15	286.79
11.20000	139.39	337.53
14.90000	136.46	373.22
22.40000	132.53	423.77
37.40000	128.65	486.97
74.80000	125.80	572.50
149.00000	124.39	657.38
224.00000	123.71	707.42

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN SN
Z=50 A=118.700

TD=28.0 EV ET=0.833866 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.84200	0.37	0.37
0.85000	0.77	0.77
0.86700	1.70	1.70
0.89200	3.28	3.28
0.92500	5.65	5.65
0.96700	9.04	9.04
1.01000	12.78	12.78
1.08000	19.20	19.20
1.16000	26.65	26.65
1.29000	38.36	38.36
1.45000	51.39	51.51
1.66000	65.82	66.90
1.91000	79.37	82.98
2.25000	92.82	101.80
2.66000	103.72	121.00
3.15000	112.03	140.65
3.75000	117.69	160.04
4.33000	120.75	176.22
5.00000	122.56	192.29
5.83000	123.39	209.31
7.68000	123.27	230.71
8.33000	122.47	248.47
12.50000	119.18	292.40
16.60000	115.70	322.90
25.00000	113.36	366.50
41.60000	110.13	420.39
83.30000	107.76	493.89
166.00000	106.58	566.70

TD=32.0 EV ET=0.913690 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.92200	0.27	0.27
0.93100	0.59	0.59
0.95000	1.37	1.37
0.97700	2.67	2.67
1.01000	4.50	4.50
1.05000	7.00	7.00
1.11000	11.14	11.14
1.18000	16.29	16.29
1.27000	23.05	23.05
1.41000	33.26	33.26
1.59000	45.13	45.26
1.82000	57.89	58.92
2.10000	70.06	73.49
2.46000	81.47	89.63
2.92000	91.22	107.06
3.47000	98.40	124.49
4.11000	103.18	141.45
4.75000	105.78	155.82
5.48000	107.26	169.90
6.39000	107.92	184.90
7.76000	107.74	203.73
9.13000	107.00	219.34
13.70000	104.10	257.92
18.20000	101.93	284.70
27.40000	99.03	322.86
45.60000	96.26	370.08
91.30000	94.24	434.42
182.00000	93.23	498.18

TD=36.0 EV ET=0.989273 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.99900	0.24	0.24
1.00000	0.26	0.26
1.02000	0.85	0.85
1.05000	1.93	1.93
1.09000	3.67	3.67
1.14000	6.21	6.21
1.20000	9.61	9.61
1.28000	14.47	14.47
1.38000	20.70	20.70
1.53000	29.76	29.76
1.73000	40.67	40.81
1.97000	51.67	52.64
2.27000	62.47	65.63
2.67000	72.88	80.52
3.16000	81.36	95.92
3.75000	87.64	111.44
4.45000	91.87	126.80
5.14000	94.11	139.62
5.93000	95.36	152.21
6.92000	95.89	165.69
8.40000	95.69	182.46
9.89000	94.99	196.44
14.80000	92.40	230.60
19.70000	90.47	254.61
29.60000	87.92	288.41
49.40000	85.49	330.64
98.90000	83.74	387.86
197.00000	82.84	444.47

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN SN
Z=50 A=118.700

TD=40.0 EV ET=1.061226 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.07000	0.16	0.16
1.08000	0.37	0.37
1.10000	0.87	0.87
1.13000	1.77	1.77
1.17000	3.22	3.22
1.23000	5.79	5.79
1.29000	8.67	8.67
1.37000	12.77	12.77
1.48000	18.56	18.56
1.64000	26.76	26.76
1.85000	36.49	36.61
2.12000	46.95	47.90
2.44000	56.61	59.62
2.86000	65.79	72.87
3.39000	73.47	86.97
4.03000	79.11	101.19
4.77000	82.79	114.90
5.51000	84.76	126.51
6.36000	85.84	137.94
7.42000	86.28	150.10
9.02000	86.05	165.36
10.60000	85.40	177.84
15.90000	83.05	208.83
21.20000	81.30	230.59
31.80000	79.03	260.91
53.00000	76.88	298.85
106.00000	75.34	350.29
212.00000	74.54	401.54

TD=44.0 EV ET=1.130028 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.14000	0.15	0.15
1.15000	0.32	0.32
1.17000	0.72	0.72
1.20000	1.46	1.46
1.25000	2.99	2.99
1.31000	5.19	5.19
1.37000	7.64	7.64
1.46000	11.60	11.60
1.58000	17.04	17.04
1.75000	24.54	24.54
1.97000	33.30	33.42
2.26000	42.95	43.87
2.59000	51.50	54.29
3.05000	60.11	66.79
3.61000	66.99	79.60
4.29000	72.06	92.59
5.08000	75.36	105.15
5.87000	77.11	115.78
6.78000	78.06	126.26
7.91000	78.41	137.35
9.60000	78.17	151.15
11.30000	77.56	162.63
16.90000	75.43	190.65
22.60000	73.83	210.66
33.90000	71.78	238.24
56.50000	69.84	272.75
113.00000	68.47	319.53
226.00000	67.75	366.13

TD=48.0 EV ET=1.196059 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.20000	0.04	0.04
1.21000	0.17	0.17
1.24000	0.66	0.66
1.27000	1.29	1.29
1.32000	2.59	2.59
1.38000	4.47	4.47
1.45000	6.95	6.95
1.55000	10.78	10.78
1.67000	15.53	15.53
1.85000	22.47	22.47
2.09000	30.80	30.93
2.39000	39.48	40.36
2.75000	47.57	50.27
3.22000	55.19	61.41
3.82000	61.57	73.39
4.54000	66.18	85.37
5.38000	69.17	96.99
6.21000	70.72	106.70
7.17000	71.56	116.31
8.37000	71.86	126.55
10.10000	71.63	138.85
11.90000	71.06	149.46
17.90000	69.07	175.56
23.90000	67.62	193.82
35.80000	65.75	219.03
59.80000	63.99	250.81
119.00000	62.75	293.40
239.00000	62.09	336.37

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN SN
Z=50 A=118.700

TD=52.0 EV ET=1.259629 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.27000	0.10	0.10
1.28000	0.22	0.22
1.31000	0.65	0.65
1.34000	1.20	1.20
1.39000	2.34	2.34
1.46000	4.27	4.27
1.53000	6.47	6.47
1.63000	9.85	9.85
1.76000	14.39	14.39
1.95000	20.85	20.85
2.20000	28.51	28.63
2.51000	36.43	37.25
2.89000	43.98	46.51
3.40000	51.21	57.16
4.03000	57.02	68.22
4.78000	61.19	79.20
5.66000	63.90	89.93
6.55000	65.33	99.08
7.55000	66.07	107.88
8.81000	66.32	117.33
10.70000	66.07	129.10
12.50000	65.56	138.40
18.80000	63.72	162.51
25.10000	62.38	179.38
37.70000	60.65	202.81
62.90000	59.04	232.10
125.00000	57.92	271.34
251.00000	57.31	311.00

TD=56.0 EV ET=1.320995 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.33000	0.07	0.07
1.34000	0.17	0.17
1.37000	0.53	0.53
1.41000	1.17	1.17
1.46000	2.19	2.19
1.53000	3.90	3.90
1.61000	6.14	6.14
1.71000	9.15	9.15
1.84000	13.20	13.20
2.04000	19.27	19.27
2.31000	26.64	26.77
2.64000	34.11	34.92
3.03000	40.97	43.38
3.56000	47.63	53.25
4.22000	53.03	63.58
5.01000	56.90	73.87
5.94000	59.40	83.94
6.86000	60.69	92.34
7.92000	61.35	100.62
9.24000	61.57	109.41
11.20000	61.32	120.25
13.20000	60.81	129.38
19.80000	59.10	151.65
26.40000	57.86	167.24
39.60000	56.27	188.94
66.00000	54.80	216.09
132.00000	53.76	252.87
264.00000	53.21	289.49

TD=60.0 EV ET=1.380371 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.39000	0.07	0.07
1.40000	0.15	0.15
1.43000	0.46	0.46
1.47000	1.02	1.02
1.53000	2.10	2.10
1.60000	3.64	3.64
1.68000	5.65	5.65
1.79000	8.63	8.63
1.93000	12.55	12.55
2.13000	18.00	18.00
2.41000	24.87	24.99
2.76000	31.98	32.76
3.17000	38.41	40.74
3.72000	44.58	49.93
4.41000	49.60	59.61
5.24000	53.20	69.30
6.21000	55.50	78.70
7.17000	56.67	86.55
8.28000	57.27	94.31
9.66000	57.46	102.53
11.70000	57.21	112.62
13.80000	56.72	121.19
20.70000	55.12	141.99
27.60000	53.97	156.56
41.40000	52.49	176.82
69.00000	51.13	202.16
138.00000	50.17	236.50
276.00000	49.65	270.68

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN SN
Z=50 A=118.700

TD=64.0 EV ET=1.437938 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.45000	0.07	0.07
1.46000	0.14	0.14
1.49000	0.42	0.42
1.53000	0.92	0.92
1.59000	1.88	1.88
1.66000	3.25	3.25
1.75000	5.28	5.28
1.86000	7.97	7.97
2.01000	11.77	11.77
2.22000	16.95	16.95
2.51000	23.38	23.50
2.87000	30.00	30.74
3.30000	36.10	38.32
3.88000	41.94	47.07
4.60000	46.62	56.19
5.46000	49.94	65.25
6.47000	52.07	74.08
7.47000	53.15	81.45
8.62000	53.70	88.71
10.00000	53.86	96.14
12.20000	53.61	105.97
14.30000	53.17	113.71
21.50000	51.66	133.35
28.70000	50.57	147.06
43.10000	49.19	166.12
71.80000	47.92	189.87
143.00000	47.03	221.87
287.00000	46.55	254.07

TD=68.0 EV ET=1.493854 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.50000	0.03	0.03
1.52000	0.15	0.15
1.55000	0.41	0.41
1.59000	0.85	0.85
1.65000	1.72	1.72
1.73000	3.15	3.15
1.82000	5.00	5.00
1.94000	7.68	7.68
2.09000	11.14	11.14
2.31000	16.08	16.08
2.61000	22.13	22.24
2.98000	28.30	29.02
3.43000	34.09	36.23
4.03000	39.56	44.47
4.78000	43.96	53.10
5.67000	47.05	61.62
6.72000	49.04	69.96
7.76000	50.04	76.92
8.96000	50.54	83.79
10.40000	50.68	90.82
12.60000	50.45	99.76
14.90000	50.01	107.46
22.40000	48.58	125.95
29.80000	47.57	138.71
44.80000	46.27	156.70
74.60000	45.08	179.03
149.00000	44.26	209.28
298.00000	43.80	239.44

TD=72.0 EV ET=1.548251 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.56000	0.05	0.05
1.57000	0.11	0.11
1.51000	0.41	0.41
1.65000	0.82	0.82
1.71000	1.61	1.61
1.79000	2.91	2.91
1.88000	4.59	4.59
2.01000	7.24	7.24
2.16000	10.41	10.41
2.39000	15.15	15.15
2.70000	20.88	20.99
3.09000	26.83	27.53
3.56000	32.33	34.41
4.18000	37.46	42.19
4.95000	41.57	50.29
5.88000	44.50	58.42
6.96000	46.34	66.26
8.05000	47.28	72.92
9.28000	47.74	79.34
10.80000	47.86	86.11
13.10000	47.63	94.61
15.40000	47.21	101.64
23.20000	45.86	119.20
30.90000	44.91	131.31
46.40000	43.68	148.25
77.40000	42.57	169.42
154.00000	41.79	197.83
309.00000	41.37	226.45

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN SN
Z=50 A=118.700

TD=76.0 EV ET=1.601248 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.61000	0.03	0.03
1.63000	0.13	0.13
1.66000	0.33	0.33
1.71000	0.80	0.80
1.77000	1.53	1.53
1.85000	2.72	2.72
1.95000	4.45	4.45
2.08000	6.89	6.89
2.24000	10.00	10.00
2.48000	14.54	14.54
2.80000	19.95	20.07
3.20000	25.54	26.23
3.68000	30.69	32.69
4.32000	35.54	40.07
5.12000	39.44	47.81
6.08000	42.20	55.52
7.20000	43.93	62.98
8.32000	44.80	69.26
9.60000	45.23	75.39
11.20000	45.33	81.91
13.60000	45.10	90.02
16.00000	44.70	96.71
24.00000	43.43	113.17
32.00000	42.52	124.69
48.00000	41.36	140.71
80.00000	40.32	160.73
160.00000	39.59	187.86

TD=80.0 EV ET=1.652948 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.66000	0.02	0.02
1.68000	0.11	0.11
1.71000	0.29	0.29
1.76000	0.70	0.70
1.83000	1.48	1.48
1.91000	2.58	2.58
2.01000	4.17	4.17
2.14000	6.43	6.43
2.31000	9.48	9.48
2.56000	13.85	13.85
2.89000	19.01	19.12
3.30000	24.29	24.95
3.80000	29.24	31.17
4.46000	33.83	38.20
5.28000	37.50	45.52
6.28000	40.13	52.92
7.43000	41.76	59.98
8.59000	42.57	65.98
9.91000	42.97	71.80
11.50000	43.06	77.80
14.00000	42.84	85.60
16.50000	42.45	92.04
24.70000	41.25	107.61
33.00000	40.38	118.63
49.50000	39.28	133.85
82.60000	38.29	152.93
165.00000	37.60	178.65

TD=84.0 EV ET=1.703441 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.72000	0.05	0.05
1.73000	0.09	0.09
1.77000	0.32	0.32
1.82000	0.72	0.72
1.89000	1.45	1.45
1.97000	2.48	2.48
2.07000	3.95	3.95
2.21000	6.20	6.20
2.38000	9.04	9.04
2.64000	13.25	13.25
2.98000	18.17	18.29
3.40000	23.19	23.83
3.91000	27.86	29.71
4.59000	32.25	36.43
5.45000	35.79	43.54
6.47000	38.25	50.53
7.66000	39.79	57.29
8.85000	40.56	62.99
10.20000	40.92	68.50
11.90000	41.01	74.42
14.40000	40.79	81.63
17.00000	40.41	87.82
25.50000	39.26	102.74
34.00000	38.44	113.17
51.10000	37.40	127.73
85.10000	36.46	145.83
170.00000	35.81	170.33

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN SN
Z=50 A=118.700

TD=88.0 EV ET=1.752808 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.77000	0.05	0.05
1.78000	0.09	0.09
1.82000	0.29	0.29
1.87000	0.65	0.65
1.94000	1.33	1.33
2.03000	2.40	2.40
2.13000	3.77	3.77
2.27000	5.87	5.87
2.45000	8.66	8.66
2.71000	12.58	12.59
3.06000	17.31	17.42
3.50000	22.20	22.83
4.03000	26.70	28.51
4.73000	30.87	34.93
5.60000	34.18	41.62
6.66000	36.55	48.38
7.88000	38.00	54.82
9.11000	38.72	60.28
10.50000	39.07	65.55
12.20000	39.14	71.05
14.80000	38.93	78.04
17.50000	38.56	84.01
26.20000	37.47	98.19
35.00000	36.68	108.21
52.50000	35.69	122.05
87.60000	34.80	139.39
175.00000	34.18	162.78

TD=92.0 EV ET=1.801121 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.81000	0.02	0.02
1.83000	0.08	0.08
1.87000	0.27	0.27
1.92000	0.61	0.61
1.99000	1.23	1.23
2.08000	2.22	2.22
2.19000	3.62	3.62
2.34000	5.72	5.72
2.52000	8.34	8.34
2.79000	12.14	12.14
3.15000	16.67	16.78
3.60000	21.32	21.93
4.14000	25.58	27.34
4.86000	29.57	33.50
5.76000	32.75	39.95
6.84000	34.98	46.37
8.10000	36.37	52.57
9.36000	37.05	57.78
10.80000	37.37	62.87
12.60000	37.43	68.28
15.30000	37.21	74.99
18.00000	36.87	80.53
27.00000	35.82	94.16
36.00000	35.07	103.69
54.00000	34.13	116.93
90.00000	33.28	133.48
180.00000	32.69	155.89

TD=96.0 EV ET=1.848445 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.86000	0.03	0.03
1.88000	0.09	0.09
1.92000	0.26	0.26
1.97000	0.57	0.57
2.05000	1.24	1.24
2.14000	2.18	2.18
2.25000	3.50	3.50
2.40000	5.47	5.47
2.58000	7.92	7.92
2.86000	11.62	11.62
3.23000	15.98	16.09
3.69000	20.44	21.03
4.25000	24.57	26.28
4.99000	28.39	32.20
5.91000	31.42	38.37
7.02000	33.55	44.54
8.31000	34.86	50.47
9.61000	35.51	55.50
11.00000	35.81	60.11
12.90000	35.87	65.48
15.70000	35.66	71.99
18.40000	35.33	77.18
27.70000	34.31	90.36
36.90000	33.60	99.46
55.40000	32.70	112.18
92.40000	31.88	128.07
184.00000	31.33	149.42

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN CS
Z=55 A=132.910

TD= 4.0 EV ET=0.202207 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.20400	13.41	13.41
0.20600	28.00	28.00
0.21000	56.14	56.14
0.21600	95.88	95.88
0.22400	144.78	144.78
0.23400	200.24	200.24
0.24600	259.79	259.79
0.26200	329.43	329.43
0.28300	407.41	407.41
0.31300	498.83	498.83
0.35300	594.43	594.43
0.40400	686.39	690.02
0.46500	767.05	784.14
0.54500	841.44	885.74
0.64700	904.14	992.20
0.76800	950.50	1097.13
0.90900	982.11	1200.34
1.05000	999.61	1289.58
1.21000	1009.36	1378.60
1.41000	1012.92	1476.43
1.71000	1009.06	1602.77
2.02000	999.99	1714.60
3.03000	965.28	1997.24
4.04000	936.39	2205.31
6.06000	899.29	2508.00
10.10000	861.13	2897.90
20.20000	827.61	3437.25
40.40000	812.37	3985.08
60.60000	806.73	4306.07
101.00000	800.06	4709.69
141.00000	795.53	4971.62
202.00000	790.70	5252.39

TD= 8.0 EV ET=0.358602 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.36200	3.87	3.87
0.36500	7.27	7.27
0.37200	15.16	15.16
0.38300	27.41	27.41
0.39800	43.78	43.78
0.41500	61.82	61.82
0.43700	84.32	84.32
0.46600	112.44	112.44
0.50200	144.86	144.86
0.55500	187.74	187.74
0.62700	237.53	237.61
0.71700	288.11	290.66
0.82400	334.92	344.67
0.96800	381.12	406.29
1.14000	418.93	468.23
1.36000	449.73	534.70
1.61000	470.30	598.22
1.86000	481.82	652.61
2.15000	488.62	707.38
2.51000	491.52	766.13
3.04000	490.27	839.15
3.58000	486.24	901.86
5.37000	469.81	1058.40
7.17000	456.80	1171.12
10.70000	440.64	1328.26
17.90000	423.83	1530.50
35.80000	410.61	1804.90
71.70000	404.55	2081.16
107.00000	401.94	2240.02
179.00000	398.51	2443.04
251.00000	396.21	2575.39
358.00000	393.93	2713.87

TD=12.0 EV ET=0.490874 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.49500	1.61	1.61
0.50000	3.60	3.60
0.51000	7.67	7.67
0.52500	13.98	13.98
0.54400	22.23	22.23
0.56900	33.32	33.32
0.59300	46.32	46.32
0.63300	64.08	64.08
0.68700	85.10	85.10
0.76000	114.21	114.21
0.85900	148.85	149.00
0.98100	184.16	186.26
1.12000	215.94	223.11
1.32000	249.57	268.41
1.57000	277.67	315.84
1.86000	297.99	361.85
2.20000	311.80	407.19
2.55000	319.46	446.88
2.94000	323.57	485.04
3.43000	325.08	526.24
4.17000	323.75	578.34
4.90000	320.81	621.32
7.36000	309.61	729.35
9.81000	301.36	805.75
14.70000	290.99	913.05
24.50000	280.66	1048.12
49.00000	272.90	1232.08
98.10000	269.21	1416.43
147.00000	267.46	1523.46
245.00000	265.17	1657.63
343.00000	263.66	1745.35
490.00000	262.18	1838.05

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN CS
Z=55 A=132.910

TD=16.0 EV ET=0.607613 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.61300	1.00	1.00
0.61900	2.16	2.16
0.63100	4.60	4.60
0.65000	8.75	8.75
0.67400	14.40	14.40
0.70400	21.88	21.88
0.74100	31.50	31.50
0.78900	44.19	44.19
0.85000	60.11	60.11
0.94100	82.54	82.54
1.06000	108.61	108.76
1.21000	136.00	137.77
1.39000	161.79	167.99
1.64000	187.76	203.77
1.94000	208.44	239.77
2.30000	223.74	275.92
2.73000	234.03	311.98
3.15000	239.28	341.85
3.64000	242.09	371.84
4.25000	242.87	403.75
5.16000	241.56	443.49
6.07000	239.14	476.59
9.11000	230.65	558.66
12.10000	224.68	615.87
18.20000	217.04	697.60
30.30000	209.70	799.13
60.70000	204.32	937.81
121.00000	201.69	1075.30
182.00000	200.37	1156.30

TD=20.0 EV ET=0.713271 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.72000	0.71	0.71
0.72700	1.49	1.49
0.74100	3.19	3.19
0.76300	6.15	6.15
0.79100	10.33	10.33
0.82700	16.21	16.21
0.87000	23.69	23.69
0.92700	33.94	33.94
0.99800	46.69	46.69
1.10000	64.19	64.19
1.24000	85.69	85.84
1.42000	108.69	110.30
1.64000	130.51	136.18
1.92000	150.53	164.28
2.28000	167.50	194.61
2.71000	179.71	224.73
3.20000	187.41	253.38
3.70000	191.44	278.14
4.27000	193.42	302.36
4.99000	193.83	328.46
6.06000	192.57	360.74
7.13000	190.50	387.54
10.60000	183.83	452.24
14.20000	178.99	499.67
21.30000	173.03	564.85
35.60000	167.33	646.91
71.30000	163.27	758.00
142.00000	161.23	867.88
213.00000	160.17	932.22

TD=24.0 EV ET=0.810507 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.81900	0.50	0.50
0.82500	1.07	1.07
0.84200	2.36	2.36
0.86700	4.65	4.65
0.89900	8.01	8.01
0.94000	12.80	12.80
0.98800	18.87	18.87
1.05000	27.07	27.07
1.13000	37.75	37.75
1.25000	53.11	53.11
1.41000	71.46	71.62
1.62000	91.41	92.96
1.86000	109.05	114.11
2.18000	125.99	138.21
2.59000	140.15	164.07
3.07000	150.05	189.24
3.64000	156.44	214.09
4.21000	159.60	235.06
4.86000	161.07	255.53
5.67000	161.25	277.28
6.88000	160.07	304.32
8.10000	158.26	326.90
12.10000	152.61	381.79
16.20000	148.64	421.39
24.30000	143.76	475.81
40.50000	139.18	543.94
81.00000	135.95	636.43
162.00000	134.27	728.57
243.00000	133.39	782.18

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN CS
Z=55 A=132.910

TD=28.0 EV ET=0.901064 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.91000	0.41	0.41
0.91900	0.86	0.86
0.93700	1.89	1.89
0.96400	3.71	3.71
1.00000	6.53	6.53
1.04000	10.07	10.07
1.09000	14.89	14.89
1.17000	23.08	23.08
1.26000	32.44	32.44
1.39000	45.45	45.45
1.57000	61.59	61.76
1.80000	78.64	80.09
2.07000	94.07	98.74
2.43000	108.74	119.95
2.88000	120.61	142.13
3.42000	129.04	164.23
4.05000	134.29	185.62
4.68000	136.85	203.67
5.40000	137.98	221.32
6.30000	138.03	240.10
7.65000	136.92	263.51
9.01000	135.32	283.02
13.50000	130.43	330.61
18.00000	127.10	364.16
27.00000	122.97	410.88
45.00000	119.13	469.35
90.10000	116.45	548.82
180.00000	115.04	627.68

TD=32.0 EV ET=0.986154 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.99600	0.32	0.32
1.00000	0.46	0.46
1.02000	1.28	1.28
1.05000	2.78	2.78
1.09000	5.19	5.19
1.14000	8.68	8.68
1.20000	13.33	13.33
1.28000	19.94	19.94
1.38000	28.34	28.34
1.52000	39.69	39.69
1.72000	54.20	54.37
1.97000	69.15	70.52
2.26000	82.52	86.78
2.66000	95.60	105.88
3.15000	105.88	125.43
3.74000	113.15	144.94
4.43000	117.64	163.86
5.12000	119.78	179.80
5.91000	120.68	195.38
6.90000	120.65	212.00
8.38000	119.61	232.59
9.86000	118.17	249.62
14.70000	113.94	290.88
19.70000	110.99	320.82
29.50000	107.43	361.58
49.30000	104.12	413.06
98.60000	101.84	482.52
197.00000	100.62	551.54

TD=36.0 EV ET=1.066660 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.07000	0.08	0.08
1.08000	0.33	0.33
1.10000	0.95	0.95
1.14000	2.54	2.54
1.18000	4.51	4.51
1.23000	7.35	7.35
1.30000	11.82	11.82
1.38000	17.29	17.29
1.49000	24.95	24.96
1.65000	35.73	35.73
1.86000	48.35	48.52
2.13000	61.74	63.02
2.45000	73.89	77.92
2.87000	85.19	94.59
3.41000	94.45	112.47
4.05000	100.82	129.99
4.79000	104.67	146.78
5.54000	106.50	161.10
6.39000	107.24	174.95
7.46000	107.15	189.78
9.06000	106.17	208.16
10.60000	104.92	222.81
15.90000	101.10	260.15
21.30000	98.50	286.76
31.90000	95.36	323.03
53.30000	92.47	368.81
106.00000	90.50	430.07
213.00000	89.41	491.94

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN CS
Z=55 A=132.910

TD=40.0 EV ET=1.143254 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.15000	0.12	0.12
1.16000	0.33	0.33
1.18000	0.83	0.83
1.22000	2.12	2.12
1.26000	3.73	3.73
1.32000	6.58	6.58
1.39000	10.34	10.34
1.48000	15.54	15.54
1.60000	22.64	22.64
1.77000	32.32	32.32
2.00000	44.01	44.19
2.28000	55.72	56.93
2.62000	66.65	70.37
3.08000	77.03	85.84
3.65000	85.20	101.81
4.34000	90.90	117.80
5.14000	94.31	133.11
5.94000	95.88	145.99
6.85000	96.48	158.49
8.00000	96.36	171.92
9.71000	95.44	188.46
11.40000	94.27	201.97
17.10000	90.83	235.63
22.80000	88.54	259.22
34.20000	85.72	292.02
57.10000	83.17	333.18
114.00000	81.42	388.65
228.00000	80.45	443.96

TD=44.0 EV ET=1.216454 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.22000	0.05	0.05
1.24000	0.39	0.39
1.26000	0.82	0.82
1.30000	1.92	1.92
1.35000	3.67	3.67
1.41000	6.14	6.14
1.48000	9.38	9.38
1.58000	14.35	14.35
1.70000	20.47	20.47
1.88000	29.32	29.32
2.12000	39.86	40.02
2.43000	51.02	52.19
2.79000	60.90	64.43
3.28000	70.32	78.60
3.89000	77.72	93.28
4.62000	82.79	107.79
5.47000	85.81	121.76
6.32000	87.19	133.50
7.29000	87.69	144.92
8.51000	87.54	157.13
10.30000	86.69	171.98
12.10000	85.61	184.33
18.20000	82.47	215.19
24.30000	80.39	236.76
36.40000	77.85	266.49
60.80000	75.56	303.96
121.00000	74.00	354.17
243.00000	73.12	404.75

TD=48.0 EV ET=1.286677 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.29000	0.04	0.04
1.31000	0.31	0.31
1.33000	0.66	0.66
1.37000	1.58	1.58
1.42000	3.04	3.04
1.49000	5.52	5.52
1.56000	8.32	8.32
1.67000	13.09	13.09
1.80000	18.87	18.87
1.99000	27.03	27.03
2.25000	36.95	37.13
2.57000	46.96	48.08
2.95000	56.02	59.36
3.47000	64.67	72.48
4.11000	71.37	85.90
4.88000	75.97	99.25
5.79000	78.73	112.27
6.69000	79.94	123.06
7.72000	80.37	133.59
9.00000	80.20	144.72
10.90000	79.40	158.40
12.80000	78.39	169.72
19.30000	75.49	198.21
25.70000	73.61	217.81
38.60000	71.29	245.26
64.30000	69.22	279.44
128.00000	67.82	325.50
257.00000	67.01	371.84

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN CS
Z=55 A=132.910

TD=52.0 EV ET=1.354258 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.36000	0.05	0.05
1.38000	0.29	0.29
1.40000	0.59	0.59
1.44000	1.38	1.38
1.50000	2.92	2.92
1.57000	5.11	5.11
1.65000	7.95	7.95
1.76000	12.16	12.16
1.89000	17.27	17.27
2.09000	24.87	24.87
2.36000	34.00	34.15
2.70000	43.40	44.45
3.11000	51.99	55.19
3.65000	59.85	67.20
4.33000	66.05	79.77
5.14000	70.23	92.12
6.09000	72.71	104.08
7.04000	73.80	114.11
8.12000	74.17	123.82
9.47000	73.99	134.14
11.50000	73.22	146.97
13.50000	72.28	157.40
20.30000	69.62	183.56
27.00000	67.90	201.59
40.60000	65.75	227.01
67.70000	63.87	258.64
135.00000	62.58	301.26
270.00000	61.85	343.81

TD=56.0 EV ET=1.419474 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.43000	0.09	0.09
1.44000	0.18	0.18
1.47000	0.57	0.57
1.51000	1.26	1.26
1.57000	2.62	2.62
1.64000	4.54	4.54
1.73000	7.38	7.38
1.84000	11.13	11.13
1.98000	16.04	16.04
2.20000	23.47	23.47
2.48000	31.87	32.03
2.83000	40.45	41.46
3.26000	48.44	51.50
3.83000	55.76	62.77
4.54000	61.46	74.44
5.39000	65.30	85.96
6.38000	67.56	97.03
7.38000	68.54	106.41
8.51000	68.86	115.43
9.93000	68.68	125.06
12.00000	67.96	136.69
14.10000	67.08	146.45
21.20000	64.61	170.76
28.30000	63.00	187.73
42.50000	61.02	211.27
70.90000	59.28	240.67
141.00000	58.11	280.10
283.00000	57.42	319.81

TD=60.0 EV ET=1.482558 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.49000	0.05	0.05
1.51000	0.22	0.22
1.54000	0.58	0.58
1.58000	1.21	1.21
1.64000	2.42	2.42
1.71000	4.14	4.14
1.80000	6.67	6.67
1.92000	10.34	10.34
2.07000	15.06	15.06
2.29000	21.75	21.75
2.59000	29.85	30.00
2.96000	37.97	38.96
3.40000	45.28	48.18
4.00000	52.17	58.84
4.74000	57.45	69.75
5.63000	61.02	80.56
6.67000	63.09	90.98
7.70000	63.98	99.63
8.89000	64.26	108.13
10.30000	64.09	116.73
12.60000	63.36	128.30
14.80000	62.54	137.39
22.20000	60.25	159.97
29.60000	58.75	175.74
44.40000	56.92	197.66
74.10000	55.31	225.13
148.00000	54.22	262.17
296.00000	53.58	299.04

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN CS
Z=55 A=132.910

TD=64.0 EV ET=1.543706 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.55000	0.04	0.04
1.57000	0.18	0.18
1.60000	0.48	0.48
1.65000	1.19	1.19
1.71000	2.29	2.29
1.79000	4.09	4.09
1.88000	6.40	6.40
2.00000	9.73	9.73
2.16000	14.29	14.29
2.39000	20.60	20.61
2.70000	28.15	28.31
3.08000	35.68	36.62
3.55000	42.70	45.52
4.16000	48.98	55.31
4.93000	53.92	65.58
5.86000	57.26	75.79
6.94000	59.17	85.55
8.02000	59.99	93.74
9.26000	60.23	101.73
10.80000	60.04	110.16
13.10000	59.37	120.56
15.40000	58.59	129.13
23.10000	56.44	150.32
30.80000	55.04	165.11
46.30000	53.33	185.77
77.10000	51.83	211.42
154.00000	50.82	246.15
308.00000	50.23	280.72

TD=68.0 EV ET=1.603086 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.61000	0.03	0.03
1.63000	0.16	0.16
1.66000	0.43	0.43
1.71000	1.05	1.05
1.77000	2.04	2.04
1.85000	3.64	3.64
1.95000	5.96	5.96
2.08000	9.24	9.24
2.24000	13.40	13.40
2.48000	19.41	19.41
2.80000	26.50	26.66
3.20000	33.71	34.63
3.68000	40.22	42.90
4.32000	46.20	52.25
5.12000	50.83	61.95
6.09000	53.95	71.62
7.21000	55.72	80.81
8.33000	56.47	88.51
9.61000	56.68	96.00
11.20000	56.49	103.90
13.60000	55.85	113.76
16.00000	55.11	121.88
24.00000	53.09	141.82
32.00000	51.77	155.75
48.00000	50.17	175.10
80.10000	48.77	199.34
160.00000	47.82	232.04
320.00000	47.27	264.57

TD=72.0 EV ET=1.660843 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.67000	0.04	0.04
1.69000	0.16	0.16
1.72000	0.40	0.40
1.77000	0.96	0.96
1.84000	2.01	2.01
1.92000	3.49	3.49
2.02000	5.62	5.62
2.15000	8.62	8.62
2.32000	12.67	12.67
2.57000	18.40	18.40
2.90000	25.09	25.24
3.32000	32.00	32.90
3.81000	38.05	40.62
4.48000	43.75	49.57
5.31000	48.09	58.75
6.31000	51.00	67.86
7.47000	52.65	76.55
8.63000	53.34	83.83
9.96000	53.52	90.94
11.60000	53.34	98.38
14.10000	52.72	107.74
16.60000	52.01	115.44
24.90000	50.10	134.29
33.20000	48.86	147.45
49.80000	47.36	165.73
83.00000	46.05	188.57
166.00000	45.16	219.51
332.00000	44.64	250.23

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN CS
Z=55 A=132.910

TD=76.0 EV ET=1.717104 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.73000	0.05	0.05
1.75000	0.16	0.16
1.78000	0.38	0.38
1.83000	0.90	0.90
1.90000	1.86	1.86
1.99000	3.39	3.39
2.09000	5.35	5.35
2.23000	8.34	8.34
2.40000	12.06	12.06
2.66000	17.54	17.54
3.00000	23.87	24.02
3.43000	30.36	31.23
3.94000	36.14	38.62
4.63000	41.51	47.09
5.49000	45.62	55.84
6.52000	48.34	64.45
7.72000	49.89	72.71
8.92000	50.53	79.62
10.30000	50.70	86.38
12.00000	50.51	93.45
14.50000	49.94	102.06
17.10000	49.26	109.44
25.70000	47.45	127.40
34.30000	46.27	139.91
51.50000	44.84	157.27
85.80000	43.61	178.90
171.00000	42.78	208.07

TD=80.0 EV ET=1.771978 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.78000	0.03	0.03
1.80000	0.12	0.12
1.84000	0.38	0.38
1.89000	0.86	0.86
1.96000	1.75	1.75
2.05000	3.16	3.16
2.16000	5.15	5.15
2.30000	7.91	7.91
2.48000	11.55	11.55
2.74000	16.62	16.62
3.10000	22.81	22.96
3.54000	28.92	29.77
4.07000	34.45	36.86
4.78000	39.51	44.89
5.67000	43.40	53.24
6.73000	45.96	61.40
7.97000	47.42	69.27
9.21000	48.01	75.85
10.60000	48.16	82.14
12.40000	47.97	89.04
15.00000	47.42	97.27
17.70000	46.76	104.31
26.50000	45.06	121.21
35.40000	43.94	133.14
53.10000	42.59	149.59
88.50000	41.42	170.16
177.00000	40.64	198.01

TD=84.0 EV ET=1.825564 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.84000	0.05	0.05
1.86000	0.13	0.13
1.89000	0.32	0.32
1.95000	0.84	0.84
2.02000	1.66	1.66
2.11000	2.97	2.97
2.22000	4.81	4.81
2.37000	7.55	7.55
2.55000	10.93	10.93
2.82000	15.82	15.82
3.19000	21.73	21.87
3.65000	27.65	28.47
4.19000	32.85	35.17
4.92000	37.67	42.83
5.84000	41.38	50.83
6.93000	43.80	58.61
8.21000	45.17	66.13
9.49000	45.73	72.41
10.90000	45.86	78.32
12.70000	45.69	84.73
15.50000	45.13	92.94
18.20000	44.52	99.45
27.30000	42.89	115.63
36.50000	41.82	127.03
54.70000	40.55	142.66
91.20000	39.44	162.27
182.00000	38.70	188.71

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN CS
Z=55 A=132.910

TD=88.0 EV ET=1.877949 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.89000	0.03	0.03
1.91000	0.11	0.11
1.95000	0.34	0.34
2.00000	0.74	0.74
2.08000	1.61	1.61
2.17000	2.82	2.82
2.29000	4.70	4.70
2.44000	7.25	7.25
2.62000	10.41	10.41
2.91000	15.29	15.29
3.28000	20.77	20.91
3.75000	26.40	27.19
4.31000	31.42	33.66
5.07000	36.05	41.07
6.00000	39.52	48.58
7.13000	41.84	56.08
8.45000	43.14	63.29
9.76000	43.65	69.26
11.20000	43.77	74.87
13.10000	43.60	81.15
15.90000	43.07	88.77
18.70000	42.49	95.05
28.10000	40.92	110.57
37.50000	39.91	121.38
56.30000	38.69	136.38
93.80000	37.64	155.07
187.00000	36.94	180.27

TD=92.0 EV ET=1.929209 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.94000	0.03	0.03
1.96000	0.09	0.09
2.00000	0.30	0.30
2.06000	0.75	0.75
2.14000	1.57	1.57
2.23000	2.71	2.71
2.35000	4.46	4.46
2.50000	6.84	6.84
2.70000	10.11	10.11
2.99000	14.67	14.67
3.37000	19.92	20.06
3.85000	25.29	26.05
4.43000	30.12	32.30
5.20000	34.49	39.31
6.17000	37.85	46.62
7.33000	40.05	53.80
8.68000	41.27	60.66
10.00000	41.75	66.28
11.50000	41.86	71.73
13.50000	41.68	77.88
16.30000	41.19	84.98
19.20000	40.62	91.05
28.90000	39.12	105.96
38.50000	38.16	116.24
57.80000	37.00	130.58
96.40000	36.00	148.50
192.00000	35.33	172.58

TD=96.0 EV ET=1.979414 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.99000	0.02	0.02
2.01000	0.08	0.08
2.05000	0.27	0.27
2.11000	0.68	0.68
2.19000	1.44	1.44
2.29000	2.62	2.62
2.41000	4.26	4.26
2.57000	6.64	6.64
2.77000	9.71	9.71
3.06000	13.98	13.98
3.46000	19.17	19.30
3.95000	24.28	25.03
4.55000	28.95	31.08
5.34000	33.12	37.80
6.33000	36.31	44.78
7.52000	38.40	51.66
8.90000	39.56	58.22
10.20000	40.00	63.42
11.80000	40.12	68.87
13.80000	39.95	74.63
16.30000	39.45	81.73
19.70000	38.92	87.39
29.60000	37.48	101.62
39.50000	36.56	111.53
59.30000	35.45	125.28
98.90000	34.49	142.45
197.00000	33.85	165.53

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ND
Z=60 A=144.270

TD= 4.0 EV ET=0.216889 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.21900	16.47	16.47
0.22100	31.72	31.72
0.22500	61.25	61.25
0.23200	110.04	110.04
0.24000	161.76	161.76
0.25100	226.80	226.80
0.26400	295.95	295.95
0.28100	375.93	375.93
0.30300	465.26	465.26
0.33600	576.13	576.13
0.37900	689.97	689.97
0.43300	798.34	802.86
0.49800	893.98	914.61
0.58500	982.76	1037.00
0.69400	1054.31	1162.08
0.82400	1105.26	1285.10
0.97600	1137.53	1405.50
1.12000	1152.48	1503.71
1.30000	1158.99	1610.88
1.51000	1157.25	1720.01
1.84000	1145.08	1866.52
2.16000	1129.27	1987.67
3.25000	1077.17	2305.79
4.33000	1038.49	2536.13
6.50000	991.44	2871.51
10.80000	945.59	3298.18
21.60000	907.03	3890.83
43.30000	889.94	4493.83
65.00000	883.05	4845.79
108.00000	874.41	5283.91
151.00000	868.45	5570.69
216.00000	862.39	5875.30

TD= 8.0 EV ET=0.382602 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.38600	4.08	4.08
0.39000	8.88	8.88
0.39700	17.28	17.28
0.40900	31.64	31.64
0.42400	49.43	49.43
0.44300	71.61	71.61
0.46600	97.73	97.73
0.49700	131.42	131.42
0.53500	170.05	170.05
0.59300	223.15	223.15
0.66900	282.49	282.62
0.76500	343.01	346.26
0.87900	398.18	410.42
1.03000	450.76	481.90
1.22000	494.43	556.69
1.45000	526.36	631.81
1.72000	546.76	705.35
1.98000	556.42	765.59
2.29000	560.84	827.67
2.67000	560.60	893.08
3.25000	554.87	976.79
3.82000	547.23	1045.73
5.73000	522.67	1218.97
7.65000	505.40	1343.29
11.40000	485.19	1515.55
19.10000	465.01	1738.27
38.20000	450.01	2039.43
76.50000	443.05	2342.07
114.00000	439.74	2515.12
191.00000	435.22	2737.23
267.00000	432.30	2880.11
382.00000	429.51	3032.33

TD=12.0 EV ET=0.522066 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.52700	2.04	2.04
0.53200	4.17	4.17
0.54200	8.55	8.55
0.55300	15.90	15.90
0.57900	25.99	25.99
0.60500	38.93	38.93
0.53500	54.66	54.66
0.57300	75.91	75.91
0.73000	101.44	101.44
0.80900	137.44	137.44
0.91300	178.77	178.97
1.04000	220.17	222.76
1.20000	260.32	269.94
1.40000	296.28	319.77
1.67000	327.80	375.67
1.98000	349.02	428.69
2.34000	362.14	479.98
2.71000	368.40	524.51
3.13000	370.72	567.83
3.65000	369.94	613.74
4.43000	365.65	671.19
5.22000	360.20	719.61
7.83000	343.89	838.40
10.40000	333.18	921.50
15.60000	320.22	1039.67
26.10000	307.85	1188.98
52.20000	299.09	1390.80
104.00000	294.79	1591.25
156.00000	292.53	1708.50
261.00000	289.50	1855.83
365.00000	287.60	1951.15
522.00000	285.84	2052.50

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ND
Z=60 A=144.270

TD=16.0 EV ET=0.644823 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.65100	1.22	1.22
0.65700	2.47	2.47
0.67000	5.35	5.35
0.68900	9.93	9.93
0.71500	16.79	16.79
0.74700	25.85	25.85
0.78500	37.46	37.46
0.83800	53.28	53.28
0.90200	72.51	72.51
0.99900	99.95	99.95
1.12000	130.21	130.40
1.28000	163.20	165.41
1.48000	194.72	202.82
1.74000	223.49	243.71
2.06000	246.13	285.49
2.45000	262.08	327.55
2.90000	271.47	367.72
3.35000	275.61	401.57
3.86000	276.91	434.45
4.51000	275.93	470.15
5.48000	272.35	514.41
6.44000	268.16	550.76
9.67000	255.96	641.30
12.80000	248.27	703.46
19.30000	238.73	793.72
32.20000	230.01	905.54
64.40000	223.94	1057.30
128.00000	220.83	1207.17
193.00000	219.10	1296.18

TD=20.0 EV ET=0.755739 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.76300	0.82	0.82
0.77000	1.66	1.66
0.78500	3.65	3.65
0.80800	7.10	7.10
0.83800	12.18	12.18
0.87600	19.29	19.29
0.92200	28.52	28.52
0.98200	41.00	41.00
1.05000	55.15	55.15
1.17000	78.86	78.86
1.32000	104.95	105.19
1.51000	131.98	134.15
1.73000	155.94	162.97
2.04000	179.60	197.22
2.41000	197.42	231.09
2.87000	210.03	265.80
3.40000	217.22	298.78
3.92000	220.19	326.01
4.53000	220.97	353.30
5.29000	219.93	382.17
6.42000	216.89	417.80
7.55000	213.42	447.30
11.30000	203.77	519.74
15.10000	197.56	571.42
22.60000	190.25	642.53
37.70000	183.54	732.18
75.50000	178.95	854.00
151.00000	176.49	975.00
226.00000	175.12	1044.88

TD=24.0 EV ET=0.857696 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.86500	0.59	0.59
0.87400	1.22	1.22
0.89200	2.81	2.81
0.91700	5.40	5.40
0.95200	9.59	9.59
0.99400	15.27	15.27
1.04000	21.99	21.99
1.11000	32.73	32.73
1.20000	46.64	46.64
1.32000	64.35	64.35
1.50000	87.81	88.06
1.71000	110.11	112.06
1.97000	131.07	137.57
2.31000	150.15	165.68
2.74000	165.24	195.11
3.25000	175.28	223.85
3.85000	181.05	251.72
4.45000	183.38	275.48
5.14000	183.81	298.02
6.00000	182.79	322.26
7.29000	180.11	352.36
8.57000	177.16	377.05
12.80000	169.20	437.42
17.10000	164.10	480.60
25.70000	158.06	540.59
42.80000	152.67	615.18
85.70000	149.00	716.78
171.00000	146.98	817.27
257.00000	145.82	876.08

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ND
Z=60 A=144.270

TD=28.0 EV ET=0.952568 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.96200	0.46	0.46
0.97100	0.95	0.95
0.99000	2.16	2.16
1.01000	3.64	3.64
1.05000	7.12	7.12
1.10000	12.20	12.20
1.16000	18.97	18.97
1.23000	27.33	27.33
1.33000	39.42	39.42
1.47000	55.58	55.58
1.66000	74.98	75.21
1.90000	94.92	96.76
2.19000	113.06	119.04
2.57000	129.45	143.61
3.04000	142.04	168.77
3.61000	150.53	193.87
4.28000	155.29	218.12
4.95000	157.10	238.43
5.71000	157.33	258.04
6.66000	156.36	278.84
8.09000	153.98	304.77
9.52000	151.39	326.15
14.20000	144.62	377.93
19.00000	140.28	415.22
28.50000	135.20	466.47
47.60000	130.67	530.84
95.20000	127.64	617.84
190.00000	125.92	704.00

TD=32.0 EV ET=1.041653 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.05000	0.29	0.29
1.06000	0.68	0.68
1.08000	1.62	1.62
1.11000	3.34	3.34
1.15000	6.12	6.12
1.20000	10.15	10.15
1.27000	16.48	16.48
1.35000	24.20	24.20
1.45000	33.98	33.98
1.61000	48.95	48.95
1.82000	66.26	66.49
2.08000	83.63	85.38
2.39000	99.22	104.69
2.81000	113.74	126.70
3.33000	124.75	149.18
3.95000	131.96	171.19
4.68000	135.94	192.50
5.41000	137.40	210.34
6.24000	137.51	227.57
7.29000	136.57	246.07
8.85000	134.43	268.77
10.40000	132.15	287.39
15.60000	126.17	333.46
20.80000	122.47	365.75
31.20000	118.08	410.64
52.00000	114.21	466.78
104.00000	111.63	542.94
208.00000	110.13	618.56

TD=36.0 EV ET=1.125897 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.13000	0.10	0.10
1.14000	0.38	0.38
1.17000	1.46	1.46
1.20000	2.85	2.85
1.24000	5.08	5.08
1.30000	9.05	9.05
1.37000	14.28	14.28
1.46000	21.47	21.47
1.57000	30.41	30.41
1.74000	43.62	43.62
1.97000	59.34	59.59
2.25000	74.80	76.47
2.58000	88.50	93.55
3.03000	101.32	113.17
3.60000	111.20	133.63
4.27000	117.48	153.33
5.06000	120.90	172.41
5.85000	122.10	188.36
6.75000	122.12	203.79
7.88000	121.23	220.22
9.57000	119.27	240.51
11.20000	117.28	256.67
16.80000	111.98	297.72
22.50000	108.66	326.91
33.70000	104.81	366.69
56.20000	101.43	416.69
112.00000	99.19	484.07
225.00000	97.86	551.72

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ND
Z=60 A=144.270

TD=40.0 EV ET=1.206013 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.21000	0.08	0.08
1.23000	0.54	0.54
1.25000	1.14	1.14
1.29000	2.66	2.66
1.33000	4.55	4.55
1.39000	7.88	7.88
1.47000	12.92	12.92
1.56000	19.01	19.01
1.68000	27.28	27.28
1.86000	39.16	39.16
2.11000	53.65	53.89
2.41000	67.64	69.23
2.77000	80.19	85.00
3.25000	91.59	102.68
3.85000	100.25	120.90
4.58000	105.90	139.05
5.42000	108.85	156.16
6.27000	109.86	170.64
7.23000	109.82	184.51
8.44000	108.97	199.34
10.20000	107.22	217.19
12.00000	105.36	232.26
18.00000	100.61	269.27
24.10000	97.65	295.53
36.10000	94.21	331.37
60.30000	91.21	376.54
120.00000	89.24	437.07
241.00000	88.05	497.93

TD=44.0 EV ET=1.282554 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.29000	0.12	0.12
1.30000	0.30	0.30
1.33000	1.00	1.00
1.37000	2.28	2.28
1.42000	4.30	4.30
1.48000	7.17	7.17
1.56000	11.49	11.49
1.66000	17.31	17.31
1.79000	25.04	25.04
1.98000	35.83	35.83
2.24000	48.81	49.04
2.56000	61.66	63.16
2.94000	73.04	77.52
3.46000	83.58	94.01
4.10000	91.38	110.70
4.87000	96.38	127.13
5.77000	99.00	142.86
6.66000	99.85	155.86
7.69000	99.77	168.63
8.97000	98.97	182.08
10.90000	97.30	198.80
12.80000	95.61	212.37
19.20000	91.31	246.06
25.60000	88.67	269.61
38.40000	85.55	302.32
64.10000	82.87	343.35
128.00000	81.10	398.67
256.00000	80.02	453.66

TD=48.0 EV ET=1.355959 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.36000	0.05	0.05
1.38000	0.35	0.35
1.41000	0.98	0.98
1.45000	2.09	2.09
1.50000	3.83	3.83
1.57000	6.75	6.75
1.65000	10.53	10.53
1.75000	16.13	16.13
1.89000	22.87	22.87
2.10000	33.28	33.28
2.37000	45.01	45.24
2.71000	56.87	58.32
3.11000	67.24	71.49
3.66000	76.86	86.69
4.33000	83.89	101.92
5.15000	88.45	117.15
6.10000	90.78	131.60
7.05000	91.51	143.66
8.13000	91.40	155.29
9.49000	90.63	167.70
11.50000	89.10	182.84
13.50000	87.55	195.27
20.30000	83.59	226.38
27.10000	81.18	248.08
40.60000	78.35	277.98
67.70000	75.93	315.53
135.00000	74.33	366.14
271.00000	73.33	416.82

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ND
Z=60 A=144.270

TD=52.0 EV ET=1.426586 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.44000	0.15	0.15
1.45000	0.28	0.28
1.48000	0.80	0.80
1.52000	1.73	1.73
1.58000	3.55	3.55
1.65000	6.12	6.12
1.74000	9.87	9.87
1.85000	14.82	14.82
1.99000	21.23	21.23
2.21000	30.86	30.86
2.49000	41.60	41.81
2.85000	52.67	54.05
3.28000	62.43	66.53
3.85000	71.13	80.40
4.56000	77.60	94.61
5.42000	81.73	108.67
6.41000	83.81	121.92
7.41000	84.46	133.10
8.55000	84.32	143.91
9.98000	83.59	155.38
12.10000	82.16	169.41
14.20000	80.72	180.88
21.30000	77.10	209.45
28.50000	74.86	229.65
42.70000	72.27	257.27
71.30000	70.05	292.03
142.00000	68.59	338.68
285.00000	67.68	385.44

TD=56.0 EV ET=1.494727 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.50000	0.04	0.04
1.52000	0.26	0.26
1.55000	0.71	0.71
1.59000	1.52	1.52
1.65000	3.10	3.10
1.73000	5.69	5.69
1.82000	9.03	9.03
1.94000	13.84	13.84
2.09000	19.97	19.97
2.31000	28.56	28.56
2.61000	38.81	39.02
2.98000	48.94	50.24
3.43000	58.04	61.90
4.03000	66.16	74.91
4.78000	72.19	88.27
5.67000	75.93	101.21
6.72000	77.85	113.71
7.77000	78.41	124.12
8.96000	78.26	134.13
10.40000	77.60	144.42
12.70000	76.20	157.96
14.90000	74.87	168.59
22.40000	71.50	195.29
29.80000	69.47	213.68
44.80000	67.05	239.55
74.70000	65.02	271.76
149.00000	63.68	315.17
298.00000	62.84	358.38

TD=60.0 EV ET=1.560628 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.57000	0.07	0.07
1.59000	0.26	0.26
1.62000	0.67	0.67
1.66000	1.39	1.39
1.73000	3.05	3.05
1.81000	5.40	5.40
1.90000	8.41	8.41
2.02000	12.73	12.73
2.18000	18.61	18.61
2.41000	26.68	26.69
2.73000	36.49	36.71
3.12000	46.01	47.30
3.58000	54.30	57.98
4.21000	61.91	70.25
4.99000	67.47	82.70
5.93000	70.95	94.94
7.02000	72.68	106.55
8.11000	73.17	116.23
9.36000	73.01	125.64
10.90000	72.35	135.47
13.20000	71.10	147.59
15.60000	69.79	157.97
23.40000	66.67	182.78
31.20000	64.77	200.08
46.80000	62.54	224.10
78.00000	60.66	254.14
156.00000	59.42	294.82
312.00000	58.64	335.14

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ND
Z=60 A=144.270

TD=64.0 EV ET=1.624496 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.64000	0.10	0.10
1.65000	0.19	0.19
1.68000	0.53	0.53
1.73000	1.32	1.32
1.80000	2.82	2.82
1.88000	4.93	4.93
1.98000	7.95	7.95
2.11000	12.20	12.20
2.27000	17.52	17.52
2.51000	25.14	25.14
2.84000	34.29	34.50
3.24000	43.13	44.34
3.73000	51.09	54.64
4.38000	58.13	66.07
5.19000	63.31	77.76
6.17000	66.55	89.29
7.31000	68.15	100.24
8.44000	68.59	109.30
9.74000	68.42	118.13
11.30000	67.81	127.13
13.80000	66.57	139.00
15.20000	65.39	148.35
24.30000	62.47	171.62
32.40000	60.69	187.85
48.70000	58.60	210.49
81.20000	56.85	238.68
162.00000	55.70	276.69
324.00000	54.96	314.49

TD=68.0 EV ET=1.686509 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.70000	0.08	0.08
1.72000	0.23	0.23
1.75000	0.55	0.55
1.80000	1.29	1.29
1.87000	2.67	2.67
1.95000	4.59	4.59
2.05000	7.32	7.32
2.19000	11.48	11.48
2.36000	16.63	16.63
2.61000	23.86	23.86
2.95000	32.41	32.62
3.37000	40.82	42.01
3.87000	48.18	51.57
4.55000	54.84	62.44
5.39000	59.67	73.45
6.40000	62.67	84.25
7.58000	64.15	94.56
8.76000	64.55	103.15
10.10000	64.37	111.42
11.80000	63.76	120.29
14.30000	62.62	131.04
16.80000	61.50	139.90
25.20000	58.76	161.81
33.70000	57.07	177.25
50.50000	55.13	198.40
84.30000	53.49	225.00
168.00000	52.42	260.72
337.00000	51.72	296.45

TD=72.0 EV ET=1.746819 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.76000	0.06	0.06
1.78000	0.20	0.20
1.81000	0.48	0.48
1.86000	1.14	1.14
1.93000	2.37	2.37
2.02000	4.33	4.33
2.13000	7.10	7.10
2.27000	10.91	10.91
2.44000	15.63	15.63
2.70000	22.52	22.52
3.05000	30.59	30.79
3.49000	38.65	39.80
4.01000	45.62	48.89
4.71000	51.86	59.12
5.58000	56.41	69.55
6.63000	59.23	79.81
7.86000	60.60	89.62
9.09000	60.95	97.72
10.40000	60.79	105.18
12.20000	60.20	113.79
14.80000	59.11	124.01
17.40000	58.05	132.41
26.20000	55.44	153.31
34.90000	53.87	167.70
52.40000	52.03	187.78
87.30000	50.50	212.80
174.00000	49.50	246.55
349.00000	48.84	280.29

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ND
Z=60 A=144.270

TD=76.0 EV ET=1.805559 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.82000	0.06	0.06
1.84000	0.19	0.19
1.87000	0.44	0.44
1.93000	1.17	1.17
2.00000	2.32	2.32
2.09000	4.14	4.14
2.20000	6.69	6.69
2.34000	10.19	10.19
2.52000	14.80	14.80
2.79000	21.38	21.38
3.15000	29.02	29.21
3.61000	36.75	37.87
4.15000	43.37	46.54
4.87000	49.22	56.20
5.77000	53.50	66.11
6.86000	56.15	75.88
8.12000	57.42	85.10
9.38000	57.74	92.78
10.80000	57.56	100.12
12.60000	57.00	108.00
15.30000	55.96	117.74
18.00000	54.95	125.73
27.00000	52.50	145.36
36.10000	51.00	159.17
54.10000	49.28	178.11
90.20000	47.83	201.86
180.00000	46.89	233.89

TD=80.0 EV ET=1.862847 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.88000	0.07	0.07
1.90000	0.18	0.18
1.93000	0.42	0.42
1.99000	1.09	1.09
2.06000	2.14	2.14
2.16000	4.00	4.00
2.27000	6.36	6.36
2.42000	9.84	9.84
2.60000	14.09	14.09
2.88000	20.40	20.40
3.25000	27.65	27.83
3.72000	34.94	36.01
4.28000	41.27	44.32
5.02000	46.80	53.49
5.96000	50.90	63.03
7.07000	53.36	72.21
8.38000	54.56	81.05
9.68000	54.85	88.35
11.10000	54.68	95.13
13.00000	54.13	102.82
15.80000	53.13	112.11
18.60000	52.16	119.74
27.90000	49.84	138.40
37.20000	48.43	151.39
55.80000	46.80	169.43
93.10000	45.43	192.02
186.00000	44.54	222.50

TD=84.0 EV ET=1.918784 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.93000	0.04	0.04
1.95000	0.13	0.13
1.98000	0.41	0.41
2.05000	1.03	1.03
2.12000	2.00	2.00
2.22000	3.72	3.72
2.34000	6.10	6.10
2.49000	9.33	9.33
2.68000	13.50	13.50
2.97000	19.55	19.55
3.35000	26.44	26.62
3.83000	33.33	34.37
4.41000	39.39	42.34
5.13000	44.68	51.17
6.14000	48.52	60.19
7.29000	50.85	68.98
8.63000	51.96	77.35
9.97000	52.23	84.32
11.50000	52.05	91.06
13.40000	51.53	98.14
16.30000	50.57	107.04
19.10000	49.67	114.10
28.70000	47.45	131.95
38.30000	46.11	144.37
57.50000	44.55	161.59
95.90000	43.26	183.09
191.00000	42.41	211.99

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ND
Z=60 A=144.270

TD=88.0 EV ET=1.973462 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.99000	0.05	0.05
2.01000	0.14	0.14
2.05000	0.41	0.41
2.11000	1.00	1.00
2.19000	2.04	2.04
2.28000	3.49	3.49
2.40000	5.70	5.70
2.56000	8.90	8.90
2.76000	12.99	12.99
3.05000	18.62	18.63
3.45000	25.37	25.55
3.94000	31.89	32.91
4.53000	37.62	40.45
5.32000	42.67	48.90
6.31000	46.34	57.55
7.49000	48.55	65.95
8.88000	49.61	74.01
10.20000	49.85	80.41
11.80000	49.67	86.98
13.80000	49.16	93.91
16.70000	48.26	102.18
19.70000	47.37	109.21
29.60000	45.26	126.25
39.40000	43.99	138.00
59.20000	42.51	154.47
98.60000	41.28	174.95
197.00000	40.48	202.66

TD=92.0 EV ET=2.026962 MEV

ENERGY(MEV)	PRIMARY	CASCADE
2.04000	0.04	0.04
2.06000	0.11	0.11
2.10000	0.35	0.35
2.16000	0.87	0.87
2.24000	1.82	1.82
2.35000	3.47	3.47
2.47000	5.55	5.55
2.63000	8.54	8.54
2.83000	12.36	12.36
3.14000	17.98	17.99
3.54000	24.27	24.45
4.05000	30.61	31.60
4.66000	36.10	38.87
5.47000	40.89	46.93
6.48000	44.36	55.16
7.70000	46.47	63.25
9.12000	47.46	70.93
10.50000	47.68	77.15
12.10000	47.51	83.28
14.10000	47.03	89.76
17.20000	46.13	98.00
20.20000	45.30	104.55
30.40000	43.27	120.92
40.50000	42.06	132.19
60.80000	40.65	147.92
101.00000	39.49	167.41
202.00000	38.72	193.95

TD=96.0 EV ET=2.079358 MEV

ENERGY(MEV)	PRIMARY	CASCADE
2.10000	0.06	0.06
2.12000	0.14	0.14
2.16000	0.37	0.37
2.22000	0.87	0.87
2.30000	1.77	1.77
2.41000	3.31	3.31
2.53000	5.26	5.26
2.70000	8.24	8.24
2.91000	11.99	11.99
3.22000	17.26	17.26
3.63000	23.29	23.47
4.15000	29.34	30.30
4.78000	34.65	37.33
5.61000	39.23	45.06
6.65000	42.55	52.99
7.90000	44.55	60.74
9.35000	45.48	68.07
10.80000	45.69	74.18
12.40000	45.52	79.90
14.50000	45.04	86.25
17.60000	44.20	93.96
20.70000	43.40	100.30
31.10000	41.46	115.93
41.50000	40.30	126.79
62.30000	38.94	141.86
103.00000	37.84	160.37
207.00000	37.10	185.99

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN TB
Z=65 A=158.930

TD= 4.0 EV	ET=0.235409 MEV		TD= 8.0 EV	ET=0.412651 MEV		TD=12.0 EV	ET=0.560978 MEV	
ENERGY(MEV)	PRIMARY	CASCADE	ENERGY(MEV)	PRIMARY	CASCADE	ENERGY(MEV)	PRIMARY	CASCADE
0.23700	12.45	12.45	0.41600	4.06	4.06	0.56500	2.11	2.11
0.24000	35.41	35.41	0.42000	8.93	8.93	0.57200	4.73	4.73
0.24400	65.07	65.07	0.42900	19.99	19.99	0.58300	9.75	9.75
0.25100	114.53	114.53	0.44100	34.86	34.86	0.60000	18.00	18.00
0.26100	180.33	180.33	0.45800	56.04	56.04	0.62200	29.34	29.34
0.27300	252.70	252.70	0.47800	80.86	80.86	0.65000	44.49	44.49
0.28700	329.38	329.38	0.50300	111.37	111.37	0.68400	63.42	53.42
0.30600	422.20	422.20	0.53600	150.27	150.27	0.72300	88.58	88.58
0.32900	520.24	520.24	0.57700	195.79	195.79	0.78500	119.01	119.01
0.36400	645.53	645.53	0.63900	257.96	257.96	0.86900	161.31	161.31
0.41100	779.21	779.21	0.72200	328.68	328.87	0.98100	210.12	210.40
0.47000	906.31	911.95	0.82500	398.75	402.84	1.12000	258.95	262.34
0.54100	1017.54	1042.57	0.94900	462.33	477.65	1.29000	303.89	315.99
0.63500	1117.99	1183.20	1.11000	520.18	558.48	1.51000	344.17	373.87
0.75300	1196.62	1326.18	1.32000	567.76	645.05	1.79000	376.03	434.45
0.89400	1249.59	1465.89	1.56000	598.55	726.32	2.13000	397.17	494.60
1.05000	1278.61	1594.75	1.85000	616.76	807.70	2.52000	408.32	551.37
1.22000	1290.55	1714.49	2.14000	623.58	876.20	2.91000	412.05	599.04
1.41000	1290.65	1830.09	2.47000	624.10	943.10	3.36000	411.65	646.04
1.64000	1281.37	1951.69	2.88000	619.46	1014.20	3.92000	407.85	695.77
2.00000	1258.46	2113.01	3.50000	608.23	1104.04	4.76000	399.87	757.78
2.35000	1233.93	2246.03	4.12000	596.20	1179.01	5.60000	391.69	809.24
3.53000	1163.10	2589.34	6.18000	562.94	1364.91	8.41000	369.93	936.72
4.70000	1114.80	2836.95	8.25000	541.61	1497.98	11.20000	356.71	1026.35
7.06000	1058.87	3197.68	12.30000	517.78	1682.18	16.80000	341.54	1152.36
11.70000	1006.86	3651.63	20.60000	495.01	1919.54	28.00000	327.77	1310.30
23.50000	964.91	4288.38	41.20000	478.94	2240.71	56.00000	318.36	1525.43
47.00000	946.77	4928.82	82.50000	471.21	2562.67	112.00000	313.45	1739.78
70.60000	938.54	5303.37	123.00000	467.11	2746.54	168.00000	310.63	1864.12
117.00000	927.72	5765.39	206.00000	461.45	2981.55	280.00000	306.88	2018.98
164.00000	920.33	6071.16	288.00000	457.96	3132.79	392.00000	304.64	2120.13
235.00000	913.24	6395.11	412.00000	454.88	3293.99	560.00000	302.78	2227.21

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN TB
Z=65 A=158.930

TD=16.0 EV	ET=0.691141 MEV		TD=20.0 EV	ET=0.808526 MEV		TD=24.0 EV	ET=0.916289 MEV	
ENERGY(MEV)	PRIMARY	CASCADE	ENERGY(MEV)	PRIMARY	CASCADE	ENERGY(MEV)	PRIMARY	CASCADE
0.69800	1.39	1.39	0.81600	0.86	0.86	0.92500	0.64	0.64
0.70400	2.68	2.68	0.82400	1.87	1.87	0.93400	1.38	1.38
0.71800	5.93	5.93	0.84000	4.12	4.12	0.95200	3.08	3.08
0.73900	11.36	11.36	0.86500	8.18	8.18	0.98000	6.24	6.24
0.76700	19.41	19.41	0.89700	14.16	14.16	1.01000	10.17	10.17
0.80100	30.04	30.04	0.93700	22.49	22.49	1.06000	17.65	17.65
0.84300	43.93	43.93	0.98600	33.50	33.50	1.11000	25.86	25.86
0.89800	62.60	62.60	1.05000	48.44	48.44	1.19000	39.69	39.69
0.96700	85.73	85.73	1.13000	67.07	67.07	1.28000	55.33	55.33
1.07000	118.09	118.09	1.25000	93.41	93.41	1.42000	78.28	78.28
1.20000	153.81	154.07	1.41000	124.05	124.35	1.60000	103.97	104.29
1.38000	193.68	196.70	1.61000	154.86	157.53	1.83000	130.25	132.80
1.58000	226.83	236.74	1.85000	182.45	191.27	2.10000	153.10	161.14
1.86000	258.65	283.48	2.18000	208.05	229.81	2.47000	174.12	193.45
2.21000	282.68	331.21	2.58000	226.59	267.99	2.93000	189.51	226.21
2.62000	297.68	376.87	3.07000	238.44	306.10	3.48000	198.92	258.08
3.11000	305.55	421.62	3.63000	244.13	341.73	4.12000	203.36	288.36
3.59000	307.76	458.28	4.20000	245.58	372.03	4.76000	204.28	313.63
4.14000	305.97	494.06	4.85000	244.62	401.33	5.49000	203.29	338.07
4.83000	303.71	532.17	5.65000	241.79	431.92	6.41000	200.75	364.16
5.87000	297.41	579.76	6.87000	236.56	470.50	7.78000	196.32	396.23
6.91000	291.13	619.10	8.08000	231.50	502.08	9.16000	192.04	422.87
10.30000	275.35	714.11	12.10000	218.91	579.53	13.70000	181.69	487.53
13.80000	265.59	783.33	16.10000	211.49	633.85	18.30000	175.55	533.54
20.70000	254.63	878.29	24.20000	202.90	710.42	27.40000	168.60	596.85
34.50000	244.88	997.20	40.40000	195.40	806.08	45.30000	162.54	676.88
69.10000	238.37	1159.26	80.80000	190.49	935.63	91.50000	158.61	784.93
138.00000	234.76	1319.68	161.00000	187.64	1063.53	183.00000	156.24	891.90
207.00000	232.62	1412.85	242.00000	185.90	1138.39	274.00000	154.79	953.66

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN TB
Z=65 A=158.930

TD=28.0 EV ET=1.016468 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.02000	0.17	0.17
1.03000	0.70	0.70
1.05000	1.98	1.98
1.08000	4.37	4.37
1.12000	8.27	8.27
1.17000	13.96	13.96
1.24000	22.88	22.88
1.32000	33.69	33.69
1.42000	47.28	47.28
1.57000	66.58	66.58
1.77000	89.03	89.32
2.03000	112.25	114.63
2.33000	131.94	139.31
2.74000	149.86	167.33
3.25000	162.86	195.72
3.86000	170.68	223.32
4.57000	174.24	249.51
5.28000	174.86	271.34
6.09000	173.87	292.44
7.11000	171.59	314.92
8.63000	167.72	342.56
10.10000	164.16	364.64
15.20000	155.23	421.12
20.30000	150.05	460.62
30.40000	144.18	514.97
50.80000	139.13	583.61
101.00000	135.89	675.49
203.00000	133.84	767.97

TD=32.0 EV ET=1.110470 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.12000	0.34	0.34
1.13000	0.76	0.76
1.15000	1.76	1.76
1.18000	3.63	3.63
1.23000	7.52	7.52
1.28000	12.12	12.12
1.35000	19.28	19.28
1.44000	29.10	29.10
1.55000	41.21	41.21
1.72000	58.92	58.92
1.94000	78.81	79.12
2.22000	98.89	101.15
2.55000	116.21	123.10
2.99000	131.53	147.42
3.55000	142.83	172.64
4.21000	149.44	196.76
4.99000	152.42	219.99
5.77000	152.83	239.32
6.66000	151.85	257.96
7.77000	149.79	277.63
9.43000	146.35	301.89
11.10000	143.11	321.97
16.60000	135.48	370.75
22.20000	130.98	405.52
33.30000	125.90	453.32
55.50000	121.61	513.12
111.00000	118.83	594.24
222.00000	117.05	674.57

TD=36.0 EV ET=1.199313 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.21000	0.29	0.29
1.22000	0.61	0.61
1.24000	1.39	1.39
1.28000	3.41	3.41
1.33000	6.63	6.63
1.39000	11.21	11.21
1.46000	17.17	17.17
1.55000	25.32	25.32
1.67000	36.32	36.32
1.85000	51.96	51.96
2.09000	70.05	70.34
2.39000	87.96	90.03
2.75000	103.61	109.97
3.23000	117.33	132.00
3.83000	127.18	154.41
4.55000	132.97	176.21
5.39000	135.46	196.90
6.23000	135.73	214.10
7.19000	134.78	230.73
8.39000	132.89	248.30
10.10000	129.94	269.02
11.90000	127.03	287.02
17.90000	120.20	331.11
23.90000	116.25	361.88
35.90000	111.76	404.55
59.90000	108.00	457.85
119.00000	105.60	529.29
239.00000	104.01	601.13

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN TB
Z=65 A=158.930

TD=40.0 EV ET=1.283763 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.29000	0.12	0.12
1.30000	0.36	0.36
1.33000	1.28	1.28
1.37000	2.96	2.96
1.42000	5.63	5.63
1.48000	9.43	9.43
1.56000	15.16	15.16
1.66000	22.83	22.83
1.79000	32.94	32.94
1.98000	46.93	46.93
2.24000	63.52	63.81
2.56000	79.61	81.59
2.95000	93.82	99.85
3.46000	105.96	119.64
4.10000	114.68	139.84
4.87000	119.76	159.54
5.77000	121.90	178.26
6.67000	122.06	193.81
7.70000	121.14	208.85
8.98000	119.41	224.65
10.90000	116.59	244.16
12.80000	114.02	260.06
19.20000	107.95	299.52
25.60000	104.45	327.10
38.50000	100.44	365.64
64.10000	97.13	413.44
128.00000	94.99	478.23
256.00000	93.58	542.49

TD=44.0 EV ET=1.364415 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.37000	0.09	0.09
1.39000	0.49	0.49
1.41000	1.01	1.01
1.45000	2.38	2.38
1.51000	5.07	5.07
1.58000	8.91	8.91
1.66000	13.86	13.86
1.77000	21.14	21.14
1.91000	30.52	30.52
2.11000	43.18	43.18
2.38000	57.98	58.26
2.72000	72.66	74.54
3.13000	85.47	91.09
3.68000	96.63	109.45
4.36000	104.44	127.89
5.18000	108.96	145.90
6.13000	110.80	162.85
7.09000	110.88	177.08
8.18000	110.01	190.73
9.55000	108.39	205.22
11.50000	105.92	222.27
13.60000	103.48	237.38
20.40000	97.99	273.31
27.20000	94.83	298.40
40.90000	91.22	333.44
68.20000	88.24	377.05
136.00000	86.33	435.84
272.00000	85.05	494.25

TD=48.0 EV ET=1.441738 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.45000	0.11	0.11
1.47000	0.45	0.45
1.49000	0.89	0.89
1.54000	2.39	2.39
1.60000	4.78	4.78
1.67000	8.13	8.13
1.75000	12.45	12.45
1.87000	19.38	19.38
2.01000	27.58	27.58
2.23000	39.77	39.77
2.52000	53.60	53.89
2.88000	67.07	68.89
3.31000	78.67	84.01
3.89000	88.82	100.88
4.61000	95.90	117.87
5.47000	99.93	134.31
6.48000	101.56	150.00
7.49000	101.58	163.01
8.55000	100.74	175.64
10.00000	99.33	188.11
12.20000	96.90	204.87
14.40000	94.68	218.57
21.60000	89.69	251.54
28.80000	86.81	274.55
43.20000	83.54	306.48
72.00000	80.85	346.44
144.00000	79.12	400.57
288.00000	77.93	454.10

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN TB
Z=65 A=158.930

TD=52.0 EV ET=1.516114 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.53000	0.16	0.16
1.54000	0.30	0.30
1.57000	0.86	0.86
1.62000	2.18	2.18
1.68000	4.27	4.27
1.75000	7.20	7.20
1.84000	11.46	11.46
1.97000	18.10	18.10
2.12000	25.86	25.86
2.34000	36.62	36.62
2.65000	49.68	49.97
3.03000	62.18	63.94
3.48000	72.83	77.89
4.09000	82.16	93.53
4.85000	88.66	109.33
5.76000	92.31	124.62
6.82000	93.74	139.09
7.88000	93.72	151.10
9.09000	92.92	162.68
10.60000	91.51	174.90
12.80000	89.36	189.58
15.10000	87.32	202.20
22.70000	82.70	232.83
30.30000	80.05	254.16
45.40000	77.06	283.57
75.80000	74.59	320.59
151.00000	73.02	370.28
303.00000	71.92	419.93

TD=56.0 EV ET=1.587856 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.60000	0.11	0.11
1.61000	0.23	0.23
1.65000	0.89	0.89
1.69000	1.82	1.82
1.76000	3.95	3.95
1.84000	6.94	6.94
1.93000	10.76	10.76
2.06000	16.68	16.68
2.22000	24.07	24.07
2.46000	34.51	34.52
2.77000	46.13	46.40
3.17000	57.85	59.52
3.65000	67.91	72.77
4.28000	76.41	87.13
5.08000	82.43	101.94
6.03000	85.76	116.13
7.14000	87.03	129.60
8.25000	86.98	140.77
9.52000	86.21	151.57
11.10000	84.89	162.92
13.40000	82.89	176.54
15.80000	80.99	188.24
23.80000	76.70	216.85
31.70000	74.27	236.51
47.60000	71.49	263.98
79.30000	69.24	298.21
158.00000	67.79	344.37
317.00000	66.77	390.46

TD=60.0 EV ET=1.657226 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.67000	0.10	0.10
1.69000	0.32	0.32
1.72000	0.77	0.77
1.77000	1.82	1.82
1.83000	3.45	3.45
1.92000	6.45	6.45
2.02000	10.27	10.27
2.15000	15.60	15.60
2.32000	22.66	22.66
2.56000	32.05	32.06
2.90000	43.48	43.76
3.31000	54.20	55.81
3.81000	63.55	68.19
4.47000	71.47	81.69
5.30000	77.01	95.46
6.29000	80.07	108.73
7.45000	81.22	121.34
8.61000	81.15	131.80
9.94000	80.40	141.93
11.60000	79.15	152.59
14.00000	77.27	165.30
16.50000	75.51	176.20
24.80000	71.53	202.77
33.10000	69.26	221.26
49.70000	66.68	246.90
82.80000	64.60	278.86
165.00000	63.26	321.96
331.00000	62.31	364.96

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN TB
Z=65 A=158.930

TD=64.0 EV ET=1.724444 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.74000	0.11	0.11
1.75000	0.20	0.20
1.79000	0.71	0.71
1.84000	1.64	1.64
1.91000	3.37	3.37
2.00000	6.10	6.10
2.10000	9.56	9.56
2.24000	14.76	14.76
2.41000	21.16	21.16
2.67000	30.36	30.36
3.01000	40.69	40.96
3.44000	50.88	52.41
3.96000	59.66	64.07
4.65000	67.11	76.83
5.51000	72.25	89.72
6.55000	75.10	102.31
7.75000	76.14	114.08
8.96000	76.04	123.92
10.30000	75.36	133.15
12.00000	74.19	143.05
14.60000	72.35	155.49
17.20000	70.70	165.69
25.80000	67.01	190.49
34.40000	64.89	207.77
51.70000	62.48	231.87
86.20000	60.54	261.89
172.00000	59.29	302.37
344.00000	58.41	342.51

TD=68.0 EV ET=1.789698 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.80000	0.06	0.06
1.82000	0.22	0.22
1.86000	0.69	0.69
1.91000	1.54	1.54
1.98000	3.10	3.10
2.07000	5.56	5.56
2.18000	9.02	9.02
2.32000	13.76	13.76
2.50000	19.93	19.93
2.77000	28.64	28.64
3.13000	38.57	38.84
3.57000	48.02	49.50
4.11000	56.28	60.51
4.83000	63.29	72.61
5.72000	68.06	84.73
6.80000	70.71	96.59
8.05000	71.66	107.72
9.30000	71.54	116.95
10.70000	70.88	125.69
12.50000	69.75	135.19
15.20000	68.01	146.87
17.80000	66.51	156.12
26.80000	63.01	179.69
35.70000	61.03	195.91
53.60000	58.78	218.53
89.40000	56.96	246.81
178.00000	55.80	284.80
357.00000	54.96	322.73

TD=72.0 EV ET=1.853153 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.87000	0.09	0.09
1.89000	0.24	0.24
1.92000	0.56	0.56
1.98000	1.48	1.48
2.05000	2.91	2.91
2.14000	5.16	5.16
2.26000	8.61	8.61
2.40000	12.95	12.95
2.59000	18.92	18.92
2.87000	27.18	27.19
3.24000	36.52	36.78
3.70000	45.53	46.97
4.26000	53.31	57.40
5.00000	59.85	68.76
5.93000	64.36	80.33
7.04000	66.81	91.46
8.33000	67.67	101.96
9.63000	67.55	110.72
11.10000	66.89	119.10
12.90000	65.85	127.77
15.70000	64.20	138.86
18.50000	62.73	147.94
27.70000	59.48	169.91
37.00000	57.60	185.38
55.50000	55.49	206.70
92.60000	53.78	233.44
185.00000	52.69	269.49
370.00000	51.90	305.16

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN TB
Z=65 A=158.930

TD=76.0 EV ET=1.914948 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.93000	0.07	0.07
1.95000	0.20	0.20
1.99000	0.59	0.59
2.04000	1.29	1.29
2.12000	2.78	2.78
2.22000	5.10	5.10
2.33000	8.02	8.02
2.48000	12.30	12.30
2.68000	18.08	18.08
2.96000	25.68	25.69
3.35000	34.73	34.99
3.82000	43.18	44.57
4.40000	50.58	54.50
5.17000	56.80	65.37
6.12000	61.00	76.22
7.27000	63.30	86.82
8.61000	64.10	96.84
9.95000	63.97	105.12
11.40000	63.38	112.73
13.40000	62.31	121.57
16.20000	60.79	131.73
19.10000	59.39	140.37
28.70000	56.30	161.37
38.20000	54.54	175.85
57.40000	52.54	196.14
95.70000	50.94	221.43
191.00000	49.91	255.54

TD=80.0 EV ET=1.975208 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.99000	0.06	0.06
2.01000	0.18	0.18
2.05000	0.53	0.53
2.11000	1.30	1.30
2.19000	2.69	2.69
2.29000	4.84	4.84
2.40000	7.54	7.54
2.56000	11.76	11.76
2.76000	17.10	17.10
3.06000	24.63	24.63
3.45000	32.98	33.23
3.95000	41.26	42.63
4.54000	48.16	51.94
5.33000	54.01	62.23
6.32000	58.01	72.66
7.50000	60.16	82.68
8.88000	60.89	92.19
10.20000	60.77	99.74
11.80000	60.16	107.49
13.80000	59.17	115.63
16.70000	57.71	125.33
19.70000	56.38	133.57
29.60000	53.45	153.54
39.50000	51.77	167.41
59.20000	49.89	186.57
98.70000	48.38	210.60
197.00000	47.41	243.01

TD=84.0 EV ET=2.034041 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.05000	0.06	0.06
2.07000	0.17	0.17
2.11000	0.49	0.49
2.17000	1.19	1.19
2.25000	2.46	2.46
2.35000	4.44	4.44
2.48000	7.39	7.39
2.64000	11.32	11.32
2.84000	16.28	16.28
3.15000	23.50	23.50
3.55000	31.44	31.68
4.06000	39.28	40.58
4.67000	45.89	49.52
5.49000	51.51	59.42
6.50000	55.27	69.28
7.72000	57.30	78.89
9.15000	57.99	88.01
10.50000	57.86	95.16
12.20000	57.25	102.76
14.20000	56.33	110.28
17.20000	54.93	119.57
20.30000	53.66	127.44
30.50000	50.87	146.46
40.60000	49.29	159.56
61.00000	47.50	177.92
101.00000	46.08	200.51
203.00000	45.15	231.68

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN TB
Z=65 A=158.930

TD=88.0 EV ET=2.091545 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.11000	0.06	0.06
2.13000	0.16	0.16
2.17000	0.46	0.46
2.23000	1.11	1.11
2.32000	2.45	2.45
2.42000	4.31	4.31
2.55000	7.06	7.06
2.71000	10.72	10.72
2.92000	15.57	15.57
3.24000	22.51	22.51
3.66000	30.24	30.49
4.18000	37.63	38.91
4.81000	43.94	47.49
5.64000	49.20	56.80
6.69000	52.80	66.33
7.94000	54.71	75.47
9.41000	55.35	84.18
10.80000	55.22	91.01
12.50000	54.64	98.09
14.60000	53.74	105.44
17.70000	52.40	114.35
20.90000	51.18	121.89
31.30000	48.55	139.90
41.80000	47.03	152.55
62.70000	45.32	170.01
104.00000	43.98	191.64
209.00000	43.09	221.40

TD=92.0 EV ET=2.147805 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.16000	0.03	0.03
2.19000	0.17	0.17
2.23000	0.45	0.45
2.29000	1.06	1.06
2.38000	2.30	2.30
2.49000	4.21	4.21
2.62000	6.79	6.79
2.79000	10.43	10.43
3.00000	14.96	14.96
3.32000	21.44	21.45
3.75000	28.86	29.09
4.29000	36.04	37.28
4.93000	42.03	45.42
5.79000	47.10	54.43
6.87000	50.54	63.57
8.16000	52.35	72.36
9.66000	52.94	80.64
11.10000	52.80	87.24
12.80000	52.26	93.85
15.00000	51.38	101.03
18.20000	50.08	109.59
21.40000	48.95	116.62
32.20000	46.40	134.06
42.90000	44.96	146.06
64.40000	43.34	162.80
107.00000	42.05	183.56
214.00000	41.21	211.83

TD=96.0 EV ET=2.202900 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.22000	0.05	0.05
2.24000	0.13	0.13
2.29000	0.45	0.45
2.35000	1.02	1.02
2.44000	2.19	2.19
2.55000	3.97	3.97
2.68000	6.38	6.38
2.86000	9.98	9.98
3.08000	14.43	14.43
3.41000	20.69	20.69
3.85000	27.78	28.01
4.40000	34.60	35.80
5.06000	40.36	43.66
5.94000	45.19	52.28
7.04000	48.45	61.00
8.37000	50.18	69.48
9.91000	50.73	77.42
11.40000	50.59	83.80
13.20000	50.04	90.31
15.40000	49.21	97.00
18.70000	47.96	105.24
22.00000	46.87	112.00
33.00000	44.45	128.59
44.00000	43.07	140.13
66.00000	41.52	156.13
110.00000	40.29	176.16
220.00000	39.49	203.24

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN YB
Z=70 A=173.040

TD= 4.0 EV ET=0.252810 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.25500	17.60	17.60
0.25700	33.40	33.40
0.26200	71.88	71.88
0.27000	130.54	130.54
0.28000	199.33	199.33
0.29300	282.11	282.11
0.30800	369.48	369.48
0.32800	474.33	474.33
0.35300	589.53	589.53
0.39100	737.11	737.11
0.44200	894.45	894.44
0.50500	1040.95	1048.06
0.58100	1168.05	1198.54
0.68200	1280.52	1359.70
0.80800	1364.27	1520.97
0.96000	1416.69	1678.45
1.13000	1440.61	1823.72
1.31000	1444.66	1953.91
1.51000	1435.98	2078.37
1.76000	1416.18	2212.93
2.14000	1380.19	2385.37
2.52000	1344.72	2531.16
3.79000	1251.86	2901.61
5.05000	1193.09	3167.86
7.58000	1128.58	3553.31
12.60000	1070.35	4040.88
25.20000	1026.11	4716.13
50.50000	1006.70	5399.92
75.80000	996.81	5796.67
126.00000	983.29	6288.74
176.00000	974.56	6608.76

TD= 8.0 EV ET=0.440678 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.44500	5.45	5.45
0.44900	10.56	10.56
0.45800	22.22	22.22
0.47100	39.41	39.41
0.48900	63.61	63.61
0.51100	93.40	93.40
0.53700	128.33	128.33
0.57200	174.06	174.06
0.61600	228.38	228.38
0.68300	302.95	302.95
0.77100	385.55	385.84
0.88100	466.87	472.05
1.01000	537.42	556.09
1.18000	600.87	647.34
1.41000	651.95	747.13
1.67000	681.35	838.31
1.98000	695.25	927.45
2.29000	697.26	1001.91
2.64000	692.60	1073.77
3.08000	682.24	1150.69
3.74000	664.26	1246.80
4.40000	647.21	1326.79
6.61000	604.20	1526.14
8.81000	578.88	1667.48
13.20000	551.29	1866.30
22.00000	526.43	2116.83
44.00000	509.49	2459.14
88.10000	500.85	2801.38
132.00000	495.72	2998.67
220.00000	488.85	3244.94
308.00000	484.84	3405.63

TD=12.0 EV ET=0.597141 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.60300	2.59	2.59
0.60900	5.36	5.36
0.62100	11.22	11.22
0.63800	20.17	20.17
0.66200	33.77	33.77
0.69200	51.83	51.83
0.72800	74.29	74.29
0.77600	104.48	104.48
0.83500	140.54	140.54
0.92500	191.26	191.26
1.04000	246.88	247.22
1.19000	304.44	308.66
1.37000	355.01	369.97
1.61000	399.77	437.01
1.91000	432.27	504.79
2.26000	451.09	568.87
2.68000	459.30	631.65
3.10000	459.70	683.88
3.58000	455.68	734.57
4.17000	448.15	787.39
5.07000	435.69	854.20
5.97000	424.23	909.44
8.95000	396.71	1044.78
11.90000	381.13	1139.83
17.90000	363.73	1274.97
29.80000	348.63	1442.82
59.70000	338.70	1672.57
119.00000	333.10	1899.20
179.00000	329.57	2031.83
298.00000	325.05	2195.29
417.00000	322.56	2302.20

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN YB
Z=70 A=173.040

TD=16.0 EV ET=0.734095 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.74100	1.47	1.47
0.74800	3.07	3.07
0.76300	6.84	6.84
0.78500	13.10	13.10
0.81400	22.39	22.39
0.85100	35.41	35.41
0.89500	51.89	51.89
0.95400	74.59	74.59
1.02000	99.66	99.66
1.13000	138.70	138.70
1.28000	184.38	184.78
1.46000	227.64	231.32
1.68000	266.21	278.78
1.98000	300.56	331.75
2.34000	324.04	383.09
2.78000	337.80	433.83
3.30000	343.10	482.46
3.81000	342.72	522.10
4.40000	339.20	560.93
5.13000	333.13	601.59
6.23000	323.63	652.23
7.34000	314.97	694.39
11.00000	294.88	796.98
14.60000	283.77	868.37
22.00000	271.16	970.61
36.70000	260.47	1097.45
73.40000	253.61	1269.71
146.00000	249.45	1439.10

TD=20.0 EV ET=0.857410 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.86500	0.92	0.92
0.87400	2.13	2.13
0.89100	4.74	4.74
0.91700	9.44	9.44
0.95100	16.58	16.58
0.99400	26.75	26.75
1.04000	38.49	38.49
1.11000	57.08	57.08
1.20000	80.85	80.85
1.32000	110.52	110.52
1.50000	148.70	149.14
1.71000	183.58	187.05
1.97000	214.76	226.18
2.31000	241.20	268.13
2.74000	259.93	310.95
3.25000	270.19	351.89
3.85000	273.81	390.95
4.45000	273.10	423.38
5.14000	269.96	454.87
6.00000	264.84	488.03
7.28000	257.14	528.74
8.57000	250.25	562.58
12.80000	234.60	644.52
17.10000	225.78	703.19
25.70000	216.04	784.66
42.80000	207.88	886.03
85.70000	202.67	1024.22
171.00000	199.33	1160.30

TD=24.0 EV ET=0.970497 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.98000	0.74	0.74
0.98900	1.53	1.53
1.00000	2.63	2.63
1.03000	6.20	6.20
1.07000	12.04	12.04
1.12000	20.55	20.55
1.18000	31.83	31.83
1.26000	47.66	47.66
1.35000	65.44	65.44
1.50000	93.21	93.21
1.69000	123.35	123.75
1.94000	154.30	157.59
2.23000	179.91	190.20
2.62000	202.00	226.12
3.10000	217.01	261.77
3.68000	225.18	296.48
4.36000	227.80	329.40
5.04000	226.92	356.70
5.82000	224.09	383.11
6.79000	219.71	410.86
8.24000	213.22	445.03
9.70000	207.47	473.37
14.50000	194.61	542.12
19.40000	187.39	591.38
29.10000	179.50	659.05
48.50000	172.92	743.79
97.00000	168.76	858.84
194.00000	165.96	972.58

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN YB
Z=70 A=173.040

TD=28.0 EV ET=1.075542 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.08000	0.23	0.23
1.09000	0.80	0.80
1.11000	2.19	2.19
1.15000	5.85	5.85
1.19000	10.40	10.40
1.24000	16.99	16.99
1.31000	27.22	27.22
1.39000	39.59	39.59
1.50000	56.62	56.62
1.66000	79.83	79.83
1.88000	107.07	107.50
2.15000	133.00	136.07
2.47000	154.89	164.26
2.90000	173.64	195.28
3.44000	186.42	226.61
4.08000	193.05	256.46
4.83000	195.01	284.77
5.59000	194.05	308.52
6.45000	191.50	331.16
7.52000	187.67	354.97
9.14000	182.01	384.62
10.70000	177.25	408.17
16.10000	166.20	468.26
21.50000	160.16	510.29
32.20000	153.53	568.14
53.70000	148.03	640.94
107.00000	144.58	739.08
215.00000	142.16	837.20

TD=32.0 EV ET=1.174053 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.18000	0.22	0.22
1.19000	0.64	0.64
1.22000	2.30	2.30
1.25000	4.46	4.46
1.30000	8.93	8.93
1.36000	15.31	15.31
1.43000	23.60	23.60
1.52000	34.86	34.86
1.64000	49.92	49.92
1.81000	69.91	69.91
2.05000	94.00	94.41
2.34000	116.54	119.33
2.70000	136.31	145.03
3.16000	152.27	171.87
3.75000	163.32	199.58
4.46000	168.98	226.31
5.28000	170.46	251.22
6.10000	169.49	271.84
7.04000	167.15	291.77
8.21000	163.73	312.72
9.97000	158.77	338.64
11.70000	154.55	359.62
17.60000	145.00	412.29
23.40000	139.86	448.55
35.20000	134.07	499.77
58.70000	129.39	563.51
117.00000	126.44	649.45
234.00000	124.33	734.72

TD=36.0 EV ET=1.267113 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.27000	0.08	0.08
1.29000	0.73	0.73
1.31000	1.60	1.60
1.35000	3.88	3.88
1.40000	7.52	7.52
1.46000	12.71	12.71
1.54000	20.51	20.51
1.64000	30.91	30.91
1.77000	44.48	44.48
1.96000	63.02	63.02
2.21000	83.81	84.20
2.53000	104.35	107.04
2.91000	121.51	129.55
3.42000	135.94	154.21
4.05000	145.41	178.67
4.81000	150.22	202.36
5.70000	151.39	224.73
6.58000	150.43	243.03
7.60000	148.27	260.91
8.86000	145.19	279.55
10.70000	140.89	301.99
12.60000	137.05	321.08
19.00000	128.59	368.28
25.30000	124.06	400.71
38.00000	118.99	446.10
63.30000	114.92	502.68
126.00000	112.35	578.94
253.00000	110.46	655.15

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN YB
Z=70 A=173.040

TD=40.0 EV ET=1.355540 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.36000	0.09	0.09
1.38000	0.62	0.62
1.40000	1.32	1.32
1.45000	3.70	3.70
1.50000	6.80	6.80
1.57000	11.97	11.97
1.65000	18.61	18.61
1.76000	28.32	28.32
1.89000	39.85	39.85
2.10000	57.23	57.23
2.37000	76.17	76.57
2.71000	94.50	97.08
3.11000	109.67	117.14
3.65000	122.50	139.28
4.33000	131.02	161.65
5.15000	135.24	183.24
6.09000	136.16	203.20
7.04000	135.21	219.88
8.13000	133.21	236.00
9.48000	130.40	252.84
11.50000	126.42	273.55
13.50000	123.03	290.43
20.30000	115.53	332.68
27.10000	111.45	362.15
40.60000	106.97	402.76
67.70000	103.35	453.81
135.00000	101.08	522.64
271.00000	99.37	591.19

TD=44.0 EV ET=1.439963 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.45000	0.17	0.17
1.46000	0.39	0.39
1.49000	1.24	1.24
1.54000	3.27	3.27
1.59000	5.89	5.89
1.67000	10.96	10.96
1.75000	16.68	16.68
1.87000	25.81	25.81
2.01000	36.52	36.52
2.23000	52.21	52.21
2.51000	69.15	69.53
2.87000	85.92	88.30
3.31000	100.20	107.30
3.88000	111.65	127.37
4.60000	119.25	147.71
5.47000	122.96	167.38
6.47000	123.70	185.61
7.48000	122.78	200.82
8.63000	120.93	215.41
10.00000	118.46	230.13
12.20000	114.72	249.56
14.30000	111.68	264.78
21.50000	104.90	303.23
28.70000	101.22	330.03
43.10000	97.15	367.19
71.90000	93.90	413.66
143.00000	91.87	476.01
287.00000	90.32	538.30

TD=48.0 EV ET=1.520882 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.53000	0.13	0.13
1.55000	0.50	0.50
1.58000	1.28	1.28
1.62000	2.68	2.68
1.68000	5.37	5.37
1.76000	9.77	9.77
1.85000	15.38	15.38
1.97000	23.36	23.36
2.12000	33.39	33.39
2.35000	47.75	47.75
2.66000	64.09	64.48
3.04000	79.36	81.69
3.49000	91.99	98.63
4.10000	102.58	117.36
4.86000	109.43	136.05
5.77000	112.72	153.97
6.84000	113.33	170.94
7.90000	112.43	184.82
9.12000	110.69	198.28
10.60000	108.36	212.06
12.90000	104.97	229.67
15.20000	102.09	244.09
22.80000	95.97	279.16
30.40000	92.64	303.64
45.60000	88.96	337.62
76.00000	86.03	380.16
152.00000	84.18	437.78
304.00000	82.76	494.58

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN YB
Z=70 A=173.040

TD=52.0 EV ET=1.598699 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.61000	0.13	0.13
1.63000	0.45	0.45
1.66000	1.13	1.13
1.71000	2.67	2.67
1.77000	5.09	5.09
1.85000	8.98	8.98
1.95000	14.50	14.50
2.07000	21.56	21.56
2.23000	31.02	31.02
2.47000	44.25	44.25
2.79000	59.14	59.51
3.19000	73.35	75.54
3.67000	85.18	91.48
4.31000	94.87	108.80
5.11000	101.11	126.13
6.07000	104.07	142.75
7.19000	104.56	158.38
8.31000	103.68	171.27
9.59000	102.05	183.68
11.10000	99.95	196.08
13.50000	96.82	212.30
15.90000	94.17	225.60
23.90000	88.51	258.18
31.90000	85.44	280.86
47.90000	82.05	312.32
79.90000	79.38	351.66
159.00000	77.69	404.47

TD=56.0 EV ET=1.673746 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.69000	0.17	0.17
1.70000	0.30	0.30
1.74000	1.07	1.07
1.79000	2.44	2.44
1.85000	4.57	4.57
1.94000	8.47	8.47
2.04000	13.39	13.39
2.17000	20.22	20.22
2.34000	29.18	29.18
2.59000	41.43	41.43
2.92000	55.09	55.45
3.34000	68.34	70.44
3.84000	79.25	85.23
4.51000	88.22	101.37
5.35000	93.97	117.55
6.36000	96.65	133.09
7.53000	97.05	147.59
8.70000	96.20	159.55
10.00000	94.71	170.77
11.70000	92.60	183.14
14.20000	89.71	198.04
16.70000	87.28	210.28
25.10000	82.07	240.55
33.40000	79.26	261.40
50.20000	76.13	290.69
83.60000	73.68	327.11
167.00000	72.12	376.43

TD=60.0 EV ET=1.746299 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.76000	0.12	0.12
1.78000	0.36	0.36
1.81000	0.86	0.86
1.86000	2.04	2.04
1.93000	4.23	4.23
2.02000	7.72	7.72
2.13000	12.58	12.58
2.27000	19.20	19.20
2.44000	27.26	27.26
2.70000	38.72	38.72
3.05000	51.71	52.07
3.49000	64.10	66.14
4.01000	74.20	79.92
4.71000	82.50	95.03
5.58000	87.77	110.05
6.63000	90.21	124.54
7.85000	90.54	138.10
9.08000	89.72	149.36
10.40000	88.35	159.59
12.20000	86.33	171.34
14.80000	83.64	185.23
17.40000	81.38	196.64
26.10000	76.55	224.77
34.90000	73.90	244.57
52.30000	71.02	271.71
87.30000	68.74	305.88
174.00000	67.30	351.76

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN YB
Z=70 A=173.040

TD=64.0 EV ET=1.816592 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.83000	0.10	0.10
1.85000	0.30	0.30
1.88000	0.74	0.74
1.94000	2.02	2.02
2.01000	4.02	4.02
2.10000	7.18	7.18
2.21000	11.57	11.57
2.36000	17.99	17.99
2.54000	25.71	25.71
2.81000	36.48	36.48
3.17000	48.56	48.90
3.63000	60.25	62.21
4.17000	69.69	75.15
4.90000	77.46	89.39
5.81000	82.36	103.57
6.90000	84.58	117.13
8.17000	84.85	129.86
9.44000	84.06	140.36
10.80000	82.77	149.87
12.70000	80.85	161.07
15.40000	78.33	174.07
18.10000	76.21	184.75
27.20000	71.69	211.26
36.30000	69.23	229.70
54.40000	66.54	255.16
90.80000	64.42	287.19
181.00000	63.09	330.21

TD=68.0 EV ET=1.884823 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.90000	0.10	0.10
1.92000	0.28	0.28
1.96000	0.84	0.84
2.01000	1.82	1.82
2.09000	3.90	3.90
2.18000	6.79	6.79
2.29000	10.79	10.79
2.45000	17.02	17.02
2.63000	24.07	24.07
2.92000	34.59	34.60
3.29000	45.87	46.20
3.76000	56.73	58.59
4.33000	65.76	71.02
5.08000	72.97	84.32
6.03000	77.57	97.77
7.16000	79.61	110.55
8.48000	79.83	122.56
9.80000	79.06	132.45
11.30000	77.76	141.93
13.10000	76.09	151.55
16.00000	73.63	164.26
18.80000	71.64	174.30
28.20000	67.42	199.15
37.60000	65.13	216.46
56.50000	62.59	240.58
94.20000	60.62	270.66
188.00000	59.37	311.23

TD=72.0 EV ET=1.951164 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.97000	0.11	0.11
1.99000	0.29	0.29
2.02000	0.65	0.65
2.08000	1.69	1.69
2.16000	3.58	3.58
2.26000	6.51	6.51
2.38000	10.53	10.53
2.53000	15.89	15.89
2.73000	23.06	23.06
3.02000	32.69	32.69
3.41000	43.55	43.88
3.90000	53.84	55.67
4.48000	62.20	67.23
5.26000	69.00	79.87
6.24000	73.29	92.56
7.41000	75.20	104.64
8.78000	75.37	116.03
10.10000	74.66	125.09
11.70000	73.38	134.34
13.60000	71.77	143.59
16.50000	69.52	155.20
19.50000	67.58	165.03
29.20000	63.63	188.41
39.00000	61.45	204.86
58.50000	59.08	227.54
97.50000	57.24	255.94
195.00000	56.06	294.37

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN YB
Z=70 A=173.040

TD=76.0 EV ET=2.015764 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.03000	0.07	0.07
2.05000	0.21	0.21
2.09000	0.64	0.64
2.15000	1.61	1.61
2.23000	3.34	3.34
2.33000	6.03	6.03
2.45000	9.71	9.71
2.62000	15.30	15.30
2.82000	21.89	21.89
3.12000	31.06	31.06
3.52000	41.30	41.62
4.03000	51.14	52.91
4.63000	59.04	63.89
5.44000	65.48	75.94
6.45000	69.48	87.93
7.65000	71.24	99.31
9.07000	71.38	110.15
10.40000	70.72	118.55
12.00000	69.54	127.10
14.10000	67.90	136.49
17.10000	65.77	147.47
20.10000	63.99	156.49
30.20000	60.23	178.83
40.30000	58.19	194.36
60.40000	55.95	215.81
100.00000	54.23	242.38
201.00000	53.10	279.04

TD=80.0 EV ET=2.078754 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.09000	0.05	0.05
2.12000	0.24	0.24
2.16000	0.66	0.66
2.22000	1.56	1.56
2.30000	3.17	3.17
2.41000	5.92	5.92
2.53000	9.34	9.34
2.70000	14.51	14.51
2.91000	20.91	20.91
3.22000	29.66	29.66
3.63000	39.34	39.65
4.15000	48.59	50.29
4.78000	56.23	60.93
5.61000	62.27	72.31
6.65000	66.04	83.71
7.89000	67.68	94.55
9.35000	67.80	104.83
10.80000	67.10	113.24
12.40000	66.00	121.07
14.50000	64.49	129.74
17.60000	62.45	140.22
20.70000	60.76	148.82
31.10000	57.19	170.06
41.50000	55.25	184.81
62.30000	53.13	205.28
103.00000	51.51	230.45
207.00000	50.44	265.28

TD=84.0 EV ET=2.140247 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.16000	0.08	0.08
2.18000	0.21	0.21
2.22000	0.58	0.58
2.29000	1.55	1.55
2.37000	3.06	3.06
2.48000	5.61	5.61
2.61000	9.05	9.05
2.78000	13.86	13.86
2.99000	19.80	19.80
3.31000	28.19	28.20
3.74000	37.61	37.92
4.28000	46.47	48.14
4.92000	53.62	58.15
5.77000	59.33	68.96
6.84000	62.91	79.83
8.13000	64.47	90.28
9.63000	64.55	100.05
11.10000	63.89	107.94
12.80000	62.80	115.64
14.90000	61.40	123.66
18.10000	59.45	133.69
21.40000	57.79	142.15
32.10000	54.42	162.29
42.80000	52.59	176.31
64.20000	50.58	195.76
107.00000	49.03	220.12
214.00000	48.03	253.06

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN YB
Z=70 A=173.040

TD=88.0 EV ET=2.200345 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.22000	0.07	0.07
2.24000	0.19	0.19
2.28000	0.52	0.52
2.35000	1.41	1.41
2.44000	2.98	2.98
2.55000	5.36	5.36
2.68000	8.57	8.57
2.86000	13.31	13.31
3.08000	19.11	19.11
3.41000	27.14	27.14
3.85000	36.07	36.38
4.40000	44.44	46.06
5.06000	51.27	55.65
5.94000	56.72	66.05
7.04000	60.09	76.42
8.36000	61.54	86.34
9.90000	61.60	95.66
11.40000	60.97	103.15
13.20000	59.89	110.72
15.40000	58.52	118.48
18.70000	56.66	128.03
22.00000	55.12	135.87
33.00000	51.92	155.10
44.00000	50.17	168.49
66.00000	48.26	187.06
110.00000	46.79	210.31
220.00000	45.84	241.75

TD=92.0 EV ET=2.259141 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.28000	0.07	0.07
2.30000	0.18	0.18
2.34000	0.49	0.49
2.41000	1.30	1.30
2.50000	2.75	2.75
2.62000	5.17	5.17
2.75000	8.17	8.17
2.93000	12.60	12.60
3.16000	18.26	18.26
3.50000	26.00	26.00
3.95000	34.53	34.83
4.51000	42.49	44.04
5.19000	49.07	53.28
6.09000	54.27	63.21
7.22000	57.49	73.17
8.58000	58.87	82.71
10.10000	58.93	91.32
11.70000	58.29	98.79
13.50000	57.29	105.87
15.80000	55.95	113.45
19.20000	54.16	122.63
22.50000	52.73	129.95
33.80000	49.65	148.42
45.10000	47.98	161.26
67.70000	46.15	179.05
112.00000	44.76	200.98
225.00000	43.85	231.25

TD=96.0 EV ET=2.316714 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.33000	0.04	0.04
2.36000	0.17	0.17
2.40000	0.46	0.46
2.47000	1.23	1.23
2.57000	2.74	2.74
2.68000	4.82	4.82
2.82000	7.84	7.84
3.01000	12.22	12.22
3.24000	17.53	17.53
3.59000	24.99	24.99
4.05000	33.14	33.44
4.63000	40.85	42.37
5.32000	47.06	51.14
6.25000	52.06	60.74
7.41000	55.12	70.28
8.80000	56.42	79.40
10.40000	56.45	87.85
12.00000	55.84	94.82
13.90000	54.84	101.79
16.20000	53.59	108.86
19.60000	51.91	117.46
23.10000	50.49	124.73
34.70000	47.56	142.44
46.30000	45.96	154.74
69.50000	44.21	171.79
115.00000	42.89	192.81
231.00000	42.02	221.82

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN HF
Z=72 A=178.500

TD= 4.0 EV ET=0.259438 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.26200	20.96	20.96
0.26400	37.06	37.06
0.26900	76.30	76.30
0.27700	136.32	136.32
0.28700	206.98	206.98
0.30000	292.38	292.38
0.31600	388.72	388.72
0.33700	502.45	502.45
0.36300	626.22	626.22
0.40200	782.78	782.78
0.45400	948.69	948.68
0.51800	1102.47	1110.19
0.59600	1236.56	1269.54
0.70000	1354.07	1439.90
0.83000	1439.62	1609.77
0.98500	1490.26	1773.00
1.16000	1510.95	1924.50
1.34000	1511.09	2056.23
1.55000	1497.74	2188.13
1.81000	1472.48	2328.75
2.20000	1430.15	2506.14
2.59000	1389.89	2656.01
3.89000	1287.91	3035.58
5.18000	1225.06	3308.52
7.78000	1157.08	3704.97
12.90000	1096.90	4202.84
25.90000	1051.53	4899.59
51.80000	1031.65	5598.62
77.80000	1020.95	6005.43
129.00000	1006.35	6506.27
181.00000	996.96	6837.92

TD= 8.0 EV ET=0.451304 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.45500	4.77	4.77
0.46000	11.31	11.31
0.46900	23.32	23.32
0.48200	41.08	41.08
0.50000	66.19	66.19
0.52300	98.64	98.64
0.55000	136.56	136.56
0.58600	185.81	185.81
0.63100	244.00	244.00
0.69900	323.22	323.22
0.78900	411.37	411.69
0.90200	497.93	503.61
1.03000	570.06	589.88
1.21000	638.13	689.14
1.44000	688.49	790.98
1.71000	717.25	887.21
2.03000	728.96	980.12
2.34000	728.63	1055.20
2.70000	721.52	1129.67
3.15000	708.56	1208.75
3.83000	687.39	1308.14
4.51000	667.99	1390.69
6.76000	621.18	1594.04
9.02000	594.10	1739.63
13.50000	565.24	1943.00
22.50000	539.49	2199.93
45.10000	522.20	2552.19
90.20000	513.16	2902.26
135.00000	507.60	3103.62
225.00000	500.21	3355.47
315.00000	496.03	3519.86

TD=12.0 EV ET=0.610822 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.61600	2.34	2.34
0.62300	5.66	5.66
0.63500	11.72	11.72
0.65300	21.58	21.58
0.67800	36.42	36.42
0.70800	55.40	55.40
0.74500	79.69	79.69
0.79400	112.13	112.13
0.85500	151.33	151.33
0.94600	205.11	205.11
1.06000	262.83	263.17
1.22000	326.44	331.21
1.40000	378.06	394.36
1.64000	423.39	463.27
1.95000	456.55	534.87
2.32000	474.84	603.44
2.74000	481.13	666.71
3.17000	479.87	720.57
3.66000	474.17	772.61
4.27000	464.80	827.41
5.19000	450.37	895.84
6.10000	437.65	951.84
9.16000	407.57	1091.16
12.20000	390.97	1189.22
18.30000	372.90	1326.83
30.50000	357.26	1499.32
61.00000	347.19	1734.39
122.00000	341.23	1967.66
183.00000	337.42	2102.43
305.00000	332.57	2269.95
427.00000	330.00	2379.51

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN HF
Z=72 A=178.500

TD=16.0 EV ET=0.750324 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.75700	1.45	1.45
0.76500	3.34	3.34
0.78000	7.27	7.27
0.80200	13.82	13.82
0.83200	23.90	23.90
0.87000	38.00	38.00
0.91500	55.80	55.80
0.97500	80.17	80.17
1.05000	110.14	110.14
1.16000	150.90	150.90
1.31000	198.35	198.81
1.50000	245.23	249.53
1.72000	284.26	298.21
2.02000	318.70	352.44
2.40000	342.70	407.54
2.85000	355.32	459.88
3.37000	359.13	508.90
3.90000	357.44	550.35
4.50000	352.66	589.98
5.25000	345.25	631.88
6.37000	334.36	683.55
7.50000	324.73	726.59
11.20000	303.09	830.82
15.00000	290.96	906.34
22.50000	277.96	1009.99
37.50000	266.95	1139.82
75.00000	259.97	1316.47
150.00000	255.50	1491.32

TD=20.0 EV ET=0.875864 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.88400	1.02	1.02
0.89300	2.27	2.27
0.91000	5.00	5.00
0.93700	10.11	10.11
0.97200	17.88	17.88
1.01000	27.33	27.33
1.06000	40.76	40.76
1.13000	60.41	60.41
1.22000	85.54	85.54
1.35000	119.37	119.37
1.53000	159.22	159.70
1.75000	196.95	200.85
2.01000	228.72	241.13
2.36000	255.97	285.35
2.80000	274.50	329.91
3.32000	283.93	372.16
3.94000	286.44	412.84
4.55000	284.67	445.97
5.25000	280.54	478.06
6.13000	274.38	512.14
7.44000	265.56	553.92
8.75000	257.93	588.39
13.10000	240.90	672.87
17.50000	231.59	733.00
26.20000	221.52	815.73
43.70000	213.07	919.99
87.50000	207.76	1061.69
175.00000	204.17	1201.51

TD=24.0 EV ET=0.990948 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.00000	0.72	0.72
1.01000	1.64	1.64
1.03000	3.81	3.81
1.06000	7.80	7.80
1.09000	12.49	12.49
1.14000	21.43	21.43
1.20000	33.33	33.33
1.28000	50.05	50.05
1.38000	70.92	70.92
1.53000	100.11	100.11
1.73000	133.17	133.64
1.98000	165.05	168.66
2.27000	191.26	202.31
2.67000	214.07	240.13
3.17000	229.15	277.90
3.76000	236.54	313.59
4.45000	238.20	347.29
5.15000	236.43	375.57
5.94000	232.79	402.44
6.93000	227.56	430.90
8.42000	220.11	466.13
9.90000	213.78	494.95
14.80000	199.89	565.41
19.80000	192.26	615.90
29.70000	184.02	685.28
49.50000	177.24	772.16
99.00000	172.99	890.13
198.00000	169.99	1006.60

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN HF
Z=72 A=178.500

TD=28.0 EV ET=1.097820 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.10000	0.11	0.11
1.11000	0.68	0.68
1.14000	2.92	2.92
1.17000	5.85	5.85
1.21000	10.59	10.59
1.27000	18.95	18.95
1.33000	28.25	28.25
1.42000	42.97	42.97
1.53000	60.96	60.96
1.70000	86.84	86.84
1.92000	115.16	115.64
2.19000	141.96	145.28
2.52000	165.02	175.24
2.96000	184.15	207.72
3.51000	196.67	240.16
4.17000	202.72	271.30
4.94000	203.83	300.56
5.70000	202.14	324.45
6.58000	198.87	347.76
7.68000	194.29	372.34
9.33000	187.88	402.64
10.90000	182.67	426.46
16.40000	170.73	488.03
21.90000	164.35	531.10
32.90000	157.37	590.86
54.30000	151.73	665.33
109.00000	148.21	765.70
219.00000	145.61	866.17

TD=32.0 EV ET=1.198022 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.21000	0.48	0.48
1.22000	0.96	0.96
1.24000	2.13	2.13
1.28000	5.16	5.16
1.32000	8.94	8.94
1.38000	15.60	15.60
1.46000	25.62	25.62
1.55000	37.56	37.56
1.67000	53.48	53.48
1.85000	75.72	75.72
2.09000	100.83	101.28
2.39000	124.88	127.99
2.75000	145.02	154.45
3.23000	161.60	183.09
3.83000	172.31	211.68
4.55000	177.36	239.10
5.39000	178.12	264.83
6.22000	176.50	285.85
7.18000	173.53	306.33
8.38000	169.48	327.91
10.10000	164.08	353.44
11.90000	159.28	375.47
17.90000	148.97	429.45
23.90000	143.47	467.17
35.90000	137.45	519.48
59.90000	132.62	584.92
119.00000	129.62	672.62
239.00000	127.34	760.45

TD=36.0 EV ET=1.292666 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.30000	0.21	0.21
1.31000	0.55	0.55
1.34000	1.89	1.89
1.38000	4.35	4.35
1.43000	8.25	8.25
1.49000	13.79	13.79
1.57000	22.08	22.08
1.68000	34.21	34.21
1.80000	47.45	47.45
2.00000	68.00	68.00
2.26000	90.48	90.94
2.58000	111.61	114.56
2.97000	129.51	138.32
3.49000	144.11	164.01
4.13000	153.33	189.27
4.91000	157.64	213.87
5.81000	158.16	236.69
6.72000	156.59	255.74
7.75000	153.89	273.88
9.04000	150.26	293.05
10.90000	145.43	315.85
12.90000	141.07	336.00
19.30000	132.13	383.44
25.80000	127.27	417.13
38.70000	122.01	463.51
64.60000	117.79	521.76
129.00000	115.16	600.31
258.00000	113.14	677.90

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN HF
Z=72 A=178.500

TD=40.0 EV ET=1.382585 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.39000	0.16	0.16
1.41000	0.74	0.74
1.43000	1.49	1.49
1.47000	3.46	3.46
1.53000	7.34	7.34
1.60000	12.83	12.83
1.68000	19.88	19.88
1.79000	30.17	30.17
1.93000	43.29	43.29
2.14000	61.56	61.55
2.41000	81.36	81.79
2.76000	100.92	103.72
3.17000	116.76	124.90
3.73000	129.95	148.35
4.42000	138.16	171.38
5.25000	141.86	193.48
6.22000	142.20	214.24
7.18000	140.73	231.20
8.29000	138.23	247.71
9.67000	134.93	265.00
11.70000	130.49	285.93
13.80000	126.65	303.73
20.70000	118.64	346.76
27.60000	114.36	376.84
41.40000	109.67	418.59
69.10000	105.93	471.04
138.00000	103.60	541.76
276.00000	101.78	611.57

TD=44.0 EV ET=1.468424 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.48000	0.21	0.21
1.49000	0.44	0.44
1.52000	1.34	1.34
1.57000	3.50	3.50
1.62000	6.28	6.28
1.70000	11.64	11.64
1.79000	18.50	18.50
1.90000	27.38	27.38
2.05000	39.50	39.50
2.27000	56.01	56.01
2.56000	74.33	74.75
2.93000	92.07	94.71
3.37000	106.57	114.26
3.96000	118.36	135.50
4.69000	125.69	156.45
5.58000	128.97	176.81
6.60000	129.17	195.55
7.63000	127.76	211.16
8.81000	125.44	226.20
10.20000	122.57	241.19
12.40000	118.43	260.74
14.60000	114.98	276.77
22.00000	107.67	316.38
29.30000	103.82	343.63
44.00000	99.58	381.72
73.40000	96.25	429.37
146.00000	94.17	493.30
293.00000	92.50	557.07

TD=48.0 EV ET=1.550692 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.56000	0.13	0.13
1.58000	0.52	0.52
1.61000	1.34	1.34
1.65000	2.81	2.81
1.72000	6.19	6.19
1.79000	10.30	10.30
1.89000	16.93	16.93
2.01000	25.40	25.40
2.17000	36.70	36.70
2.40000	51.74	51.74
2.71000	68.75	69.18
3.10000	84.91	87.48
3.56000	98.00	105.27
4.18000	108.68	124.72
4.96000	115.35	144.20
5.89000	118.21	162.71
6.97000	118.32	179.98
8.06000	116.97	194.34
9.30000	114.83	208.09
10.80000	112.12	222.13
13.10000	108.36	239.86
15.50000	105.11	255.01
23.20000	98.57	290.77
31.00000	95.03	316.04
46.50000	91.19	350.87
77.50000	88.18	394.49
155.00000	86.28	453.56
310.00000	84.76	511.71

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN HF
Z=72 A=178.500

TD=52.0 EV	ET=1.629801 MEV		TD=56.0 EV	ET=1.706089 MEV		TD=60.0 EV	ET=1.779837 MEV	
ENERGY(MEV)	PRIMARY	CASCADE	ENERGY(MEV)	PRIMARY	CASCADE	ENERGY(MEV)	PRIMARY	CASCADE
1.64000	0.12	0.12	1.72000	0.14	0.14	1.79000	0.09	0.09
1.66000	0.45	0.45	1.74000	0.44	0.44	1.81000	0.32	0.32
1.69000	1.14	1.14	1.77000	1.06	1.06	1.85000	1.04	1.04
1.74000	2.76	2.76	1.82000	2.48	2.48	1.90000	2.33	2.33
1.80000	5.30	5.30	1.89000	5.13	5.13	1.97000	4.70	4.70
1.89000	9.96	9.96	1.97000	8.81	8.81	2.06000	8.42	8.42
1.98000	15.24	15.24	2.08000	14.56	14.56	2.17000	13.60	13.60
2.11000	23.34	23.34	2.21000	21.80	21.80	2.31000	20.62	20.62
2.28000	33.95	33.95	2.38000	31.27	31.27	2.49000	29.64	29.64
2.52000	47.83	47.83	2.64000	44.68	44.68	2.75000	41.68	41.68
2.85000	63.79	64.21	2.98000	59.33	59.73	3.11000	55.60	56.00
3.25000	78.40	80.80	3.41000	73.24	75.59	3.55000	68.38	70.59
3.74000	90.67	97.54	3.92000	84.48	91.06	4.09000	79.03	85.31
4.40000	100.56	115.77	4.60000	93.46	107.77	4.80000	87.36	100.95
5.21000	106.55	133.58	5.45000	98.99	124.41	5.69000	92.46	116.56
6.19000	109.11	150.74	6.48000	101.32	140.45	6.76000	94.56	131.49
7.33000	109.14	166.79	7.67000	101.29	155.34	8.00000	94.49	145.39
8.47000	107.87	179.99	8.87000	100.06	167.69	9.25000	93.32	156.91
9.77000	105.86	192.68	10.20000	98.22	179.23	10.60000	91.63	167.43
11.40000	103.26	206.07	11.90000	95.81	191.67	12.40000	89.33	179.26
13.80000	99.82	222.28	14.50000	92.50	207.25	15.10000	86.25	193.78
16.20000	96.97	235.62	17.00000	89.88	219.54	17.70000	83.81	205.25
24.40000	90.87	269.17	25.50000	84.30	250.41	26.60000	78.60	234.21
32.50000	87.65	292.25	34.10000	81.29	272.15	35.50000	75.83	254.36
48.80000	84.12	324.49	51.10000	78.06	301.95	53.30000	72.81	282.31
81.40000	81.37	364.84	85.30000	75.52	339.47	88.90000	70.47	317.29
162.00000	79.64	418.98	170.00000	73.93	389.86	177.00000	68.99	364.26

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN HF
Z=72 A=178.500

TD=64.0 EV	ET=1.851285 MEV		TD=68.0 EV	ET=1.920634 MEV		TD=72.0 EV	ET=1.988060 MEV	
ENERGY(MEV)	PRIMARY	CASCADE	ENERGY(MEV)	PRIMARY	CASCADE	ENERGY(MEV)	PRIMARY	CASCADE
1.86000	0.06	0.06	1.93000	0.06	0.06	2.00000	0.07	0.07
1.88000	0.26	0.26	1.95000	0.23	0.23	2.02000	0.23	0.23
1.92000	0.87	0.87	1.99000	0.78	0.78	2.06000	0.72	0.72
1.98000	2.26	2.26	2.05000	2.01	2.01	2.12000	1.84	1.84
2.05000	4.41	4.41	2.13000	4.24	4.24	2.20000	3.86	3.86
2.14000	7.78	7.78	2.22000	7.31	7.31	2.30000	6.97	6.97
2.25000	12.45	12.45	2.34000	11.97	11.97	2.42000	11.24	11.24
2.40000	19.26	19.26	2.49000	18.18	18.18	2.58000	17.31	17.31
2.59000	27.88	27.88	2.68000	26.04	26.04	2.78000	24.88	24.88
2.86000	39.19	39.20	2.97000	37.11	37.12	3.08000	35.35	35.35
3.23000	52.15	52.52	3.36000	49.48	49.87	3.47000	46.66	47.02
3.70000	64.44	66.61	3.84000	60.83	62.92	3.97000	57.50	59.49
4.25000	74.18	80.15	4.41000	69.96	75.68	4.57000	66.25	71.77
4.99000	81.99	94.89	5.18000	77.28	89.62	5.36000	73.05	84.84
5.92000	86.74	109.62	6.14000	81.67	103.43	6.36000	77.18	97.98
7.03000	88.64	123.60	7.29000	83.43	116.59	7.55000	78.79	110.42
8.33000	88.54	136.74	8.64000	83.29	128.99	8.94000	78.63	122.07
9.62000	87.42	147.47	9.98000	82.22	139.11	10.30000	77.63	131.47
11.10000	85.73	157.83	11.50000	80.64	148.79	11.90000	76.10	140.79
12.90000	83.65	168.46	13.40000	78.64	158.97	13.90000	74.17	150.57
15.70000	80.77	182.04	16.30000	75.93	171.72	16.80000	71.70	162.22
18.50000	78.42	193.15	19.20000	73.72	182.16	19.80000	69.61	172.12
27.70000	73.61	220.07	28.80000	69.21	207.62	29.80000	65.32	196.38
37.00000	71.02	239.03	38.40000	66.79	225.36	39.70000	63.05	213.09
55.50000	68.21	265.17	57.60000	64.16	249.97	59.60000	60.57	236.39
92.50000	66.04	297.93	96.00000	62.14	280.80	99.40000	58.67	265.55
185.00000	64.66	342.24	192.00000	60.85	322.51	198.00000	57.46	304.71

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN HF
Z=72 A=178.500

TD=76.0 EV ET=2.053713 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.07000	0.08	0.08
2.09000	0.24	0.24
2.13000	0.70	0.70
2.19000	1.73	1.73
2.27000	3.57	3.57
2.38000	6.73	6.73
2.50000	10.67	10.67
2.66000	16.26	16.26
2.87000	23.58	23.58
3.18000	33.53	33.54
3.59000	44.45	44.81
4.10000	54.57	56.50
4.72000	62.85	68.16
5.54000	69.29	80.61
6.57000	73.15	93.04
7.80000	74.64	104.84
9.24000	74.46	115.92
10.60000	73.53	124.56
12.30000	72.03	133.66
14.30000	70.26	142.66
17.40000	67.83	154.10
20.50000	65.86	163.46
30.80000	61.83	186.35
41.00000	59.70	202.14
61.60000	57.35	224.25
102.00000	55.58	251.50
205.00000	54.43	289.08

TD=80.0 EV ET=2.117727 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.13000	0.05	0.05
2.16000	0.26	0.26
2.20000	0.71	0.71
2.26000	1.66	1.66
2.35000	3.61	3.61
2.45000	6.28	6.28
2.58000	10.22	10.22
2.75000	15.71	15.71
2.96000	22.48	22.48
3.28000	31.97	31.97
3.70000	42.29	42.64
4.23000	51.98	53.85
4.87000	59.83	64.96
5.71000	65.88	76.73
6.77000	69.51	88.53
8.04000	70.91	99.77
9.52000	70.72	110.29
11.00000	69.76	118.92
12.70000	68.37	127.28
14.80000	66.65	135.96
18.00000	64.35	146.80
21.10000	62.54	155.42
31.70000	58.72	177.18
42.30000	56.68	192.30
63.50000	54.47	213.27
105.00000	52.80	239.09
211.00000	51.70	274.79

TD=84.0 EV ET=2.180219 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.20000	0.08	0.08
2.22000	0.22	0.22
2.26000	0.61	0.61
2.33000	1.63	1.63
2.42000	3.45	3.45
2.52000	5.92	5.92
2.65000	9.57	9.57
2.83000	14.96	14.96
3.05000	21.54	21.54
3.37000	30.35	30.36
3.81000	40.39	40.73
4.36000	49.67	51.51
5.01000	57.03	61.95
5.88000	62.80	73.25
6.97000	66.23	84.49
8.28000	67.53	95.22
9.81000	67.33	105.27
11.30000	66.42	113.33
13.00000	65.13	121.10
15.20000	63.46	129.55
18.50000	61.26	139.92
21.80000	59.48	148.41
32.70000	55.87	169.05
43.60000	53.95	183.42
65.40000	51.85	203.36
109.00000	50.26	228.33
218.00000	49.23	262.10

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN HF
Z=72 A=178.500

TD=88.0 EV ET=2.241293 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.26000	0.07	0.07
2.28000	0.19	0.19
2.33000	0.65	0.65
2.39000	1.47	1.47
2.48000	3.13	3.13
2.59000	5.64	5.64
2.73000	9.31	9.31
2.91000	14.34	14.34
3.13000	20.47	20.47
3.47000	29.18	29.19
3.92000	38.70	39.04
4.48000	47.47	49.24
5.15000	54.51	59.26
6.05000	60.02	70.12
7.17000	63.25	80.84
8.51000	64.46	91.04
10.00000	64.28	100.19
11.60000	63.38	108.28
13.40000	62.11	115.91
15.60000	60.55	123.76
19.00000	58.44	133.70
22.40000	56.74	141.83
33.60000	53.31	161.54
44.80000	51.47	175.25
67.20000	49.48	194.29
112.00000	47.96	218.13
224.00000	46.99	250.36

TD=92.0 EV ET=2.301040 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.32000	0.06	0.06
2.34000	0.17	0.17
2.39000	0.59	0.59
2.46000	1.49	1.49
2.55000	3.06	3.06
2.66000	5.42	5.42
2.80000	8.85	8.85
2.99000	13.81	13.81
3.22000	19.79	19.79
3.56000	27.92	27.93
4.02000	37.02	37.35
4.60000	45.49	47.21
5.29000	52.22	56.83
6.21000	57.45	67.18
7.36000	60.52	77.46
8.74000	61.65	87.25
10.30000	61.46	96.16
11.90000	60.61	103.68
13.80000	59.34	111.18
16.10000	57.83	118.79
19.50000	55.87	128.03
23.00000	54.24	135.83
34.50000	50.96	154.69
46.00000	49.21	167.81
69.00000	47.31	186.02
115.00000	45.87	208.83
230.00000	44.94	239.66

TD=96.0 EV ET=2.359544 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.38000	0.06	0.06
2.40000	0.16	0.16
2.45000	0.55	0.55
2.52000	1.39	1.39
2.61000	2.84	2.84
2.73000	5.25	5.25
2.87000	8.46	8.46
3.06000	13.11	13.11
3.30000	18.97	18.97
3.65000	26.81	26.82
4.12000	35.51	35.83
4.71000	43.59	45.24
5.42000	50.07	54.52
6.37000	55.10	64.52
7.55000	58.02	74.38
8.96000	59.08	83.73
10.60000	58.86	92.47
12.20000	58.06	99.49
14.10000	56.87	106.52
16.50000	55.39	113.96
20.00000	53.50	122.86
23.50000	51.98	130.16
35.30000	48.83	148.30
47.10000	47.15	160.91
70.70000	45.33	178.39
117.00000	43.97	199.95
235.00000	43.07	229.68

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN TA
Z=73 A=180.950

TD= 4.0 EV ET=0.262394 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.26500	21.64	21.64
0.26700	37.98	37.98
0.27200	77.85	77.85
0.28000	138.90	138.90
0.29100	217.85	217.85
0.30400	304.51	304.51
0.32000	402.48	402.48
0.34100	518.41	518.41
0.36700	644.86	644.86
0.40600	805.16	805.16
0.45900	978.21	978.21
0.52400	1137.45	1145.56
0.60300	1275.25	1309.74
0.70800	1394.83	1484.31
0.83900	1480.79	1657.70
0.99700	1530.89	1825.77
1.18000	1549.75	1984.93
1.36000	1547.20	2116.90
1.57000	1531.33	2249.23
1.83000	1503.55	2390.47
2.23000	1457.16	2572.99
2.62000	1414.82	2723.27
3.93000	1308.15	3107.18
5.24000	1242.77	3385.34
7.87000	1173.06	3787.53
13.10000	1111.36	4296.40
26.20000	1065.90	4999.21
52.40000	1045.71	5707.88
78.70000	1034.58	6120.00
131.00000	1019.25	6631.04
183.00000	1009.71	6962.50

TD= 8.0 EV ET=0.456035 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.46000	5.20	5.20
0.46500	11.87	11.87
0.47400	24.11	24.11
0.48700	42.25	42.25
0.50600	69.38	69.38
0.52900	102.65	102.65
0.55600	141.55	141.55
0.59200	192.12	192.12
0.63800	253.19	253.19
0.70600	334.45	334.45
0.79800	426.65	427.01
0.91200	515.56	521.57
1.04000	588.74	609.39
1.23000	660.46	715.33
1.45000	708.03	813.74
1.73000	736.99	914.58
2.05000	747.29	1008.13
2.37000	745.62	1086.00
2.73000	737.20	1160.72
3.19000	722.62	1241.76
3.87000	700.04	1341.42
4.56000	679.37	1425.44
6.84000	630.37	1631.98
9.12000	602.52	1779.26
13.60000	573.23	1983.61
22.80000	546.72	2247.13
45.60000	529.37	2603.22
91.20000	520.10	2958.02
136.00000	514.35	3160.13
228.00000	506.59	3418.08
319.00000	502.35	3584.26

TD=12.0 EV ET=0.616907 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.62300	2.81	2.81
0.62900	5.72	5.72
0.64100	11.91	11.91
0.66000	22.57	22.57
0.68400	37.20	37.20
0.71500	57.34	57.34
0.75200	82.34	82.34
0.80100	115.73	115.73
0.86300	156.74	156.74
0.95600	213.18	213.18
1.07000	272.29	272.65
1.23000	337.30	342.22
1.41000	389.92	406.68
1.66000	437.37	479.51
1.97000	469.99	551.79
2.34000	487.54	621.01
2.77000	493.01	686.23
3.20000	490.86	740.38
3.70000	484.17	793.71
4.31000	473.96	848.72
5.24000	458.46	918.19
6.16000	444.99	975.02
9.25000	413.63	1116.23
12.30000	396.61	1215.11
18.50000	378.00	1355.56
30.80000	362.14	1530.09
61.60000	351.97	1768.45
123.00000	345.85	2004.29
185.00000	341.84	2141.70
308.00000	336.83	2310.96
431.00000	334.24	2421.79

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN TA
Z=73 A=180.950

TD=16.0 EV ET=0.757539 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.76500	1.66	1.66
0.77200	3.35	3.35
0.78700	7.36	7.36
0.81000	14.38	14.38
0.84000	24.76	24.76
0.87800	39.29	39.29
0.92400	58.04	58.04
0.98400	83.15	83.15
1.06000	114.41	114.41
1.17000	156.32	156.32
1.32000	205.05	205.51
1.51000	253.07	257.46
1.74000	294.43	309.25
2.04000	328.82	364.16
2.42000	352.53	419.89
2.87000	364.65	472.80
3.40000	367.85	523.18
3.93000	365.52	564.92
4.54000	360.03	605.46
5.30000	351.90	648.11
6.43000	340.25	700.46
7.57000	330.10	744.06
11.30000	307.59	849.59
15.10000	295.19	925.58
22.70000	281.81	1031.23
37.80000	270.62	1162.65
75.70000	263.55	1342.11
151.00000	258.96	1518.62

TD=20.0 EV ET=0.884066 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.89200	1.01	1.01
0.90100	2.29	2.29
0.91900	5.25	5.25
0.94500	10.31	10.31
0.98100	18.52	18.52
1.02000	28.53	28.53
1.07000	42.40	42.40
1.14000	62.66	62.66
1.23000	88.56	88.56
1.37000	125.89	125.89
1.54000	164.37	164.84
1.76000	203.08	207.03
2.03000	236.60	249.66
2.38000	263.90	294.49
2.82000	282.24	339.61
3.35000	291.39	383.10
3.97000	293.32	424.09
4.59000	290.99	458.00
5.30000	286.29	490.70
6.18000	279.65	524.95
7.51000	270.17	567.56
8.84000	262.09	602.68
13.20000	244.50	687.74
17.60000	234.97	748.30
26.50000	224.53	833.36
44.20000	215.96	939.07
88.40000	210.61	1082.51
176.00000	206.93	1223.26

TD=24.0 EV ET=1.000035 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.01000	0.81	0.81
1.02000	1.76	1.76
1.04000	4.01	4.01
1.07000	8.13	8.13
1.11000	14.71	14.71
1.16000	24.17	24.17
1.22000	36.59	36.59
1.30000	53.89	53.89
1.40000	75.34	75.34
1.55000	105.19	105.19
1.75000	138.85	139.37
2.00000	171.19	175.03
2.30000	198.42	210.30
2.70000	220.99	248.47
3.20000	235.72	286.57
3.80000	242.73	323.12
4.50000	243.84	357.45
5.20000	241.60	385.84
6.00000	237.48	413.16
7.00000	231.80	442.00
8.50000	223.89	477.58
10.00000	217.21	506.89
15.00000	202.68	578.91
20.00000	194.96	629.49
30.00000	186.54	699.82
50.00000	179.66	787.91
100.00000	175.37	907.53
200.00000	172.26	1025.54

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN TA
Z=73 A=180.950

TD=28.0 EV ET=1.107716 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.11000	0.12	0.12
1.12000	0.70	0.70
1.15000	3.00	3.00
1.18000	6.01	6.01
1.22000	10.88	10.88
1.28000	19.50	19.50
1.35000	30.74	30.74
1.44000	45.97	45.97
1.55000	64.47	64.47
1.71000	89.50	89.50
1.93000	118.68	119.15
2.21000	147.10	150.58
2.54000	170.43	181.07
2.99000	189.99	214.72
3.54000	202.24	247.49
4.20000	207.93	278.92
4.98000	208.63	308.80
5.76000	206.51	333.44
6.64000	202.87	356.83
7.75000	197.91	381.75
9.41000	191.11	412.37
11.00000	185.62	436.59
16.60000	173.15	499.45
22.10000	166.66	542.65
33.20000	159.54	603.23
55.30000	153.81	678.74
110.00000	150.25	780.51
221.00000	147.56	882.30

TD=32.0 EV ET=1.208669 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.22000	0.46	0.46
1.23000	0.95	0.95
1.25000	2.13	2.13
1.29000	5.24	5.24
1.34000	10.18	10.18
1.40000	17.20	17.20
1.47000	26.28	26.28
1.57000	39.98	39.98
1.69000	56.36	56.36
1.87000	79.17	79.16
2.11000	104.81	105.29
2.41000	129.28	132.54
2.77000	149.69	159.47
3.26000	166.64	189.12
3.86000	177.14	218.02
4.59000	181.91	246.05
5.43000	182.29	271.97
6.28000	180.30	293.62
7.25000	176.98	314.39
8.46000	172.60	336.24
10.20000	166.85	362.15
12.00000	161.86	384.28
18.10000	151.09	439.35
24.10000	145.50	477.21
36.20000	139.35	530.25
60.40000	134.44	596.59
120.00000	131.41	685.51
241.00000	129.04	774.50

TD=36.0 EV ET=1.304015 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.31000	0.17	0.17
1.33000	0.91	0.91
1.35000	1.87	1.87
1.39000	4.37	4.37
1.44000	8.36	8.36
1.51000	15.08	15.08
1.59000	23.70	23.70
1.69000	35.10	35.10
1.82000	49.88	49.88
2.02000	70.95	70.95
2.28000	93.93	94.42
2.60000	115.47	118.53
2.99000	133.63	142.74
3.52000	148.55	169.30
4.17000	157.67	195.21
4.95000	161.66	219.99
5.86000	161.83	243.23
6.78000	159.95	262.59
7.82000	156.95	280.99
9.12000	153.03	300.39
11.00000	147.89	323.53
13.00000	143.35	343.78
19.50000	134.02	392.17
26.00000	129.08	426.02
39.10000	123.67	473.33
65.20000	119.40	532.27
130.00000	116.74	611.74
260.00000	114.65	690.35

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN TA
Z=73 A=180.950

TD=40.0 EV ET=1.394596 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.40000	0.12	0.12
1.42000	0.69	0.69
1.45000	1.88	1.88
1.49000	4.03	4.03
1.54000	7.40	7.40
1.61000	13.04	13.04
1.70000	21.24	21.24
1.81000	31.88	31.88
1.95000	45.38	45.38
2.16000	64.13	64.13
2.44000	85.07	85.55
2.78000	104.35	107.24
3.20000	120.75	129.31
3.76000	133.91	153.06
4.46000	142.04	176.66
5.29000	145.46	198.95
6.27000	145.49	220.08
7.25000	143.72	237.48
8.36000	140.97	254.06
9.76000	137.39	271.68
11.80000	132.70	292.80
13.90000	128.71	310.69
20.90000	120.35	354.57
27.80000	115.99	384.80
41.80000	111.17	427.38
69.70000	107.39	480.46
139.00000	105.03	552.01
278.00000	103.14	622.74

TD=44.0 EV ET=1.481062 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.49000	0.16	0.16
1.51000	0.64	0.64
1.54000	1.66	1.66
1.58000	3.46	3.46
1.64000	6.93	6.93
1.71000	11.79	11.79
1.80000	18.84	18.84
1.92000	28.84	28.84
2.07000	41.33	41.33
2.29000	58.29	58.29
2.59000	77.62	78.08
2.96000	95.56	98.38
3.40000	110.16	118.22
3.99000	121.93	139.74
4.73000	129.20	161.21
5.62000	132.22	181.74
6.66000	132.14	200.99
7.70000	130.47	216.82
8.88000	127.93	231.94
10.30000	124.79	247.32
12.50000	120.44	266.95
14.80000	116.71	283.74
22.20000	109.22	323.44
29.60000	105.26	351.17
44.40000	100.95	389.67
74.00000	97.57	437.90
148.00000	95.45	503.23
296.00000	93.73	567.51

TD=48.0 EV ET=1.563929 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.57000	0.09	0.09
1.59000	0.46	0.46
1.62000	1.27	1.27
1.67000	3.18	3.18
1.73000	6.19	6.19
1.81000	11.05	11.05
1.90000	17.21	17.21
2.03000	26.69	26.69
2.18000	37.61	37.61
2.42000	53.78	53.78
2.73000	71.21	71.65
3.12000	87.72	90.36
3.59000	101.26	108.86
4.22000	112.05	128.86
5.00000	118.55	148.53
5.94000	121.19	167.38
7.03000	121.03	184.93
8.13000	119.45	199.50
9.38000	117.08	213.42
10.90000	114.15	227.72
13.20000	110.20	245.53
15.60000	106.82	260.77
23.40000	100.00	297.21
31.20000	96.39	322.64
46.90000	92.45	358.13
78.10000	89.40	402.28
156.00000	87.48	462.06
312.00000	85.89	520.98

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN TA
Z=73 A=180.950

TD=52.0 EV ET=1.643611 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.66000	0.21	0.21
1.67000	0.39	0.39
1.70000	1.07	1.07
1.75000	2.69	2.69
1.82000	5.76	5.76
1.90000	10.04	10.04
2.00000	16.10	16.10
2.13000	24.47	24.47
2.30000	35.41	35.41
2.54000	49.67	49.67
2.87000	66.03	66.46
3.28000	81.27	83.81
3.78000	93.85	101.13
4.43000	103.54	119.31
5.25000	109.48	137.54
6.24000	111.85	155.04
7.39000	111.64	171.33
8.54000	110.14	184.73
9.86000	107.92	197.67
11.50000	105.14	211.19
13.90000	101.52	227.49
16.40000	98.44	241.43
24.60000	92.19	275.09
32.80000	88.88	298.57
49.30000	85.27	331.33
82.10000	82.49	372.11
164.00000	80.73	427.30

TD=56.0 EV ET=1.720449 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.73000	0.10	0.10
1.75000	0.38	0.38
1.78000	0.98	0.98
1.84000	2.74	2.74
1.90000	5.09	5.09
1.99000	9.36	9.36
2.09000	14.76	14.76
2.23000	22.81	22.81
2.40000	32.57	32.57
2.66000	46.36	46.36
3.01000	61.77	62.21
3.44000	75.89	78.35
3.95000	87.23	94.08
4.64000	96.31	111.26
5.50000	101.74	128.25
6.53000	103.85	144.42
7.74000	103.59	159.64
8.94000	102.17	172.06
10.30000	100.12	183.91
12.00000	97.55	196.40
14.60000	94.07	212.07
17.20000	91.25	224.91
25.80000	85.48	256.18
34.40000	82.43	277.99
51.60000	79.12	308.27
86.00000	76.56	346.21
172.00000	74.94	397.55

TD=60.0 EV ET=1.794728 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.81000	0.14	0.14
1.83000	0.40	0.40
1.86000	0.96	0.96
1.92000	2.55	2.55
1.99000	5.03	5.03
2.08000	8.92	8.92
2.18000	13.78	13.78
2.33000	21.54	21.54
2.51000	30.83	30.83
2.78000	43.66	43.66
3.14000	57.85	58.28
3.58000	70.82	73.14
4.12000	81.58	88.11
4.84000	90.01	104.18
5.74000	95.02	120.12
6.81000	96.92	135.17
8.07000	96.63	149.38
9.33000	95.27	161.06
10.70000	93.40	171.78
12.50000	90.95	183.66
15.20000	87.72	198.26
17.90000	85.09	210.22
26.90000	79.71	239.57
35.80000	76.89	259.80
53.80000	73.80	288.20
89.70000	71.43	323.64
179.00000	69.94	371.41

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN TA
Z=73 A=180.950

TD=64.0 EV ET=1.866688 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.88000	0.10	0.10
1.90000	0.32	0.32
1.94000	0.99	0.99
1.99000	2.18	2.18
2.07000	4.71	4.71
2.16000	8.21	8.21
2.27000	13.05	13.05
2.42000	20.08	20.08
2.61000	28.97	28.97
2.89000	41.01	41.02
3.26000	54.22	54.63
3.73000	66.71	68.98
4.29000	76.70	82.98
5.04000	84.53	98.08
5.97000	89.12	112.94
7.09000	90.85	127.15
8.40000	90.54	140.47
9.70000	89.25	151.34
11.20000	87.39	161.89
13.00000	85.17	172.57
15.80000	82.15	186.23
18.60000	79.69	197.43
28.00000	74.65	225.07
37.30000	72.02	244.11
56.00000	69.15	270.67
93.30000	66.95	303.86
186.00000	65.56	348.58

TD=68.0 EV ET=1.936533 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.95000	0.09	0.09
1.97000	0.28	0.28
2.01000	0.87	0.87
2.07000	2.17	2.17
2.14000	4.18	4.18
2.24000	7.69	7.69
2.36000	12.51	12.51
2.51000	18.93	18.93
2.71000	27.45	27.45
3.00000	38.79	38.80
3.38000	51.13	51.52
3.87000	62.95	65.13
4.45000	72.31	78.32
5.22000	79.59	92.43
6.19000	83.91	106.53
7.35000	85.50	119.91
8.71000	85.17	132.49
10.00000	84.00	142.32
11.60000	82.19	152.59
13.50000	80.07	162.83
16.40000	77.22	175.66
19.30000	74.92	186.18
29.00000	70.22	212.10
38.70000	67.73	230.13
58.00000	65.05	255.03
96.80000	62.99	286.37
193.00000	61.69	328.47

TD=72.0 EV ET=2.004439 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.02000	0.09	0.09
2.04000	0.27	0.27
2.08000	0.80	0.80
2.14000	1.97	1.97
2.22000	4.08	4.08
2.32000	7.32	7.32
2.44000	11.73	11.73
2.60000	18.00	18.00
2.80000	25.81	25.81
3.10000	36.58	36.58
3.50000	48.46	48.85
4.00000	59.48	61.56
4.61000	68.46	74.25
5.41000	75.29	87.63
6.41000	79.29	100.90
7.61000	80.75	113.54
9.01000	80.41	125.36
10.40000	79.23	135.01
12.00000	77.57	144.37
14.00000	75.52	154.20
17.00000	72.84	166.29
20.00000	70.68	176.21
30.00000	66.27	200.60
40.00000	63.94	217.58
60.10000	61.40	241.25
100.00000	59.48	270.68
200.00000	58.25	310.62

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN TA
Z=73 A=180.950

TD=76.0 EV ET=2.070560 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.09000	0.11	0.11
2.11000	0.27	0.27
2.15000	0.77	0.77
2.21000	1.84	1.84
2.29000	3.77	3.77
2.40000	7.04	7.04
2.52000	11.12	11.12
2.69000	17.25	17.25
2.89000	24.44	24.44
3.20000	34.69	34.69
3.62000	46.14	46.53
4.14000	56.61	58.65
4.76000	64.93	70.49
5.59000	71.40	83.24
6.62000	75.14	95.79
7.86000	76.49	107.78
9.31000	76.14	119.02
10.70000	75.05	127.90
12.40000	73.43	137.04
14.40000	71.54	146.08
17.50000	68.99	157.60
20.70000	66.88	167.32
31.00000	62.74	190.34
41.40000	60.53	206.52
62.10000	58.15	228.85
103.00000	56.35	256.57
207.00000	55.18	294.67

TD=80.0 EV ET=2.135029 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.15000	0.07	0.07
2.17000	0.21	0.21
2.22000	0.76	0.76
2.28000	1.76	1.76
2.36000	3.54	3.54
2.47000	6.55	6.55
2.60000	10.63	10.63
2.77000	16.30	16.30
2.98000	23.28	23.28
3.30000	33.05	33.06
3.73000	43.88	44.25
4.27000	53.90	55.89
4.91000	61.80	67.15
5.76000	67.87	79.21
6.83000	71.42	91.23
8.11000	72.66	102.64
9.60000	72.31	113.28
11.10000	71.20	122.08
12.80000	69.69	130.48
14.90000	67.87	139.21
18.10000	65.45	150.13
21.30000	63.50	159.08
32.00000	59.56	181.12
42.70000	57.47	196.45
64.00000	55.22	217.63
106.00000	53.52	243.89
213.00000	52.41	280.08

TD=84.0 EV ET=2.197964 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.21000	0.05	0.05
2.24000	0.24	0.24
2.28000	0.65	0.65
2.35000	1.72	1.72
2.43000	3.38	3.38
2.54000	6.17	6.17
2.68000	10.24	10.24
2.85000	15.51	15.51
3.07000	22.30	22.30
3.40000	31.63	31.64
3.84000	41.89	42.25
4.39000	51.35	53.25
5.05000	58.89	64.03
5.93000	64.70	75.60
7.03000	68.04	87.05
8.35000	69.20	97.94
9.89000	68.83	108.12
11.40000	67.79	116.33
13.10000	66.39	124.14
15.30000	64.62	132.64
18.60000	62.30	143.09
21.90000	60.45	151.64
32.90000	56.70	172.65
43.90000	54.71	187.25
65.90000	52.57	207.50
109.00000	50.97	232.45
219.00000	49.91	266.91

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN TA
Z=73 A=180.950

TD=88.0 EV ET=2.259470 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.28000	0.08	0.08
2.30000	0.21	0.21
2.34000	0.57	0.57
2.41000	1.54	1.54
2.50000	3.26	3.26
2.62000	6.12	6.12
2.75000	9.65	9.65
2.93000	14.85	14.85
3.16000	21.45	21.45
3.50000	30.39	30.40
3.95000	40.12	40.48
4.51000	49.06	50.89
5.19000	56.28	61.23
6.10000	61.82	72.35
7.23000	64.97	83.28
8.58000	66.05	93.63
10.10000	65.72	103.00
11.70000	64.69	111.12
13.50000	63.31	118.80
15.80000	61.58	127.03
19.20000	59.38	136.98
22.50000	57.67	144.91
33.80000	54.09	164.96
45.10000	52.20	178.90
67.70000	50.17	198.23
112.00000	48.64	222.06
225.00000	47.64	254.95

TD=92.0 EV ET=2.319640 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.34000	0.07	0.07
2.36000	0.18	0.18
2.41000	0.62	0.62
2.48000	1.56	1.56
2.57000	3.18	3.18
2.69000	5.86	5.86
2.82000	9.16	9.16
3.01000	14.29	14.29
3.24000	20.46	20.46
3.59000	29.07	29.07
4.05000	38.37	38.71
4.63000	47.01	48.78
5.33000	53.91	58.71
6.26000	59.17	69.31
7.42000	62.16	79.77
8.81000	63.17	89.71
10.40000	62.82	98.84
12.00000	61.86	106.40
13.90000	60.49	113.94
16.20000	58.88	121.60
19.70000	56.77	131.16
23.10000	55.12	138.78
34.70000	51.72	157.96
46.30000	49.91	171.30
69.50000	47.97	189.79
115.00000	46.52	212.59
231.00000	45.57	244.04

TD=96.0 EV ET=2.378557 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.40000	0.07	0.07
2.42000	0.17	0.17
2.47000	0.58	0.58
2.54000	1.44	1.44
2.64000	3.14	3.14
2.75000	5.44	5.44
2.90000	9.00	9.00
3.09000	13.81	13.81
3.32000	19.60	19.60
3.68000	27.89	27.90
4.16000	36.96	37.31
4.75000	45.15	46.88
5.47000	51.76	56.43
6.42000	56.74	66.55
7.61000	59.59	76.59
9.03000	60.53	86.08
10.70000	60.17	95.03
12.30000	59.26	102.08
14.20000	57.97	109.16
16.60000	56.40	116.65
20.20000	54.37	125.84
23.70000	52.79	133.17
35.60000	49.53	151.56
47.50000	47.81	164.34
71.30000	45.95	182.06
118.00000	44.57	203.92
237.00000	43.66	234.06

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN W
Z=74 A=183.860

TD= 4.0 EV ET=0.265890 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.26800	17.71	17.71
0.27100	42.44	42.44
0.27600	82.57	82.57
0.28400	144.14	144.14
0.29500	223.93	223.93
0.30800	311.71	311.71
0.32400	411.20	411.20
0.34500	529.22	529.22
0.37200	662.92	662.92
0.41200	829.91	829.91
0.46500	1005.68	1005.68
0.53100	1169.82	1178.31
0.61100	1310.90	1346.80
0.71700	1432.23	1525.05
0.85000	1518.85	1702.65
1.01000	1567.81	1873.91
1.19000	1584.43	2031.54
1.38000	1579.52	2171.45
1.59000	1561.27	2303.91
1.86000	1529.86	2450.48
2.26000	1480.66	2632.69
2.65000	1436.38	2783.01
3.98000	1324.58	3172.78
5.31000	1257.04	3454.90
7.97000	1185.96	3861.25
13.20000	1123.81	4370.92
26.50000	1077.59	5085.68
53.10000	1057.07	5804.13
79.70000	1045.53	6219.85
132.00000	1029.77	6730.90
186.00000	1019.74	7074.32

TD= 8.0 EV ET=0.461623 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.46600	5.81	5.81
0.47000	11.20	11.20
0.48000	24.98	24.98
0.49300	43.41	43.41
0.51200	71.03	71.03
0.53500	104.96	104.96
0.56300	146.18	146.18
0.60000	199.28	199.28
0.64600	261.68	261.68
0.71500	345.87	345.87
0.80700	439.90	440.27
0.92300	531.88	538.17
1.06000	610.27	632.96
1.24000	678.00	734.18
1.47000	727.27	837.97
1.75000	754.91	939.24
2.07000	763.86	1033.22
2.40000	760.82	1113.72
2.76000	751.14	1188.50
3.23000	734.96	1271.32
3.92000	710.69	1372.34
4.61000	689.11	1456.29
6.92000	638.01	1665.51
9.23000	609.37	1814.67
13.80000	579.34	2022.68
23.00000	552.76	2286.15
46.10000	535.21	2647.42
92.30000	525.70	3006.59
138.00000	519.67	3212.07
230.00000	511.74	3469.60
323.00000	507.40	3639.33

TD=12.0 EV ET=0.624092 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.63000	2.75	2.75
0.63600	5.70	5.70
0.64900	12.52	12.52
0.66700	22.81	22.81
0.69200	38.36	38.36
0.72300	58.98	58.98
0.76100	85.29	85.29
0.81100	120.21	120.21
0.87300	162.22	162.22
0.96700	220.57	220.57
1.09000	285.20	285.68
1.24000	346.88	351.84
1.43000	402.97	420.82
1.68000	450.14	494.22
1.99000	482.24	567.04
2.37000	499.34	638.43
2.80000	503.73	703.79
3.24000	500.59	759.25
3.74000	493.03	812.59
4.36000	481.83	868.52
5.30000	465.30	938.70
6.24000	450.98	996.68
9.36000	418.52	1139.05
12.40000	401.28	1237.74
18.70000	382.17	1380.69
31.20000	366.04	1557.92
62.40000	355.83	1798.98
124.00000	349.58	2035.68
187.00000	345.39	2175.37
312.00000	340.21	2347.03
436.00000	337.62	2458.54

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN W
Z=74 A=183.860

TD=16.0 EV ET=0.766055 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.77300	1.56	1.56
0.78100	3.52	3.52
0.79600	7.61	7.61
0.81900	14.78	14.78
0.85000	25.78	25.78
0.88800	40.69	40.69
0.93400	59.94	59.94
0.99500	86.15	86.15
1.07000	117.80	117.80
1.18000	160.80	160.80
1.34000	213.74	214.28
1.53000	262.16	266.86
1.76000	303.70	319.24
2.06000	338.06	374.71
2.45000	361.90	432.28
2.91000	373.40	486.44
3.44000	375.70	536.84
3.98000	372.60	579.35
4.59000	366.45	619.87
5.36000	357.61	663.08
6.51000	345.14	716.28
7.66000	334.52	760.20
11.40000	311.34	866.08
15.30000	298.44	944.06
22.90000	284.97	1049.74
38.30000	273.54	1183.77
76.60000	266.45	1364.90
153.00000	261.70	1543.61

TD=20.0 EV ET=0.893745 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.90200	1.06	1.06
0.91100	2.37	2.37
0.92900	5.39	5.39
0.95600	10.78	10.78
0.99200	19.22	19.22
1.03000	29.24	29.24
1.09000	46.40	46.40
1.16000	67.26	67.26
1.25000	93.76	93.76
1.38000	129.22	129.22
1.56000	170.81	171.34
1.78000	209.98	214.14
2.05000	243.76	257.33
2.41000	271.71	303.85
2.85000	289.56	349.21
3.39000	298.24	393.67
4.02000	299.48	435.34
4.64000	296.58	469.24
5.36000	291.30	502.40
6.25000	284.10	537.02
7.59000	274.08	579.94
8.93000	265.63	615.33
13.40000	247.22	702.37
17.80000	237.60	762.79
26.80000	226.98	848.78
44.60000	218.34	955.21
89.30000	212.94	1100.49
178.00000	209.13	1242.96

TD=24.0 EV ET=1.010757 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.02000	0.76	0.76
1.03000	1.71	1.71
1.05000	3.99	3.99
1.08000	8.17	8.17
1.12000	14.89	14.89
1.17000	24.57	24.57
1.23000	37.30	37.30
1.31000	55.06	55.06
1.41000	77.12	77.12
1.56000	107.81	107.81
1.76000	142.41	142.91
2.02000	176.74	180.74
2.32000	204.25	216.52
2.72000	226.92	255.17
3.23000	241.72	294.40
3.84000	248.35	331.72
4.54000	248.93	366.16
5.25000	246.20	395.04
6.06000	241.62	422.73
7.07000	235.50	451.89
8.59000	227.09	487.95
10.10000	220.11	517.46
15.10000	205.18	589.67
20.20000	197.17	641.40
30.30000	188.60	712.51
50.50000	181.63	801.59
101.00000	177.31	922.54
202.00000	174.10	1041.79

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN W
Z=74 A=183.860

TD=28.0 EV ET=1.119393 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.13000	0.60	0.60
1.14000	1.28	1.28
1.16000	2.90	2.90
1.19000	5.94	5.94
1.24000	12.26	12.26
1.29000	19.69	19.69
1.36000	31.21	31.21
1.45000	46.84	46.84
1.56000	65.87	65.87
1.73000	93.13	93.13
1.95000	122.85	123.35
2.23000	151.72	155.32
2.57000	175.91	187.12
3.02000	195.33	221.06
3.58000	207.46	254.61
4.25000	212.73	286.60
5.03000	212.94	316.51
5.82000	210.38	341.50
6.71000	206.35	365.17
7.83000	201.02	390.32
9.51000	193.81	421.30
11.10000	188.12	445.54
16.70000	175.29	508.62
22.30000	168.57	552.76
33.50000	161.31	614.00
55.90000	155.49	690.62
111.00000	151.91	793.27
223.00000	149.13	896.12

TD=32.0 EV ET=1.221230 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.23000	0.35	0.35
1.24000	0.83	0.83
1.27000	2.69	2.69
1.30000	5.12	5.12
1.35000	10.13	10.13
1.41000	17.28	17.28
1.48000	26.58	26.58
1.58000	40.64	40.64
1.70000	57.49	57.49
1.89000	82.19	82.19
2.13000	108.34	108.84
2.44000	133.94	137.42
2.80000	154.38	164.63
3.29000	171.24	194.56
3.90000	181.65	224.14
4.64000	186.07	252.65
5.49000	186.01	278.91
6.35000	183.64	300.81
7.32000	180.02	321.59
8.54000	175.31	343.65
10.30000	169.22	369.87
12.20000	163.79	393.16
18.30000	152.84	448.07
24.40000	147.10	486.53
36.60000	140.87	539.96
61.00000	135.92	606.91
122.00000	132.83	697.69
244.00000	130.40	787.06

TD=36.0 EV ET=1.317403 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.33000	0.39	0.39
1.34000	0.78	0.78
1.37000	2.27	2.27
1.40000	4.22	4.22
1.46000	9.15	9.15
1.52000	15.08	15.08
1.60000	23.91	23.91
1.71000	36.79	36.79
1.84000	51.96	51.96
2.04000	73.53	73.53
2.30000	96.99	97.50
2.63000	119.50	122.75
3.03000	138.10	147.80
3.55000	152.59	174.07
4.21000	161.64	200.57
5.00000	165.32	225.77
5.92000	165.12	249.31
6.85000	162.90	268.90
7.90000	159.60	287.49
9.22000	155.38	307.19
11.10000	150.00	330.33
13.10000	145.29	350.63
19.70000	135.59	399.84
26.30000	130.51	434.21
39.50000	125.03	481.89
65.80000	120.72	541.38
131.00000	118.04	621.56
263.00000	115.86	701.42

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN W
Z=74 A=183.860

TD=40.0 EV ET=1.408764 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.42000	0.27	0.27
1.43000	0.56	0.56
1.46000	1.73	1.73
1.50000	3.86	3.86
1.56000	8.02	8.02
1.63000	13.88	13.88
1.71000	21.37	21.37
1.83000	33.30	33.30
1.97000	47.16	47.16
2.18000	66.37	66.37
2.46000	87.76	88.25
2.81000	107.90	110.96
3.24000	124.70	133.77
3.80000	137.69	157.68
4.50000	145.59	181.42
5.35000	148.75	204.33
6.33000	148.43	225.49
7.32000	146.37	243.10
8.45000	143.33	259.98
9.86000	139.50	277.73
11.90000	134.60	298.87
14.00000	130.45	316.82
21.10000	121.76	361.42
28.10000	117.28	392.11
42.20000	112.40	435.04
70.40000	108.57	488.76
140.00000	106.20	560.81
281.00000	104.23	632.65

TD=44.0 EV ET=1.495971 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.51000	0.27	0.27
1.52000	0.52	0.52
1.55000	1.50	1.50
1.60000	3.80	3.80
1.66000	7.43	7.43
1.73000	12.48	12.48
1.82000	19.76	19.76
1.94000	30.05	30.05
2.09000	42.87	42.87
2.31000	60.25	60.25
2.61000	80.02	80.49
2.99000	98.73	101.69
3.44000	113.69	122.20
4.03000	125.33	143.88
4.78000	132.45	165.75
5.68000	135.19	186.57
6.73000	134.79	206.03
7.77000	132.87	221.88
8.97000	130.07	237.28
10.40000	126.72	252.77
12.70000	121.98	273.23
14.90000	118.29	289.28
22.40000	110.51	329.63
29.90000	106.45	357.77
44.80000	102.07	396.59
74.70000	98.65	445.40
149.00000	96.51	511.20
299.00000	94.72	576.47

TD=48.0 EV ET=1.579543 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.59000	0.16	0.16
1.61000	0.57	0.57
1.64000	1.44	1.44
1.69000	3.45	3.45
1.75000	6.59	6.59
1.83000	11.62	11.62
1.92000	17.98	17.98
2.05000	27.73	27.73
2.21000	39.68	39.68
2.44000	55.53	55.53
2.76000	73.87	74.35
3.15000	90.58	93.34
3.63000	104.45	112.45
4.26000	115.14	132.61
5.05000	121.51	152.65
6.00000	123.90	171.77
7.10000	123.45	189.50
8.21000	121.62	204.22
9.47000	119.04	218.27
11.00000	115.91	232.68
13.40000	111.62	251.22
15.70000	108.27	265.83
23.60000	101.19	302.85
31.50000	97.48	328.65
47.30000	93.48	364.44
78.90000	90.38	409.24
157.00000	88.45	469.35
315.00000	86.80	529.16

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN W
Z=74 A=183.860

TD=52.0 EV ET=1.659900 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.67000	0.12	0.12
1.69000	0.47	0.47
1.72000	1.19	1.19
1.77000	2.90	2.90
1.84000	6.08	6.08
1.92000	10.51	10.51
2.02000	16.76	16.76
2.15000	25.38	25.38
2.32000	36.61	36.61
2.57000	51.80	51.80
2.90000	68.44	68.90
3.31000	83.88	86.51
3.81000	96.56	104.08
4.48000	106.48	122.98
5.31000	112.24	141.50
6.30000	114.34	159.04
7.46000	113.87	175.51
8.63000	112.13	189.16
9.95000	109.73	202.11
11.60000	106.76	215.74
14.10000	102.83	232.69
16.50000	99.78	246.07
24.80000	93.28	280.27
33.10000	89.89	304.09
49.70000	86.22	337.14
82.90000	83.39	378.50
165.00000	81.63	434.01

TD=56.0 EV ET=1.737387 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.75000	0.13	0.13
1.77000	0.44	0.44
1.80000	1.07	1.07
1.85000	2.56	2.56
1.92000	5.35	5.35
2.01000	9.77	9.77
2.11000	15.33	15.33
2.25000	23.60	23.60
2.43000	34.21	34.21
2.69000	48.29	48.29
3.04000	63.97	64.43
3.47000	78.28	80.84
3.99000	89.91	97.07
4.69000	99.02	114.63
5.55000	104.25	131.71
6.60000	106.16	148.25
7.81000	105.65	163.50
9.03000	104.02	176.14
10.40000	101.78	188.09
12.10000	99.05	200.60
14.70000	95.42	216.32
17.30000	92.49	229.21
26.00000	86.50	260.97
34.70000	83.37	283.10
52.10000	79.99	313.78
86.80000	77.41	352.12
173.00000	75.78	403.77

TD=60.0 EV ET=1.812291 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.83000	0.17	0.17
1.84000	0.30	0.30
1.88000	1.03	1.03
1.93000	2.37	2.37
2.01000	5.26	5.26
2.10000	9.26	9.26
2.21000	14.79	14.79
2.35000	22.25	22.25
2.53000	31.80	31.80
2.80000	44.97	44.97
3.17000	59.87	60.32
3.62000	73.28	75.73
4.16000	84.05	90.86
4.89000	92.51	107.30
5.79000	97.35	123.32
6.88000	99.06	138.71
8.15000	98.54	153.06
9.42000	96.99	164.85
10.80000	94.96	175.66
12.60000	92.36	187.56
15.40000	88.87	202.69
18.10000	86.16	214.63
27.10000	80.66	244.02
36.20000	77.75	264.74
54.30000	74.62	293.32
90.60000	72.22	329.21
181.00000	70.71	377.59

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN W
Z=74 A=183.860

TD=64.0 EV ET=1.884854 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.90000	0.12	0.12
1.92000	0.35	0.35
1.96000	1.05	1.05
2.01000	2.28	2.28
2.09000	4.89	4.89
2.18000	8.50	8.50
2.29000	13.49	13.49
2.45000	21.20	21.20
2.63000	29.85	29.85
2.92000	42.63	42.63
3.29000	56.08	56.50
3.76000	68.76	71.10
4.33000	79.00	85.54
5.08000	86.79	100.79
6.03000	91.33	116.06
7.16000	92.86	130.45
8.48000	92.32	143.90
9.80000	90.84	154.94
11.30000	88.84	165.51
13.10000	86.49	176.21
16.00000	83.23	190.36
18.80000	80.70	201.54
28.20000	75.55	229.24
37.60000	72.84	248.54
56.50000	69.91	275.46
94.20000	67.69	309.06
188.00000	66.28	354.35

TD=68.0 EV ET=1.955284 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.97000	0.10	0.10
1.99000	0.30	0.30
2.03000	0.91	0.91
2.09000	2.25	2.25
2.17000	4.65	4.65
2.26000	7.94	7.94
2.38000	12.90	12.90
2.54000	19.94	19.94
2.73000	28.26	28.26
3.03000	40.28	40.29
3.42000	53.15	53.57
3.91000	65.07	67.37
4.49000	74.46	80.70
5.27000	81.77	95.13
6.25000	85.98	109.45
7.43000	87.38	123.10
8.79000	86.85	135.69
10.10000	85.51	145.69
11.70000	83.56	155.97
13.60000	81.31	166.24
16.60000	78.24	179.52
19.50000	75.88	190.03
29.30000	71.03	216.22
39.10000	68.49	234.45
58.60000	65.77	259.62
97.70000	63.69	291.25
195.00000	62.37	333.88

TD=72.0 EV ET=2.023757 MEV

ENERGY(MEV)	PRIMARY	CASCADE
2.04000	0.10	0.10
2.06000	0.28	0.28
2.10000	0.83	0.83
2.16000	2.04	2.04
2.24000	4.20	4.20
2.34000	7.53	7.53
2.46000	12.07	12.07
2.63000	18.93	18.93
2.83000	26.94	26.94
3.13000	37.95	37.96
3.54000	50.34	50.75
4.04000	61.46	63.65
4.65000	70.47	76.48
5.46000	77.34	90.16
6.47000	81.23	103.64
7.69000	82.52	116.52
9.10000	81.98	128.45
10.50000	80.65	138.17
12.10000	78.86	147.55
14.10000	76.69	157.41
17.20000	73.81	169.92
20.20000	71.58	179.83
30.30000	67.04	204.48
40.40000	64.66	221.64
60.70000	62.08	245.57
101.00000	60.14	275.34
202.00000	58.89	315.71

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN W
Z=74 A=183.860

TD=76.0 EV ET=2.090428 MEV

ENERGY(MEV)	PRIMARY	CASCADE
2.11000	0.11	0.11
2.13000	0.28	0.28
2.17000	0.79	0.79
2.23000	1.89	1.89
2.32000	4.15	4.15
2.42000	7.23	7.23
2.55000	11.78	11.78
2.71000	17.73	17.73
2.92000	25.48	25.48
3.24000	36.28	36.28
3.65000	47.65	48.05
4.18000	58.47	60.61
4.80000	66.83	72.59
5.64000	73.33	85.62
6.68000	76.98	98.37
7.94000	78.16	110.59
9.40000	77.63	121.93
10.80000	76.40	130.86
12.50000	74.65	140.04
14.60000	72.56	149.53
17.70000	69.91	161.02
20.90000	67.73	170.73
31.30000	63.47	194.00
41.80000	61.21	210.35
62.70000	58.79	232.93
104.00000	56.97	260.96
209.00000	55.78	299.48

TD=80.0 EV ET=2.155433 MEV

ENERGY(MEV)	PRIMARY	CASCADE
2.17000	0.07	0.07
2.19000	0.21	0.21
2.24000	0.77	0.77
2.30000	1.80	1.80
2.39000	3.88	3.88
2.50000	7.02	7.02
2.62000	10.90	10.90
2.80000	17.08	17.08
3.01000	24.25	24.25
3.34000	34.54	34.54
3.77000	45.53	45.92
4.31000	55.65	57.72
4.95000	63.59	69.13
5.81000	69.70	81.45
6.89000	73.16	93.67
8.19000	74.25	105.29
9.69000	73.72	116.03
11.20000	72.47	124.90
12.90000	70.85	133.32
15.00000	68.92	142.07
18.30000	66.32	153.35
21.50000	64.32	162.30
32.30000	60.25	184.59
43.10000	58.12	200.08
64.60000	55.83	221.49
107.00000	54.11	248.05
215.00000	52.99	284.64

TD=84.0 EV ET=2.218891 MEV

ENERGY(MEV)	PRIMARY	CASCADE
2.24000	0.10	0.10
2.26000	0.24	0.24
2.30000	0.65	0.65
2.37000	1.75	1.75
2.46000	3.68	3.68
2.57000	6.59	6.59
2.70000	10.49	10.49
2.88000	16.23	16.23
3.10000	23.20	23.20
3.43000	32.75	32.76
3.88000	43.44	43.82
4.43000	53.00	54.98
5.10000	60.68	66.05
5.99000	66.47	77.84
7.10000	69.71	89.45
8.43000	70.70	100.45
9.98000	70.18	110.72
11.50000	69.01	119.00
13.30000	67.41	127.25
15.50000	65.54	135.72
18.80000	63.14	146.14
22.10000	61.23	154.70
33.20000	57.36	175.94
44.30000	55.33	190.69
66.50000	53.15	211.17
110.00000	51.53	236.40
221.00000	50.46	271.24

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN W
Z=74 A=183.860

TD=88.0 EV ET=2.280906 MEV

ENERGY(MEV)	PRIMARY	CASCADE
2.30000	0.08	0.08
2.32000	0.20	0.20
2.37000	0.68	0.68
2.44000	1.73	1.73
2.53000	3.54	3.54
2.64000	6.25	6.25
2.78000	10.16	10.16
2.96000	15.51	15.51
3.19000	22.29	22.29
3.53000	31.45	31.45
3.99000	41.58	41.96
4.56000	50.76	52.70
5.24000	57.97	63.15
6.15000	63.47	74.37
7.29000	66.54	85.47
8.66000	67.48	96.01
10.20000	67.00	105.53
11.80000	65.85	113.67
13.60000	64.36	121.36
15.90000	62.54	129.62
19.30000	60.24	139.62
22.80000	58.36	148.04
34.20000	54.70	168.24
45.60000	52.78	182.29
68.40000	50.71	201.79
114.00000	49.16	226.24
228.00000	48.16	259.28

TD=92.0 EV ET=2.341574 MEV

ENERGY(MEV)	PRIMARY	CASCADE
2.36000	0.06	0.06
2.38000	0.18	0.18
2.43000	0.62	0.62
2.50000	1.57	1.57
2.59000	3.23	3.23
2.71000	5.97	5.97
2.85000	9.63	9.63
3.04000	14.91	14.91
3.27000	21.25	21.25
3.62000	30.06	30.07
4.09000	39.75	40.11
4.68000	48.62	50.50
5.38000	55.52	60.53
6.32000	60.78	71.33
7.49000	63.67	81.94
8.89000	64.54	91.98
10.50000	64.05	101.25
12.10000	62.97	108.82
14.00000	61.50	116.39
16.30000	59.80	124.08
19.90000	57.53	133.93
23.40000	55.79	141.76
35.10000	52.30	161.08
46.80000	50.47	174.52
70.20000	48.49	193.18
117.00000	47.02	216.57
234.00000	46.06	248.17

TD=96.0 EV ET=2.400978 MEV

ENERGY(MEV)	PRIMARY	CASCADE
2.42000	0.06	0.06
2.44000	0.16	0.16
2.49000	0.57	0.57
2.56000	1.44	1.44
2.66000	3.17	3.17
2.78000	5.76	5.76
2.92000	9.19	9.19
3.12000	14.39	14.39
3.36000	20.59	20.59
3.72000	29.05	29.06
4.20000	38.27	38.63
4.80000	46.68	48.51
5.52000	53.29	58.16
6.48000	58.28	68.47
7.68000	61.04	78.65
9.12000	61.85	88.31
10.80000	61.34	97.33
12.40000	60.32	104.40
14.40000	58.87	111.83
16.80000	57.21	119.30
20.40000	55.10	128.48
24.00000	53.43	136.01
36.00000	50.10	154.54
48.00000	48.34	167.42
72.00000	46.46	185.31
120.00000	45.05	207.72
240.00000	44.14	238.01

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN PT
Z=78 A=195.090

TD= 4.0 EV ET=0.279237 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.28200	24.24	24.24
0.28400	41.53	41.53
0.29000	92.22	92.22
0.29800	157.20	157.20
0.30900	242.03	242.03
0.32300	343.09	343.09
0.34000	456.47	456.47
0.36300	595.32	595.32
0.39000	739.49	739.49
0.43200	929.33	929.33
0.48800	1129.50	1129.52
0.55800	1314.80	1325.08
0.64200	1469.32	1511.86
0.75300	1597.76	1706.85
0.89300	1684.44	1900.02
1.06000	1726.46	2082.94
1.25000	1732.57	2251.92
1.45000	1716.01	2400.53
1.67000	1686.05	2540.02
1.95000	1642.13	2692.56
2.37000	1577.96	2884.24
2.79000	1521.70	3045.95
4.18000	1390.95	3452.17
5.58000	1315.39	3748.71
8.37000	1238.98	4174.29
13.90000	1173.26	4711.31
27.90000	1126.32	5460.28
55.80000	1104.68	6209.51
83.70000	1091.26	6642.22
139.00000	1072.94	7176.98

TD= 8.0 EV ET=0.482895 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.48700	5.75	5.75
0.49200	12.90	12.90
0.50200	27.61	27.61
0.51600	48.98	48.98
0.53600	80.57	80.57
0.56000	119.29	119.29
0.58900	166.18	166.18
0.62700	226.25	226.25
0.67600	299.40	299.40
0.74800	395.60	395.60
0.84500	502.95	503.46
0.96500	604.29	611.85
1.11000	690.40	717.80
1.30000	761.42	828.91
1.54000	808.93	940.14
1.83000	831.48	1046.91
2.17000	833.83	1147.73
2.51000	824.44	1231.02
2.89000	808.44	1310.12
3.38000	785.84	1396.40
4.10000	754.66	1501.73
4.82000	728.29	1589.22
7.24000	668.98	1808.25
9.65000	637.52	1964.07
14.40000	605.52	2180.76
24.10000	577.42	2458.83
48.20000	559.66	2836.01
96.50000	549.14	3211.11
144.00000	542.13	3424.11
241.00000	533.09	3694.35

TD=12.0 EV ET=0.651403 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.65700	2.76	2.76
0.66400	6.43	6.43
0.67700	13.78	13.78
0.69700	26.27	26.27
0.72300	44.12	44.12
0.75500	67.73	67.73
0.79400	97.74	97.74
0.84600	138.11	138.11
0.91100	186.93	186.93
1.00000	248.11	248.11
1.13000	323.34	323.84
1.30000	397.90	404.26
1.49000	455.70	476.90
1.75000	504.59	556.55
2.08000	535.87	636.22
2.47000	549.00	710.73
2.93000	548.68	781.23
3.38000	541.28	838.16
3.90000	529.56	893.78
4.55000	514.17	952.47
5.53000	493.21	1025.63
6.51000	475.90	1086.08
9.77000	438.61	1234.99
13.00000	419.50	1339.86
19.50000	399.41	1487.47
32.50000	382.56	1672.59
65.10000	372.12	1925.52
130.00000	365.03	2174.34
195.00000	360.20	2317.89
325.00000	354.44	2496.23

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN PT
Z=78 A=195.090

TD=16.0 EV ET=0.798402 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.80600	1.82	1.82
0.81400	3.94	3.94
0.83000	8.69	8.69
0.85400	16.95	16.95
0.88600	29.58	29.58
0.92600	47.13	47.13
0.97400	69.60	69.60
1.03000	96.48	96.48
1.11000	134.15	134.15
1.23000	185.98	185.98
1.39000	243.69	244.29
1.59000	298.29	303.84
1.83000	343.29	361.66
2.15000	379.37	423.18
2.55000	401.37	483.76
3.03000	409.96	541.26
3.59000	408.58	594.94
4.15000	402.16	639.19
4.79000	392.85	681.72
5.58000	381.15	726.11
6.78000	365.47	781.68
7.98000	352.70	827.58
11.90000	326.14	938.71
15.90000	312.30	1019.03
23.90000	297.77	1130.76
39.90000	285.90	1270.55
79.80000	278.65	1460.14
159.00000	273.28	1645.97

TD=20.0 EV ET=0.930487 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.93900	1.17	1.17
0.94900	2.75	2.75
0.96700	6.06	6.06
0.99500	12.25	12.25
1.03000	21.37	21.37
1.07000	33.13	33.13
1.13000	52.33	52.33
1.20000	75.67	75.67
1.30000	108.52	108.52
1.44000	150.59	150.59
1.62000	195.73	196.34
1.86000	240.95	246.22
2.14000	276.58	293.15
2.51000	304.48	342.67
2.97000	321.03	391.24
3.53000	327.10	438.01
4.18000	325.33	481.38
4.83000	319.77	517.12
5.58000	312.01	551.74
6.51000	302.42	587.97
7.90000	289.98	632.51
9.30000	279.87	669.55
13.90000	259.14	759.55
18.60000	248.42	824.37
27.90000	237.23	913.49
46.50000	228.21	1025.21
93.00000	222.69	1177.01
186.00000	218.31	1326.37

TD=24.0 EV ET=1.051447 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.06000	0.75	0.75
1.07000	1.76	1.76
1.09000	4.21	4.21
1.12000	8.79	8.79
1.16000	16.20	16.20
1.21000	26.95	26.95
1.28000	43.60	43.60
1.36000	63.54	63.54
1.47000	90.57	90.57
1.62000	124.42	124.42
1.84000	165.55	166.25
2.10000	201.70	206.53
2.41000	230.90	245.48
2.83000	254.13	287.62
3.36000	267.66	329.37
3.99000	272.09	368.53
4.73000	270.11	405.22
5.46000	265.22	435.02
6.30000	258.62	463.83
7.36000	250.49	494.49
8.93000	240.15	531.78
10.50000	231.87	562.57
15.70000	214.96	637.99
21.00000	206.26	692.05
31.50000	197.13	766.43
52.50000	189.88	859.67
105.00000	185.43	986.24
210.00000	181.75	1110.63

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN PT
Z=78 A=195.090

TD=28.0 EV ET=1.163692 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.17000	0.37	0.37
1.18000	1.04	1.04
1.21000	3.71	3.71
1.24000	7.20	7.20
1.29000	14.37	14.37
1.34000	22.77	22.77
1.41000	35.73	35.73
1.51000	55.24	55.24
1.62000	76.47	76.47
1.80000	108.30	108.30
2.03000	141.90	142.54
2.32000	173.44	177.85
2.67000	198.89	212.27
3.14000	218.57	249.02
3.72000	229.53	284.61
4.42000	232.89	318.51
5.23000	230.90	349.82
6.05000	226.45	375.87
6.98000	220.67	400.67
8.14000	213.74	426.77
9.89000	204.82	459.10
11.60000	197.89	485.16
17.40000	183.55	550.54
23.20000	176.32	596.44
34.90000	168.58	660.71
58.10000	162.56	740.54
116.00000	158.85	848.80
232.00000	155.67	955.37

TD=32.0 EV ET=1.268872 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.28000	0.49	0.49
1.29000	1.02	1.02
1.33000	2.34	2.34
1.35000	5.83	5.83
1.40000	11.46	11.46
1.47000	20.92	20.92
1.54000	31.47	31.47
1.64000	47.29	47.29
1.77000	67.66	67.66
1.96000	94.89	94.89
2.22000	125.53	126.20
2.53000	152.54	156.67
2.91000	174.62	186.90
3.42000	191.56	219.16
4.06000	200.94	250.86
4.82000	203.55	280.53
5.70000	201.59	307.96
6.59000	197.58	330.76
7.61000	192.41	352.69
8.88000	186.29	375.69
10.70000	178.83	402.86
12.60000	172.64	426.31
19.00000	160.11	484.40
25.30000	153.91	524.42
38.00000	147.26	580.50
63.40000	142.10	650.71
126.00000	138.93	744.83
253.00000	136.13	838.58

TD=36.0 EV ET=1.368175 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.38000	0.39	0.39
1.39000	0.80	0.80
1.42000	2.43	2.43
1.46000	5.38	5.38
1.51000	10.04	10.04
1.58000	17.83	17.83
1.66000	27.82	27.82
1.77000	42.30	42.30
1.91000	60.55	60.55
2.12000	85.51	85.51
2.39000	111.85	112.48
2.73000	136.32	140.24
3.14000	155.82	167.26
3.69000	170.63	196.06
4.37000	178.63	223.99
5.19000	180.77	250.54
6.15000	178.83	275.31
7.11000	175.17	295.63
8.20000	170.55	315.01
9.57000	165.09	335.53
11.60000	158.26	360.51
13.60000	152.94	380.81
20.50000	141.97	432.50
27.30000	136.53	468.12
41.00000	130.70	517.98
68.40000	126.21	580.43
136.00000	123.44	664.15
273.00000	120.93	747.42

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN PT
Z=78 A=195.090

TD=40.0 EV ET=1.462487 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.47000	0.18	0.18
1.49000	0.83	0.83
1.52000	2.21	2.21
1.56000	4.67	4.67
1.62000	9.42	9.42
1.69000	16.06	16.06
1.78000	25.61	25.61
1.90000	39.04	39.04
2.04000	54.53	54.53
2.26000	76.77	76.76
2.55000	100.81	101.40
2.92000	123.28	127.01
3.36000	140.77	151.51
3.94000	153.75	177.20
4.67000	160.81	202.56
5.55000	162.56	226.63
6.58000	160.67	249.05
7.60000	157.31	267.26
8.77000	153.10	284.81
10.20000	148.27	302.90
12.40000	142.05	325.78
14.60000	137.16	344.56
21.90000	127.53	390.60
29.20000	122.67	422.81
43.80000	117.49	467.57
73.10000	113.51	523.85
146.00000	111.04	599.70

TD=44.0 EV ET=1.552493 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.56000	0.14	0.14
1.58000	0.66	0.66
1.61000	1.78	1.78
1.66000	4.40	4.40
1.72000	8.49	8.49
1.80000	15.06	15.06
1.89000	23.32	23.32
2.01000	34.91	34.91
2.17000	50.19	50.19
2.40000	70.19	70.19
2.71000	92.25	92.84
3.10000	112.50	116.04
3.57000	128.40	138.54
4.19000	140.08	162.09
4.96000	146.25	185.03
5.89000	147.68	206.86
6.98000	145.87	227.24
8.07000	142.74	243.94
9.31000	138.88	259.90
10.80000	134.56	276.10
13.10000	128.97	296.69
15.50000	124.41	314.31
23.20000	115.78	356.00
31.00000	111.36	385.52
46.50000	106.70	426.22
77.60000	103.14	477.40
155.00000	100.92	546.37

TD=48.0 EV ET=1.638734 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.65000	0.18	0.18
1.67000	0.64	0.64
1.70000	1.61	1.61
1.75000	3.85	3.85
1.81000	7.36	7.36
1.90000	13.77	13.77
1.99000	20.98	20.98
2.13000	32.80	32.80
2.29000	46.14	46.14
2.54000	65.09	65.09
2.86000	84.88	85.45
3.27000	103.39	106.74
3.76000	117.79	127.23
4.42000	128.54	149.11
5.24000	134.11	170.38
6.22000	135.29	190.38
7.37000	133.54	209.08
8.52000	130.62	224.40
9.83000	127.06	239.07
11.40000	123.09	253.90
13.90000	117.84	273.31
16.30000	113.91	288.61
24.50000	105.97	327.27
32.70000	101.97	354.24
49.10000	97.72	391.66
81.90000	94.50	438.55
163.00000	92.49	501.45

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN PT
Z=78 A=195.090

TD=52.0 EV ET=1.721647 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.73000	0.11	0.11
1.75000	0.47	0.47
1.79000	1.58	1.58
1.84000	3.57	3.57
1.91000	7.23	7.23
1.99000	12.27	12.27
2.10000	20.07	20.07
2.23000	29.78	29.78
2.41000	43.05	43.05
2.66000	59.80	59.81
3.01000	78.90	79.48
3.44000	95.88	99.12
3.95000	108.97	117.89
4.64000	118.76	138.06
5.50000	123.81	157.72
6.54000	124.82	176.41
7.74000	123.13	193.58
8.95000	120.40	207.76
10.30000	117.15	221.08
12.00000	113.37	235.22
14.60000	108.59	252.96
17.20000	104.87	267.50
25.80000	97.65	303.03
34.40000	94.01	327.84
51.60000	90.13	362.31
86.00000	87.20	405.54
172.00000	85.35	464.01

TD=56.0 EV ET=1.801588 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.81000	0.09	0.09
1.83000	0.39	0.39
1.87000	1.34	1.34
1.92000	3.06	3.06
1.99000	6.24	6.24
2.08000	11.24	11.24
2.19000	18.17	18.17
2.34000	28.17	28.17
2.52000	40.01	40.01
2.79000	56.11	56.11
3.15000	73.53	74.09
3.60000	89.29	92.39
4.14000	101.50	110.05
4.86000	110.44	128.73
5.76000	115.01	147.01
6.84000	115.85	164.25
8.10000	114.22	180.27
9.36000	111.67	193.40
10.80000	108.57	206.01
12.60000	105.03	219.26
15.30000	100.64	235.58
18.00000	97.23	248.98
27.00000	90.57	282.00
36.00000	87.21	305.05
54.00000	83.63	337.06
90.00000	80.94	377.21
180.00000	79.23	431.51

TD=60.0 EV ET=1.878857 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.89000	0.11	0.11
1.91000	0.38	0.38
1.95000	1.22	1.22
2.01000	3.10	3.10
2.08000	6.01	6.01
2.17000	10.53	10.53
2.29000	17.34	17.34
2.44000	26.35	26.35
2.63000	37.58	37.58
2.91000	52.57	52.58
3.28000	68.66	69.19
3.75000	83.44	86.38
4.32000	94.94	103.11
5.07000	103.19	120.55
6.01000	107.37	137.65
7.13000	108.08	153.67
8.45000	106.50	168.72
9.77000	104.08	181.03
11.20000	101.32	192.28
13.10000	97.95	204.87
15.90000	93.86	220.09
18.70000	90.69	232.58
28.10000	84.47	263.56
37.50000	81.34	285.14
56.30000	78.01	315.10
93.90000	75.52	352.63
187.00000	73.94	403.00

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN PT
Z=78 A=195.090

TD=64.0 EV ET=1.953705 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.97000	0.14	0.14
1.99000	0.40	0.40
2.03000	1.18	1.18
2.09000	2.88	2.88
2.16000	5.50	5.50
2.26000	10.04	10.04
2.38000	16.22	16.22
2.53000	24.38	24.38
2.73000	35.10	35.10
3.02000	49.19	49.20
3.41000	64.55	65.06
3.90000	78.43	81.26
4.49000	89.13	96.91
5.27000	96.81	113.30
6.25000	100.67	129.40
7.42000	101.28	144.49
8.79000	99.76	158.58
10.10000	97.58	169.64
11.70000	94.78	181.01
13.60000	91.74	192.35
16.60000	87.80	207.03
19.50000	84.87	218.66
29.30000	79.09	247.72
39.00000	76.20	267.77
58.60000	73.09	295.92
97.60000	70.78	331.02
195.00000	69.30	378.46

TD=68.0 EV ET=2.026346 MEV

ENERGY(MEV)	PRIMARY	CASCADE
2.04000	0.10	0.10
2.06000	0.32	0.32
2.10000	0.98	0.98
2.16000	2.47	2.47
2.24000	5.15	5.15
2.35000	9.72	9.72
2.47000	15.37	15.37
2.63000	23.30	23.30
2.83000	33.07	33.07
3.14000	46.76	46.77
3.54000	61.02	61.53
4.05000	74.08	76.83
4.66000	84.06	91.53
5.47000	91.21	106.98
6.48000	94.76	122.05
7.70000	95.28	136.35
9.11000	93.83	149.51
10.50000	91.71	160.16
12.10000	89.16	170.49
14.10000	86.25	181.35
17.20000	82.56	195.14
20.20000	79.81	206.08
30.30000	74.41	233.32
40.50000	71.65	252.48
60.70000	68.76	278.81
101.00000	66.60	311.79
202.00000	65.22	356.51

TD=72.0 EV ET=2.096964 MEV

ENERGY(MEV)	PRIMARY	CASCADE
2.11000	0.08	0.08
2.13000	0.27	0.27
2.18000	1.04	1.04
2.24000	2.44	2.44
2.32000	4.92	4.92
2.43000	9.11	9.11
2.55000	14.27	14.27
2.72000	21.99	21.99
2.93000	31.39	31.39
3.25000	44.32	44.32
3.66000	57.69	58.18
4.19000	70.09	72.74
4.82000	79.47	86.62
5.66000	86.21	101.27
6.71000	89.52	115.58
7.96000	89.96	128.96
9.43000	88.55	141.51
10.90000	86.48	151.77
12.50000	84.15	161.20
14.60000	81.36	171.62
17.80000	77.89	184.61
20.90000	75.30	194.93
31.40000	70.21	220.77
41.90000	67.63	238.77
62.90000	64.90	263.73
104.00000	62.30	294.50
209.00000	61.59	337.03

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN PT
Z=78 A=195.090

TD=76.0 EV	ET=2.165720 MEV		TD=80.0 EV	ET=2.232753 MEV		TD=84.0 EV	ET=2.298188 MEV	
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
2.18000	0.08	0.08	2.25000	0.09	0.09	2.32000	0.11	0.11
2.20000	0.25	0.25	2.27000	0.25	0.25	2.34000	0.27	0.27
2.25000	0.95	0.95	2.32000	0.90	0.90	2.39000	0.88	0.88
2.31000	2.21	2.21	2.38000	2.06	2.06	2.45000	1.96	1.96
2.40000	4.78	4.78	2.47000	4.41	4.41	2.55000	4.40	4.40
2.51000	8.65	8.65	2.58000	7.95	7.95	2.66000	7.72	7.72
2.64000	13.81	13.81	2.72000	13.08	13.08	2.80000	12.49	12.49
2.81000	20.93	20.93	2.90000	20.05	20.05	2.98000	18.96	18.96
3.03000	29.99	29.99	3.12000	28.43	28.43	3.21000	27.10	27.10
3.35000	41.88	41.89	3.46000	40.09	40.10	3.56000	38.24	38.25
3.79000	55.05	55.55	3.90000	52.24	52.71	4.02000	49.99	50.46
4.33000	66.58	69.14	4.46000	63.30	65.76	4.59000	60.37	62.75
4.98000	75.41	82.29	5.13000	71.69	78.28	5.28000	68.35	74.70
5.84000	81.70	96.07	6.02000	77.66	91.45	6.20000	74.03	87.30
6.93000	84.82	109.72	7.14000	80.58	104.39	7.35000	76.75	99.61
8.22000	85.20	122.40	8.48000	80.92	116.54	8.73000	77.04	111.19
9.74000	83.84	134.31	10.00000	79.64	127.54	10.30000	75.80	121.71
11.20000	81.94	143.69	11.60000	77.72	137.02	11.90000	74.01	130.49
12.90000	79.66	152.92	13.30000	75.61	145.51	13.70000	71.94	138.82
15.10000	76.98	162.93	15.60000	73.03	155.14	16.00000	69.54	147.76
18.40000	73.70	175.22	18.90000	70.00	166.48	19.50000	66.58	158.89
21.60000	71.26	184.98	22.30000	67.62	176.05	22.90000	64.37	167.76
32.40000	66.47	209.38	33.40000	63.11	199.16	34.40000	60.06	189.93
43.30000	64.03	226.52	44.60000	60.80	215.40	45.90000	57.88	205.35
64.90000	61.46	250.09	66.90000	58.37	237.83	68.90000	55.57	226.76
108.00000	59.57	279.62	111.00000	56.58	265.73	114.00000	53.88	253.18
216.00000	58.34	319.63	223.00000	55.41	303.98	229.00000	52.77	289.61

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN PT
Z=78 A=195.090

TD=88.0 EV	ET=2.362132 MEV		TD=92.0 EV	ET=2.424684 MEV		TD=96.0 EV	ET=2.485931 MEV	
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
2.38000	0.07	0.07	2.44000	0.06	0.06	2.51000	0.09	0.09
2.40000	0.21	0.21	2.47000	0.24	0.24	2.53000	0.21	0.21
2.45000	0.74	0.74	2.52000	0.77	0.77	2.58000	0.69	0.69
2.52000	1.90	1.90	2.59000	1.87	1.87	2.65000	1.69	1.69
2.62000	4.17	4.17	2.69000	4.01	4.01	2.75000	3.66	3.66
2.74000	7.56	7.56	2.81000	7.17	7.17	2.88000	6.85	6.85
2.88000	12.02	12.02	2.95000	11.32	11.32	3.03000	11.03	11.03
3.07000	18.38	18.38	3.15000	17.58	17.58	3.23000	16.90	16.90
3.30000	25.95	25.95	3.39000	24.96	24.96	3.48000	24.10	24.10
3.66000	36.61	36.62	3.75000	34.93	34.94	3.85000	33.67	33.68
4.13000	47.78	48.24	4.24000	45.80	46.25	4.35000	44.02	44.47
4.72000	57.75	60.07	4.84000	55.26	57.49	4.97000	53.13	55.32
5.43000	65.34	71.49	5.57000	62.54	68.46	5.71000	59.98	65.71
6.37000	70.69	83.46	6.54000	67.66	79.98	6.71000	64.89	76.82
7.55000	73.27	95.20	7.75000	70.09	91.20	7.95000	67.18	87.57
8.97000	73.52	106.28	9.21000	70.31	101.82	9.44000	67.36	97.70
10.60000	72.30	116.42	10.90000	69.11	111.61	11.10000	66.26	106.73
12.20000	70.63	124.59	12.60000	67.44	119.67	12.90000	64.61	114.75
14.10000	68.59	132.77	14.50000	65.54	127.25	14.90000	62.74	122.21
16.50000	66.28	141.41	16.90000	63.38	135.31	17.40000	60.64	130.03
20.00000	63.53	151.74	20.60000	60.68	145.49	21.10000	58.12	139.53
23.60000	61.37	160.46	24.20000	58.67	153.60	24.80000	56.20	147.33
35.40000	57.29	181.55	36.30000	54.78	173.79	37.20000	52.48	166.68
47.20000	55.22	195.24	48.40000	52.80	187.84	49.70000	50.57	180.24
70.80000	53.02	216.64	72.70000	50.70	207.42	74.50000	48.58	198.92
118.00000	51.41	242.23	121.00000	49.17	231.83	124.00000	47.11	222.32
236.00000	50.36	276.78	242.00000	48.17	264.88	248.00000	46.16	253.99

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN AU
Z=79 A=197.000

TD= 4.0 EV ET=0.281484 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.28400	22.64	22.64
0.28700	49.22	49.22
0.29200	92.51	92.51
0.30100	167.50	167.50
0.31200	254.39	254.39
0.32600	358.04	358.04
0.34300	474.46	474.46
0.36500	611.34	611.34
0.39400	770.72	770.72
0.43600	965.29	965.29
0.49200	1170.48	1170.50
0.56200	1360.22	1370.87
0.64700	1519.55	1563.97
0.76000	1651.10	1765.79
0.90000	1736.65	1961.59
1.06000	1775.63	2139.85
1.26000	1779.46	2320.30
1.46000	1759.63	2470.24
1.68000	1726.52	2611.02
1.97000	1677.52	2770.11
2.39000	1609.57	2962.85
2.81000	1550.60	3125.71
4.22000	1413.39	3540.52
5.62000	1336.17	3839.22
8.44000	1257.87	4272.83
14.00000	1191.23	4817.12
28.10000	1143.79	5578.00
56.20000	1121.69	6338.82
84.40000	1107.65	6779.15
140.00000	1088.66	7320.35

TD= 8.0 EV ET=0.486468 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.49100	6.52	6.52
0.49600	13.89	13.89
0.50500	27.51	27.51
0.52000	51.09	51.09
0.53900	82.04	82.04
0.56400	123.70	123.70
0.59300	172.18	172.18
0.63200	235.90	235.90
0.68100	311.44	311.44
0.75400	411.97	411.97
0.85100	522.30	522.83
0.97200	626.90	634.84
1.11000	711.07	738.35
1.31000	787.15	857.92
1.55000	833.99	970.72
1.84000	855.23	1078.86
2.18000	855.87	1180.89
2.52000	844.88	1265.15
2.91000	826.80	1347.10
3.40000	802.52	1434.06
4.13000	769.12	1541.68
4.86000	741.21	1630.96
7.29000	679.78	1852.49
9.72000	647.44	2010.94
14.50000	614.83	2230.84
24.30000	586.23	2514.03
48.60000	568.34	2897.18
97.20000	557.51	3277.40
145.00000	550.20	3493.31
243.00000	540.84	3768.15

TD=12.0 EV ET=0.655984 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.66200	3.06	3.06
0.66900	6.84	6.84
0.68200	14.44	14.44
0.70100	26.69	26.69
0.72800	45.84	45.84
0.76000	70.28	70.28
0.80000	102.17	102.17
0.85200	143.97	143.97
0.91800	195.21	195.21
1.01000	260.32	260.32
1.14000	337.35	337.91
1.31000	413.39	420.13
1.50000	472.03	494.23
1.77000	522.57	578.06
2.09000	552.11	656.21
2.49000	564.48	733.50
2.95000	562.76	804.59
3.41000	553.98	863.18
3.93000	541.14	919.12
4.59000	524.44	979.06
5.57000	502.39	1052.66
6.55000	484.35	1113.58
9.83000	445.66	1264.70
13.10000	425.97	1371.77
19.60000	405.62	1520.74
32.70000	388.47	1709.14
65.50000	377.91	1966.06
131.00000	370.56	2219.18
196.00000	365.55	2363.89
327.00000	359.61	2545.17

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN AU
Z=79 A=197.000

TD=16.0 EV ET=0.803824 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.81100	1.77	1.77
0.81900	3.93	3.93
0.83500	8.82	8.82
0.86000	17.71	17.71
0.89200	30.81	30.81
0.93200	49.00	49.00
0.98000	72.31	72.31
1.04000	102.15	102.15
1.12000	141.07	141.07
1.24000	194.45	194.45
1.40000	253.69	254.34
1.60000	309.52	315.33
1.84000	355.27	374.39
2.17000	392.43	438.80
2.57000	413.68	500.00
3.05000	421.31	558.06
3.61000	418.92	612.26
4.17000	411.64	656.93
4.82000	401.36	700.52
5.62000	388.73	745.79
6.83000	372.12	802.21
8.03000	358.85	848.45
12.00000	331.22	961.83
16.00000	317.16	1042.81
24.10000	302.30	1156.85
40.10000	290.33	1297.91
80.30000	282.99	1490.83
160.00000	277.42	1679.45

TD=20.0 EV ET=0.936644 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.94600	1.33	1.33
0.95500	2.80	2.80
0.97400	6.42	6.42
1.00000	12.36	12.36
1.03000	20.34	20.34
1.08000	35.51	35.51
1.14000	55.50	55.50
1.21000	79.71	79.71
1.31000	113.69	113.69
1.45000	157.07	157.07
1.63000	203.48	204.13
1.87000	249.78	255.26
2.15000	286.05	303.23
2.52000	314.18	353.70
2.99000	330.72	404.04
3.55000	336.05	451.32
4.21000	333.41	495.75
4.87000	327.03	532.27
5.61000	318.72	566.67
6.55000	308.42	603.59
7.96000	295.17	649.10
9.36000	284.68	686.41
14.00000	263.21	777.93
18.70000	252.32	843.33
28.00000	240.95	933.45
46.80000	231.73	1047.56
93.60000	226.15	1201.74
187.00000	221.62	1353.09

TD=24.0 EV ET=1.058262 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.06000	0.15	0.15
1.07000	1.08	1.08
1.10000	4.80	4.80
1.13000	9.64	9.64
1.17000	17.43	17.43
1.22000	28.65	28.65
1.29000	45.99	45.99
1.37000	66.67	66.67
1.48000	94.65	94.65
1.64000	131.75	131.75
1.85000	171.92	172.64
2.11000	208.97	213.96
2.43000	239.47	254.95
2.85000	262.54	297.67
3.38000	275.64	339.94
4.02000	279.47	380.10
4.76000	276.77	417.09
5.50000	271.20	447.52
6.38000	264.07	476.53
7.40000	255.44	507.44
8.99000	244.46	545.51
10.50000	236.15	575.46
15.80000	218.35	653.23
21.10000	209.50	707.82
31.70000	200.17	783.65
52.90000	192.80	878.59
105.00000	188.34	1005.74
211.00000	184.50	1132.86

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN AU
Z=79 A=197.000

TD=28.0 EV ET=1.171110 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.18000	0.55	0.55
1.19000	1.27	1.27
1.21000	3.07	3.07
1.25000	7.78	7.78
1.29000	13.68	13.68
1.35000	24.06	24.06
1.42000	37.55	37.55
1.52000	57.79	57.79
1.63000	79.77	79.77
1.81000	112.66	112.66
2.04000	147.26	147.91
2.34000	180.53	185.27
2.69000	206.14	220.26
3.16000	225.70	257.55
3.74000	236.31	293.61
4.45000	239.16	328.35
5.26000	236.56	359.93
6.08000	231.60	386.22
7.02000	225.31	411.50
8.19000	217.89	438.04
9.95000	208.50	470.81
11.70000	201.15	497.67
17.50000	186.46	563.56
23.40000	179.00	610.62
35.10000	171.18	675.44
58.50000	165.06	756.71
117.00000	161.31	866.93
234.00000	158.00	975.07

TD=32.0 EV ET=1.276849 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.28000	0.13	0.13
1.30000	1.18	1.18
1.32000	2.57	2.57
1.36000	6.25	6.25
1.41000	12.13	12.13
1.48000	21.99	21.99
1.55000	32.96	32.96
1.65000	49.37	49.37
1.78000	70.46	70.46
1.97000	98.61	98.61
2.23000	130.19	130.86
2.55000	158.64	163.05
2.93000	180.89	193.81
3.44000	197.75	226.56
4.08000	206.83	258.70
4.85000	208.99	289.08
5.78000	206.46	317.05
6.63000	202.01	340.02
7.66000	196.39	362.33
8.93000	189.91	385.51
10.80000	181.90	413.61
12.70000	175.50	437.18
19.30000	162.66	495.77
25.50000	156.27	536.78
38.30000	149.51	593.72
63.80000	144.29	664.82
127.00000	141.09	760.63
255.00000	138.16	855.76

TD=36.0 EV ET=1.376674 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.39000	0.46	0.46
1.40000	0.90	0.90
1.43000	2.61	2.61
1.47000	5.69	5.69
1.52000	10.56	10.56
1.59000	18.67	18.67
1.67000	29.05	29.05
1.78000	44.08	44.08
1.92000	62.98	62.98
2.13000	88.79	88.78
2.40000	115.95	116.58
2.75000	141.67	145.84
3.15000	161.34	173.35
3.71000	176.10	202.60
4.40000	183.90	231.29
5.23000	185.57	258.39
6.19000	183.14	283.34
7.15000	179.08	303.82
8.26000	174.03	323.70
9.63000	168.25	344.37
11.70000	160.99	370.00
13.70000	155.49	390.43
20.60000	144.23	442.59
27.50000	138.63	479.06
41.30000	132.70	529.69
68.80000	128.16	592.94
137.00000	125.36	678.16
275.00000	122.74	762.65

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN AU
Z=79 A=197.000

TD=40.0 EV ET=1.471479 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.48000	0.22	0.22
1.50000	0.90	0.90
1.53000	2.34	2.34
1.57000	4.91	4.91
1.63000	9.85	9.85
1.70000	16.76	16.76
1.79000	26.68	26.68
1.91000	40.62	40.62
2.06000	57.78	57.78
2.28000	80.62	80.62
2.57000	105.21	105.85
2.94000	128.05	131.99
3.38000	145.70	156.95
3.97000	158.80	183.45
4.70000	165.53	209.09
5.59000	166.86	233.65
6.62000	164.52	256.24
7.65000	160.78	274.77
8.82000	156.25	292.46
10.30000	150.98	311.29
12.50000	144.50	334.28
14.70000	139.45	353.19
22.00000	129.57	399.66
29.40000	124.56	432.63
44.10000	119.30	478.09
73.50000	115.28	535.10
147.00000	112.77	612.28

TD=44.0 EV ET=1.561953 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.57000	0.16	0.16
1.59000	0.70	0.70
1.62000	1.87	1.87
1.67000	4.59	4.59
1.73000	8.85	8.85
1.81000	15.67	15.67
1.90000	24.25	24.25
2.03000	37.28	37.28
2.18000	52.10	52.10
2.42000	73.62	73.62
2.73000	96.19	96.83
3.12000	116.80	120.53
3.59000	132.85	143.45
4.21000	144.51	167.39
4.99000	150.51	190.93
5.93000	151.57	213.21
7.02000	149.36	233.76
8.12000	145.88	250.75
9.37000	141.71	266.96
10.90000	137.03	283.68
13.20000	131.20	304.39
15.60000	126.49	322.13
23.40000	117.55	364.67
31.20000	113.09	394.42
46.80000	108.34	435.76
78.00000	104.74	487.61
156.00000	102.48	557.79

TD=48.0 EV ET=1.648640 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.66000	0.19	0.19
1.68000	0.66	0.66
1.71000	1.67	1.67
1.76000	4.00	4.00
1.82000	7.64	7.64
1.91000	14.29	14.29
2.01000	22.64	22.64
2.14000	34.04	34.04
2.30000	47.87	47.87
2.55000	67.47	67.47
2.88000	88.45	89.07
3.29000	107.30	110.82
3.79000	122.08	132.08
4.45000	132.70	154.25
5.27000	138.00	175.77
6.26000	138.84	196.17
7.41000	136.72	215.04
8.57000	133.49	230.62
9.89000	129.64	245.51
11.50000	125.36	260.82
14.00000	119.89	280.34
16.40000	115.82	295.76
24.70000	107.60	335.19
32.90000	103.55	362.38
49.40000	99.22	400.38
82.40000	95.96	448.01
164.00000	93.93	511.89

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN AU
Z=79 A=197.000

TD=52.0 EV ET=1.731979 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.74000	0.11	0.11
1.76000	0.48	0.48
1.80000	1.62	1.62
1.85000	3.69	3.69
1.92000	7.48	7.48
2.00000	12.71	12.71
2.11000	20.80	20.80
2.25000	31.66	31.66
2.42000	44.63	44.63
2.68000	62.61	62.61
3.03000	82.17	82.78
3.46000	99.47	102.86
3.98000	112.90	122.34
4.67000	122.58	142.78
5.54000	127.42	162.88
6.58000	128.08	181.73
7.79000	126.04	199.19
9.00000	123.04	213.48
10.30000	119.69	226.46
12.10000	115.46	241.57
14.70000	110.47	259.43
17.30000	106.63	274.08
25.90000	99.22	309.98
34.60000	95.47	335.35
51.90000	91.52	370.35
86.50000	88.55	414.26
173.00000	86.67	473.64

TD=56.0 EV ET=1.812331 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.83000	0.22	0.22
1.84000	0.39	0.39
1.88000	1.37	1.37
1.93000	3.14	3.14
2.01000	6.96	6.96
2.10000	12.24	12.24
2.21000	19.49	19.49
2.35000	29.18	29.18
2.53000	41.45	41.45
2.80000	58.12	58.12
3.17000	76.54	77.14
3.62000	92.60	95.85
4.16000	104.96	113.86
4.89000	113.96	133.09
5.79000	118.31	151.59
6.88000	118.87	169.17
8.15000	116.92	185.46
9.42000	114.09	198.79
10.80000	110.92	211.02
12.60000	107.15	224.46
15.40000	102.39	241.57
18.10000	98.86	255.08
27.10000	92.03	288.45
36.20000	88.57	312.01
54.30000	84.92	344.52
90.60000	82.19	385.39
181.00000	80.46	440.44

TD=60.0 EV ET=1.889995 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.90000	0.10	0.10
1.92000	0.37	0.37
1.96000	1.24	1.24
2.02000	3.17	3.17
2.09000	6.18	6.18
2.19000	11.42	11.42
2.30000	17.93	17.93
2.45000	27.27	27.27
2.64000	38.92	38.92
2.92000	54.44	54.44
3.30000	71.45	72.01
3.77000	86.52	89.59
4.34000	98.16	106.66
5.10000	106.46	124.60
6.04000	110.45	141.92
7.18000	110.88	158.38
8.50000	109.01	173.55
9.82000	106.36	185.96
11.30000	103.30	197.68
13.20000	99.76	210.34
16.00000	95.50	225.66
18.80000	92.22	238.26
28.30000	85.79	269.84
37.70000	82.61	291.63
56.60000	79.21	322.04
94.40000	76.69	360.17
188.00000	75.09	411.33

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN AU
Z=79 A=197.000

TD=64.0 EV ET=1.965224 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.98000	0.13	0.13
2.00000	0.39	0.39
2.04000	1.19	1.19
2.10000	2.94	2.94
2.18000	6.07	6.07
2.27000	10.35	10.35
2.39000	16.76	16.76
2.55000	25.78	25.78
2.75000	36.87	36.87
3.04000	51.38	51.39
3.43000	67.13	67.68
3.93000	81.53	84.55
4.52000	92.28	100.46
5.30000	99.87	117.08
6.28000	103.55	133.39
7.46000	103.91	148.78
8.84000	102.11	163.09
10.20000	99.62	174.64
11.70000	96.81	185.40
13.70000	93.44	197.46
16.70000	89.33	212.25
19.60000	86.30	223.98
29.40000	80.36	253.35
39.30000	77.36	274.02
58.90000	74.22	302.42
98.20000	71.88	338.15
196.00000	70.38	386.26

TD=68.0 EV ET=2.038235 MEV

ENERGY(MEV)	PRIMARY	CASCADE
2.05000	0.09	0.09
2.07000	0.30	0.30
2.11000	0.98	0.98
2.18000	2.81	2.81
2.26000	5.66	5.66
2.36000	10.00	10.00
2.48000	15.86	15.86
2.64000	24.09	24.09
2.85000	34.71	34.71
3.15000	48.39	48.40
3.56000	63.44	63.98
4.07000	76.78	79.64
4.68000	86.88	94.63
5.50000	94.09	110.53
6.52000	97.48	125.93
7.74000	97.75	140.37
9.17000	96.02	153.84
10.50000	93.80	164.14
12.20000	90.90	175.22
14.20000	87.85	186.15
17.30000	84.00	200.04
20.30000	81.15	211.08
30.50000	75.57	238.85
40.70000	72.77	258.19
61.10000	69.81	285.03
101.00000	67.65	318.11
203.00000	66.23	363.84

TD=72.0 EV ET=2.109211 MEV

ENERGY(MEV)	PRIMARY	CASCADE
2.13000	0.15	0.15
2.15000	0.38	0.38
2.19000	1.03	1.03
2.25000	2.47	2.47
2.34000	5.39	5.39
2.44000	9.36	9.36
2.57000	15.18	15.18
2.74000	23.20	23.20
2.95000	32.92	32.92
3.26000	45.85	45.86
3.69000	60.25	60.79
4.21000	72.63	75.38
4.85000	82.25	89.74
5.69000	88.92	104.61
6.74000	92.07	119.11
8.01000	92.28	132.85
9.49000	90.62	145.58
10.90000	88.45	155.53
12.60000	85.80	165.65
14.70000	82.87	176.13
17.90000	79.25	189.23
21.00000	76.57	199.64
31.60000	71.30	225.98
42.10000	68.69	244.15
63.20000	65.91	269.51
105.00000	63.87	301.06
210.00000	62.54	343.95

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN AU
Z=79 A=197.000

TD=76.0 EV ET=2.178316 MEV

ENERGY(MEV)	PRIMARY	CASCADE
2.20000	0.14	0.14
2.22000	0.34	0.34
2.26000	0.94	0.94
2.33000	2.49	2.49
2.41000	4.87	4.87
2.52000	8.88	8.88
2.65000	14.23	14.23
2.83000	22.04	22.04
3.04000	31.00	31.00
3.37000	43.68	43.68
3.81000	57.19	57.72
4.35000	68.97	71.64
5.01000	78.03	85.24
5.88000	84.31	99.37
6.97000	87.24	113.17
8.27000	87.40	126.08
9.80000	85.79	138.16
11.30000	83.66	147.86
13.00000	81.22	157.13
15.20000	78.40	167.21
18.50000	74.99	179.59
21.70000	72.46	189.45
32.60000	67.51	214.31
43.50000	65.03	231.62
65.30000	62.41	255.64
108.00000	60.50	285.28
217.00000	59.24	326.18

TD=80.0 EV ET=2.245688 MEV

ENERGY(MEV)	PRIMARY	CASCADE
2.26000	0.07	0.07
2.29000	0.33	0.33
2.33000	0.88	0.88
2.40000	2.30	2.30
2.49000	4.79	4.79
2.60000	8.51	8.51
2.73000	13.47	13.47
2.91000	20.69	20.69
3.14000	29.76	29.76
3.48000	41.79	41.80
3.92000	54.27	54.76
4.49000	65.73	68.33
5.16000	74.17	81.07
6.06000	80.13	94.57
7.18000	82.88	107.66
8.53000	83.00	120.02
10.10000	81.45	131.45
11.60000	79.48	140.42
13.40000	77.09	149.49
15.70000	74.38	159.20
19.00000	71.23	170.62
22.40000	68.76	180.29
33.60000	64.10	203.83
44.90000	61.74	220.36
67.30000	59.27	243.10
112.00000	57.45	271.61
224.00000	56.27	310.20

TD=84.0 EV ET=2.311453 MEV

ENERGY(MEV)	PRIMARY	CASCADE
2.33000	0.09	0.09
2.35000	0.24	0.24
2.40000	0.86	0.86
2.47000	2.18	2.18
2.56000	4.48	4.48
2.68000	8.25	8.25
2.81000	12.85	12.85
3.00000	19.94	19.94
3.23000	28.35	28.35
3.58000	39.84	39.85
4.04000	51.91	52.41
4.62000	62.68	65.19
5.31000	70.71	77.35
6.24000	76.37	90.27
7.39000	78.94	102.71
8.78000	79.02	114.49
10.40000	77.52	125.41
12.00000	75.56	134.23
13.80000	73.35	142.61
16.10000	70.83	151.61
19.60000	67.74	162.84
23.10000	65.40	172.03
34.60000	61.01	194.37
46.20000	58.77	210.08
69.30000	56.42	231.78
115.00000	54.71	258.77
231.00000	53.58	295.76

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN AU
Z=79 A=197.000

TD=88.0 EV ET=2.375720 MEV

ENERGY(MEV)	PRIMARY	CASCADE
2.39000	0.06	0.06
2.42000	0.27	0.27
2.47000	0.86	0.86
2.54000	2.10	2.10
2.63000	4.24	4.24
2.75000	7.74	7.74
2.89000	12.36	12.36
3.08000	18.96	18.96
3.32000	27.14	27.14
3.68000	38.14	38.15
4.15000	49.61	50.08
4.75000	59.94	62.39
5.46000	67.58	74.01
6.41000	72.93	86.28
7.60000	75.36	98.25
9.02000	75.41	109.43
10.60000	74.05	119.38
12.30000	72.12	128.15
14.20000	69.94	136.37
16.60000	67.51	145.08
20.10000	64.64	155.50
23.70000	62.41	164.30
35.60000	58.19	185.79
47.50000	56.07	200.74
71.20000	53.84	221.42
118.00000	52.22	247.13
237.00000	51.14	282.44

TD=92.0 EV ET=2.438586 MEV

ENERGY(MEV)	PRIMARY	CASCADE
2.46000	0.09	0.09
2.48000	0.22	0.22
2.53000	0.74	0.74
2.60000	1.86	1.86
2.70000	4.06	4.06
2.82000	7.33	7.33
2.97000	11.95	11.95
3.17000	18.45	18.45
3.44000	26.09	26.09
3.77000	36.37	36.38
4.26000	47.54	48.01
4.87000	57.35	59.69
5.60000	64.68	70.86
6.58000	69.79	82.67
7.80000	72.08	94.11
9.26000	72.11	104.83
10.90000	70.78	114.45
12.60000	68.96	122.63
14.60000	66.83	130.70
17.00000	64.56	138.81
20.70000	61.74	149.08
24.30000	59.66	157.28
36.50000	55.64	177.84
48.70000	53.62	192.14
73.10000	51.48	211.99
121.00000	49.94	236.52
243.00000	48.92	270.29

TD=96.0 EV ET=2.500141 MEV

ENERGY(MEV)	PRIMARY	CASCADE
2.52000	0.07	0.07
2.55000	0.26	0.26
2.60000	0.78	0.78
2.67000	1.86	1.86
2.77000	3.94	3.94
2.90000	7.27	7.27
3.05000	11.63	11.63
3.25000	17.72	17.72
3.50000	25.17	25.17
3.87000	35.05	35.06
4.37000	45.69	46.15
5.00000	55.12	57.43
5.75000	62.10	68.14
6.75000	66.93	79.39
8.00000	69.09	90.34
9.50000	69.08	100.64
11.20000	67.77	109.94
13.00000	65.96	118.00
15.00000	63.97	125.51
17.50000	61.77	133.38
21.20000	59.14	142.97
25.00000	57.10	151.05
37.50000	53.28	170.69
50.00000	51.36	184.36
75.00000	49.32	203.35
125.00000	47.84	227.19
250.00000	46.87	259.35

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN PB
Z=82 A=207.210

TD= 4.0 EV ET=0.293393 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.29600	23.90	23.90
0.29900	51.01	51.01
0.30500	104.05	104.05
0.31300	172.43	172.43
0.32500	270.29	270.29
0.34000	385.21	385.21
0.35700	506.27	506.27
0.38100	661.96	661.96
0.41000	828.55	828.55
0.45400	1042.13	1042.13
0.51300	1267.30	1267.38
0.58600	1471.10	1483.33
0.67400	1638.28	1688.18
0.79200	1773.42	1902.14
0.93800	1855.69	2107.43
1.11000	1886.93	2297.95
1.32000	1878.13	2484.69
1.52000	1848.36	2632.41
1.76000	1802.68	2783.39
2.05000	1744.80	2939.59
2.49000	1664.46	3138.26
2.93000	1597.00	3305.93
4.40000	1446.42	3730.91
5.86000	1368.97	4037.45
8.80000	1284.57	4482.25
14.60000	1216.98	5040.50
29.30000	1169.95	5820.42
58.60000	1146.95	6598.67
88.00000	1131.34	7047.89
146.00000	1110.63	7599.81

TD= 8.0 EV ET=0.505353 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.51000	6.86	6.86
0.51500	14.44	14.44
0.52500	30.13	30.13
0.54000	54.74	54.74
0.56000	88.98	88.98
0.58600	134.79	134.79
0.61600	187.99	187.99
0.65600	257.44	257.44
0.70700	340.95	340.95
0.78300	451.61	451.61
0.88400	571.89	572.54
1.01000	684.12	693.30
1.16000	775.45	807.92
1.36000	848.57	928.47
1.61000	892.59	1046.26
1.92000	908.38	1160.80
2.27000	902.09	1264.14
2.62000	885.34	1349.39
3.03000	861.42	1433.93
3.53000	832.35	1521.01
4.29000	793.41	1631.14
5.05000	761.90	1722.46
7.58000	695.22	1949.32
10.10000	661.57	2111.30
15.10000	628.04	2337.78
25.20000	599.33	2625.50
50.50000	581.50	3019.15
101.00000	569.84	3407.69
151.00000	561.68	3629.06
252.00000	551.79	3907.06

TD=12.0 EV ET=0.680176 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.68600	3.04	3.04
0.69300	6.95	6.95
0.70700	15.48	15.48
0.72700	29.08	29.08
0.75400	49.42	49.42
0.78900	77.98	77.98
0.82900	112.13	112.13
0.88400	159.44	159.44
0.95200	215.75	215.75
1.05000	289.11	289.11
1.19000	375.21	376.03
1.36000	452.69	460.58
1.56000	514.18	540.07
1.83000	562.78	624.80
2.17000	590.56	707.94
2.58000	598.58	786.53
3.06000	592.18	859.77
3.53000	579.66	918.76
4.08000	562.94	976.92
4.76000	543.00	1037.60
5.78000	517.52	1112.86
6.80000	497.32	1175.19
10.20000	455.75	1329.45
13.60000	435.29	1439.26
20.40000	414.38	1592.75
34.00000	397.13	1785.33
68.00000	386.67	2047.87
136.00000	378.67	2306.42
204.00000	373.10	2454.88
340.00000	366.88	2639.42

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN PB
Z=82 A=207.210

TD=16.0 EV ET=0.832438 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.84000	1.92	1.92
0.84900	4.48	4.48
0.86500	9.65	9.65
0.89000	19.10	19.10
0.92400	33.99	33.99
0.96500	54.04	54.04
1.01000	77.50	77.50
1.08000	114.88	114.88
1.16000	156.47	156.47
1.29000	217.62	217.62
1.45000	279.39	280.16
1.66000	339.47	346.31
1.91000	386.78	408.95
2.24000	422.33	474.03
2.66000	441.86	538.41
3.16000	446.25	598.40
3.74000	440.30	653.77
4.32000	430.08	699.32
4.99000	417.20	743.49
5.82000	402.14	789.71
7.07000	383.17	847.06
8.32000	368.35	894.51
12.40000	338.90	1009.60
16.60000	324.12	1093.64
24.90000	309.07	1209.21
41.60000	296.88	1354.84
83.20000	289.56	1552.01
166.00000	283.45	1745.00

TD=20.0 EV ET=0.969119 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.97800	1.30	1.30
0.98800	3.00	3.00
1.00000	5.32	5.32
1.03000	12.33	12.33
1.07000	23.75	23.75
1.12000	40.25	40.25
1.18000	61.87	61.87
1.25000	87.93	87.93
1.35000	124.40	124.40
1.50000	173.86	173.86
1.69000	225.03	225.83
1.93000	272.57	278.72
2.22000	310.29	329.62
2.61000	338.53	383.34
3.10000	353.11	435.64
3.68000	355.62	484.06
4.36000	350.06	529.15
5.03000	341.49	565.68
5.81000	330.95	601.37
6.78000	318.81	638.85
8.23000	303.82	684.93
9.69000	292.12	723.29
14.50000	269.17	816.92
19.30000	258.02	883.04
29.00000	246.28	976.10
48.40000	237.01	1092.63
96.90000	231.40	1250.71
193.00000	226.45	1404.57

TD=24.0 EV ET=1.094204 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.10000	0.52	0.52
1.11000	1.57	1.57
1.13000	4.14	4.14
1.17000	10.92	10.92
1.21000	19.36	19.36
1.26000	31.50	31.50
1.33000	50.20	50.20
1.42000	75.26	75.26
1.53000	105.22	105.22
1.69000	144.71	144.71
1.91000	188.95	189.77
2.18000	228.49	234.19
2.51000	259.86	277.37
2.95000	282.71	322.50
3.50000	294.06	366.20
4.15000	295.52	406.64
4.92000	290.42	444.68
5.68000	282.98	475.49
6.56000	274.06	505.41
7.65000	263.96	536.70
9.30000	251.46	575.62
10.90000	242.10	606.84
16.40000	223.19	686.29
21.80000	214.21	741.25
32.80000	204.62	819.16
54.70000	197.20	916.27
109.00000	192.69	1047.17
218.00000	188.50	1176.06

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN PB
Z=82 A=207.210

TD=28.0 EV	ET=1.210222 MEV		TD=32.0 EV	ET=1.318900 MEV		TD=36.0 EV	ET=1.421475 MEV	
ENERGY(MEV)	PRIMARY	CASCADE	ENERGY(MEV)	PRIMARY	CASCADE	ENERGY(MEV)	PRIMARY	CASCADE
1.22000	0.63	0.63	1.33000	0.52	0.52	1.43000	0.29	0.29
1.23000	1.40	1.40	1.34000	1.10	1.10	1.44000	0.71	0.71
1.25000	3.30	3.30	1.37000	3.38	3.38	1.47000	2.41	2.41
1.29000	8.34	8.34	1.41000	7.51	7.51	1.52000	6.52	6.52
1.34000	16.40	16.40	1.46000	14.00	14.00	1.57000	11.84	11.84
1.40000	27.80	27.80	1.52000	23.14	23.14	1.64000	20.65	20.65
1.47000	42.47	42.47	1.60000	36.65	36.65	1.73000	33.33	33.33
1.57000	64.31	64.31	1.71000	56.15	56.15	1.84000	49.57	49.57
1.69000	89.99	89.99	1.84000	78.74	78.74	1.99000	71.26	71.26
1.87000	124.84	124.84	2.04000	110.12	110.12	2.20000	98.57	98.56
2.11000	162.57	163.35	2.30000	143.10	143.87	2.48000	127.96	128.71
2.42000	197.67	203.17	2.63000	173.22	178.23	2.84000	154.96	159.75
2.78000	223.76	239.84	3.03000	196.44	211.23	3.26000	174.91	188.47
3.26000	242.65	278.27	3.56000	212.78	245.44	3.83000	189.27	219.04
3.87000	251.94	316.12	4.22000	220.39	278.43	4.54000	195.83	248.50
4.59000	252.75	351.06	5.01000	220.74	309.29	5.40000	195.91	276.35
5.44000	248.06	383.79	5.93000	216.41	337.83	6.39000	191.90	301.76
6.29000	241.43	410.61	6.85000	210.53	361.22	7.39000	186.53	322.77
7.26000	233.71	436.27	7.91000	203.69	383.84	8.52000	180.48	342.72
8.47000	225.02	463.28	9.23000	196.07	407.58	9.95000	173.67	363.98
10.20000	214.87	495.16	11.20000	186.88	436.69	12.00000	165.78	389.11
12.10000	206.32	524.05	13.10000	180.09	459.94	14.20000	159.35	411.34
18.10000	190.69	591.40	19.70000	166.41	519.80	21.30000	147.50	464.33
24.20000	182.99	639.54	25.30000	159.81	561.75	28.40000	141.75	501.48
36.30000	175.00	705.89	39.50000	152.88	620.03	42.60000	135.70	553.15
60.50000	168.83	789.12	65.90000	147.60	693.07	71.00000	131.11	617.99
121.00000	165.04	901.94	131.00000	144.37	790.94	142.00000	128.25	705.76
242.00000	161.41	1012.33	263.00000	141.15	888.04	284.00000	125.38	791.55

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN PB
Z=82 A=207.210

TD=40.0 EV	ET=1.518873 MEV		TD=44.0 EV	ET=1.611807 MEV		TD=48.0 EV	ET=1.700840 MEV	
ENERGY(MEV)	PRIMARY	CASCADE	ENERGY(MEV)	PRIMARY	CASCADE	ENERGY(MEV)	PRIMARY	CASCADE
1.53000	0.30	0.30	1.62000	0.17	0.17	1.71000	0.16	0.16
1.54000	0.64	0.64	1.64000	0.74	0.74	1.73000	0.63	0.63
1.57000	2.04	2.04	1.67000	1.98	1.98	1.76000	1.67	1.67
1.62000	5.41	5.41	1.72000	4.89	4.89	1.81000	4.12	4.12
1.68000	10.76	10.76	1.78000	9.46	9.46	1.88000	8.73	8.73
1.76000	19.36	19.36	1.86000	16.79	16.79	1.97000	15.99	15.99
1.85000	30.17	30.17	1.96000	27.10	27.10	2.07000	25.04	25.04
1.97000	45.22	45.22	2.09000	41.18	41.18	2.21000	38.30	38.30
2.12000	63.66	63.66	2.25000	58.15	58.15	2.38000	54.03	54.03
2.35000	89.08	89.08	2.49000	81.03	81.03	2.63000	74.79	74.80
2.65000	115.71	116.45	2.82000	106.16	106.92	2.97000	97.37	98.08
3.03000	139.76	144.21	3.22000	127.69	131.97	3.40000	117.49	121.59
3.49000	158.03	170.82	3.70000	143.90	155.83	3.91000	132.31	143.61
4.10000	170.64	198.39	4.35000	155.28	181.09	4.59000	142.47	166.62
4.86000	176.24	224.96	5.15000	160.18	205.15	5.44000	146.82	188.86
5.77000	176.09	249.81	6.12000	159.91	227.92	6.46000	146.44	209.68
6.83000	172.33	272.79	7.25000	156.37	248.95	7.65000	143.11	228.95
7.89000	167.48	291.59	8.38000	151.89	266.14	8.84000	138.97	244.70
9.11000	161.94	309.78	9.67000	146.85	282.63	10.20000	134.33	259.84
10.60000	155.95	328.50	11.20000	141.57	299.17	11.90000	129.26	275.75
12.90000	148.55	352.25	13.70000	134.68	321.36	14.40000	123.31	295.03
15.10000	143.17	370.99	16.10000	129.71	338.84	17.00000	118.64	311.53
22.70000	132.54	419.02	24.10000	120.28	382.10	25.50000	110.05	351.43
30.30000	127.39	452.61	32.20000	115.63	412.76	34.00000	105.86	379.34
45.50000	121.99	499.26	48.30000	110.78	455.07	51.00000	101.46	418.14
75.90000	117.92	557.76	80.50000	107.15	508.18	85.00000	98.18	466.84
151.00000	115.40	636.15	161.00000	104.86	579.99	170.00000	96.09	532.67

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN PB
Z=82 A=207.210

TD=52.0 EV ET=1.786426 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.80000	0.20	0.20
1.82000	0.63	0.63
1.85000	1.55	1.55
1.91000	4.21	4.21
1.98000	8.36	8.36
2.07000	14.81	14.81
2.17000	22.80	22.80
2.32000	35.37	35.37
2.50000	50.10	50.10
2.76000	69.17	69.17
3.12000	90.24	90.93
3.57000	108.72	112.62
4.10000	122.23	132.84
4.82000	131.61	154.31
5.71000	135.50	174.82
6.78000	135.06	194.06
8.03000	131.93	211.89
9.28000	128.07	226.46
10.70000	123.80	240.39
12.50000	119.08	255.22
15.10000	113.65	272.88
17.80000	109.40	287.99
26.70000	101.50	324.86
35.70000	97.62	350.89
53.50000	93.59	386.63
89.30000	90.59	431.73
178.00000	88.68	492.20

TD=56.0 EV ET=1.868935 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.88000	0.13	0.13
1.90000	0.48	0.48
1.94000	1.56	1.56
1.99000	3.50	3.50
2.07000	7.65	7.65
2.16000	13.37	13.37
2.28000	21.93	21.93
2.42000	32.41	32.41
2.61000	46.31	46.31
2.89000	64.62	64.63
3.27000	84.34	85.03
3.73000	101.08	104.75
4.29000	113.71	123.78
5.04000	122.29	143.67
5.98000	125.82	162.92
7.10000	125.30	180.80
8.41000	122.32	197.38
9.71000	118.73	210.83
11.20000	114.75	223.81
13.00000	110.54	237.03
15.80000	105.34	253.98
18.60000	101.45	267.90
28.00000	94.11	302.47
37.30000	90.58	326.34
56.00000	86.84	359.68
93.40000	84.09	401.52
186.00000	82.33	457.59

TD=60.0 EV ET=1.948678 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.96000	0.12	0.12
1.98000	0.41	0.41
2.02000	1.35	1.35
2.08000	3.44	3.44
2.16000	7.20	7.20
2.26000	12.96	12.96
2.37000	20.03	20.03
2.53000	30.80	30.80
2.72000	43.29	43.29
3.02000	60.89	60.90
3.41000	78.98	79.66
3.89000	94.58	98.11
4.48000	106.40	116.06
5.26000	114.24	134.58
6.23000	117.42	152.38
7.40000	116.87	169.13
8.76000	114.06	184.57
10.10000	110.72	197.02
11.60000	107.11	208.79
13.60000	102.92	221.98
16.50000	98.13	237.66
19.40000	94.54	250.56
29.20000	87.75	282.84
38.90000	84.47	305.12
58.40000	81.00	336.25
97.40000	78.46	375.30
194.00000	76.83	427.65

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN PB
Z=82 A=207.210

TD=64.0 EV ET=2.025916 MEV

ENERGY(MEV)	PRIMARY	CASCADE
2.04000	0.13	0.13
2.06000	0.40	0.40
2.10000	1.24	1.24
2.16000	3.11	3.11
2.24000	6.47	6.47
2.35000	12.18	12.18
2.47000	19.18	19.18
2.63000	28.95	28.95
2.83000	40.85	40.85
3.14000	57.29	57.30
3.54000	74.07	74.71
4.05000	89.00	92.44
4.65000	99.79	108.93
5.46000	107.13	126.33
6.48000	110.07	143.25
7.69000	109.50	158.88
9.11000	106.81	173.44
10.50000	103.67	185.09
12.10000	100.19	196.40
14.10000	96.42	208.29
17.20000	91.81	223.42
20.20000	88.49	235.44
30.30000	82.21	265.46
40.50000	79.12	286.60
60.70000	75.90	315.67
101.00000	73.54	352.12
202.00000	72.01	401.49

TD=68.0 EV ET=2.100871 MEV

ENERGY(MEV)	PRIMARY	CASCADE
2.12000	0.16	0.16
2.14000	0.42	0.42
2.18000	1.20	1.20
2.24000	2.91	2.91
2.33000	6.39	6.39
2.43000	11.12	11.12
2.56000	18.02	18.02
2.73000	27.47	27.47
2.94000	38.85	38.85
3.25000	53.82	53.82
3.67000	69.87	70.49
4.20000	83.94	87.24
4.83000	94.14	102.96
5.67000	100.92	119.32
6.72000	103.59	135.13
7.98000	102.99	149.90
9.45000	100.42	163.58
10.90000	97.44	174.61
12.60000	94.08	185.50
14.70000	90.51	196.78
17.80000	86.34	210.49
21.00000	83.14	222.13
31.50000	77.28	250.40
42.00000	74.41	270.13
63.00000	71.39	297.54
105.00000	69.19	331.97
210.00000	67.76	378.44

TD=72.0 EV ET=2.173734 MEV

ENERGY(MEV)	PRIMARY	CASCADE
2.19000	0.12	0.12
2.21000	0.33	0.33
2.26000	1.22	1.22
2.32000	2.80	2.80
2.41000	5.99	5.99
2.52000	10.77	10.77
2.65000	17.11	17.11
2.82000	25.78	25.78
3.04000	36.71	36.71
3.36000	50.87	50.87
3.80000	66.23	66.85
4.34000	79.32	82.46
4.99000	88.94	97.32
5.86000	95.34	112.94
6.95000	97.82	127.84
8.26000	97.21	141.88
9.78000	94.75	154.79
11.30000	91.88	165.34
13.00000	88.82	175.29
15.20000	85.39	186.10
18.40000	81.47	199.05
21.70000	78.46	210.01
32.60000	72.93	236.83
43.40000	70.25	255.37
65.20000	67.40	281.36
108.00000	65.35	313.49
217.00000	63.99	357.67

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN PB
Z=82 A=207.210

TD=76.0 EV ET=2.244671 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.26000	0.09	0.09
2.28000	0.29	0.29
2.33000	1.07	1.07
2.40000	2.76	2.76
2.49000	5.72	5.72
2.60000	10.12	10.12
2.73000	15.95	15.95
2.91000	24.40	24.40
3.14000	34.91	34.91
3.47000	48.34	48.34
3.92000	62.78	63.37
4.48000	75.25	78.27
5.16000	84.42	92.54
6.06000	90.40	107.24
7.18000	92.67	121.38
8.52000	92.06	134.57
10.10000	89.69	146.90
11.60000	87.08	156.49
13.40000	84.09	166.20
15.70000	80.80	176.59
19.00000	77.10	188.84
22.40000	74.26	199.21
33.60000	69.06	224.53
44.80000	66.51	242.19
67.30000	63.83	266.82
112.00000	61.89	297.55
224.00000	60.61	339.12

TD=80.0 EV ET=2.313827 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.33000	0.09	0.09
2.36000	0.37	0.37
2.40000	0.97	0.97
2.47000	2.51	2.51
2.56000	5.20	5.20
2.68000	9.62	9.62
2.82000	15.43	15.43
3.00000	23.25	23.25
3.23000	32.99	32.99
3.58000	46.15	46.16
4.04000	59.76	60.33
4.62000	71.63	74.57
5.32000	80.30	88.11
6.24000	85.89	101.99
7.40000	88.03	115.50
8.79000	87.41	128.11
10.40000	85.16	139.70
12.00000	82.58	149.12
13.80000	79.82	158.06
16.10000	76.78	167.67
19.60000	73.16	179.68
23.10000	70.48	189.52
34.70000	65.55	213.67
46.20000	63.15	230.36
69.40000	60.61	253.76
115.00000	58.79	282.71
231.00000	57.57	322.45

TD=84.0 EV ET=2.381330 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.40000	0.10	0.10
2.42000	0.26	0.26
2.47000	0.92	0.92
2.54000	2.33	2.33
2.64000	5.12	5.12
2.76000	9.24	9.24
2.90000	14.64	14.64
3.09000	22.30	22.30
3.33000	31.72	31.72
3.69000	44.23	44.24
4.16000	57.08	57.64
4.76000	68.41	71.27
5.47000	76.51	83.99
6.42000	81.83	97.28
7.62000	83.83	110.22
9.04000	83.21	122.15
10.70000	81.05	133.22
12.30000	78.66	141.96
14.20000	75.96	150.73
16.60000	73.02	160.00
20.20000	69.59	171.41
23.80000	67.05	180.77
35.70000	62.40	203.70
47.60000	60.11	219.68
71.40000	57.70	241.89
119.00000	55.97	269.78
238.00000	54.82	307.39

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN PB
Z=82 A=207.210

TD=88.0 EV ET=2.447294 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.47000	0.11	0.11
2.49000	0.27	0.27
2.54000	0.89	0.89
2.61000	2.21	2.21
2.71000	4.79	4.79
2.83000	8.61	8.61
2.98000	13.99	13.99
3.18000	21.51	21.51
3.42000	30.27	30.27
3.79000	42.25	42.27
4.28000	54.69	55.26
4.89000	65.36	68.13
5.62000	73.08	80.30
6.60000	78.15	93.04
7.83000	80.02	105.37
9.29000	79.40	116.76
11.00000	77.31	127.36
12.70000	74.94	135.96
14.60000	72.43	144.08
17.10000	69.60	153.04
20.80000	66.34	163.92
24.40000	63.99	172.61
36.70000	59.52	194.65
48.90000	57.35	209.87
73.40000	55.06	231.11
122.00000	53.42	257.59
244.00000	52.33	293.49

TD=92.0 EV ET=2.511818 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.53000	0.07	0.07
2.56000	0.29	0.29
2.61000	0.89	0.89
2.68000	2.13	2.13
2.78000	4.55	4.55
2.91000	8.42	8.42
3.06000	13.46	13.46
3.26000	20.48	20.48
3.51000	29.02	29.02
3.89000	40.51	40.52
4.39000	52.35	52.90
5.02000	62.62	65.31
5.77000	69.98	76.96
6.78000	74.80	89.19
8.03000	76.53	100.88
9.54000	75.91	111.87
11.30000	73.89	122.03
13.00000	71.67	130.06
15.00000	69.21	138.03
17.50000	66.57	146.40
21.30000	63.44	156.84
25.10000	61.13	165.40
37.60000	56.92	186.27
50.20000	54.83	200.94
75.30000	52.65	221.22
125.00000	51.10	246.49
251.00000	50.04	281.03

TD=96.0 EV ET=2.574993 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.60000	0.10	0.10
2.62000	0.24	0.24
2.67000	0.77	0.77
2.75000	2.09	2.09
2.85000	4.36	4.36
2.98000	7.98	7.98
3.14000	13.02	13.02
3.34000	19.61	19.61
3.60000	27.93	27.93
3.99000	38.96	38.97
4.50000	50.25	50.78
5.14000	60.01	62.60
5.92000	67.15	73.94
6.95000	71.71	85.60
8.23000	73.34	96.79
9.78000	72.72	107.35
11.50000	70.87	116.67
13.30000	68.67	124.67
15.40000	66.25	132.51
18.00000	63.69	140.62
21.80000	60.77	150.37
25.70000	58.56	158.60
38.60000	54.51	178.74
51.40000	52.54	192.67
77.20000	50.45	212.17
128.00000	48.96	236.33
257.00000	47.96	269.43

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN FR
Z=87 A=223.000

TD= 4.0 EV ET=0.311470 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.31400	24.61	24.61
0.31700	53.48	53.48
0.32300	110.22	110.22
0.33300	201.93	201.93
0.34500	307.42	307.42
0.36100	440.60	440.60
0.37900	580.59	580.59
0.40400	758.55	758.55
0.43600	960.24	960.24
0.48200	1204.15	1204.15
0.54500	1464.21	1464.42
0.62200	1691.88	1707.20
0.71600	1874.24	1936.07
0.84000	2010.20	2166.97
0.99600	2082.39	2388.37
1.18000	2093.86	2590.84
1.40000	2060.30	2783.52
1.61000	2009.59	2935.77
1.86000	1943.54	3090.11
2.18000	1861.90	3258.69
2.64000	1761.07	3461.85
3.11000	1678.56	3637.44
4.67000	1506.04	4080.77
6.22000	1418.61	4402.04
9.34000	1336.03	4868.18
15.50000	1267.42	5453.15
31.10000	1221.06	6269.69
62.20000	1195.89	7081.34
93.40000	1177.23	7547.72
155.00000	1153.66	8120.70

TD= 8.0 EV ET=0.533888 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.53900	8.11	8.11
0.54400	16.30	16.30
0.55500	35.13	35.13
0.57100	64.12	64.12
0.59200	104.20	104.20
0.61900	157.59	157.59
0.65100	221.52	221.52
0.69400	305.60	305.60
0.74700	402.92	402.92
0.82700	532.35	532.35
0.93400	671.27	672.18
1.06000	791.09	801.88
1.22000	891.45	930.81
1.44000	966.99	1066.70
1.70000	1002.38	1189.53
2.02000	1005.94	1307.01
2.40000	985.72	1417.39
2.77000	957.54	1505.45
3.20000	923.21	1592.02
3.73000	884.40	1682.22
4.53000	835.93	1795.79
5.33000	798.52	1890.18
8.00000	723.73	2126.41
10.60000	688.86	2292.54
16.00000	653.66	2535.10
26.60000	624.79	2833.81
53.30000	607.12	3245.51
106.00000	593.86	3646.83
160.00000	583.98	3882.00
266.00000	573.32	4168.60

TD=12.0 EV ET=0.716651 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.72300	3.59	3.59
0.73000	7.85	7.85
0.74500	17.96	17.96
0.76600	33.98	33.98
0.79500	58.75	58.75
0.83100	92.24	92.24
0.87400	134.15	134.15
0.93100	189.97	189.97
1.00000	254.67	254.67
1.11000	346.45	346.45
1.25000	440.34	441.34
1.43000	527.38	537.22
1.64000	592.53	624.49
1.93000	640.56	717.41
2.29000	661.94	805.40
2.72000	660.93	886.76
3.22000	645.25	961.64
3.72000	624.99	1023.08
4.29000	601.85	1082.05
5.01000	575.67	1145.07
6.09000	544.14	1223.28
7.16000	520.52	1287.66
10.70000	474.77	1446.79
14.30000	453.17	1562.50
21.40000	431.82	1722.09
35.80000	414.18	1924.96
71.60000	403.72	2199.42
143.00000	394.41	2467.90
214.00000	387.93	2621.05
358.00000	381.31	2814.31

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN FR
Z=87 A=223.000

TD=16.0 EV ET=0.875529 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.88400	2.35	2.35
0.89300	5.17	5.17
0.91000	11.32	11.32
0.93600	22.48	22.48
0.97100	40.00	40.00
1.01000	61.80	61.80
1.06000	91.66	91.66
1.13000	134.46	134.46
1.22000	187.64	187.64
1.35000	256.23	256.23
1.53000	332.04	333.15
1.75000	397.62	406.57
2.01000	446.30	474.14
2.36000	480.18	544.27
2.80000	494.24	611.59
3.32000	491.73	673.23
3.93000	478.75	730.44
4.55000	462.60	778.08
5.25000	444.93	823.18
6.12000	425.60	870.70
7.44000	402.40	930.18
8.75000	385.22	979.21
13.10000	352.54	1100.44
17.50000	337.34	1187.58
26.20000	322.01	1307.83
43.70000	309.71	1459.64
87.50000	302.32	1666.03
175.00000	295.12	1867.44

TD=20.0 EV ET=1.017985 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.02000	0.30	0.30
1.03000	1.97	1.97
1.05000	6.11	6.11
1.08000	14.03	14.03
1.12000	27.02	27.02
1.18000	49.89	49.89
1.24000	74.89	74.89
1.32000	109.07	109.07
1.42000	150.40	150.40
1.57000	205.78	205.78
1.78000	267.36	268.49
2.03000	318.92	326.86
2.34000	358.47	383.13
2.74000	384.13	439.02
3.25000	394.28	493.50
3.86000	391.22	543.91
4.58000	379.90	590.81
5.29000	366.79	628.69
6.10000	352.58	664.98
7.12000	337.06	703.69
8.65000	318.84	751.51
10.10000	305.97	789.28
15.20000	280.35	888.19
20.30000	268.64	958.06
30.50000	255.62	1055.31
50.80000	247.28	1176.69
101.00000	241.64	1340.21
203.00000	235.74	1502.32

TD=24.0 EV ET=1.148256 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.15000	0.16	0.16
1.17000	2.49	2.49
1.19000	5.56	5.56
1.22000	11.34	11.34
1.27000	23.36	23.36
1.33000	40.40	40.40
1.40000	62.16	62.16
1.49000	90.98	90.98
1.60000	125.10	125.10
1.77000	172.16	172.16
2.00000	222.70	223.72
2.29000	267.14	274.46
2.64000	299.70	321.83
3.10000	320.58	369.60
3.67000	327.95	414.79
4.36000	324.62	457.16
5.16000	314.85	495.94
5.97000	303.57	528.09
6.88000	291.70	558.41
8.03000	278.83	590.86
9.76000	263.80	631.04
11.40000	253.24	662.73
17.20000	232.43	746.06
22.90000	223.07	803.77
34.40000	213.28	884.88
57.40000	205.77	986.56
114.00000	201.19	1122.64
229.00000	196.22	1257.49

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN FR
Z=87 A=223.000

TD=28.0 EV ET=1.269019 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.28000	0.78	0.78
1.29000	1.65	1.65
1.31000	3.80	3.80
1.35000	9.55	9.55
1.40000	18.78	18.78
1.47000	34.20	34.20
1.54000	51.21	51.21
1.64000	76.35	76.35
1.77000	108.05	108.05
1.96000	149.18	149.18
2.22000	193.41	194.50
2.53000	229.97	236.73
2.91000	257.23	277.01
3.42000	274.84	318.49
4.06000	280.69	358.09
4.82000	277.33	394.44
5.71000	268.56	428.04
6.59000	258.92	455.25
7.61000	248.55	481.76
8.88000	237.58	509.64
10.70000	225.36	542.70
12.60000	215.95	571.38
19.00000	198.55	642.96
25.30000	190.69	692.52
38.00000	182.44	762.08
63.40000	176.19	849.31
126.00000	172.34	966.08
253.00000	168.03	1081.51

TD=32.0 EV ET=1.382093 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.39000	0.39	0.39
1.40000	0.99	0.99
1.43000	3.45	3.45
1.47000	8.03	8.03
1.53000	16.98	16.98
1.60000	29.49	29.49
1.68000	45.27	45.27
1.79000	67.73	67.73
1.93000	95.41	95.41
2.14000	132.13	132.12
2.41000	169.23	170.23
2.76000	202.42	208.83
3.17000	225.68	243.86
3.73000	240.73	280.57
4.42000	245.31	314.99
5.25000	242.01	347.02
6.21000	234.19	376.27
7.18000	225.56	400.46
8.29000	216.46	423.72
9.67000	206.92	448.14
11.70000	196.11	477.79
13.80000	187.92	503.19
20.70000	173.24	565.18
27.60000	166.45	608.79
41.40000	159.37	669.50
69.10000	154.04	745.95
138.00000	150.69	848.84
276.00000	146.90	949.20

TD=36.0 EV ET=1.488784 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.50000	0.43	0.43
1.51000	0.92	0.92
1.54000	2.90	2.90
1.59000	7.65	7.65
1.65000	15.15	15.15
1.72000	25.53	25.53
1.81000	40.27	40.27
1.93000	60.69	60.69
2.08000	85.37	85.37
2.30000	117.39	117.39
2.60000	151.56	152.56
2.97000	180.41	186.38
3.42000	201.25	218.22
4.01000	214.01	250.26
4.76000	217.84	281.28
5.65000	214.66	309.72
6.69000	207.51	335.97
7.74000	199.74	357.62
8.93000	191.67	378.25
10.40000	183.30	399.78
12.60000	173.69	426.40
14.80000	166.65	448.45
22.30000	153.64	504.28
29.70000	147.71	542.93
44.60000	141.47	597.07
74.40000	136.83	665.01
148.00000	133.90	755.95
297.00000	130.50	845.55

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN FR
Z=87 A=223.000

TD=40.0 EV ET=1.590065 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.60000	0.29	0.29
1.62000	1.11	1.11
1.65000	2.85	2.85
1.70000	6.92	6.92
1.76000	13.25	13.25
1.84000	23.30	23.30
1.93000	35.83	35.83
2.06000	54.62	54.62
2.22000	76.99	76.99
2.46000	106.58	106.58
2.78000	137.27	138.26
3.18000	163.33	169.09
3.65000	181.41	197.16
4.29000	192.79	226.50
5.08000	195.90	254.08
6.04000	192.80	279.99
7.15000	186.23	303.63
8.26000	179.26	322.95
9.54000	171.93	341.71
11.10000	164.47	361.00
13.50000	155.70	385.49
15.90000	149.35	405.69
23.80000	138.03	455.21
31.80000	132.70	490.41
47.70000	127.17	539.02
79.50000	123.08	600.09
159.00000	120.44	682.57

TD=44.0 EV ET=1.686682 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.70000	0.32	0.32
1.72000	1.02	1.02
1.75000	2.50	2.50
1.80000	5.93	5.93
1.87000	12.26	12.26
1.95000	20.93	20.93
2.05000	32.95	32.95
2.19000	50.43	50.43
2.36000	70.90	70.90
2.61000	97.40	97.40
2.95000	125.37	126.34
3.37000	148.79	154.19
3.87000	165.18	179.88
4.55000	175.34	206.67
5.39000	177.96	231.86
6.40000	175.01	255.27
7.59000	168.87	277.04
8.77000	162.49	294.66
10.10000	155.95	311.40
11.80000	149.00	329.45
14.30000	141.22	351.34
16.80000	135.57	369.44
25.30000	125.23	415.20
33.70000	120.49	446.87
50.60000	115.50	491.19
84.30000	111.84	546.70
168.00000	109.47	621.29

TD=48.0 EV ET=1.779228 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.79000	0.20	0.20
1.81000	0.75	0.75
1.85000	2.44	2.44
1.90000	5.45	5.45
1.97000	10.95	10.95
2.06000	19.48	19.48
2.17000	31.08	31.08
2.31000	46.37	46.37
2.49000	65.32	65.32
2.75000	89.40	89.40
3.11000	115.24	116.17
3.55000	136.58	141.64
4.09000	151.82	165.80
4.80000	160.80	190.11
5.69000	163.02	213.32
6.76000	160.15	234.88
8.00000	154.52	254.61
9.25000	148.60	270.86
10.60000	142.82	285.70
12.40000	136.40	302.41
15.10000	129.12	323.02
17.70000	124.05	339.40
26.60000	114.69	381.18
35.50000	110.34	410.42
53.30000	105.80	451.06
88.90000	102.48	502.07
177.00000	100.32	570.35

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN FR
Z=87 A=223.000

TD=52.0 EV ET=1.868176 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.88000	0.19	0.19
1.90000	0.65	0.65
1.94000	2.09	2.09
1.99000	4.68	4.68
2.07000	10.18	10.18
2.16000	17.71	17.71
2.27000	27.94	27.94
2.42000	42.43	42.43
2.61000	60.15	60.15
2.89000	83.04	83.05
3.26000	106.45	107.32
3.73000	126.47	131.32
4.29000	140.27	153.39
5.04000	148.49	176.02
5.97000	150.40	197.39
7.09000	147.67	217.28
8.40000	142.37	235.65
9.71000	136.90	250.64
11.20000	131.30	265.01
13.00000	125.69	279.67
15.80000	119.05	298.53
18.60000	114.27	314.07
28.00000	105.70	352.84
37.30000	101.75	379.67
56.00000	97.58	417.19
93.40000	94.56	464.29
186.00000	92.58	527.34

TD=56.0 EV ET=1.953916 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.97000	0.23	0.23
1.99000	0.66	0.66
2.03000	1.94	1.94
2.09000	4.77	4.77
2.16000	9.09	9.09
2.26000	16.52	16.52
2.38000	26.50	26.50
2.54000	40.30	40.30
2.73000	56.08	56.08
3.02000	77.22	77.23
3.41000	99.17	100.03
3.90000	117.67	122.29
4.49000	130.47	142.96
5.27000	137.92	163.88
6.25000	139.58	183.88
7.42000	136.95	202.32
8.79000	131.97	219.38
10.10000	127.09	232.74
11.70000	121.73	246.52
13.60000	116.47	260.28
16.60000	110.22	278.19
19.50000	105.87	292.44
29.30000	98.03	328.31
39.00000	94.40	353.16
58.60000	90.55	388.07
97.60000	87.78	431.70
195.00000	85.94	490.52

TD=60.0 EV ET=2.036773 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.05000	0.15	0.15
2.07000	0.50	0.50
2.11000	1.58	1.58
2.17000	4.00	4.00
2.26000	8.98	8.98
2.36000	15.73	15.73
2.48000	24.72	24.72
2.64000	37.15	37.15
2.85000	52.84	52.84
3.15000	72.44	72.45
3.56000	93.06	93.91
4.07000	110.17	114.64
4.68000	121.92	133.78
5.49000	128.75	153.26
6.51000	130.22	171.94
7.73000	127.69	189.19
9.16000	123.00	205.16
10.50000	118.51	217.44
12.20000	113.41	230.57
14.20000	108.47	243.54
17.30000	102.71	260.12
20.30000	98.70	273.33
30.50000	91.43	306.83
40.70000	88.02	330.24
61.10000	84.46	362.75
101.00000	81.93	402.89
203.00000	80.19	458.26

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN FR
Z=87 A=223.000

TD=64.0 EV ET=2.117019 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.13000	0.13	0.13
2.15000	0.43	0.43
2.20000	1.67	1.67
2.26000	3.92	3.92
2.34000	7.90	7.90
2.45000	14.57	14.57
2.58000	23.39	23.39
2.75000	35.35	35.35
2.96000	49.56	49.56
3.28000	68.44	68.46
3.70000	87.46	88.29
4.23000	103.48	107.76
4.86000	114.37	125.63
5.71000	120.76	144.09
6.77000	122.03	161.60
8.04000	119.58	177.79
9.52000	115.16	192.71
11.00000	110.68	204.88
12.70000	106.10	216.68
14.80000	101.45	228.94
17.90000	96.26	243.92
21.10000	92.41	256.67
31.70000	85.64	288.09
42.30000	82.47	310.04
63.50000	79.14	340.53
105.00000	76.79	378.18
211.00000	75.17	430.08

TD=68.0 EV ET=2.194886 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.21000	0.13	0.13
2.23000	0.41	0.41
2.28000	1.52	1.52
2.34000	3.55	3.55
2.43000	7.62	7.62
2.54000	13.72	13.72
2.67000	21.76	21.76
2.85000	33.30	33.30
3.07000	46.86	46.86
3.40000	64.58	64.59
3.84000	82.66	83.48
4.38000	97.44	101.51
5.04000	107.77	118.54
5.92000	113.68	135.90
7.02000	114.80	152.41
8.34000	112.44	167.69
9.87000	108.25	181.69
11.40000	104.04	193.13
13.10000	99.87	203.88
15.30000	95.42	215.60
18.60000	90.43	230.09
21.90000	86.85	242.02
32.90000	80.52	271.60
43.80000	77.58	292.10
65.80000	74.46	320.85
109.00000	72.25	356.43
219.00000	70.73	405.25

TD=72.0 EV ET=2.270574 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.29000	0.16	0.16
2.31000	0.42	0.42
2.36000	1.46	1.46
2.42000	3.31	3.31
2.52000	7.48	7.48
2.63000	13.10	13.10
2.77000	21.06	21.06
2.95000	31.65	31.65
3.17000	44.07	44.07
3.51000	60.84	60.86
3.97000	78.17	78.96
4.54000	92.35	96.34
5.22000	101.94	112.33
6.13000	107.41	128.70
7.26000	108.39	144.18
8.62000	106.12	158.57
10.20000	102.15	171.80
11.80000	98.12	182.73
13.60000	94.10	193.11
15.80000	90.05	203.80
19.20000	85.35	217.47
22.70000	81.90	229.02
34.00000	76.01	256.77
45.40000	73.21	276.34
68.10000	70.29	303.39
113.00000	68.22	337.11
227.00000	66.79	383.21

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN FR
Z=87 A=223.000

TD=76.0 EV ET=2.344256 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.36000	0.11	0.11
2.39000	0.46	0.46
2.43000	1.22	1.22
2.50000	3.17	3.17
2.60000	7.01	7.01
2.71000	12.16	12.16
2.85000	19.47	19.47
3.04000	29.76	29.76
3.28000	42.23	42.23
3.63000	58.04	58.06
4.10000	74.25	75.02
4.68000	87.50	91.28
5.39000	96.66	106.64
6.32000	101.76	122.02
7.50000	102.64	136.87
8.90000	100.46	150.47
10.50000	96.75	162.79
12.10000	93.03	172.89
14.00000	89.11	183.00
16.40000	85.08	193.69
19.90000	80.68	206.55
23.40000	77.54	217.14
35.10000	71.96	243.54
46.80000	69.33	261.99
70.30000	66.56	287.71
117.00000	64.61	319.85
234.00000	63.26	363.24

TD=80.0 EV ET=2.416084 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.44000	0.16	0.16
2.46000	0.39	0.39
2.51000	1.26	1.26
2.58000	3.11	3.11
2.68000	6.67	6.67
2.80000	11.89	11.89
2.94000	18.67	18.67
3.14000	28.69	28.69
3.38000	40.20	40.20
3.74000	55.23	55.25
4.22000	70.53	71.27
4.83000	83.35	87.05
5.55000	91.86	101.41
6.52000	96.71	116.20
7.73000	97.48	130.23
9.18000	95.36	143.21
10.80000	91.87	154.73
12.50000	88.22	164.62
14.40000	84.61	173.95
16.90000	80.74	184.23
20.50000	76.58	196.43
24.10000	73.60	206.48
36.20000	68.31	231.66
48.30000	65.82	249.23
72.40000	63.22	273.54
120.00000	61.38	303.83
241.00000	60.09	345.30

TD=84.0 EV ET=2.486192 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.51000	0.15	0.15
2.53000	0.35	0.35
2.58000	1.14	1.14
2.66000	3.10	3.10
2.75000	6.07	6.07
2.88000	11.29	11.29
3.03000	18.04	18.04
3.23000	27.34	27.34
3.48000	38.47	38.47
3.85000	52.78	52.79
4.35000	67.48	68.22
4.97000	79.48	83.06
5.71000	87.55	96.73
6.71000	92.12	110.85
7.95000	92.81	124.17
9.44000	90.77	136.53
11.10000	87.45	147.48
12.90000	83.87	157.16
14.90000	80.37	166.21
17.40000	76.80	175.70
21.10000	72.85	187.30
24.80000	70.04	196.87
37.20000	65.04	220.77
49.70000	62.66	237.58
74.50000	60.19	260.74
124.00000	58.44	289.84
248.00000	57.22	329.09

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN FR
Z=87 A=223.000

TD=88.0 EV ET=2.554696 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.58000	0.14	0.14
2.60000	0.33	0.33
2.65000	1.06	1.06
2.73000	2.86	2.86
2.83000	5.94	5.94
2.96000	10.82	10.82
3.11000	17.10	17.10
3.32000	26.20	26.20
3.57000	36.58	36.58
3.95000	50.29	50.31
4.47000	64.53	65.26
5.10000	75.87	79.29
5.87000	83.65	92.52
6.89000	87.94	105.91
8.17000	88.57	118.70
9.70000	86.59	130.49
11.40000	83.41	140.91
13.20000	80.08	149.94
15.30000	76.66	158.79
17.80000	73.33	167.64
21.70000	69.47	179.03
25.50000	66.79	188.15
38.30000	62.03	211.05
51.00000	59.79	226.91
76.60000	57.43	249.13
127.00000	55.78	276.69

TD=92.0 EV ET=2.621703 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.64000	0.08	0.08
2.67000	0.33	0.33
2.72000	1.01	1.01
2.80000	2.69	2.69
2.91000	5.87	5.87
3.04000	10.45	10.45
3.19000	16.33	16.33
3.40000	24.84	24.84
3.67000	35.31	35.31
4.06000	48.40	48.42
4.58000	61.68	62.37
5.24000	72.74	76.09
6.02000	80.04	88.58
7.07000	84.13	101.44
8.38000	84.70	113.65
9.96000	82.77	125.01
11.70000	79.72	134.94
13.60000	76.44	143.81
15.70000	73.26	152.04
18.30000	70.04	160.61
22.20000	66.44	171.24
26.20000	63.82	180.20
39.30000	59.30	202.04
52.40000	57.16	217.29
78.60000	54.92	238.47
131.00000	53.34	265.11

TD=96.0 EV ET=2.687306 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.71000	0.10	0.10
2.74000	0.34	0.34
2.79000	1.00	1.00
2.87000	2.57	2.57
2.98000	5.54	5.54
3.11000	9.82	9.82
3.27000	15.69	15.69
3.49000	24.04	24.04
3.76000	33.85	33.85
4.16000	46.43	46.45
4.70000	59.31	59.99
5.37000	69.77	73.01
6.18000	76.81	85.14
7.25000	80.64	97.38
8.59000	81.15	109.05
10.20000	79.29	119.88
12.00000	76.33	129.49
13.90000	73.26	137.80
16.10000	70.14	145.88
18.80000	67.03	154.19
22.80000	63.59	164.36
26.80000	61.15	172.74
40.30000	56.80	193.81
53.70000	54.76	208.39
80.60000	52.61	228.72
134.00000	51.11	254.13

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN U
Z=92 A=238.000

TD= 4.0 EV ET=0.328282 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.33100	28.67	28.67
0.33400	60.04	60.04
0.34100	132.16	132.16
0.35100	232.58	232.58
0.36400	358.46	358.46
0.38000	506.05	506.05
0.40000	679.02	679.02
0.42600	884.94	884.94
0.45900	1116.55	1116.55
0.50800	1404.15	1404.15
0.57400	1701.04	1701.42
0.65600	1957.77	1977.26
0.75500	2151.25	2228.20
0.88600	2283.00	2476.40
1.05000	2335.42	2708.54
1.24000	2318.99	2914.56
1.47000	2253.67	3111.89
1.70000	2173.31	3274.23
1.96000	2083.05	3430.32
2.29000	1979.13	3600.12
2.79000	1851.18	3816.65
3.28000	1755.36	3996.44
4.92000	1564.20	4457.87
6.56000	1473.08	4796.44
9.84000	1391.08	5284.76
16.40000	1322.02	5903.74
32.80000	1276.79	6756.29
65.60000	1248.52	7603.52
98.40000	1226.37	8086.85
164.00000	1200.12	8687.63

TD= 8.0 EV ET=0.560292 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.56500	8.18	8.18
0.57100	19.02	19.02
0.58200	39.98	39.98
0.59900	74.60	74.60
0.62100	122.24	122.24
0.64900	185.42	185.42
0.68300	263.12	263.12
0.72800	363.59	363.59
0.78400	480.25	480.25
0.86800	632.35	632.35
0.98000	791.40	792.63
1.12000	930.44	945.37
1.28000	1029.30	1078.62
1.51000	1099.99	1222.93
1.79000	1123.30	1354.16
2.12000	1109.96	1472.74
2.52000	1071.95	1585.91
2.91000	1029.94	1676.19
3.36000	983.69	1764.42
3.92000	934.12	1857.59
4.76000	875.89	1974.66
5.60000	832.91	2072.43
8.40000	751.96	2318.44
11.20000	715.88	2496.52
16.80000	681.46	2747.00
28.00000	652.40	3061.59
56.00000	634.95	3491.69
112.00000	619.31	3913.29
168.00000	607.95	4153.81
280.00000	596.81	4453.81

TD=12.0 EV ET=0.750324 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.75700	4.16	4.16
0.76500	9.62	9.62
0.78000	21.08	21.08
0.80200	40.26	40.26
0.83200	69.79	69.79
0.87000	110.69	110.69
0.91500	161.43	161.43
0.97500	229.10	229.10
1.05000	309.18	309.18
1.16000	412.14	412.14
1.31000	522.19	523.56
1.50000	618.14	630.98
1.72000	684.84	725.41
2.02000	727.75	822.55
2.40000	739.59	914.63
2.85000	726.65	997.96
3.37000	699.52	1073.87
3.90000	669.93	1137.33
4.50000	639.17	1197.84
5.25000	606.70	1262.19
6.37000	569.63	1342.11
7.50000	542.59	1409.51
11.20000	493.62	1575.24
15.00000	471.69	1697.35
22.50000	450.28	1865.59
37.50000	432.74	2076.63
75.00000	422.22	2363.93
150.00000	411.23	2644.09
225.00000	403.71	2804.09
375.00000	397.16	3004.17

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN U
Z=92 A=238.000

TD=16.0 EV ET=0.915258 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.92400	2.69	2.69
0.93300	5.85	5.85
0.95100	13.26	13.26
0.97900	27.14	27.14
1.01000	45.05	45.05
1.06000	77.59	77.59
1.11000	112.45	112.45
1.18000	161.98	161.98
1.28000	229.49	229.49
1.41000	306.40	306.40
1.60000	393.81	395.28
1.83000	465.28	476.74
2.10000	514.54	549.29
2.47000	544.75	624.10
2.92000	551.06	692.37
3.47000	539.50	756.36
4.11000	517.75	814.91
4.75000	495.21	862.95
5.49000	471.87	909.64
6.40000	448.00	958.51
7.77000	420.90	1019.48
9.15000	401.41	1070.79
13.70000	366.65	1197.35
18.30000	351.38	1288.58
27.40000	336.01	1414.62
45.70000	323.66	1573.69
91.50000	316.15	1789.64
183.00000	307.65	1999.31

TD=20.0 EV ET=1.063002 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.07000	1.21	1.21
1.08000	3.24	3.24
1.10000	8.21	8.21
1.13000	17.61	17.61
1.17000	32.90	32.90
1.23000	59.65	59.65
1.29000	88.78	88.78
1.38000	133.34	133.34
1.48000	180.69	180.69
1.64000	247.15	247.15
1.86000	317.34	318.84
2.12000	373.04	383.17
2.44000	412.63	443.19
2.87000	435.36	503.67
3.40000	438.85	559.50
4.03000	428.48	610.43
4.78000	410.21	658.15
5.52000	391.99	696.76
6.37000	373.51	734.10
7.44000	354.43	774.08
9.03000	333.26	823.22
10.60000	318.39	863.78
15.90000	291.59	966.21
21.20000	279.92	1038.96
31.80000	267.88	1140.44
53.10000	258.46	1268.26
106.00000	252.65	1440.32
212.00000	245.72	1607.83

TD=24.0 EV ET=1.198022 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.21000	1.39	1.39
1.22000	2.82	2.82
1.24000	6.32	6.32
1.28000	15.49	15.49
1.32000	26.87	26.87
1.38000	46.64	46.64
1.46000	75.65	75.65
1.55000	109.10	109.10
1.67000	151.79	151.79
1.85000	207.65	207.65
2.09000	264.80	266.18
2.39000	312.36	321.69
2.75000	344.64	371.97
3.23000	362.51	422.29
3.83000	364.52	469.41
4.55000	354.97	512.70
5.39000	339.39	552.44
6.22000	324.14	584.66
7.18000	308.72	616.08
8.38000	293.05	649.45
10.10000	276.28	689.17
11.90000	263.81	723.93
17.90000	241.99	810.30
23.90000	232.48	871.33
35.90000	222.64	956.29
59.90000	215.10	1062.82
119.00000	210.38	1205.21
239.00000	204.50	1345.50

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN U
Z=92 A=238.000

TD=28.0 EV ET=1.323129 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.33000	0.52	0.52
1.34000	1.42	1.42
1.37000	5.14	5.14
1.41000	12.04	12.04
1.46000	22.99	22.99
1.53000	41.13	41.13
1.61000	63.93	63.93
1.72000	96.04	96.04
1.85000	132.22	132.22
2.05000	180.55	180.54
2.31000	228.52	229.89
2.64000	268.88	277.52
3.04000	296.14	321.06
3.57000	310.65	364.32
4.23000	311.64	404.70
5.02000	303.01	441.76
5.95000	289.33	476.12
6.88000	276.00	504.24
7.93000	262.93	531.04
9.26000	249.57	559.86
11.20000	235.16	594.71
13.20000	224.69	624.65
19.80000	206.68	698.45
26.40000	198.76	750.58
39.60000	190.48	823.21
66.10000	184.20	914.70
132.00000	180.18	1037.66
264.00000	175.10	1157.06

TD=32.0 EV ET=1.440231 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.45000	0.55	0.55
1.46000	1.25	1.25
1.49000	4.13	4.13
1.54000	11.05	11.05
1.59000	19.94	19.94
1.67000	36.79	36.79
1.75000	55.31	55.31
1.87000	83.79	83.79
2.01000	115.48	115.48
2.23000	158.64	158.64
2.52000	201.67	203.07
2.88000	236.60	244.83
3.31000	259.63	282.50
3.88000	271.70	320.06
4.60000	272.14	355.66
5.47000	264.12	388.59
6.48000	251.97	418.66
7.48000	240.39	443.06
8.64000	228.81	466.97
10.00000	217.84	490.83
12.20000	204.77	522.83
14.40000	195.68	549.33
21.60000	180.31	614.08
28.80000	173.51	659.74
43.20000	166.38	723.32
72.00000	161.05	803.21
144.00000	157.55	911.02
288.00000	153.07	1015.41

TD=36.0 EV ET=1.550692 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.56000	0.39	0.39
1.58000	1.55	1.55
1.61000	4.05	4.05
1.65000	8.55	8.55
1.72000	18.82	18.82
1.79000	31.09	31.09
1.89000	50.35	50.35
2.01000	74.09	74.09
2.17000	104.22	104.22
2.40000	141.62	141.63
2.71000	179.76	181.08
3.10000	210.94	218.63
3.56000	231.04	252.04
4.18000	241.49	285.87
4.96000	241.44	317.73
5.89000	234.06	346.83
6.97000	223.19	373.47
8.06000	212.74	395.49
9.30000	202.53	416.65
10.80000	192.63	438.40
13.10000	181.47	466.10
15.50000	173.36	490.04
23.20000	159.99	547.42
31.00000	153.98	588.35
46.50000	147.71	644.89
77.50000	143.07	715.96
155.00000	139.98	811.78
310.00000	135.97	904.52

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN U
Z=92 A=238.000

TD=40.0 EV ET=1.655528 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.67000	0.50	0.50
1.68000	0.96	0.96
1.72000	3.62	3.62
1.77000	8.47	8.47
1.83000	15.95	15.95
1.92000	29.34	29.34
2.01000	44.09	44.09
2.15000	67.62	67.62
2.31000	93.24	93.24
2.56000	127.82	127.82
2.89000	162.19	163.44
3.31000	190.41	197.66
3.80000	208.22	227.73
4.46000	217.30	258.17
5.29000	216.99	286.84
6.29000	210.10	313.28
7.44000	200.23	337.25
8.60000	190.83	357.06
9.93000	181.61	376.25
11.50000	172.90	395.50
14.00000	162.75	420.97
16.50000	155.69	442.05
24.80000	143.71	494.31
33.10000	138.39	531.02
49.60000	132.81	581.80
82.70000	128.70	645.85
165.00000	125.94	731.79

TD=44.0 EV ET=1.755521 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.77000	0.40	0.40
1.79000	1.21	1.21
1.82000	2.94	2.94
1.87000	6.95	6.95
1.94000	14.35	14.35
2.03000	25.84	25.84
2.14000	41.41	41.41
2.28000	61.74	61.74
2.45000	85.22	85.22
2.72000	117.30	117.31
3.07000	148.40	149.66
3.51000	173.56	180.40
4.03000	189.55	207.81
4.73000	197.53	235.52
5.61000	197.00	261.62
6.67000	190.57	285.68
7.89000	181.51	307.52
9.12000	172.94	325.56
10.50000	164.74	342.70
12.20000	156.68	360.62
14.90000	147.39	384.19
17.50000	141.18	402.97
26.30000	130.44	450.54
35.10000	125.65	483.93
52.60000	120.63	530.11
87.70000	116.95	588.37
175.00000	114.45	666.49

TD=48.0 EV ET=1.851285 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.86000	0.18	0.18
1.88000	0.78	0.78
1.92000	2.67	2.67
1.98000	6.95	6.95
2.05000	13.52	13.52
2.14000	23.60	23.60
2.25000	37.20	37.20
2.40000	56.26	56.26
2.59000	79.19	79.19
2.86000	107.20	107.21
3.23000	136.03	137.19
3.70000	159.41	165.88
4.25000	173.96	191.12
4.99000	181.06	216.60
5.92000	180.36	240.59
7.03000	174.37	262.52
8.33000	165.91	282.77
9.62000	158.09	299.22
11.10000	150.48	315.21
12.90000	143.12	331.68
15.70000	134.82	352.95
18.50000	129.07	370.52
27.70000	119.44	413.79
37.00000	115.07	444.50
55.50000	110.49	486.95
92.50000	107.17	540.33
185.00000	104.87	612.17

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN U
Z=92 A=238.000

TD=52.0 EV	ET=1.943315 MEV		TD=56.0 EV	ET=2.032017 MEV		TD=60.0 EV	ET=2.117727 MEV	
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.96000	0.32	0.32	2.05000	0.29	0.29	2.13000	0.16	0.16
1.98000	0.90	0.90	2.07000	0.80	0.80	2.16000	0.80	0.80
2.02000	2.65	2.65	2.11000	2.32	2.32	2.20000	2.18	2.18
2.07000	5.75	5.75	2.17000	5.64	5.64	2.26000	5.15	5.15
2.15000	12.27	12.27	2.25000	11.52	11.52	2.35000	11.11	11.11
2.25000	22.18	22.18	2.35000	20.36	20.36	2.45000	19.10	19.10
2.37000	35.34	35.34	2.47000	32.09	32.09	2.58000	30.56	30.56
2.52000	52.21	52.21	2.64000	49.15	49.15	2.75000	45.91	45.91
2.72000	73.53	73.53	2.84000	68.16	68.16	2.96000	63.87	63.87
3.01000	99.98	99.99	3.14000	92.63	92.65	3.28000	87.24	87.25
3.30000	126.49	127.67	3.55000	117.53	118.65	3.70000	110.00	111.09
3.80000	147.33	153.43	4.06000	137.15	143.01	4.23000	128.20	133.79
4.46000	160.72	176.89	4.67000	149.47	164.90	4.87000	139.66	154.37
5.24000	167.13	200.54	5.48000	155.18	186.69	5.71000	144.82	174.61
6.21000	166.32	222.56	6.50000	154.28	207.26	6.77000	143.88	193.78
7.38000	160.67	242.92	7.72000	148.95	226.10	8.04000	138.85	211.38
8.74000	152.83	261.59	9.14000	141.63	243.42	9.52000	131.98	227.58
10.30000	145.50	276.86	10.50000	135.16	257.05	11.00000	125.68	240.83
11.90000	138.78	291.16	12.10000	128.70	270.68	12.70000	119.59	253.73
13.60000	131.62	307.27	14.20000	122.02	285.75	14.80000	113.67	267.18
16.50000	124.14	326.62	17.20000	115.16	303.59	18.00000	107.17	284.20
19.40000	118.95	342.64	20.30000	110.25	318.83	21.10000	102.82	297.84
23.10000	110.11	382.80	30.40000	102.15	356.00	31.70000	95.25	332.85
38.30000	106.13	410.98	40.60000	98.46	382.33	42.30000	91.83	357.35
58.20000	101.93	450.17	60.90000	94.58	418.73	63.50000	88.23	391.40
87.10000	98.89	499.56	101.00000	91.82	464.07	105.00000	85.68	433.48
133.00000	96.78	565.78	203.00000	89.84	526.08	211.00000	83.84	491.34

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN U
Z=92 A=238.000

TD=64.0 EV	ET=2.200730 MEV		TD=68.0 EV	ET=2.281267 MEV		TD=72.0 EV	ET=2.359544 MEV	
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
2.22000	0.23	0.23	2.30000	0.20	0.20	2.38000	0.19	0.19
2.24000	0.62	0.62	2.32000	0.53	0.53	2.40000	0.50	0.50
2.28000	1.79	1.79	2.37000	1.88	1.88	2.45000	1.72	1.72
2.35000	4.87	4.87	2.44000	4.76	4.76	2.52000	4.31	4.31
2.44000	10.27	10.27	2.53000	9.70	9.70	2.61000	8.78	8.78
2.55000	18.24	18.24	2.64000	16.96	16.96	2.73000	16.00	16.00
2.68000	28.63	28.63	2.78000	27.16	27.16	2.87000	25.35	25.35
2.86000	43.36	43.36	2.96000	40.59	40.59	3.06000	38.35	38.35
3.08000	60.37	60.37	3.19000	56.82	56.82	3.30000	53.86	53.86
3.41000	82.12	82.14	3.53000	77.26	77.27	3.65000	73.11	73.12
3.85000	103.57	104.65	3.99000	97.67	98.72	4.12000	92.21	93.20
4.80000	120.48	125.88	4.56000	113.54	118.71	4.71000	107.26	112.18
5.06000	131.02	145.02	5.24000	123.36	136.66	5.42000	116.58	129.32
5.90000	135.78	164.15	6.15000	127.77	154.66	6.37000	120.68	146.46
7.04000	134.77	182.08	7.30000	126.75	171.70	7.55000	119.63	162.42
8.36000	129.98	198.58	8.66000	122.21	187.15	8.96000	115.29	177.05
9.90000	123.50	213.78	10.20000	116.30	201.02	10.60000	109.52	190.50
11.40000	117.73	225.93	11.80000	110.69	212.85	12.20000	104.40	201.28
13.20000	111.92	238.28	13.60000	105.38	224.12	14.10000	99.30	212.14
15.40000	106.34	250.99	15.90000	100.06	236.27	16.50000	94.27	223.68
18.70000	100.33	266.83	19.30000	94.41	251.16	20.00000	89.01	237.66
22.00000	96.19	279.92	22.80000	90.43	263.81	23.50000	85.38	249.22
33.00000	89.20	312.63	34.20000	83.89	294.61	35.30000	79.20	278.43
44.00000	86.03	335.55	45.60000	80.92	316.19	47.10000	76.39	298.87
66.00000	82.67	367.41	68.40000	77.78	346.18	70.70000	73.43	327.24
110.00000	80.29	407.49	114.00000	75.55	383.91	117.00000	71.36	362.39
220.00000	78.57	461.35	228.00000	73.93	434.60	235.00000	69.82	410.56

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN U
Z=92 A=238.000

TD=76.0 EV ET=2.435744 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.46000	0.21	0.21
2.48000	0.51	0.51
2.53000	1.64	1.64
2.60000	4.02	4.02
2.70000	8.61	8.61
2.82000	15.29	15.29
2.97000	24.53	24.53
3.16000	36.50	36.50
3.41000	51.36	51.36
3.77000	69.53	69.55
4.26000	87.73	88.73
4.87000	101.88	106.68
5.60000	110.55	122.82
6.57000	114.31	138.89
7.79000	113.27	154.06
9.25000	109.11	167.97
10.90000	103.76	180.43
12.60000	98.76	190.97
14.60000	93.85	201.45
17.00000	89.25	212.04
20.70000	84.17	225.60
24.30000	80.77	236.50
36.50000	74.97	264.18
48.70000	72.32	283.54
73.00000	69.54	310.33
121.00000	67.59	343.75
243.00000	66.13	389.36

TD=80.0 EV ET=2.510021 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.53000	0.15	0.15
2.56000	0.54	0.54
2.61000	1.62	1.62
2.68000	3.83	3.83
2.78000	8.07	8.07
2.91000	14.77	14.77
3.06000	23.33	23.33
3.26000	34.98	34.98
3.51000	48.72	48.72
3.89000	66.41	66.44
4.39000	83.50	84.47
5.02000	96.93	101.57
5.77000	105.08	116.86
6.77000	108.59	132.14
8.03000	107.54	146.58
9.53000	103.56	159.76
11.20000	98.55	171.42
13.00000	93.66	181.73
15.00000	89.14	191.40
17.50000	84.71	201.60
21.30000	79.90	214.47
25.10000	76.62	225.07
37.60000	71.18	251.21
50.20000	68.67	269.65
75.30000	66.03	295.14
125.00000	64.19	326.98
251.00000	62.81	370.31

TD=84.0 EV ET=2.582516 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.60000	0.11	0.11
2.63000	0.45	0.45
2.68000	1.40	1.40
2.76000	3.73	3.73
2.86000	7.68	7.68
2.99000	13.89	13.89
3.15000	22.36	22.36
3.35000	33.18	33.18
3.61000	46.45	46.45
4.00000	63.30	63.33
4.51000	79.49	80.41
5.16000	92.34	96.79
5.93000	100.09	111.36
6.97000	103.42	126.08
8.26000	102.37	139.76
9.81000	98.53	152.37
11.60000	93.55	163.89
13.40000	89.04	173.39
15.40000	84.86	182.35
18.00000	80.60	192.19
21.90000	76.04	204.42
25.80000	72.93	214.51
38.70000	67.75	239.50
51.60000	65.38	256.98
77.40000	62.87	281.26
129.00000	61.12	311.83
258.00000	59.81	352.85

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN U
Z=92 A=238.000

TD=88.0 EV ET=2.653351 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.67000	0.09	0.09
2.70000	0.40	0.40
2.75000	1.25	1.25
2.83000	3.37	3.37
2.94000	7.39	7.39
3.07000	13.18	13.18
3.23000	21.07	21.07
3.44000	31.66	31.66
3.71000	44.49	44.49
4.11000	60.56	60.59
4.64000	76.15	77.06
5.30000	88.22	92.51
6.10000	95.63	106.57
7.16000	98.71	120.49
8.49000	97.66	133.60
10.00000	94.18	145.08
11.90000	89.26	156.52
13.70000	85.05	165.38
15.90000	80.78	174.54
18.50000	76.85	183.66
22.50000	72.52	195.32
26.50000	69.56	204.94
39.80000	64.63	228.87
53.00000	62.39	245.49
79.60000	59.99	268.74
132.00000	58.34	297.64
265.00000	57.09	337.00

TD=92.0 EV ET=2.722634 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.74000	0.09	0.09
2.77000	0.37	0.37
2.83000	1.36	1.36
2.91000	3.40	3.40
3.02000	7.20	7.20
3.15000	12.62	12.62
3.32000	20.46	20.46
3.53000	30.36	30.36
3.81000	42.78	42.78
4.22000	58.13	58.16
4.76000	72.92	73.81
5.44000	84.48	88.66
6.26000	91.52	102.08
7.35000	94.42	115.43
8.71000	93.38	127.92
10.30000	89.93	139.17
12.20000	85.32	149.81
14.10000	81.19	158.52
16.30000	77.22	167.06
19.00000	73.41	175.89
23.10000	69.29	187.03
27.20000	66.48	196.22
40.80000	61.80	219.05
54.40000	59.65	235.01
81.60000	57.37	257.19
136.00000	55.79	285.11
272.00000	54.60	322.55

TD=96.0 EV ET=2.790463 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.81000	0.09	0.09
2.84000	0.36	0.36
2.90000	1.28	1.28
2.98000	3.19	3.19
3.09000	6.72	6.72
3.23000	12.18	12.18
3.40000	19.53	19.53
3.62000	29.25	29.25
3.90000	40.90	40.90
4.32000	55.66	55.68
4.88000	70.01	70.89
5.58000	81.09	85.17
6.41000	87.71	97.88
7.53000	90.48	110.72
8.92000	89.46	122.67
10.60000	86.02	133.76
12.50000	81.70	143.69
14.50000	77.64	152.25
16.70000	73.94	160.22
19.50000	70.26	168.78
23.70000	66.33	179.44
27.90000	63.66	188.24
41.80000	59.20	210.06
55.80000	57.14	225.43
83.70000	54.97	246.68
139.00000	53.46	273.25
279.00000	52.32	309.32

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN PU
Z=94 A=242.000

TD= 4.0 EV ET=0.332708 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.33600	36.72	36.72
0.33900	69.89	69.89
0.34600	146.26	146.26
0.35500	242.21	242.21
0.36900	386.38	386.38
0.38500	543.32	543.32
0.40500	727.47	727.47
0.43200	954.82	954.82
0.46500	1200.49	1200.49
0.51500	1510.57	1510.57
0.58200	1826.13	1826.60
0.66500	2094.52	2116.05
0.76500	2291.96	2376.18
0.89800	2420.73	2632.11
1.06000	2462.59	2863.62
1.26000	2430.98	3080.77
1.49000	2350.40	3277.26
1.73000	2253.90	3445.81
1.99000	2153.29	3601.26
2.32000	2039.87	3771.10
2.82000	1902.57	3988.87
3.32000	1799.31	4173.93
4.99000	1598.94	4648.79
6.65000	1506.70	4995.96
9.98000	1424.77	5498.37
16.60000	1355.57	6131.61
33.20000	1310.03	7007.10
66.50000	1279.97	7877.36
99.80000	1256.08	8372.47
166.00000	1228.85	8985.11

TD= 8.0 EV ET=0.567223 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.57200	8.82	8.82
0.57800	20.36	20.36
0.58900	42.72	42.72
0.60600	79.73	79.73
0.62900	133.13	133.13
0.65700	200.95	200.95
0.69200	286.76	286.76
0.73700	394.33	394.33
0.79400	520.99	520.99
0.87900	684.09	684.09
0.99200	852.41	853.78
1.13000	994.64	1010.50
1.30000	1100.24	1155.70
1.53000	1166.48	1301.50
1.81000	1183.13	1433.48
2.15000	1161.26	1555.65
2.55000	1115.29	1668.57
2.94000	1067.43	1758.93
3.40000	1015.09	1849.33
3.97000	960.47	1944.51
4.82000	897.95	2063.71
5.67000	852.59	2163.52
8.50000	769.15	2415.22
11.30000	733.16	2596.25
17.00000	698.45	2855.41
28.30000	669.16	3177.64
56.70000	651.47	3620.25
113.00000	634.78	4049.94
170.00000	622.56	4297.79
283.00000	611.30	4604.50

TD=12.0 EV ET=0.759153 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.76600	4.55	4.55
0.77400	10.39	10.39
0.78900	22.66	22.66
0.81200	44.25	44.25
0.84200	76.12	76.12
0.88000	120.21	120.21
0.92600	176.04	176.04
0.98500	248.69	248.69
1.06000	333.28	333.28
1.17000	443.08	443.08
1.32000	559.58	560.95
1.51000	659.90	673.34
1.74000	730.36	774.95
2.04000	770.69	873.53
2.42000	778.09	966.45
2.88000	759.45	1051.97
3.41000	726.63	1129.33
3.94000	693.21	1192.87
4.55000	658.81	1254.60
5.31000	623.36	1320.19
6.45000	583.53	1402.13
7.59000	555.25	1470.79
11.30000	505.25	1639.37
15.10000	483.34	1763.80
22.70000	461.70	1937.55
37.90000	443.89	2154.96
75.90000	433.19	2450.35
151.00000	421.46	2735.09
227.00000	413.44	2899.70
379.00000	406.89	3105.55

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN PU
Z=94 A=242.000

TD=16.0 EV ET=0.925667 MEV

ENERGY (MEV)	PRIMARY	CASCADE
0.93400	2.72	2.72
0.94400	6.49	6.49
0.96200	14.47	14.47
0.99000	29.45	29.45
1.02000	48.13	48.13
1.07000	83.15	83.15
1.12000	120.68	120.68
1.20000	181.49	181.49
1.29000	246.45	246.45
1.43000	334.36	334.36
1.61000	421.42	422.87
1.85000	498.76	511.38
2.12000	547.98	585.74
2.49000	576.28	661.81
2.96000	579.03	733.49
3.51000	563.15	797.39
4.16000	537.18	856.80
4.81000	511.49	905.58
5.55000	485.97	952.40
6.47000	460.07	1002.13
7.86000	431.12	1064.52
9.25000	410.80	1116.78
13.80000	375.43	1245.37
18.50000	359.92	1340.22
27.70000	344.48	1469.67
46.20000	332.02	1632.97
92.50000	324.36	1854.54
185.00000	315.20	2069.22

TD=20.0 EV ET=1.074791 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.08000	0.95	0.95
1.09000	3.04	3.04
1.11000	8.27	8.27
1.15000	22.05	22.05
1.19000	39.10	39.10
1.24000	63.34	63.34
1.31000	100.02	100.02
1.39000	142.65	142.65
1.50000	198.40	198.40
1.66000	268.67	268.67
1.88000	342.07	343.72
2.14000	399.38	410.39
2.47000	439.87	473.68
2.90000	460.44	534.81
3.43000	460.93	591.00
4.08000	446.80	643.61
4.83000	425.47	691.32
5.58000	404.83	730.53
6.44000	384.44	768.47
7.52000	363.83	809.10
9.13000	341.31	859.31
10.70000	325.93	900.39
16.10000	298.35	1006.23
21.40000	286.80	1080.11
32.20000	274.61	1185.12
53.70000	265.14	1316.04
107.00000	259.21	1492.09
214.00000	251.75	1663.59

TD=24.0 EV ET=1.211050 MEV

ENERGY (MEV)	PRIMARY	CASCADE
1.22000	1.08	1.08
1.23000	2.53	2.53
1.25000	6.16	6.16
1.29000	15.83	15.83
1.34000	31.27	31.27
1.40000	52.92	52.92
1.47000	80.36	80.36
1.57000	120.34	120.34
1.69000	165.93	165.93
1.87000	225.12	225.12
2.11000	285.02	286.52
2.42000	335.31	345.78
2.78000	367.03	397.04
3.26000	383.18	447.99
3.87000	382.58	496.15
4.60000	370.02	540.08
5.44000	351.94	579.87
6.29000	334.53	612.96
7.26000	317.59	644.84
8.47000	300.73	678.73
10.20000	283.02	719.08
12.10000	269.51	756.11
18.10000	247.67	843.49
24.20000	238.13	906.45
36.30000	228.27	993.38
60.50000	220.67	1102.52
121.00000	215.78	1250.01
242.00000	209.47	1392.73

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN PU
Z=94 A=242.000

TD=28.0 EV ET=1.337291 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.35000	1.09	1.09
1.36000	2.18	2.18
1.39000	6.47	6.47
1.43000	14.22	14.22
1.48000	26.32	26.32
1.55000	46.12	46.12
1.63000	70.81	70.81
1.73000	102.25	102.25
1.87000	144.03	144.03
2.07000	195.30	195.29
2.34000	247.26	248.86
2.67000	288.29	297.90
3.07000	315.14	342.35
3.61000	328.28	386.90
4.27000	326.96	427.45
5.08000	315.62	465.47
6.01000	299.82	499.84
6.95000	284.83	528.36
8.02000	270.38	555.80
9.36000	256.04	585.04
11.30000	240.93	620.27
13.30000	230.08	650.66
20.00000	211.59	726.81
26.70000	203.63	780.57
40.10000	195.28	855.36
66.80000	188.98	948.94
133.00000	184.85	1074.53
267.00000	179.37	1197.42

TD=32.0 EV ET=1.455444 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.46000	0.25	0.25
1.48000	1.75	1.75
1.51000	5.03	5.03
1.55000	11.01	11.01
1.61000	22.53	22.53
1.68000	38.46	38.46
1.77000	60.93	60.93
1.89000	91.57	91.57
2.03000	125.49	125.49
2.25000	171.34	171.33
2.54000	216.57	218.04
2.91000	253.42	262.49
3.34000	276.12	300.98
3.92000	287.01	339.66
4.65000	285.35	375.88
5.53000	275.06	409.19
6.54000	261.07	439.31
7.56000	247.96	464.28
8.73000	235.30	488.52
10.10000	223.52	512.75
12.30000	209.82	545.13
14.50000	200.40	572.05
21.80000	184.62	638.84
29.10000	177.80	685.91
43.60000	170.63	751.00
72.70000	165.23	833.11
145.00000	161.64	943.26
291.00000	156.80	1050.66

TD=36.0 EV ET=1.566889 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.58000	0.62	0.62
1.59000	1.23	1.23
1.62000	3.73	3.73
1.67000	9.75	9.75
1.73000	19.24	19.24
1.81000	34.34	34.34
1.91000	55.18	55.18
2.03000	80.73	80.73
2.19000	112.99	112.99
2.42000	152.76	152.76
2.74000	193.95	195.44
3.13000	225.77	234.19
3.60000	245.89	269.00
4.23000	255.05	303.65
5.01000	253.09	335.60
5.95000	243.72	365.04
7.05000	231.01	392.19
8.14000	219.44	414.27
9.40000	208.21	435.90
10.90000	197.67	457.83
13.30000	185.54	486.98
15.60000	177.55	510.21
23.50000	163.74	570.01
31.30000	157.80	611.56
47.00000	151.47	669.76
78.30000	146.78	742.67
156.00000	143.61	840.42
313.00000	139.29	935.79

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN PU
Z=94 A=242.000

TD=40.0 EV ET=1.672654 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.68000	0.25	0.25
1.70000	1.19	1.19
1.73000	3.29	3.29
1.78000	8.30	8.30
1.85000	17.65	17.65
1.94000	32.19	32.19
2.04000	49.96	49.96
2.17000	73.48	73.48
2.34000	102.55	102.55
2.59000	139.03	139.03
2.92000	174.82	176.22
3.34000	203.68	211.57
3.84000	221.49	242.89
4.51000	229.43	274.06
5.35000	227.35	303.14
6.35000	218.74	329.60
7.52000	207.24	354.02
8.69000	196.75	374.06
10.00000	186.91	393.11
11.70000	176.92	414.07
14.20000	166.44	439.67
16.70000	159.23	460.96
25.00000	147.18	514.05
33.40000	141.83	551.88
50.10000	136.20	604.14
83.60000	132.04	679.01
167.00000	129.18	758.30

TD=44.0 EV ET=1.773528 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.79000	0.50	0.50
1.80000	0.92	0.92
1.84000	3.31	3.31
1.89000	7.70	7.70
1.96000	15.76	15.76
2.05000	28.23	28.23
2.16000	45.05	45.05
2.30000	66.94	66.94
2.48000	93.51	93.51
2.74000	126.27	126.27
3.10000	159.81	161.19
3.54000	185.55	192.98
4.07000	201.54	221.51
4.78000	208.50	249.88
5.67000	206.38	276.35
6.73000	198.39	300.45
7.98000	187.77	322.87
9.22000	178.25	341.09
10.60000	169.39	358.33
12.40000	160.36	377.41
15.00000	151.05	400.33
17.70000	144.41	420.11
26.60000	133.53	468.91
35.40000	128.79	502.86
53.20000	123.69	550.60
88.60000	119.99	610.28
177.00000	117.39	690.54

TD=48.0 EV ET=1.870132 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.88000	0.22	0.22
1.90000	0.88	0.88
1.94000	2.95	2.95
2.00000	7.61	7.61
2.07000	14.75	14.75
2.16000	25.67	25.67
2.28000	41.73	41.73
2.43000	62.24	62.24
2.61000	85.47	85.47
2.89000	116.30	116.31
3.27000	147.05	148.40
3.74000	170.72	177.89
4.30000	185.06	204.02
5.04000	191.06	229.71
5.98000	188.91	254.04
7.10000	181.44	276.19
8.41000	171.70	296.64
9.72000	162.94	313.41
11.20000	154.72	329.51
13.00000	146.88	346.15
15.80000	138.17	367.72
18.70000	132.04	386.20
28.00000	122.28	430.59
37.40000	117.91	462.12
56.10000	113.30	505.69
93.50000	109.95	560.51
187.00000	107.57	634.19

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN PU
Z=94 A=242.000

TD=52.0 EV ET=1.962967 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.98000	0.35	0.35
2.00000	0.98	0.98
2.04000	2.88	2.88
2.10000	7.02	7.02
2.17000	13.31	13.31
2.27000	24.03	24.03
2.39000	38.24	38.24
2.55000	57.59	57.59
2.74000	79.27	79.27
3.04000	108.32	108.34
3.43000	136.02	137.31
3.92000	157.71	164.44
4.51000	170.92	188.73
5.30000	176.33	212.84
6.28000	174.15	235.13
7.45000	167.18	255.50
8.83000	158.10	274.47
10.20000	150.05	289.91
11.70000	142.70	304.33
13.70000	135.08	320.61
16.60000	127.23	340.25
19.60000	121.70	357.08
29.40000	112.74	398.28
39.20000	108.76	427.22
58.80000	104.52	467.45
98.10000	101.46	518.16
196.00000	99.27	586.07

TD=56.0 EV ET=2.052442 MEV

ENERGY(MEV)	PRIMARY	CASCADE
2.07000	0.31	0.31
2.09000	0.85	0.85
2.13000	2.48	2.48
2.19000	6.07	6.07
2.27000	12.43	12.43
2.38000	23.00	23.00
2.50000	35.72	35.72
2.66000	53.01	53.01
2.87000	74.38	74.38
3.18000	101.05	101.06
3.59000	126.84	128.11
4.10000	146.75	153.18
4.72000	158.89	175.84
5.54000	163.69	198.07
6.56000	161.55	218.70
7.79000	154.96	237.75
9.23000	146.51	255.35
10.60000	139.33	269.14
12.30000	131.95	283.67
14.30000	125.23	298.12
17.40000	117.84	316.77
20.50000	112.82	332.21
30.70000	104.60	370.35
41.00000	100.91	397.38
61.50000	97.00	434.75
102.00000	94.21	481.31
205.00000	92.15	544.90

TD=60.0 EV ET=2.138898 MEV

ENERGY(MEV)	PRIMARY	CASCADE
2.16000	0.33	0.33
2.18000	0.83	0.83
2.22000	2.30	2.30
2.28000	5.49	5.49
2.37000	11.93	11.93
2.48000	21.48	21.48
2.60000	32.92	32.92
2.78000	50.41	50.41
2.99000	69.59	69.59
3.31000	94.35	94.37
3.74000	118.63	119.85
4.27000	137.12	143.24
4.91000	148.31	164.25
5.77000	152.74	185.18
6.84000	150.62	204.58
8.12000	144.40	222.34
9.62000	136.48	238.78
11.10000	129.55	252.09
12.80000	122.97	265.10
14.90000	116.66	278.71
18.10000	109.85	295.99
21.30000	105.22	310.31
32.00000	97.54	346.22
42.70000	94.12	371.38
64.10000	90.48	406.33
106.00000	87.91	449.55
213.00000	86.00	508.88

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN PU
Z=94 A=242.000

TD=64.0 EV ET=2.222620 MEV

ENERGY(MEV)	PRIMARY	CASCADE
2.24000	0.22	0.22
2.26000	0.62	0.62
2.31000	2.25	2.25
2.37000	5.17	5.17
2.46000	10.98	10.98
2.57000	19.58	19.58
2.71000	31.67	31.67
2.88000	46.65	46.65
3.11000	65.70	65.70
3.44000	88.75	88.76
3.88000	111.21	112.37
4.44000	128.81	134.70
5.11000	139.21	154.51
6.00000	143.17	174.03
7.11000	141.06	192.17
8.44000	135.17	208.82
10.00000	127.71	224.26
11.50000	121.36	236.46
13.30000	115.08	248.92
15.50000	109.14	261.79
18.80000	102.84	277.88
22.20000	98.44	291.59
33.30000	91.35	325.16
44.40000	88.18	348.69
66.60000	84.79	381.39
111.00000	82.38	422.55
222.00000	80.59	477.78

TD=68.0 EV ET=2.303854 MEV

ENERGY(MEV)	PRIMARY	CASCADE
2.32000	0.17	0.17
2.34000	0.52	0.52
2.39000	1.94	1.94
2.46000	5.01	5.01
2.55000	10.33	10.33
2.67000	18.92	18.92
2.81000	29.97	29.97
2.99000	44.42	44.42
3.22000	61.77	61.77
3.57000	84.00	84.02
4.03000	105.20	106.37
4.60000	121.35	126.99
5.29000	131.04	145.56
6.22000	134.72	164.10
7.37000	132.65	181.17
8.75000	127.05	196.86
10.30000	120.28	210.86
11.90000	114.11	222.74
13.80000	108.09	234.70
16.10000	102.49	246.90
19.50000	96.64	261.95
23.00000	92.55	274.78
34.50000	85.92	306.39
46.00000	82.95	328.54
69.10000	79.76	359.43
115.00000	77.52	398.07
230.00000	75.84	450.05

TD=72.0 EV ET=2.382808 MEV

ENERGY(MEV)	PRIMARY	CASCADE
2.40000	0.17	0.17
2.43000	0.68	0.68
2.47000	1.75	1.75
2.54000	4.52	4.52
2.64000	9.91	9.91
2.76000	17.79	17.79
2.90000	27.91	27.91
3.09000	41.90	41.90
3.33000	58.49	58.49
3.69000	79.42	79.44
4.16000	99.28	100.38
4.76000	114.80	120.24
5.48000	123.89	137.91
6.43000	127.21	155.19
7.62000	125.19	171.34
9.05000	119.84	186.20
10.70000	113.26	199.77
12.30000	107.63	210.61
14.20000	102.12	221.57
16.60000	96.76	233.26
20.20000	91.11	247.83
23.80000	87.30	259.87
35.70000	81.09	289.74
47.60000	78.29	310.67
71.40000	75.30	339.75
119.00000	73.20	376.35
238.00000	71.61	425.43

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN PU
Z=94 A=242.000

TD=76.0 EV ET=2.459664 MEV

ENERGY(MEV)	PRIMARY	CASCADE
2.48000	0.18	0.18
2.50000	0.48	0.48
2.55000	1.65	1.65
2.63000	4.61	4.61
2.73000	9.66	9.66
2.85000	16.95	16.95
3.00000	26.95	26.95
3.19000	39.83	39.83
3.44000	55.72	55.72
3.81000	75.47	75.50
4.30000	94.41	95.51
4.91000	108.83	114.04
5.65000	117.38	130.74
6.64000	120.50	147.28
7.87000	118.51	162.60
9.34000	113.42	176.62
11.00000	107.31	189.19
12.70000	101.81	199.79
14.70000	96.51	210.38
17.20000	91.43	221.52
20.90000	86.16	235.23
24.50000	82.68	248.29
36.80000	76.79	274.69
49.10000	74.14	294.57
73.70000	71.32	322.17
122.00000	69.35	356.39
245.00000	67.84	403.17

TD=80.0 EV ET=2.534582 MEV

ENERGY(MEV)	PRIMARY	CASCADE
2.55000	0.11	0.11
2.58000	0.51	0.51
2.63000	1.62	1.62
2.71000	4.37	4.37
2.81000	9.02	9.02
2.94000	16.32	16.32
3.09000	25.58	25.58
3.29000	38.11	38.11
3.54000	52.81	52.81
3.92000	71.60	71.62
4.43000	89.82	90.88
5.06000	103.51	108.54
5.82000	111.55	124.36
6.84000	114.46	140.09
8.11000	112.51	154.67
9.63000	107.62	168.04
11.40000	101.61	180.36
13.10000	96.56	190.10
15.20000	91.45	200.32
17.70000	86.79	210.59
21.50000	81.80	223.60
25.30000	78.44	234.36
38.00000	72.89	261.36
50.60000	70.40	280.12
76.00000	67.72	306.37
126.00000	65.87	338.98
253.00000	64.43	383.41

TD=84.0 EV ET=2.607700 MEV

ENERGY(MEV)	PRIMARY	CASCADE
2.63000	0.16	0.16
2.65000	0.41	0.41
2.71000	1.64	1.64
2.79000	4.22	4.22
2.89000	8.54	8.54
3.02000	15.30	15.30
3.18000	24.46	24.46
3.39000	36.68	36.68
3.65000	50.83	50.83
4.04000	68.62	68.64
4.56000	85.74	86.79
5.21000	98.74	103.63
5.99000	106.30	118.65
7.04000	108.99	133.63
8.34000	107.09	147.45
9.90000	102.42	160.17
11.70000	96.75	171.79
13.50000	91.79	181.35
15.60000	87.07	190.83
18.20000	82.58	200.73
22.10000	77.85	213.11
26.00000	74.66	223.35
39.10000	69.38	249.15
52.10000	67.02	267.06
78.20000	64.48	292.03
130.00000	62.71	323.26
260.00000	61.35	365.32

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN PU
Z=94 A=242.000

TD=88.0 EV ET=2.679143 MEV

ENERGY(MEV)	PRIMARY	CASCADE
2.70000	0.13	0.13
2.73000	0.49	0.49
2.78000	1.45	1.45
2.86000	3.80	3.80
2.97000	8.20	8.20
3.10000	14.49	14.49
3.26000	23.02	23.02
3.48000	34.95	34.95
3.75000	48.63	48.63
4.15000	65.61	65.63
4.68000	81.85	82.85
5.35000	94.31	99.02
6.16000	101.54	113.50
7.23000	104.02	127.68
8.57000	102.16	140.93
10.10000	97.89	152.57
12.00000	92.31	164.04
13.90000	87.45	173.42
16.00000	83.07	182.23
18.70000	78.74	191.80
22.70000	74.25	203.60
26.70000	71.22	213.37
40.10000	66.21	237.93
53.50000	63.95	255.10
80.30000	61.53	278.93
133.00000	59.86	308.53
267.00000	58.56	348.90

TD=92.0 EV ET=2.749021 MEV

ENERGY(MEV)	PRIMARY	CASCADE
2.77000	0.12	0.12
2.80000	0.44	0.44
2.85000	1.33	1.33
2.94000	3.80	3.80
3.05000	7.95	7.95
3.18000	13.84	13.84
3.35000	22.32	22.32
3.57000	33.47	33.47
3.84000	46.27	46.27
4.26000	62.94	62.97
4.81000	78.59	79.59
5.49000	90.29	94.86
6.32000	97.16	108.70
7.42000	99.48	122.29
8.79000	97.67	134.92
10.40000	93.45	146.32
12.30000	88.24	157.00
14.20000	83.70	165.77
16.40000	79.41	174.40
19.20000	75.23	183.66
23.30000	70.95	194.94
27.40000	68.07	204.27
41.20000	63.29	227.84
54.90000	61.14	244.20
82.40000	58.84	267.00
137.00000	57.25	295.53
274.00000	56.00	333.93

TD=96.0 EV ET=2.817432 MEV

ENERGY(MEV)	PRIMARY	CASCADE
2.84000	0.12	0.12
2.87000	0.43	0.43
2.93000	1.45	1.45
3.01000	3.54	3.54
3.12000	7.40	7.40
3.26000	13.33	13.33
3.43000	21.27	21.27
3.66000	32.20	32.20
3.94000	44.63	44.63
4.36000	60.23	60.26
4.93000	75.42	76.40
5.63000	86.64	91.10
6.48000	93.16	104.34
7.60000	95.33	117.27
9.01000	93.55	129.44
10.70000	89.38	140.60
12.60000	84.50	150.57
14.60000	80.03	159.19
16.90000	75.88	167.59
19.70000	72.00	176.22
23.90000	67.92	187.02
28.10000	65.18	195.96
42.20000	60.64	218.48
56.30000	58.57	234.23
84.50000	56.37	256.08
140.00000	54.86	283.23
281.00000	53.66	320.22

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ES
Z=99 A=254.000

TD= 4.0 EV ET=0.345851 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.34900	39.75	39.75
0.35200	77.37	77.37
0.35900	164.25	164.25
0.37000	297.95	297.95
0.38300	451.11	451.11
0.40100	653.73	653.73
0.42100	865.06	865.06
0.44900	1135.62	1135.62
0.48400	1432.66	1432.66
0.53600	1795.36	1795.36
0.60500	2153.03	2153.77
0.69100	2447.96	2475.13
0.79500	2650.95	2756.16
0.93300	2762.48	3023.90
1.10000	2769.65	3258.96
1.31000	2691.62	3480.14
1.55000	2564.57	3677.81
1.79000	2435.31	3841.41
2.07000	2299.14	4005.06
2.42000	2156.06	4181.85
2.93000	1997.15	4402.62
3.45000	1880.12	4595.67
5.18000	1666.94	5094.48
6.91000	1575.16	5463.99
10.30000	1497.95	5988.03
17.20000	1428.19	6663.43
34.50000	1382.14	7593.04
69.10000	1347.16	8508.22
103.00000	1319.39	9017.96
172.00000	1290.06	9666.22

TD= 8.0 EV ET=0.587756 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.59300	11.09	11.09
0.59900	24.39	24.39
0.61100	52.72	52.72
0.62800	96.02	96.02
0.65200	161.49	161.49
0.68100	244.24	244.24
0.71700	348.06	348.06
0.76400	479.51	479.51
0.82200	628.88	628.88
0.91100	823.35	823.35
1.02000	1004.68	1006.10
1.17000	1169.99	1190.16
1.35000	1277.94	1348.96
1.58000	1330.03	1495.47
1.88000	1325.33	1634.34
2.23000	1278.52	1756.07
2.64000	1209.63	1868.25
3.05000	1143.78	1960.88
3.52000	1078.14	2051.59
4.11000	1012.06	2149.42
4.99000	940.01	2273.04
5.87000	889.99	2377.40
8.81000	803.22	2643.50
11.70000	768.57	2834.64
17.60000	734.99	3109.10
29.30000	705.40	3449.77
58.70000	687.31	3917.10
117.00000	667.47	4368.40
176.00000	653.42	4627.86
293.00000	642.49	4950.90

TD=12.0 EV ET=0.785278 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.79300	5.94	5.94
0.80000	11.87	11.87
0.81500	27.17	27.17
0.84000	53.84	53.84
0.87100	93.02	93.02
0.91000	146.90	146.90
0.95800	216.04	216.04
1.02000	304.46	304.46
1.09000	397.97	397.97
1.21000	535.41	535.41
1.37000	671.90	673.88
1.57000	780.53	798.78
1.80000	846.60	902.87
2.12000	877.54	1007.61
2.51000	868.66	1100.47
2.98000	833.03	1185.13
3.53000	784.71	1263.15
4.08000	740.18	1327.61
4.71000	697.30	1390.47
5.49000	655.44	1457.53
6.67000	610.15	1542.75
7.85000	579.43	1614.75
11.70000	528.17	1793.08
15.70000	506.93	1926.74
23.50000	486.04	2108.72
39.20000	468.05	2338.12
78.50000	456.94	2649.79
157.00000	442.84	2950.83
235.00000	433.88	3121.44
392.00000	427.99	3338.19

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ES
Z=99 A=254.000

TD=16.0 EV ET=0.956450 MEV

ENERGY(MEV)	PRIMARY	CASCADE
0.96600	3.64	3.64
0.97500	7.62	7.62
0.99400	17.57	17.57
1.02000	34.03	34.03
1.06000	64.03	64.03
1.10000	97.67	97.67
1.16000	151.31	151.31
1.24000	223.18	223.18
1.33000	299.01	299.01
1.48000	406.40	406.40
1.67000	506.63	508.73
1.91000	586.41	602.44
2.19000	634.28	681.75
2.58000	654.58	761.61
3.06000	644.80	833.08
3.63000	615.99	897.36
4.30000	578.75	957.00
4.97000	545.19	1006.32
5.73000	513.82	1053.95
6.69000	483.00	1105.79
8.12000	450.59	1170.40
9.56000	428.68	1225.35
14.30000	392.67	1361.97
19.10000	378.03	1461.12
28.60000	362.81	1598.12
47.80000	350.13	1771.45
95.60000	342.09	2004.77
191.00000	331.21	2229.62

TD=20.0 EV ET=1.109643 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.12000	2.29	2.29
1.13000	4.96	4.96
1.15000	11.48	11.48
1.18000	23.77	23.77
1.23000	49.13	49.13
1.28000	78.33	78.33
1.35000	122.15	122.15
1.44000	178.87	178.87
1.55000	243.69	243.69
1.71000	323.86	323.86
1.94000	408.35	410.50
2.21000	469.80	483.93
2.55000	508.29	550.75
2.99000	521.85	613.18
3.55000	512.19	671.23
4.21000	487.96	723.10
4.99000	457.54	771.53
5.77000	430.62	811.56
6.65000	405.88	850.05
7.76000	381.86	891.85
9.43000	356.58	944.40
11.00000	340.59	986.22
16.60000	312.45	1098.76
22.10000	301.32	1177.40
33.20000	289.30	1288.06
55.40000	279.66	1426.61
110.00000	273.40	1611.31
221.00000	264.49	1792.36

TD=24.0 EV ET=1.249555 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.26000	1.48	1.48
1.27000	3.22	3.22
1.29000	7.58	7.58
1.33000	19.21	19.21
1.38000	37.75	37.75
1.44000	63.69	63.69
1.52000	101.20	101.20
1.62000	148.56	148.56
1.74000	201.80	201.80
1.93000	273.04	273.04
2.18000	341.18	343.20
2.49000	393.03	406.04
2.87000	423.78	461.54
3.37000	433.80	514.24
3.99000	424.72	562.10
4.74000	403.60	606.08
5.62000	377.90	646.83
6.49000	355.69	680.15
7.49000	335.07	712.82
8.74000	315.42	747.90
10.60000	295.05	791.57
12.40000	281.85	827.26
18.70000	259.37	921.39
24.90000	250.36	987.08
37.40000	240.51	1079.33
62.40000	232.78	1194.95
124.00000	227.60	1349.01
249.00000	220.08	1499.56

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ES
Z=99 A=254.000

TD=28.0 EV ET=1.379139 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.39000	1.06	1.06
1.40000	2.29	2.29
1.43000	7.27	7.27
1.47000	16.40	16.40
1.53000	33.93	33.93
1.59000	54.37	54.37
1.68000	87.54	87.54
1.79000	128.49	128.49
1.93000	177.06	177.06
2.13000	235.43	235.43
2.41000	294.61	296.63
2.75000	338.10	350.19
3.17000	363.58	397.88
3.72000	371.10	442.99
4.41000	362.38	484.44
5.24000	343.68	522.33
6.20000	321.71	557.02
7.17000	302.54	586.02
8.27000	285.08	614.11
9.65000	268.49	644.32
11.70000	251.41	681.91
13.70000	240.28	712.80
20.60000	221.74	793.21
27.50000	214.10	850.10
41.30000	205.77	929.19
68.90000	199.35	1028.39
137.00000	194.92	1160.52
275.00000	188.42	1289.35

TD=32.0 EV ET=1.500392 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.51000	0.67	0.67
1.53000	2.60	2.60
1.56000	6.74	6.74
1.60000	14.12	14.12
1.66000	28.17	28.17
1.74000	50.32	50.32
1.83000	77.38	77.38
1.95000	113.67	113.67
2.10000	155.87	155.87
2.32000	207.74	207.74
2.62000	258.71	260.65
3.00000	297.25	308.79
3.45000	318.37	349.80
4.05000	324.19	389.40
4.80000	315.93	425.70
5.70000	299.26	458.85
6.75000	279.81	489.49
7.80000	263.17	514.83
9.00000	247.96	539.60
10.50000	233.63	566.11
12.70000	219.10	598.72
15.00000	209.05	627.31
22.50000	193.47	697.48
30.00000	186.95	747.09
45.00000	179.77	816.11
75.00000	174.31	902.83
150.00000	170.40	1019.37
300.00000	164.69	1131.38

TD=36.0 EV ET=1.614740 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.63000	0.86	0.86
1.64000	1.61	1.61
1.67000	4.67	4.67
1.72000	11.97	11.97
1.79000	25.56	25.56
1.87000	44.02	44.02
1.96000	66.53	66.53
2.09000	99.36	99.36
2.26000	139.29	139.29
2.50000	186.17	186.18
2.82000	230.94	232.82
3.22000	264.35	274.88
3.71000	283.10	311.96
4.35000	287.82	346.99
5.16000	280.07	379.51
6.13000	264.98	409.14
7.26000	247.59	436.48
8.39000	232.83	459.11
9.68000	219.40	481.20
11.30000	206.74	504.92
13.70000	193.86	534.38
16.10000	185.34	559.08
24.20000	171.67	621.91
32.20000	165.98	665.73
48.40000	159.62	727.42
80.70000	154.86	804.62
161.00000	151.40	907.82
322.00000	146.30	1007.33

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ES
Z=99 A=254.000

TD=40.0 EV ET=1.723243 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.74000	0.75	0.75
1.75000	1.36	1.36
1.79000	4.87	4.87
1.84000	11.24	11.24
1.91000	22.82	22.82
1.99000	38.44	38.44
2.10000	61.82	61.82
2.24000	91.83	91.83
2.41000	125.64	125.64
2.67000	168.64	168.65
3.01000	208.66	210.49
3.44000	238.61	248.60
3.96000	254.94	281.77
4.65000	258.72	313.58
5.51000	251.38	342.69
6.54000	237.67	369.26
7.75000	221.90	394.03
8.96000	208.61	414.50
10.30000	196.89	433.95
12.00000	185.69	455.08
14.60000	173.98	482.16
17.20000	166.30	504.76
25.80000	154.28	561.13
34.40000	149.18	600.88
51.60000	143.53	656.13
86.10000	139.31	725.76
172.00000	136.19	818.79

TD=44.0 EV ET=1.826716 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.84000	0.45	0.45
1.86000	1.46	1.46
1.89000	3.66	3.66
1.95000	10.04	10.04
2.02000	19.93	19.93
2.11000	35.04	35.04
2.22000	55.23	55.23
2.37000	83.02	83.02
2.55000	114.00	114.00
2.83000	153.93	153.95
3.19000	190.26	192.02
3.65000	217.48	226.99
4.20000	231.90	257.04
4.93000	234.96	285.90
5.84000	228.03	312.34
6.94000	215.32	336.70
8.22000	200.97	359.20
9.49000	189.03	377.67
10.90000	178.48	395.29
12.70000	168.35	414.56
15.50000	157.65	439.62
18.20000	150.90	459.78
27.40000	140.03	511.57
36.50000	135.46	547.62
54.80000	130.35	597.96
91.30000	126.60	661.10
182.00000	123.77	745.40

TD=48.0 EV ET=1.925799 MEV

ENERGY(MEV)	PRIMARY	CASCADE
1.94000	0.40	0.40
1.96000	1.25	1.25
2.00000	3.85	3.85
2.06000	9.58	9.58
2.13000	18.28	18.28
2.23000	33.01	33.01
2.34000	50.71	50.71
2.50000	76.65	76.65
2.69000	105.20	105.20
2.98000	141.28	141.30
3.37000	175.41	177.17
3.85000	199.77	208.82
4.42000	212.57	235.94
5.19000	215.22	262.51
6.16000	208.59	287.05
7.31000	196.91	309.24
8.66000	183.70	329.93
10.00000	172.76	346.92
11.50000	163.05	363.26
13.40000	153.84	380.95
16.30000	144.27	403.59
19.20000	138.02	422.46
28.80000	128.27	469.58
38.50000	124.05	503.04
57.70000	119.42	548.99
96.20000	116.01	606.98
192.00000	113.41	684.37

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ES
Z=99 A=254.000

TD=52.0 EV ET=2.021007 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.04000	0.47	0.47
2.06000	1.25	1.25
2.10000	3.57	3.57
2.16000	8.60	8.60
2.24000	17.40	17.40
2.34000	30.48	30.48
2.46000	47.57	47.57
2.62000	70.53	70.53
2.82000	97.13	97.13
3.13000	131.14	131.16
3.53000	161.95	163.61
4.04000	184.68	193.27
4.64000	196.32	218.38
5.45000	198.50	242.94
6.46000	192.25	265.44
7.67000	181.34	286.01
9.09000	169.09	305.18
10.50000	158.99	320.93
12.10000	149.95	336.27
14.10000	141.51	352.63
17.10000	132.90	373.24
20.20000	127.10	390.98
30.30000	118.24	434.53
40.40000	114.41	465.15
60.60000	110.16	507.66
101.00000	107.05	561.17
202.00000	104.64	632.81

TD=56.0 EV ET=2.112763 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.13000	0.35	0.35
2.15000	0.99	0.99
2.19000	2.94	2.94
2.26000	8.10	8.10
2.34000	15.96	15.96
2.45000	28.82	28.82
2.57000	44.09	44.09
2.74000	65.86	65.86
2.95000	90.75	90.75
3.27000	122.00	122.03
3.69000	150.74	152.34
4.22000	171.64	179.77
4.85000	182.35	203.21
5.70000	184.18	226.11
6.76000	178.19	247.06
8.02000	168.02	266.09
9.50000	156.65	283.87
10.90000	147.71	297.84
12.60000	139.12	312.41
14.70000	131.24	327.75
17.90000	123.13	347.32
21.10000	117.86	363.60
31.60000	109.73	403.91
42.20000	106.17	432.52
63.30000	102.24	472.00
105.00000	99.40	521.24
211.00000	97.14	588.21

TD=60.0 EV ET=2.201417 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.22000	0.33	0.33
2.24000	0.89	0.89
2.28000	2.61	2.61
2.35000	7.15	7.15
2.44000	15.06	15.06
2.55000	26.63	26.63
2.68000	41.53	41.53
2.86000	62.25	62.25
3.08000	85.62	85.62
3.41000	114.43	114.46
3.85000	141.26	142.85
4.40000	160.47	168.28
5.06000	170.30	190.24
5.94000	171.79	211.44
7.04000	166.09	230.93
8.36000	156.49	248.81
9.90000	145.88	265.39
11.40000	137.33	278.79
13.20000	129.29	292.57
15.40000	122.01	306.89
18.70000	114.64	324.93
22.00000	109.83	339.94
33.00000	102.31	377.75
44.00000	99.03	404.31
66.00000	95.37	441.17
110.00000	92.73	487.57
220.00000	90.63	549.63

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ES
Z=99 A=254.000

TD=64.0 EV ET=2.287263 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.31000	0.37	0.37
2.33000	0.90	0.90
2.37000	2.47	2.47
2.44000	6.56	6.56
2.53000	13.66	13.66
2.65000	25.07	25.07
2.79000	39.62	39.62
2.97000	58.40	58.40
3.20000	80.52	80.52
3.54000	107.38	107.41
4.00000	132.70	134.24
4.57000	150.59	158.04
5.26000	159.72	178.75
6.17000	160.96	198.53
7.31000	155.54	216.78
8.69000	146.42	233.65
10.20000	136.98	248.41
11.80000	128.69	261.41
13.70000	121.02	274.59
16.00000	114.18	288.12
19.40000	107.36	304.92
22.80000	102.90	318.92
34.30000	95.84	354.65
45.70000	92.78	379.49
68.60000	89.36	414.11
114.00000	86.93	457.37
228.00000	84.96	515.56

TD=68.0 EV ET=2.370553 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.39000	0.26	0.26
2.41000	0.70	0.70
2.46000	2.46	2.46
2.53000	6.23	6.23
2.63000	13.49	13.49
2.74000	23.04	23.04
2.89000	37.24	37.24
3.08000	55.31	55.31
3.31000	75.49	75.49
3.67000	101.40	101.43
4.14000	124.91	126.38
4.74000	141.95	149.15
5.45000	150.35	168.49
6.40000	151.40	187.23
7.58000	146.20	204.37
9.00000	137.63	220.15
10.60000	128.54	234.35
12.30000	120.60	246.85
14.20000	113.70	258.79
16.50000	107.48	271.12
20.10000	100.91	287.34
23.70000	96.67	300.79
35.50000	90.16	334.09
47.40000	87.27	357.65
71.10000	84.07	390.17
118.00000	81.80	430.79
237.00000	79.93	485.88

TD=72.0 EV ET=2.451503 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.47000	0.21	0.21
2.50000	0.84	0.84
2.54000	2.14	2.14
2.62000	6.07	6.07
2.72000	12.76	12.76
2.84000	22.35	22.35
2.99000	35.39	35.39
3.18000	51.96	51.96
3.43000	72.02	72.02
3.79000	95.70	95.73
4.29000	118.49	119.96
4.90000	134.17	141.06
5.63000	142.00	159.25
6.61000	142.94	176.95
7.84000	137.92	193.29
9.31000	129.77	208.21
11.00000	121.01	221.89
12.70000	113.79	233.30
14.70000	107.16	244.79
17.10000	101.28	256.54
20.80000	95.17	271.75
24.50000	91.21	284.38
36.70000	85.10	315.85
49.00000	82.39	338.11
73.50000	79.38	368.83
122.00000	77.25	407.21
245.00000	75.48	459.22

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ES
Z=99 A=254.000

TD=76.0 EV ET=2.530298 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.55000	0.20	0.20
2.58000	0.77	0.77
2.63000	2.32	2.32
2.70000	5.52	5.52
2.80000	11.59	11.59
2.93000	21.11	21.11
3.08000	33.11	33.11
3.28000	49.19	49.19
3.54000	68.40	68.40
3.92000	91.30	91.34
4.42000	112.19	113.57
5.06000	127.26	133.93
5.81000	134.55	151.07
6.83000	135.34	167.96
8.09000	130.54	183.32
9.61000	122.77	197.49
11.30000	114.70	210.09
13.10000	107.66	221.23
15.10000	101.56	231.82
17.70000	95.72	243.52
21.50000	90.02	257.84
25.30000	86.32	269.74
37.90000	80.58	299.58
50.60000	78.01	320.66
75.90000	75.17	349.76
126.00000	73.17	386.14
253.00000	71.49	435.40

TD=80.0 EV ET=2.607103 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.63000	0.22	0.22
2.65000	0.55	0.55
2.71000	2.20	2.20
2.78000	5.14	5.14
2.89000	11.33	11.33
3.02000	20.17	20.17
3.18000	32.03	32.03
3.38000	46.89	46.89
3.64000	64.68	64.68
4.04000	86.97	87.01
4.56000	106.92	108.30
5.21000	120.95	127.35
5.99000	127.87	143.78
7.03000	128.53	159.67
8.34000	123.87	174.40
9.90000	116.49	187.81
11.70000	108.58	200.16
13.50000	102.12	210.40
15.60000	96.25	220.65
18.20000	90.89	231.44
22.10000	85.48	245.03
26.00000	81.98	256.33
39.10000	76.50	284.96
52.10000	74.09	304.85
78.20000	71.39	332.55
130.00000	69.50	367.21
260.00000	67.91	413.73

TD=84.0 EV ET=2.682061 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.70000	0.14	0.14
2.73000	0.59	0.59
2.78000	1.83	1.83
2.86000	4.89	4.89
2.97000	10.62	10.62
3.11000	19.46	19.46
3.27000	30.48	30.48
3.48000	44.96	44.96
3.75000	62.06	62.06
4.15000	82.73	82.76
4.69000	101.94	103.28
5.36000	115.29	121.46
6.16000	121.79	137.08
7.24000	122.34	152.33
8.58000	117.87	166.27
10.10000	111.19	178.45
12.00000	103.41	190.61
13.90000	97.09	200.64
16.00000	91.66	210.15
18.70000	86.50	220.55
22.70000	81.37	233.48
26.80000	77.98	244.48
40.20000	72.83	271.59
53.60000	70.53	290.58
80.40000	67.97	316.92
134.00000	66.17	350.10
268.00000	64.66	394.40

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ES
Z=99 A=254.000

TD=88.0 EV ET=2.755299 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.78000	0.20	0.20
2.81000	0.65	0.65
2.86000	1.86	1.86
2.94000	4.74	4.74
3.05000	10.09	10.09
3.19000	18.30	18.30
3.36000	29.20	29.20
3.58000	43.33	43.33
3.85000	59.25	59.25
4.27000	79.39	79.43
4.82000	97.49	98.81
5.51000	110.17	116.18
6.33000	116.28	131.03
7.43000	116.75	145.48
8.81000	112.44	158.84
10.40000	105.92	170.66
12.30000	98.68	181.96
14.30000	92.51	191.79
16.50000	87.26	201.02
19.20000	82.49	210.68
23.40000	77.52	223.29
27.50000	74.40	233.50
41.30000	69.48	259.46
55.10000	67.30	277.63
82.60000	64.87	302.74
137.00000	63.17	334.11
275.00000	61.71	376.62

TD=92.0 EV ET=2.826931 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.85000	0.16	0.16
2.88000	0.56	0.56
2.94000	1.92	1.92
3.02000	4.67	4.67
3.13000	9.69	9.69
3.27000	17.37	17.37
3.44000	27.55	27.55
3.67000	41.36	41.36
3.95000	56.79	56.79
4.38000	76.04	76.08
4.94000	93.25	94.51
5.65000	105.42	111.21
6.50000	111.26	125.55
7.63000	111.62	139.37
9.04000	107.46	152.08
10.70000	101.10	163.57
12.70000	94.03	174.60
14.70000	88.31	183.73
16.90000	83.42	192.34
19.70000	78.82	201.69
24.00000	74.09	213.73
28.20000	71.12	223.50
42.40000	66.43	248.41
56.50000	64.35	265.72
84.80000	62.03	289.81
141.00000	60.41	319.97
282.00000	59.02	360.41

TD=96.0 EV ET=2.897057 MEV

ENERGY (MEV)	PRIMARY	CASCADE
2.92000	0.15	0.15
2.95000	0.51	0.51
3.01000	1.76	1.76
3.09000	4.29	4.29
3.21000	9.41	9.41
3.36000	17.16	17.16
3.53000	26.72	26.72
3.76000	39.67	39.67
4.05000	54.63	54.63
4.49000	73.04	73.08
5.06000	89.41	90.63
5.79000	101.09	106.70
6.66000	106.64	120.44
7.82000	106.93	133.69
9.27000	102.89	145.91
11.00000	96.67	157.09
13.00000	90.06	167.40
15.00000	84.69	175.96
17.30000	79.90	184.41
20.20000	75.45	193.47
24.60000	70.95	205.00
28.90000	68.12	214.35
43.40000	63.65	238.16
57.90000	61.65	254.82
86.90000	59.43	277.90
144.00000	57.89	306.62
289.00000	56.56	345.57

RATIO OF MOTT TO RUTHERFORD SCATTERING IN H, Z= 1

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9990	0.9990	0.9990	0.9991	0.9991	0.9992	0.9992	0.9993	0.9995	0.9997	0.9999
10	0.9943	0.9943	0.9943	0.9945	0.9947	0.9950	0.9953	0.9957	0.9963	0.9976	0.9987
15	0.9856	0.9856	0.9858	0.9862	0.9866	0.9874	0.9880	0.9889	0.9905	0.9936	0.9963
20	0.9732	0.9732	0.9735	0.9743	0.9750	0.9764	0.9775	0.9792	0.9821	0.9877	0.9928
25	0.9571	0.9572	0.9576	0.9589	0.9600	0.9622	0.9639	0.9665	0.9711	0.9801	0.9881
30	0.9375	0.9376	0.9383	0.9401	0.9416	0.9449	0.9473	0.9511	0.9578	0.9707	0.9823
35	0.9144	0.9147	0.9156	0.9181	0.9201	0.9245	0.9278	0.9330	0.9421	0.9597	0.9755
40	0.8882	0.8885	0.8897	0.8930	0.8956	0.9013	0.9056	0.9124	0.9242	0.9471	0.9677
45	0.8590	0.8594	0.8609	0.8650	0.8683	0.8755	0.8808	0.8894	0.9042	0.9330	0.9590
50	0.8271	0.8275	0.8293	0.8343	0.8384	0.8472	0.8537	0.8642	0.8823	0.9176	0.9494
55	0.7926	0.7931	0.7953	0.8013	0.8061	0.8166	0.8245	0.8370	0.8587	0.9009	0.9391
60	0.7558	0.7564	0.7590	0.7660	0.7718	0.7841	0.7933	0.8080	0.8335	0.8832	0.9281
65	0.7171	0.7178	0.7207	0.7289	0.7355	0.7498	0.7605	0.7775	0.8069	0.8645	0.9164
70	0.6767	0.6775	0.6809	0.6902	0.6977	0.7140	0.7262	0.7457	0.7792	0.8449	0.9043
75	0.6350	0.6358	0.6397	0.6502	0.6587	0.6770	0.6908	0.7127	0.7506	0.8247	0.8917
80	0.5922	0.5931	0.5974	0.6092	0.6187	0.6391	0.6545	0.6790	0.7213	0.8040	0.8789
85	0.5487	0.5497	0.5545	0.5675	0.5780	0.6006	0.6176	0.6447	0.6914	0.7829	0.8657
90	0.5048	0.5060	0.5112	0.5254	0.5369	0.5617	0.5804	0.6101	0.6613	0.7616	0.8524
95	0.4609	0.4622	0.4679	0.4833	0.4959	0.5228	0.5432	0.5754	0.6312	0.7404	0.8391
100	0.4174	0.4187	0.4248	0.4416	0.4551	0.4842	0.5062	0.5410	0.6013	0.7192	0.8260
105	0.3744	0.3759	0.3825	0.4004	0.4149	0.4462	0.4697	0.5071	0.5718	0.6984	0.8130
110	0.3325	0.3340	0.3410	0.3602	0.3757	0.4090	0.4341	0.4740	0.5430	0.6780	0.8003
115	0.2918	0.2934	0.3009	0.3212	0.3376	0.3729	0.3996	0.4419	0.5151	0.6583	0.7880
120	0.2527	0.2545	0.2623	0.2837	0.3010	0.3383	0.3664	0.4111	0.4882	0.6393	0.7761
125	0.2156	0.2174	0.2256	0.2481	0.2663	0.3054	0.3349	0.3817	0.4627	0.6213	0.7649
130	0.1806	0.1825	0.1911	0.2146	0.2336	0.2744	0.3052	0.3541	0.4387	0.6043	0.7543
135	0.1481	0.1501	0.1590	0.1834	0.2031	0.2456	0.2776	0.3285	0.4164	0.5885	0.7444
140	0.1183	0.1204	0.1296	0.1548	0.1753	0.2192	0.2524	0.3050	0.3959	0.5741	0.7354
145	0.0915	0.0936	0.1031	0.1291	0.1502	0.1954	0.2296	0.2838	0.3775	0.5610	0.7273
150	0.0678	0.0700	0.0797	0.1064	0.1280	0.1744	0.2095	0.2651	0.3612	0.5495	0.7201
155	0.0474	0.0496	0.0596	0.0869	0.1089	0.1564	0.1922	0.2490	0.3472	0.5396	0.7139
160	0.0305	0.0328	0.0429	0.0707	0.0931	0.1414	0.1778	0.2357	0.3356	0.5314	0.7088
165	0.0173	0.0196	0.0298	0.0579	0.0807	0.1297	0.1666	0.2252	0.3265	0.5250	0.7047
170	0.0077	0.0100	0.0204	0.0488	0.0718	0.1212	0.1585	0.2176	0.3199	0.5203	0.7018
175	0.0019	0.0043	0.0147	0.0433	0.0664	0.1161	0.1536	0.2131	0.3160	0.5175	0.7001
180	0.0000	0.0024	0.0128	0.0414	0.0646	0.1144	0.1519	0.2116	0.3147	0.5166	0.6995

RATIO OF MOTT TO RUTHERFORD SCATTERING IN HE, Z= 2

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9999	0.9999	1.0000	1.0000	1.0000	1.0001	1.0001	1.0001	1.0002	1.0004	1.0004
10	0.9961	0.9961	0.9962	0.9964	0.9965	0.9968	0.9970	0.9973	0.9979	0.9989	0.9998
15	0.9882	0.9883	0.9884	0.9888	0.9891	0.9899	0.9904	0.9912	0.9927	0.9954	0.9978
20	0.9765	0.9766	0.9769	0.9777	0.9783	0.9796	0.9806	0.9822	0.9849	0.9901	0.9946
25	0.9611	0.9612	0.9616	0.9628	0.9638	0.9660	0.9676	0.9701	0.9745	0.9829	0.9903
30	0.9420	0.9421	0.9428	0.9446	0.9460	0.9491	0.9515	0.9552	0.9615	0.9739	0.9848
35	0.9194	0.9196	0.9205	0.9229	0.9249	0.9292	0.9324	0.9374	0.9462	0.9632	0.9783
40	0.8936	0.8938	0.8950	0.8982	0.9008	0.9063	0.9105	0.9171	0.9286	0.9508	0.9707
45	0.8646	0.8650	0.8664	0.8705	0.8737	0.8807	0.8860	0.8944	0.9088	0.9370	0.9621
50	0.8328	0.8332	0.8351	0.8400	0.8440	0.8526	0.8591	0.8694	0.8871	0.9217	0.9527
55	0.7985	0.7989	0.8011	0.8070	0.8118	0.8222	0.8299	0.8423	0.8636	0.9051	0.9424
60	0.7618	0.7623	0.7649	0.7719	0.7775	0.7897	0.7988	0.8133	0.8384	0.8874	0.9314
65	0.7230	0.7237	0.7266	0.7347	0.7413	0.7553	0.7660	0.7828	0.8119	0.8686	0.9198
70	0.6825	0.6833	0.6867	0.6959	0.7034	0.7195	0.7316	0.7509	0.7841	0.8490	0.9076
75	0.6406	0.6415	0.6453	0.6557	0.6642	0.6824	0.6961	0.7178	0.7553	0.8287	0.8949
80	0.5976	0.5986	0.6029	0.6145	0.6240	0.6443	0.6596	0.6839	0.7258	0.8079	0.8819
85	0.5539	0.5550	0.5597	0.5726	0.5830	0.6055	0.6225	0.6493	0.6958	0.7866	0.8686
90	0.5098	0.5109	0.5161	0.5303	0.5417	0.5664	0.5850	0.6145	0.6655	0.7652	0.8552
95	0.4656	0.4668	0.4725	0.4879	0.5004	0.5272	0.5475	0.5796	0.6351	0.7437	0.8418
100	0.4216	0.4230	0.4291	0.4458	0.4593	0.4883	0.5101	0.5449	0.6049	0.7223	0.8284
105	0.3783	0.3798	0.3864	0.4042	0.4187	0.4499	0.4734	0.5107	0.5751	0.7012	0.8153
110	0.3360	0.3376	0.3446	0.3636	0.3791	0.4123	0.4374	0.4772	0.5460	0.6806	0.8024
115	0.2949	0.2966	0.3040	0.3243	0.3407	0.3759	0.4025	0.4448	0.5177	0.6606	0.7898
120	0.2555	0.2572	0.2651	0.2864	0.3037	0.3410	0.3690	0.4136	0.4906	0.6414	0.7778
125	0.2180	0.2198	0.2280	0.2504	0.2686	0.3077	0.3372	0.3839	0.4648	0.6231	0.7663
130	0.1826	0.1846	0.1931	0.2166	0.2355	0.2764	0.3071	0.3560	0.4405	0.6058	0.7556
135	0.1498	0.1518	0.1607	0.1851	0.2048	0.2472	0.2792	0.3300	0.4179	0.5898	0.7455
140	0.1197	0.1217	0.1310	0.1562	0.1766	0.2205	0.2536	0.3062	0.3971	0.5751	0.7363
145	0.0925	0.0947	0.1042	0.1302	0.1512	0.1965	0.2306	0.2848	0.3784	0.5619	0.7280
150	0.0686	0.0707	0.0805	0.1072	0.1288	0.1752	0.2102	0.2658	0.3619	0.5502	0.7207
155	0.0480	0.0502	0.0602	0.0874	0.1095	0.1569	0.1927	0.2495	0.3478	0.5401	0.7144
160	0.0309	0.0332	0.0433	0.0710	0.0935	0.1418	0.1782	0.2360	0.3360	0.5318	0.7092
165	0.0175	0.0198	0.0301	0.0582	0.0809	0.1299	0.1668	0.2254	0.3268	0.5252	0.7050
170	0.0078	0.0101	0.0205	0.0489	0.0719	0.1213	0.1586	0.2178	0.3201	0.5205	0.7021
175	0.0020	0.0043	0.0148	0.0433	0.0664	0.1161	0.1536	0.2132	0.3161	0.5177	0.7003
180	0.0000	0.0024	0.0128	0.0414	0.0646	0.1144	0.1520	0.2116	0.3147	0.5167	0.6997

RATIO OF MOTT TO RUTHERFORD SCATTERING IN BE, Z= 4

ENERGY (MEV) / ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0018	1.0018	1.0018	1.0018	1.0018	1.0018	1.0018	1.0018	1.0018	1.0017	1.0015
10	0.9999	0.9999	1.0000	1.0001	1.0002	1.0003	1.0005	1.0007	1.0010	1.0016	1.0019
15	0.9936	0.9936	0.9938	0.9941	0.9944	0.9949	0.9954	0.9960	0.9972	0.9992	1.0008
20	0.9834	0.9835	0.9837	0.9844	0.9849	0.9861	0.9870	0.9883	0.9906	0.9950	0.9985
25	0.9692	0.9693	0.9697	0.9708	0.9717	0.9736	0.9751	0.9774	0.9813	0.9886	0.9949
30	0.9513	0.9514	0.9520	0.9537	0.9550	0.9579	0.9600	0.9634	0.9693	0.9805	0.9901
35	0.9296	0.9298	0.9306	0.9329	0.9348	0.9389	0.9418	0.9466	0.9547	0.9704	0.9841
40	0.9045	0.9048	0.9059	0.9089	0.9114	0.9167	0.9207	0.9269	0.9377	0.9586	0.9769
45	0.8762	0.8765	0.8779	0.8818	0.8849	0.8916	0.8967	0.9047	0.9185	0.9452	0.9687
50	0.8448	0.8452	0.8470	0.8517	0.8556	0.8639	0.8702	0.8801	0.8971	0.9302	0.9595
55	0.8107	0.8111	0.8133	0.8190	0.8237	0.8337	0.8412	0.8532	0.8738	0.9138	0.9494
60	0.7741	0.7746	0.7771	0.7839	0.7894	0.8013	0.8102	0.8244	0.8487	0.8962	0.9385
65	0.7353	0.7359	0.7388	0.7467	0.7532	0.7669	0.7773	0.7938	0.8222	0.8774	0.9269
70	0.6946	0.6954	0.6987	0.7078	0.7151	0.7309	0.7428	0.7617	0.7943	0.8577	0.9146
75	0.6524	0.6533	0.6570	0.6673	0.6756	0.6935	0.7070	0.7284	0.7653	0.8372	0.9018
80	0.6090	0.6100	0.6142	0.6257	0.6350	0.6551	0.6702	0.6941	0.7354	0.8161	0.8886
85	0.5648	0.5659	0.5705	0.5833	0.5936	0.6158	0.6326	0.6594	0.7050	0.7945	0.8751
90	0.5201	0.5212	0.5264	0.5404	0.5517	0.5762	0.5946	0.6238	0.6742	0.7727	0.8614
95	0.4752	0.4765	0.4821	0.4974	0.5098	0.5364	0.5564	0.5883	0.6433	0.7507	0.8476
100	0.4306	0.4319	0.4380	0.4545	0.4679	0.4968	0.5185	0.5530	0.6125	0.7289	0.8339
105	0.3865	0.3880	0.3945	0.4123	0.4267	0.4577	0.4810	0.5181	0.5821	0.7073	0.8203
110	0.3434	0.3450	0.3519	0.3709	0.3863	0.4194	0.4443	0.4839	0.5524	0.6861	0.8070
115	0.3016	0.3032	0.3106	0.3308	0.3471	0.3823	0.4088	0.4508	0.5235	0.6656	0.7941
120	0.2613	0.2631	0.2709	0.2922	0.3094	0.3465	0.3745	0.4189	0.4957	0.6458	0.7816
125	0.2230	0.2248	0.2330	0.2554	0.2735	0.3125	0.3419	0.3886	0.4692	0.6270	0.7698
130	0.1869	0.1888	0.1974	0.2208	0.2397	0.2805	0.3112	0.3600	0.4443	0.6093	0.7586
135	0.1533	0.1553	0.1642	0.1886	0.2083	0.2507	0.2826	0.3334	0.4211	0.5928	0.7481
140	0.1225	0.1246	0.1338	0.1590	0.1794	0.2233	0.2564	0.3090	0.3998	0.5776	0.7386
145	0.0948	0.0969	0.1064	0.1324	0.1534	0.1987	0.2328	0.2870	0.3806	0.5640	0.7300
150	0.0702	0.0724	0.0822	0.1088	0.1304	0.1769	0.2119	0.2675	0.3636	0.5519	0.7223
155	0.0491	0.0514	0.0613	0.0886	0.1107	0.1581	0.1939	0.2508	0.3491	0.5415	0.7158
160	0.0316	0.0339	0.0441	0.0718	0.0943	0.1426	0.1791	0.2369	0.3370	0.5329	0.7103
165	0.0179	0.0202	0.0305	0.0586	0.0814	0.1304	0.1674	0.2260	0.3274	0.5261	0.7061
170	0.0080	0.0103	0.0207	0.0491	0.0721	0.1216	0.1589	0.2182	0.3206	0.5212	0.7030
175	0.0020	0.0044	0.0148	0.0434	0.0665	0.1163	0.1538	0.2134	0.3165	0.5183	0.7011
180	0.0000	0.0024	0.0129	0.0415	0.0647	0.1145	0.1521	0.2119	0.3151	0.5173	0.7005

RATIO OF MOTT TO RUTHERFORD SCATTERING IN C, Z= 6

ENERGY (MEV) / ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0037	1.0037	1.0037	1.0037	1.0036	1.0036	1.0036	1.0036	1.0033	1.0030	1.0025
10	1.0038	1.0038	1.0038	1.0039	1.0039	1.0040	1.0040	1.0041	1.0042	1.0043	1.0040
15	0.9991	0.9991	0.9992	0.9995	0.9997	1.0001	1.0005	1.0010	1.0018	1.0031	1.0039
20	0.9905	0.9906	0.9908	0.9913	0.9918	0.9928	0.9935	0.9946	0.9965	1.0000	1.0025
25	0.9776	0.9777	0.9781	0.9791	0.9799	0.9816	0.9829	0.9849	0.9883	0.9946	0.9997
30	0.9609	0.9610	0.9616	0.9631	0.9643	0.9670	0.9689	0.9720	0.9773	0.9873	0.9956
35	0.9402	0.9404	0.9412	0.9433	0.9451	0.9488	0.9516	0.9560	0.9636	0.9780	0.9902
40	0.9159	0.9162	0.9172	0.9201	0.9225	0.9275	0.9312	0.9372	0.9473	0.9658	0.9836
45	0.8882	0.8885	0.8899	0.8936	0.8966	0.9030	0.9078	0.9155	0.9286	0.9538	0.9757
50	0.8573	0.8577	0.8594	0.8640	0.8677	0.8757	0.8817	0.8913	0.9076	0.9392	0.9669
55	0.8235	0.8239	0.8260	0.8316	0.8361	0.8458	0.8531	0.8647	0.8846	0.9230	0.9570
60	0.7870	0.7875	0.7900	0.7966	0.8020	0.8135	0.8222	0.8360	0.8596	0.9055	0.9461
65	0.7482	0.7488	0.7516	0.7594	0.7657	0.7791	0.7893	0.8054	0.8331	0.8868	0.9345
70	0.7073	0.7081	0.7113	0.7203	0.7275	0.7430	0.7546	0.7732	0.8050	0.8670	0.9222
75	0.6649	0.6657	0.6694	0.6795	0.6877	0.7053	0.7186	0.7396	0.7758	0.8463	0.9093
80	0.6211	0.6220	0.6261	0.6375	0.6467	0.6665	0.6813	0.7050	0.7457	0.8249	0.8959
85	0.5763	0.5773	0.5820	0.5946	0.6048	0.6268	0.6433	0.6695	0.7148	0.8030	0.8822
90	0.5310	0.5321	0.5372	0.5511	0.5623	0.5865	0.6047	0.6336	0.6835	0.7808	0.8682
95	0.4854	0.4867	0.4922	0.5074	0.5197	0.5461	0.5660	0.5976	0.6521	0.7584	0.8541
100	0.4401	0.4414	0.4474	0.4639	0.4772	0.5058	0.5274	0.5616	0.6207	0.7361	0.8400
105	0.3952	0.3967	0.4031	0.4208	0.4352	0.4660	0.4892	0.5261	0.5897	0.7140	0.8260
110	0.3513	0.3528	0.3597	0.3787	0.3940	0.4269	0.4518	0.4912	0.5593	0.6923	0.8123
115	0.3086	0.3102	0.3176	0.3377	0.3540	0.3890	0.4154	0.4573	0.5297	0.6712	0.7990
120	0.2675	0.2692	0.2770	0.2983	0.3155	0.3525	0.3804	0.4247	0.5012	0.6505	0.7861
125	0.2283	0.2302	0.2383	0.2607	0.2788	0.3177	0.3471	0.3936	0.4741	0.6315	0.7738
130	0.1914	0.1933	0.2019	0.2253	0.2442	0.2849	0.3156	0.3643	0.4485	0.6133	0.7622
135	0.1571	0.1591	0.1680	0.1923	0.2120	0.2544	0.2863	0.3370	0.4247	0.5962	0.7518
140	0.1256	0.1276	0.1368	0.1620	0.1825	0.2268	0.2595	0.3120	0.4028	0.5806	0.7415
145	0.0971	0.0992	0.1088	0.1347	0.1558	0.2011	0.2352	0.2894	0.3831	0.5665	0.7325
150	0.0720	0.0742	0.0839	0.1106	0.1322	0.1787	0.2138	0.2694	0.3657	0.5540	0.7246
155	0.0504	0.0526	0.0626	0.0899	0.1120	0.1595	0.1954	0.2523	0.3506	0.5433	0.7179
160	0.0324	0.0347	0.0449	0.0727	0.0952	0.1436	0.1801	0.2380	0.3382	0.5344	0.7121
165	0.0183	0.0206	0.0310	0.0591	0.0820	0.1310	0.1681	0.2268	0.3284	0.5274	0.7077
170	0.0082	0.0105	0.0209	0.0494	0.0724	0.1220	0.1594	0.2188	0.3214	0.5224	0.7045
175	0.0021	0.0044	0.0149	0.0435	0.0667	0.1166	0.1542	0.2139	0.3171	0.5193	0.7025
180	0.0000	0.0024	0.0129	0.0416	0.0648	0.1148	0.1524	0.2123	0.3157	0.5183	0.7019

RATIO OF MOTT TO RUTHERFORD SCATTERING IN O, Z= 8

ENERGY(MEV) ANGLE(DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0056	1.0056	1.0056	1.0055	1.0055	1.0054	1.0053	1.0052	1.0049	1.0043	1.0035
10	1.0077	1.0077	1.0077	1.0077	1.0077	1.0077	1.0077	1.0076	1.0075	1.0070	1.0062
15	1.0047	1.0047	1.0048	1.0050	1.0051	1.0054	1.0057	1.0060	1.0065	1.0071	1.0071
20	0.9978	0.9978	0.9980	0.9985	0.9988	0.9996	1.0002	1.0011	1.0026	1.0052	1.0067
25	0.9863	0.9864	0.9867	0.9876	0.9883	0.9898	0.9909	0.9927	0.9956	1.0008	1.0047
30	0.9708	0.9709	0.9714	0.9728	0.9740	0.9764	0.9781	0.9809	0.9857	0.9945	1.0014
35	0.9512	0.9514	0.9521	0.9541	0.9557	0.9592	0.9619	0.9659	0.9729	0.9859	0.9966
40	0.9278	0.9280	0.9290	0.9318	0.9340	0.9387	0.9422	0.9478	0.9573	0.9754	0.9906
45	0.9008	0.9010	0.9023	0.9059	0.9087	0.9149	0.9195	0.9268	0.9392	0.9629	0.9832
50	0.8704	0.8707	0.8724	0.8768	0.8804	0.8881	0.8939	0.9030	0.9187	0.9487	0.9747
55	0.8368	0.8373	0.8393	0.8447	0.8491	0.8585	0.8655	0.8767	0.8959	0.9328	0.9650
60	0.8005	0.8010	0.8034	0.8099	0.8151	0.8264	0.8348	0.8482	0.8711	0.9155	0.9549
65	0.7617	0.7623	0.7651	0.7727	0.7788	0.7920	0.8019	0.8176	0.8446	0.8968	0.9428
70	0.7207	0.7214	0.7246	0.7334	0.7405	0.7557	0.7671	0.7853	0.8165	0.8769	0.9305
75	0.6779	0.6788	0.6824	0.6924	0.7004	0.7178	0.7308	0.7515	0.7870	0.8561	0.9175
80	0.6337	0.6346	0.6387	0.6499	0.6590	0.6785	0.6932	0.7165	0.7566	0.8345	0.9039
85	0.5884	0.5895	0.5940	0.6065	0.6166	0.6383	0.6547	0.6806	0.7253	0.8122	0.8899
90	0.5425	0.5436	0.5486	0.5624	0.5736	0.5975	0.6156	0.6442	0.6935	0.7896	0.8757
95	0.4962	0.4975	0.5030	0.5180	0.5302	0.5564	0.5762	0.6075	0.6615	0.7668	0.8613
100	0.4501	0.4514	0.4574	0.4737	0.4870	0.5154	0.5368	0.5708	0.6295	0.7440	0.8468
105	0.4044	0.4059	0.4123	0.4299	0.4442	0.4748	0.4979	0.5346	0.5979	0.7214	0.8325
110	0.3596	0.3611	0.3680	0.3869	0.4022	0.4350	0.4597	0.4990	0.5667	0.6991	0.8183
115	0.3160	0.3177	0.3250	0.3451	0.3613	0.3962	0.4226	0.4643	0.5365	0.6775	0.8046
120	0.2740	0.2758	0.2835	0.3048	0.3219	0.3589	0.3867	0.4309	0.5073	0.6566	0.7913
125	0.2340	0.2358	0.2440	0.2663	0.2844	0.3233	0.3526	0.3991	0.4795	0.6366	0.7786
130	0.1962	0.1981	0.2067	0.2301	0.2490	0.2897	0.3204	0.3691	0.4532	0.6178	0.7666
135	0.1611	0.1631	0.1720	0.1963	0.2160	0.2584	0.2904	0.3411	0.4287	0.6003	0.7554
140	0.1288	0.1308	0.1401	0.1653	0.1857	0.2297	0.2628	0.3154	0.4063	0.5841	0.7451
145	0.0996	0.1018	0.1113	0.1373	0.1584	0.2037	0.2379	0.2922	0.3860	0.5696	0.7358
150	0.0739	0.0760	0.0858	0.1126	0.1342	0.1808	0.2159	0.2716	0.3680	0.5567	0.7276
155	0.0517	0.0539	0.0639	0.0913	0.1134	0.1611	0.1970	0.2540	0.3526	0.5456	0.7205
160	0.0333	0.0356	0.0458	0.0736	0.0962	0.1447	0.1813	0.2393	0.3398	0.5364	0.7145
165	0.0188	0.0211	0.0315	0.0597	0.0826	0.1318	0.1689	0.2278	0.3297	0.5292	0.7100
170	0.0084	0.0108	0.0212	0.0497	0.0728	0.1225	0.1600	0.2195	0.3224	0.5240	0.7066
175	0.0021	0.0045	0.0150	0.0437	0.0669	0.1169	0.1546	0.2145	0.3180	0.5208	0.7046
180	0.0000	0.0024	0.0129	0.0417	0.0650	0.1151	0.1529	0.2128	0.3166	0.5198	0.7039

RATIO OF MOTT TO RUTHERFORD SCATTERING IN MG, Z=12

ENERGY(MEV) ANGLE(DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0094	1.0094	1.0093	1.0092	1.0091	1.0089	1.0088	1.0085	1.0080	1.0069	1.0055
10	1.0156	1.0156	1.0156	1.0155	1.0154	1.0152	1.0150	1.0147	1.0141	1.0126	1.0106
15	1.0163	1.0163	1.0163	1.0163	1.0163	1.0163	1.0163	1.0163	1.0161	1.0153	1.0136
20	1.0128	1.0128	1.0129	1.0132	1.0134	1.0138	1.0142	1.0146	1.0152	1.0159	1.0153
25	1.0044	1.0044	1.0047	1.0053	1.0058	1.0069	1.0077	1.0089	1.0108	1.0138	1.0152
30	0.9916	0.9917	0.9921	0.9933	0.9942	0.9961	0.9975	0.9997	1.0033	1.0095	1.0136
35	0.9743	0.9745	0.9751	0.9768	0.9782	0.9811	0.9833	0.9867	0.9924	1.0027	1.0104
40	0.9529	0.9531	0.9540	0.9564	0.9584	0.9625	0.9656	0.9704	0.9786	0.9937	1.0056
45	0.9274	0.9277	0.9288	0.9320	0.9346	0.9402	0.9443	0.9508	0.9618	0.9825	0.9993
50	0.8982	0.8985	0.9000	0.9041	0.9074	0.9145	0.9198	0.9282	0.9424	0.9692	0.9917
55	0.8654	0.8658	0.8677	0.8728	0.8769	0.8856	0.8922	0.9026	0.9203	0.9540	0.9827
60	0.8295	0.8300	0.8323	0.8384	0.8433	0.8539	0.8619	0.8745	0.8960	0.9371	0.9725
65	0.7908	0.7914	0.7940	0.8013	0.8071	0.8197	0.8291	0.8440	0.8696	0.9186	0.9612
70	0.7495	0.7502	0.7533	0.7617	0.7685	0.7831	0.7941	0.8115	0.8413	0.8987	0.9489
75	0.7062	0.7070	0.7105	0.7202	0.7280	0.7447	0.7573	0.7773	0.8115	0.8777	0.9358
80	0.6611	0.6620	0.6660	0.6769	0.6858	0.7047	0.7190	0.7416	0.7804	0.8556	0.9220
85	0.6148	0.6158	0.6202	0.6324	0.6423	0.6635	0.6795	0.7048	0.7484	0.8328	0.9076
90	0.5675	0.5686	0.5735	0.5871	0.5980	0.6215	0.6392	0.6673	0.7156	0.8094	0.8929
95	0.5197	0.5209	0.5264	0.5412	0.5532	0.5791	0.5985	0.6293	0.6824	0.7857	0.8778
100	0.4719	0.4732	0.4791	0.4953	0.5084	0.5365	0.5577	0.5913	0.6492	0.7619	0.8627
105	0.4245	0.4259	0.4323	0.4498	0.4639	0.4943	0.5172	0.5535	0.6161	0.7382	0.8476
110	0.3778	0.3793	0.3862	0.4049	0.4201	0.4527	0.4773	0.5163	0.5836	0.7148	0.8327
115	0.3323	0.3339	0.3413	0.3612	0.3774	0.4122	0.4384	0.4800	0.5518	0.6920	0.8181
120	0.2884	0.2901	0.2979	0.3190	0.3362	0.3731	0.4009	0.4450	0.5211	0.6699	0.8039
125	0.2464	0.2483	0.2564	0.2788	0.2968	0.3357	0.3650	0.4115	0.4918	0.6488	0.7904
130	0.2068	0.2087	0.2173	0.2407	0.2596	0.3004	0.3311	0.3798	0.4641	0.6288	0.7775
135	0.1698	0.1718	0.1808	0.2052	0.2249	0.2674	0.2995	0.3503	0.4382	0.6101	0.7656
140	0.1358	0.1379	0.1472	0.1725	0.1930	0.2371	0.2704	0.3232	0.4144	0.5930	0.7545
145	0.1052	0.1073	0.1169	0.1430	0.1642	0.2098	0.2441	0.2986	0.3929	0.5774	0.7445
150	0.0780	0.0802	0.0900	0.1169	0.1387	0.1855	0.2209	0.2769	0.3739	0.5637	0.7357
155	0.0546	0.0568	0.0669	0.0944	0.1167	0.1647	0.2008	0.2582	0.3575	0.5519	0.7280
160	0.0352	0.0375	0.0477	0.0758	0.0985	0.1474	0.1842	0.2427	0.3439	0.5420	0.7217
165	0.0199	0.0222	0.0326	0.0611	0.0841	0.1337	0.1711	0.2305	0.3331	0.5343	0.7167
170	0.0089	0.0112	0.0218	0.0505	0.0738	0.1239	0.1617	0.2217	0.3254	0.5287	0.7131
175	0.0022	0.0046	0.0152	0.0441	0.0676	0.1180	0.1560	0.2164	0.3208	0.5253	0.7109
180	0.0000	0.0024	0.0130	0.0420	0.0655	0.1160	0.1541	0.2146	0.3192	0.5242	0.7102

RATIO OF MOTT TO RUTHERFORD SCATTERING IN AL, Z=13

ENERGY (MEV) / ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0103	1.0103	1.0103	1.0101	1.0100	1.0098	1.0096	1.0093	1.0088	1.0075	1.0060
10	1.0176	1.0176	1.0176	1.0174	1.0173	1.0171	1.0168	1.0165	1.0158	1.0140	1.0116
15	1.0192	1.0192	1.0192	1.0192	1.0192	1.0191	1.0190	1.0189	1.0186	1.0173	1.0152
20	1.0167	1.0167	1.0168	1.0170	1.0172	1.0175	1.0177	1.0181	1.0185	1.0186	1.0175
25	1.0090	1.0091	1.0093	1.0099	1.0103	1.0113	1.0120	1.0131	1.0147	1.0172	1.0179
30	0.9970	0.9971	0.9975	0.9986	0.9994	1.0012	1.0025	1.0045	1.0078	1.0134	1.0169
35	0.9804	0.9805	0.9811	0.9827	0.9840	0.9868	0.9889	0.9922	0.9975	1.0071	1.0140
40	0.9595	0.9597	0.9605	0.9629	0.9647	0.9687	0.9717	0.9764	0.9842	0.9985	1.0096
45	0.9344	0.9346	0.9358	0.9389	0.9414	0.9468	0.9509	0.9571	0.9679	0.9876	1.0036
50	0.9055	0.9058	0.9073	0.9113	0.9145	0.9215	0.9266	0.9348	0.9487	0.9747	0.9962
55	0.8730	0.8734	0.8752	0.8802	0.8842	0.8928	0.8993	0.9095	0.9269	0.9597	0.9874
60	0.8372	0.8377	0.8399	0.8459	0.8508	0.8613	0.8691	0.8815	0.9026	0.9429	0.9773
65	0.7985	0.7991	0.8017	0.8088	0.8146	0.8270	0.8363	0.8511	0.8763	0.9245	0.9661
70	0.7572	0.7579	0.7609	0.7693	0.7760	0.7905	0.8013	0.8185	0.8480	0.9046	0.9539
75	0.7137	0.7145	0.7180	0.7276	0.7353	0.7519	0.7644	0.7842	0.8191	0.8835	0.9408
80	0.6684	0.6693	0.6733	0.6841	0.6929	0.7117	0.7259	0.7483	0.7869	0.8613	0.9269
85	0.6218	0.6228	0.6272	0.6394	0.6492	0.6703	0.6862	0.7113	0.7546	0.8394	0.9125
90	0.5742	0.5753	0.5802	0.5937	0.6045	0.6279	0.6456	0.6735	0.7215	0.8148	0.8976
95	0.5260	0.5272	0.5327	0.5474	0.5594	0.5851	0.6045	0.6352	0.6881	0.7909	0.8825
100	0.4778	0.4791	0.4850	0.5011	0.5141	0.5422	0.5633	0.5968	0.6545	0.7668	0.8672
105	0.4299	0.4313	0.4377	0.4551	0.4692	0.4995	0.5224	0.5586	0.6211	0.7428	0.8519
110	0.3827	0.3842	0.3911	0.4098	0.4249	0.4575	0.4821	0.5210	0.5882	0.7192	0.8369
115	0.3367	0.3383	0.3456	0.3656	0.3818	0.4165	0.4427	0.4843	0.5560	0.6960	0.8220
120	0.2922	0.2940	0.3017	0.3229	0.3401	0.3769	0.4047	0.4488	0.5250	0.6737	0.8076
125	0.2498	0.2516	0.2598	0.2821	0.3002	0.3391	0.3684	0.4149	0.4952	0.6522	0.7938
130	0.2096	0.2115	0.2201	0.2435	0.2625	0.3033	0.3340	0.3828	0.4671	0.6319	0.7808
135	0.1722	0.1742	0.1832	0.2076	0.2274	0.2699	0.3020	0.3529	0.4409	0.6130	0.7686
140	0.1378	0.1398	0.1491	0.1745	0.1950	0.2392	0.2725	0.3254	0.4167	0.5956	0.7574
145	0.1066	0.1088	0.1184	0.1448	0.1658	0.2114	0.2459	0.3005	0.3949	0.5798	0.7472
150	0.0791	0.0813	0.0912	0.1181	0.1399	0.1869	0.2223	0.2784	0.3756	0.5658	0.7382
155	0.0554	0.0576	0.0677	0.0953	0.1177	0.1657	0.2019	0.2595	0.3589	0.5538	0.7304
160	0.0357	0.0380	0.0483	0.0764	0.0992	0.1481	0.1851	0.2437	0.3451	0.5438	0.7240
165	0.0202	0.0225	0.0330	0.0615	0.0846	0.1343	0.1718	0.2313	0.3342	0.5359	0.7189
170	0.0090	0.0114	0.0219	0.0508	0.0741	0.1243	0.1622	0.2224	0.3264	0.5302	0.7152
175	0.0023	0.0046	0.0153	0.0443	0.0678	0.1183	0.1564	0.2170	0.3216	0.5268	0.7130
180	0.0000	0.0024	0.0130	0.0421	0.0657	0.1163	0.1545	0.2152	0.3201	0.5257	0.7123

RATIO OF MOTT TO RUTHERFORD SCATTERING IN SI, Z=14

ENERGY (MEV) / ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0113	1.0113	1.0112	1.0111	1.0109	1.0107	1.0105	1.0102	1.0096	1.0081	1.0064
10	1.0197	1.0196	1.0196	1.0194	1.0193	1.0189	1.0187	1.0183	1.0174	1.0154	1.0127
15	1.0222	1.0222	1.0222	1.0221	1.0220	1.0219	1.0218	1.0215	1.0210	1.0194	1.0169
20	1.0206	1.0206	1.0206	1.0208	1.0209	1.0212	1.0213	1.0215	1.0217	1.0214	1.0197
25	1.0138	1.0138	1.0140	1.0145	1.0149	1.0158	1.0164	1.0173	1.0187	1.0206	1.0206
30	1.0025	1.0026	1.0030	1.0039	1.0047	1.0064	1.0076	1.0095	1.0125	1.0178	1.0200
35	0.9865	0.9866	0.9872	0.9888	0.9900	0.9927	0.9946	0.9977	1.0027	1.0116	1.0176
40	0.9662	0.9664	0.9672	0.9694	0.9712	0.9751	0.9779	0.9824	0.9899	1.0035	1.0136
45	0.9415	0.9418	0.9429	0.9459	0.9484	0.9536	0.9575	0.9636	0.9739	0.9929	1.0080
50	0.9130	0.9133	0.9147	0.9187	0.9218	0.9286	0.9336	0.9416	0.9551	0.9803	1.0008
55	0.8807	0.8811	0.8829	0.8878	0.8917	0.9002	0.9065	0.9165	0.9335	0.9655	0.9922
60	0.8451	0.8456	0.8477	0.8537	0.8585	0.8688	0.8765	0.8886	0.9094	0.9489	0.9824
65	0.8064	0.8070	0.8096	0.8166	0.8223	0.8346	0.8438	0.8583	0.8831	0.9305	0.9712
70	0.7650	0.7657	0.7687	0.7770	0.7837	0.7980	0.8087	0.8257	0.8548	0.9107	0.9591
75	0.7214	0.7222	0.7257	0.7352	0.7429	0.7593	0.7717	0.7913	0.8269	0.8895	0.9460
80	0.6759	0.6768	0.6808	0.6915	0.7002	0.7189	0.7330	0.7552	0.7935	0.8673	0.9321
85	0.6290	0.6300	0.6344	0.6465	0.6563	0.6772	0.6930	0.7180	0.7610	0.8442	0.9176
90	0.5810	0.5821	0.5870	0.6004	0.6113	0.6346	0.6521	0.6799	0.7277	0.8204	0.9028
95	0.5325	0.5337	0.5391	0.5539	0.5658	0.5914	0.6107	0.6413	0.6940	0.7963	0.8873
100	0.4838	0.4851	0.4910	0.5071	0.5201	0.5480	0.5691	0.6025	0.6600	0.7719	0.8718
105	0.4354	0.4368	0.4432	0.4606	0.4747	0.5050	0.5278	0.5639	0.6263	0.7477	0.8564
110	0.3877	0.3892	0.3961	0.4148	0.4299	0.4625	0.4870	0.5259	0.5930	0.7237	0.8411
115	0.3412	0.3428	0.3501	0.3701	0.3863	0.4210	0.4472	0.4887	0.5604	0.7003	0.8261
120	0.2962	0.2979	0.3057	0.3269	0.3440	0.3809	0.4087	0.4528	0.5289	0.6776	0.8115
125	0.2532	0.2551	0.2633	0.2856	0.3037	0.3426	0.3719	0.4185	0.4988	0.6559	0.7975
130	0.2126	0.2145	0.2231	0.2465	0.2655	0.3063	0.3371	0.3859	0.4703	0.6353	0.7843
135	0.1746	0.1766	0.1856	0.2101	0.2299	0.2725	0.3046	0.3556	0.4437	0.6161	0.7719
140	0.1397	0.1418	0.1511	0.1765	0.1971	0.2413	0.2747	0.3277	0.4192	0.5983	0.7605
145	0.1082	0.1103	0.1199	0.1462	0.1675	0.2132	0.2477	0.3024	0.3970	0.5823	0.7501
150	0.0802	0.0825	0.0923	0.1193	0.1412	0.1883	0.2237	0.2800	0.3778	0.5681	0.7410
155	0.0562	0.0584	0.0686	0.0962	0.1186	0.1668	0.2031	0.2608	0.3605	0.5559	0.7331
160	0.0362	0.0385	0.0488	0.0770	0.0998	0.1490	0.1860	0.2448	0.3465	0.5457	0.7265
165	0.0205	0.0228	0.0333	0.0619	0.0851	0.1349	0.1725	0.2322	0.3354	0.5377	0.7213
170	0.0092	0.0115	0.0221	0.0510	0.0744	0.1248	0.1628	0.2231	0.3274	0.5319	0.7176
175	0.0023	0.0047	0.0153	0.0444	0.0680	0.1187	0.1569	0.2176	0.3226	0.5284	0.7153
180	0.0000	0.0024	0.0131	0.0422	0.0659	0.1167	0.1550	0.2158	0.3210	0.5273	0.7146

RATIO OF MOTT TO RUTHERFORD SCATTERING IN K, Z=19

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0159	1.0158	1.0158	1.0155	1.0154	1.0150	1.0147	1.0142	1.0132	1.0110	1.0084
10	1.0297	1.0297	1.0296	1.0293	1.0290	1.0284	1.0279	1.0271	1.0256	1.0221	1.0176
15	1.0372	1.0372	1.0371	1.0368	1.0366	1.0360	1.0356	1.0349	1.0334	1.0297	1.0246
20	1.0405	1.0405	1.0405	1.0404	1.0403	1.0400	1.0398	1.0394	1.0384	1.0354	1.0306
25	1.0382	1.0382	1.0383	1.0385	1.0386	1.0389	1.0390	1.0392	1.0392	1.0380	1.0344
30	1.0311	1.0311	1.0314	1.0320	1.0324	1.0334	1.0341	1.0351	1.0366	1.0380	1.0366
35	1.0186	1.0187	1.0191	1.0203	1.0212	1.0231	1.0245	1.0266	1.0300	1.0350	1.0366
40	1.0014	1.0015	1.0022	1.0040	1.0055	1.0085	1.0108	1.0142	1.0199	1.0294	1.0349
45	0.9793	0.9795	0.9804	0.9830	0.9851	0.9895	0.9927	0.9978	1.0062	1.0210	1.0311
50	0.9527	0.9530	0.9543	0.9577	0.9605	0.9664	0.9708	0.9777	0.9892	1.0101	1.0257
55	0.9219	0.9222	0.9238	0.9283	0.9318	0.9394	0.9451	0.9540	0.9690	0.9966	1.0184
60	0.8871	0.8876	0.8896	0.8951	0.8995	0.9089	0.9160	0.9271	0.9459	0.9810	1.0095
65	0.8488	0.8494	0.8518	0.8584	0.8637	0.8751	0.8837	0.8971	0.9201	0.9633	0.9992
70	0.8073	0.8080	0.8108	0.8187	0.8250	0.8385	0.8486	0.8646	0.8919	0.9437	0.9875
75	0.7631	0.7639	0.7672	0.7763	0.7836	0.7993	0.8111	0.8298	0.8616	0.9225	0.9746
80	0.7166	0.7174	0.7212	0.7316	0.7400	0.7580	0.7716	0.7929	0.8296	0.8999	0.9607
85	0.6682	0.6692	0.6735	0.6852	0.6947	0.7151	0.7304	0.7546	0.7962	0.8761	0.9459
90	0.6184	0.6195	0.6243	0.6374	0.6480	0.6708	0.6879	0.7150	0.7616	0.8515	0.9305
95	0.5678	0.5689	0.5743	0.5888	0.6005	0.6257	0.6447	0.6747	0.7264	0.8263	0.9147
100	0.5167	0.5180	0.5238	0.5397	0.5525	0.5802	0.6010	0.6339	0.6907	0.8007	0.8985
105	0.4657	0.4671	0.4735	0.4907	0.5047	0.5348	0.5574	0.5933	0.6551	0.7751	0.8822
110	0.4153	0.4168	0.4236	0.4423	0.4573	0.4898	0.5142	0.5529	0.6197	0.7497	0.8659
115	0.3659	0.3676	0.3749	0.3948	0.4110	0.4458	0.4719	0.5135	0.5851	0.7247	0.8500
120	0.3181	0.3198	0.3276	0.3488	0.3660	0.4030	0.4309	0.4751	0.5514	0.7004	0.8344
125	0.2722	0.2741	0.2823	0.3048	0.3230	0.3621	0.3916	0.4384	0.5192	0.6770	0.8194
130	0.2287	0.2306	0.2393	0.2629	0.2821	0.3232	0.3543	0.4035	0.4885	0.6549	0.8051
135	0.1881	0.1901	0.1992	0.2239	0.2439	0.2869	0.3194	0.3709	0.4599	0.6341	0.7918
140	0.1506	0.1527	0.1621	0.1878	0.2086	0.2534	0.2872	0.3408	0.4335	0.6149	0.7794
145	0.1167	0.1188	0.1286	0.1552	0.1768	0.2231	0.2581	0.3136	0.4095	0.5976	0.7682
150	0.0866	0.0888	0.0989	0.1263	0.1485	0.1962	0.2322	0.2894	0.3883	0.5821	0.7582
155	0.0607	0.0630	0.0732	0.1013	0.1241	0.1730	0.2100	0.2686	0.3700	0.5688	0.7496
160	0.0391	0.0414	0.0519	0.0806	0.1038	0.1538	0.1914	0.2513	0.3547	0.5578	0.7425
165	0.0221	0.0245	0.0352	0.0643	0.0878	0.1386	0.1768	0.2376	0.3427	0.5490	0.7368
170	0.0099	0.0123	0.0231	0.0525	0.0764	0.1276	0.1663	0.2278	0.3341	0.5428	0.7328
175	0.0025	0.0049	0.0157	0.0454	0.0694	0.1210	0.1600	0.2218	0.3289	0.5390	0.7303
180	0.0000	0.0025	0.0133	0.0430	0.0671	0.1188	0.1579	0.2198	0.3271	0.5377	0.7295

RATIO OF MOTT TO RUTHERFORD SCATTERING IN TI, Z=22

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0185	1.0185	1.0184	1.0181	1.0179	1.0174	1.0170	1.0164	1.0152	1.0125	1.0093
10	1.0357	1.0357	1.0355	1.0351	1.0348	1.0340	1.0334	1.0324	1.0304	1.0259	1.0202
15	1.0463	1.0463	1.0461	1.0457	1.0454	1.0446	1.0440	1.0429	1.0408	1.0357	1.0289
20	1.0529	1.0528	1.0527	1.0524	1.0522	1.0516	1.0511	1.0503	1.0486	1.0438	1.0369
25	1.0534	1.0534	1.0534	1.0534	1.0534	1.0532	1.0531	1.0528	1.0519	1.0486	1.0426
30	1.0491	1.0491	1.0492	1.0496	1.0499	1.0504	1.0508	1.0513	1.0517	1.0508	1.0466
35	1.0390	1.0391	1.0394	1.0403	1.0410	1.0425	1.0435	1.0450	1.0473	1.0498	1.0484
40	1.0240	1.0241	1.0246	1.0262	1.0274	1.0299	1.0318	1.0346	1.0391	1.0460	1.0483
45	1.0036	1.0038	1.0046	1.0069	1.0087	1.0126	1.0155	1.0199	1.0270	1.0390	1.0459
50	0.9785	0.9788	0.9799	0.9831	0.9856	0.9910	0.9949	1.0011	1.0114	1.0294	1.0417
55	0.9487	0.9490	0.9506	0.9547	0.9580	0.9650	0.9703	0.9785	0.9922	1.0170	1.0358
60	0.9147	0.9151	0.9170	0.9222	0.9264	0.9353	0.9419	0.9523	0.9699	1.0022	1.0274
65	0.8767	0.8773	0.8796	0.8859	0.8910	0.9019	0.9100	0.9228	0.9445	0.9850	1.0177
70	0.8353	0.8359	0.8387	0.8462	0.8523	0.8653	0.8751	0.8904	0.9166	0.9657	1.0065
75	0.7908	0.7915	0.7947	0.8035	0.8107	0.8259	0.8374	0.8554	0.8862	0.9446	0.9939
80	0.7436	0.7444	0.7482	0.7583	0.7665	0.7841	0.7973	0.8182	0.8539	0.9219	0.9801
85	0.6944	0.6953	0.6995	0.7111	0.7204	0.7404	0.7554	0.7792	0.8199	0.8979	0.9658
90	0.6434	0.6445	0.6492	0.6622	0.6726	0.6951	0.7120	0.7387	0.7846	0.8728	0.9498
95	0.5914	0.5926	0.5979	0.6123	0.6239	0.6488	0.6676	0.6973	0.7484	0.8470	0.9337
100	0.5388	0.5401	0.5459	0.5617	0.5745	0.6019	0.6226	0.6553	0.7117	0.8207	0.9172
105	0.4861	0.4876	0.4939	0.5111	0.5250	0.5550	0.5776	0.6133	0.6748	0.7943	0.9005
110	0.4339	0.4354	0.4422	0.4609	0.4760	0.5084	0.5328	0.5715	0.6382	0.7679	0.8837
115	0.3827	0.3843	0.3916	0.4117	0.4279	0.4627	0.4889	0.5305	0.6022	0.7419	0.8672
120	0.3329	0.3346	0.3424	0.3638	0.3810	0.4182	0.4462	0.4905	0.5672	0.7165	0.8511
125	0.2851	0.2869	0.2952	0.3178	0.3361	0.3755	0.4052	0.4522	0.5335	0.6923	0.8355
130	0.2397	0.2416	0.2504	0.2742	0.2935	0.3349	0.3662	0.4158	0.5015	0.6691	0.8206
135	0.1972	0.1993	0.2084	0.2333	0.2535	0.2969	0.3297	0.3817	0.4715	0.6474	0.8067
140	0.1580	0.1601	0.1696	0.1956	0.2166	0.2619	0.2960	0.3501	0.4438	0.6273	0.7938
145	0.1225	0.1247	0.1345	0.1614	0.1832	0.2301	0.2655	0.3216	0.4187	0.6090	0.7821
150	0.0909	0.0932	0.1033	0.1311	0.1535	0.2019	0.2383	0.2962	0.3964	0.5928	0.7717
155	0.0637	0.0660	0.0765	0.1049	0.1280	0.1775	0.2149	0.2743	0.3771	0.5789	0.7627
160	0.0411	0.0435	0.0541	0.0831	0.1067	0.1573	0.1955	0.2561	0.3611	0.5672	0.7552
165	0.0232	0.0257	0.0365	0.0660	0.0899	0.1413	0.1801	0.2418	0.3485	0.5580	0.7493
170	0.0104	0.0128	0.0238	0.0536	0.0778	0.1298	0.1691	0.2314	0.3394	0.5514	0.7450
175	0.0026	0.0051	0.0161	0.0461	0.0705	0.1229	0.1624	0.2252	0.3338	0.5474	0.7424
180	0.0000	0.0025	0.0135	0.0436	0.0680	0.1205	0.1602	0.2231	0.3320	0.5461	0.7415

RATIO OF MOTT TO RUTHERFORD SCATTERING IN V, Z=23

ENERGY(MEV) ANGLE(DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0193	1.0193	1.0192	1.0189	1.0187	1.0182	1.0178	1.0171	1.0159	1.0130	1.0096
10	1.0377	1.0377	1.0375	1.0370	1.0367	1.0358	1.0352	1.0341	1.0320	1.0271	1.0210
15	1.0494	1.0493	1.0491	1.0487	1.0483	1.0474	1.0467	1.0456	1.0433	1.0377	1.0303
20	1.0570	1.0570	1.0569	1.0565	1.0562	1.0555	1.0549	1.0540	1.0520	1.0466	1.0389
25	1.0586	1.0586	1.0586	1.0585	1.0584	1.0581	1.0579	1.0574	1.0562	1.0522	1.0453
30	1.0552	1.0552	1.0553	1.0556	1.0558	1.0562	1.0565	1.0568	1.0569	1.0552	1.0500
35	1.0460	1.0461	1.0464	1.0472	1.0478	1.0491	1.0500	1.0513	1.0532	1.0548	1.0524
40	1.0317	1.0318	1.0324	1.0338	1.0349	1.0373	1.0390	1.0416	1.0457	1.0516	1.0528
45	1.0120	1.0122	1.0130	1.0152	1.0169	1.0206	1.0233	1.0275	1.0342	1.0453	1.0510
50	0.9874	0.9877	0.9888	0.9918	0.9943	0.9995	1.0033	1.0092	1.0191	1.0361	1.0472
55	0.9580	0.9584	0.9598	0.9638	0.9671	0.9739	0.9790	0.9870	1.0003	1.0241	1.0413
60	0.9243	0.9247	0.9266	0.9316	0.9357	0.9444	0.9509	0.9611	0.9782	1.0096	1.0336
65	0.8865	0.8870	0.8893	0.8955	0.9005	0.9112	0.9192	0.9318	0.9531	0.9926	1.0242
70	0.8451	0.8457	0.8484	0.8558	0.8619	0.8747	0.8843	0.8995	0.9252	0.9735	1.0131
75	0.8005	0.8012	0.8044	0.8131	0.8202	0.8353	0.8466	0.8644	0.8949	0.9524	1.0007
80	0.7531	0.7539	0.7576	0.7677	0.7758	0.7933	0.8064	0.8271	0.8624	0.9297	0.9870
85	0.7036	0.7045	0.7087	0.7202	0.7294	0.7493	0.7642	0.7878	0.8283	0.9056	0.9723
90	0.6522	0.6533	0.6580	0.6709	0.6813	0.7037	0.7205	0.7471	0.7927	0.8804	0.9567
95	0.5998	0.6010	0.6062	0.6205	0.6321	0.6570	0.6757	0.7053	0.7562	0.8544	0.9405
100	0.5466	0.5479	0.5537	0.5695	0.5822	0.6096	0.6303	0.6629	0.7191	0.8279	0.9239
105	0.4934	0.4948	0.5011	0.5183	0.5322	0.5622	0.5847	0.6204	0.6819	0.8011	0.9070
110	0.4405	0.4420	0.4488	0.4675	0.4826	0.5150	0.5394	0.5781	0.6448	0.7744	0.8902
115	0.3886	0.3903	0.3976	0.4176	0.4338	0.4687	0.4949	0.5365	0.6083	0.7482	0.8735
120	0.3381	0.3399	0.3477	0.3691	0.3864	0.4236	0.4516	0.4961	0.5728	0.7225	0.8572
125	0.2897	0.2915	0.2998	0.3225	0.3408	0.3803	0.4100	0.4572	0.5387	0.6978	0.8414
130	0.2436	0.2455	0.2543	0.2782	0.2975	0.3391	0.3704	0.4202	0.5062	0.6743	0.8268
135	0.2005	0.2025	0.2117	0.2367	0.2570	0.3005	0.3334	0.3856	0.4757	0.6522	0.8122
140	0.1606	0.1628	0.1723	0.1984	0.2195	0.2649	0.2992	0.3535	0.4475	0.6318	0.7992
145	0.1245	0.1267	0.1366	0.1636	0.1855	0.2326	0.2681	0.3245	0.4220	0.6133	0.7873
150	0.0925	0.0947	0.1049	0.1328	0.1554	0.2039	0.2406	0.2987	0.3993	0.5958	0.7767
155	0.0648	0.0671	0.0776	0.1062	0.1294	0.1792	0.2168	0.2765	0.3798	0.5826	0.7676
160	0.0418	0.0442	0.0549	0.0841	0.1077	0.1586	0.1970	0.2579	0.3635	0.5708	0.7600
165	0.0236	0.0261	0.0369	0.0666	0.0906	0.1423	0.1814	0.2433	0.3506	0.5614	0.7540
170	0.0106	0.0130	0.0240	0.0540	0.0783	0.1307	0.1701	0.2328	0.3414	0.5547	0.7496
175	0.0026	0.0051	0.0162	0.0464	0.0709	0.1235	0.1633	0.2264	0.3357	0.5506	0.7470
180	0.0000	0.0025	0.0136	0.0439	0.0684	0.1212	0.1610	0.2243	0.3339	0.5492	0.7461

RATIO OF MOTT TO RUTHERFORD SCATTERING IN CR, Z=24

ENERGY(MEV) ANGLE(DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0202	1.0202	1.0200	1.0197	1.0195	1.0190	1.0185	1.0178	1.0165	1.0135	1.0098
10	1.0397	1.0396	1.0395	1.0390	1.0386	1.0377	1.0370	1.0358	1.0336	1.0283	1.0218
15	1.0524	1.0524	1.0522	1.0517	1.0512	1.0503	1.0495	1.0482	1.0457	1.0396	1.0316
20	1.0612	1.0611	1.0610	1.0606	1.0602	1.0594	1.0588	1.0576	1.0554	1.0494	1.0409
25	1.0638	1.0638	1.0637	1.0636	1.0634	1.0630	1.0627	1.0620	1.0605	1.0558	1.0480
30	1.0614	1.0614	1.0615	1.0617	1.0619	1.0621	1.0622	1.0623	1.0620	1.0595	1.0533
35	1.0531	1.0532	1.0534	1.0541	1.0547	1.0558	1.0566	1.0577	1.0592	1.0599	1.0564
40	1.0396	1.0397	1.0402	1.0415	1.0426	1.0448	1.0464	1.0488	1.0524	1.0573	1.0578
45	1.0206	1.0207	1.0215	1.0236	1.0252	1.0287	1.0313	1.0352	1.0415	1.0516	1.0561
50	0.9965	0.9968	0.9979	1.0008	1.0031	1.0081	1.0118	1.0175	1.0269	1.0429	1.0528
55	0.9676	0.9679	0.9693	0.9732	0.9763	0.9830	0.9880	0.9957	1.0085	1.0313	1.0473
60	0.9341	0.9345	0.9363	0.9413	0.9453	0.9538	0.9602	0.9701	0.9868	1.0171	1.0400
65	0.8965	0.8970	0.8992	0.9053	0.9103	0.9208	0.9287	0.9410	0.9619	1.0004	1.0308
70	0.8551	0.8557	0.8584	0.8657	0.8717	0.8843	0.8938	0.9087	0.9341	0.9814	1.0199
75	0.8104	0.8111	0.8143	0.8229	0.8299	0.8448	0.8560	0.8737	0.9037	0.9604	1.0076
80	0.7628	0.7637	0.7673	0.7773	0.7854	0.8027	0.8157	0.8362	0.8712	0.9377	0.9940
85	0.7130	0.7139	0.7181	0.7295	0.7387	0.7585	0.7733	0.7968	0.8369	0.9135	0.9794
90	0.6613	0.6623	0.6671	0.6799	0.6903	0.7125	0.7293	0.7557	0.8011	0.8882	0.9638
95	0.6084	0.6095	0.6148	0.6291	0.6406	0.6654	0.6841	0.7136	0.7643	0.8620	0.9475
100	0.5546	0.5559	0.5617	0.5775	0.5902	0.6176	0.6382	0.6708	0.7268	0.8352	0.9308
105	0.5008	0.5022	0.5085	0.5257	0.5397	0.5696	0.5921	0.6278	0.6892	0.8082	0.9139
110	0.4473	0.4488	0.4556	0.4743	0.4894	0.5218	0.5462	0.5849	0.6516	0.7813	0.8969
115	0.3947	0.3964	0.4037	0.4238	0.4400	0.4749	0.5012	0.5428	0.6187	0.7547	0.8800
120	0.3435	0.3453	0.3531	0.3746	0.3919	0.4292	0.4572	0.5018	0.5787	0.7287	0.8635
125	0.2944	0.2963	0.3046	0.3273	0.3457	0.3852	0.4151	0.4624	0.5440	0.7036	0.8476
130	0.2476	0.2496	0.2584	0.2823	0.3017	0.3434	0.3749	0.4248	0.5110	0.6797	0.8324
135	0.2038	0.2059	0.2151	0.2402	0.2605	0.3043	0.3373	0.3896	0.4801	0.6573	0.8181
140	0.1633	0.1655	0.1751	0.2012	0.2224	0.2681	0.3024	0.3571	0.4515	0.6366	0.8048
145	0.1267	0.1289	0.1388	0.1660	0.1879	0.2352	0.2709	0.3276	0.4255	0.6178	0.7928
150	0.0941	0.0963	0.1066	0.1346	0.1573	0.2061	0.2429	0.3013	0.4025	0.6010	0.7820
155	0.0659	0.0683	0.0788	0.1075	0.1308	0.1809	0.2187	0.2787	0.3826	0.5866	0.7728
160	0.0425	0.0449	0.0557	0.0850	0.1088	0.1599	0.1985	0.2598	0.3660	0.5745	0.7651
165	0.0241	0.0265	0.0374	0.0672	0.0914	0.1434	0.1827	0.2450	0.3629	0.5650	0.7590
170	0.0108	0.0132	0.0243	0.0545	0.0789	0.1315	0.1712	0.2343	0.3435	0.5582	0.7546
175	0.0027	0.0052	0.0163	0.0467	0.0713	0.1243	0.1643	0.2278	0.3378	0.5540	0.7519
180	0.0000	0.0025	0.0137	0.0441	0.0688	0.1219	0.1620	0.2256	0.3358	0.5526	0.7510

RATIO OF MOTT TO RUTHERFORD SCATTERING IN FE, Z=26

ENERGY (MEV) / ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0218	1.0218	1.0217	1.0213	1.0210	1.0204	1.0200	1.0192	1.0177	1.0143	1.0101
10	1.0436	1.0435	1.0433	1.0428	1.0423	1.0413	1.0404	1.0391	1.0366	1.0306	1.0232
15	1.0585	1.0584	1.0582	1.0576	1.0571	1.0559	1.0550	1.0535	1.0506	1.0434	1.0341
20	1.0695	1.0695	1.0693	1.0688	1.0683	1.0673	1.0664	1.0650	1.0622	1.0549	1.0448
25	1.0743	1.0743	1.0742	1.0739	1.0736	1.0729	1.0723	1.0713	1.0692	1.0629	1.0532
30	1.0740	1.0740	1.0740	1.0741	1.0741	1.0740	1.0739	1.0735	1.0725	1.0683	1.0599
35	1.0676	1.0676	1.0678	1.0683	1.0687	1.0695	1.0700	1.0706	1.0713	1.0702	1.0643
40	1.0557	1.0558	1.0562	1.0574	1.0582	1.0601	1.0614	1.0633	1.0661	1.0690	1.0666
45	1.0381	1.0382	1.0389	1.0408	1.0423	1.0454	1.0476	1.0511	1.0565	1.0645	1.0664
50	1.0152	1.0155	1.0165	1.0192	1.0214	1.0260	1.0293	1.0345	1.0430	1.0569	1.0641
55	0.9872	0.9875	0.9888	0.9925	0.9955	1.0017	1.0064	1.0136	1.0255	1.0462	1.0596
60	0.9544	0.9548	0.9565	0.9613	0.9651	0.9732	0.9792	0.9887	1.0044	1.0327	1.0530
65	0.9171	0.9176	0.9198	0.9257	0.9304	0.9406	0.9482	0.9600	0.9800	1.0165	1.0444
70	0.8759	0.8764	0.8791	0.8862	0.8920	0.9043	0.9135	0.9279	0.9524	0.9879	1.0341
75	0.8310	0.8317	0.8348	0.8433	0.8501	0.8647	0.8757	0.8929	0.9222	0.9771	1.0221
80	0.7831	0.7839	0.7875	0.7974	0.8053	0.8223	0.8351	0.8552	0.8895	0.9544	1.0087
85	0.7327	0.7336	0.7377	0.7490	0.7581	0.7776	0.7922	0.8153	0.8549	0.9301	0.9942
90	0.6802	0.6812	0.6859	0.6986	0.7089	0.7310	0.7475	0.7737	0.8186	0.9045	0.9786
95	0.6263	0.6275	0.6327	0.6469	0.6584	0.6830	0.7016	0.7309	0.7812	0.8780	0.9623
100	0.5715	0.5727	0.5785	0.5942	0.6069	0.6342	0.6547	0.6872	0.7430	0.8508	0.9455
105	0.5164	0.5178	0.5241	0.5413	0.5552	0.5851	0.6076	0.6432	0.7045	0.8232	0.9283
110	0.4615	0.4630	0.4699	0.4885	0.5036	0.5361	0.5605	0.5993	0.6660	0.7956	0.9110
115	0.4075	0.4092	0.4166	0.4367	0.4529	0.4879	0.5143	0.5561	0.6281	0.7684	0.8939
120	0.3549	0.3567	0.3645	0.3861	0.4035	0.4409	0.4691	0.5139	0.5911	0.7417	0.8771
125	0.3043	0.3062	0.3145	0.3374	0.3559	0.3957	0.4257	0.4732	0.5554	0.7160	0.8608
130	0.2561	0.2580	0.2669	0.2910	0.3105	0.3526	0.3842	0.4345	0.5214	0.6914	0.8452
135	0.2109	0.2130	0.2222	0.2475	0.2680	0.3121	0.3454	0.3982	0.4895	0.6683	0.8306
140	0.1691	0.1712	0.1809	0.2073	0.2287	0.2747	0.3094	0.3646	0.4599	0.6469	0.8170
145	0.1311	0.1334	0.1434	0.1708	0.1930	0.2408	0.2768	0.3340	0.4331	0.6274	0.8046
150	0.0974	0.0997	0.1101	0.1384	0.1613	0.2106	0.2478	0.3069	0.4092	0.6101	0.7936
155	0.0683	0.0707	0.0813	0.1104	0.1339	0.1846	0.2228	0.2835	0.3886	0.5952	0.7841
160	0.0441	0.0465	0.0574	0.0870	0.1111	0.1628	0.2019	0.2640	0.3714	0.5827	0.7762
165	0.0249	0.0274	0.0385	0.0686	0.0931	0.1457	0.1854	0.2486	0.3578	0.5729	0.7699
170	0.0112	0.0137	0.0248	0.0554	0.0801	0.1334	0.1736	0.2375	0.3481	0.5658	0.7654
175	0.0028	0.0053	0.0166	0.0473	0.0723	0.1259	0.1664	0.2307	0.3422	0.5615	0.7627
180	0.0000	0.0025	0.0138	0.0447	0.0697	0.1234	0.1640	0.2285	0.3402	0.5601	0.7617

RATIO OF MOTT TO RUTHERFORD SCATTERING IN NI, Z=28

ENERGY (MEV) / ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0234	1.0233	1.0232	1.0228	1.0225	1.0218	1.0213	1.0204	1.0188	1.0150	1.0104
10	1.0474	1.0473	1.0471	1.0465	1.0459	1.0448	1.0439	1.0423	1.0395	1.0327	1.0244
15	1.0645	1.0644	1.0642	1.0634	1.0628	1.0615	1.0604	1.0587	1.0553	1.0471	1.0364
20	1.0779	1.0779	1.0776	1.0770	1.0764	1.0751	1.0741	1.0723	1.0689	1.0602	1.0484
25	1.0850	1.0849	1.0847	1.0843	1.0839	1.0829	1.0821	1.0807	1.0779	1.0700	1.0582
30	1.0868	1.0868	1.0868	1.0866	1.0865	1.0861	1.0857	1.0849	1.0831	1.0771	1.0664
35	1.0823	1.0824	1.0825	1.0828	1.0830	1.0834	1.0837	1.0839	1.0837	1.0805	1.0722
40	1.0723	1.0724	1.0727	1.0736	1.0743	1.0758	1.0768	1.0782	1.0801	1.0809	1.0758
45	1.0562	1.0563	1.0570	1.0586	1.0599	1.0626	1.0645	1.0675	1.0719	1.0777	1.0769
50	1.0347	1.0349	1.0358	1.0383	1.0403	1.0444	1.0475	1.0522	1.0596	1.0712	1.0757
55	1.0076	1.0079	1.0092	1.0126	1.0154	1.0212	1.0255	1.0322	1.0432	1.0615	1.0722
60	0.9755	0.9759	0.9776	0.9821	0.9857	0.9934	0.9992	1.0081	1.0229	1.0488	1.0664
65	0.9387	0.9392	0.9413	0.9470	0.9515	0.9613	0.9686	0.9799	0.9989	1.0333	1.0585
70	0.8976	0.8982	0.9008	0.9077	0.9133	0.9252	0.9341	0.9481	0.9717	1.0151	1.0488
75	0.8527	0.8534	0.8564	0.8647	0.8714	0.8857	0.8963	0.9131	0.9416	0.9946	1.0373
80	0.8045	0.8053	0.8088	0.8185	0.8263	0.8430	0.8555	0.8752	0.9088	0.9720	1.0242
85	0.7535	0.7544	0.7585	0.7696	0.7785	0.7978	0.8122	0.8350	0.8739	0.9477	1.0098
90	0.7002	0.7012	0.7058	0.7184	0.7286	0.7505	0.7669	0.7928	0.8372	0.9219	0.9944
95	0.6453	0.6464	0.6516	0.6657	0.6772	0.7017	0.7201	0.7492	0.7991	0.8950	0.9781
100	0.5893	0.5906	0.5963	0.6120	0.6246	0.6518	0.6722	0.7046	0.7602	0.8673	0.9611
105	0.5329	0.5343	0.5406	0.5578	0.5717	0.6016	0.6240	0.6596	0.7208	0.8393	0.9438
110	0.4766	0.4782	0.4850	0.5037	0.5188	0.5513	0.5758	0.6146	0.6814	0.8111	0.9263
115	0.4212	0.4228	0.4302	0.4504	0.4667	0.5019	0.5283	0.5702	0.6425	0.7832	0.9089
120	0.3670	0.3688	0.3767	0.3983	0.4158	0.4535	0.4818	0.5268	0.6044	0.7558	0.8918
125	0.3148	0.3167	0.3252	0.3482	0.3668	0.4068	0.4370	0.4849	0.5677	0.7293	0.8752
130	0.2651	0.2671	0.2760	0.3003	0.3200	0.3624	0.3943	0.4450	0.5326	0.7040	0.8593
135	0.2184	0.2205	0.2299	0.2554	0.2761	0.3206	0.3542	0.4075	0.4996	0.6802	0.8443
140	0.1752	0.1773	0.1871	0.2138	0.2354	0.2819	0.3170	0.3727	0.4690	0.6582	0.8304
145	0.1359	0.1382	0.1483	0.1760	0.1985	0.2468	0.2832	0.3411	0.4413	0.6381	0.8177
150	0.1010	0.1033	0.1138	0.1424	0.1656	0.2155	0.2532	0.3130	0.4166	0.6202	0.8065
155	0.0708	0.0732	0.0840	0.1134	0.1372	0.1885	0.2272	0.2887	0.3952	0.6048	0.7967
160	0.0457	0.0482	0.0592	0.0892	0.1136	0.1660	0.2056	0.2685	0.3774	0.5919	0.7886
165	0.0259	0.0284	0.0396	0.0701	0.0949	0.1483	0.1885	0.2525	0.3634	0.5817	0.7821
170	0.0116	0.0141	0.0254	0.0564	0.0815	0.1355	0.1762	0.2410	0.3532	0.5744	0.7775
175	0.0029	0.0054	0.0169	0.0480	0.0733	0.1277	0.1688	0.2340	0.3471	0.5699	0.7747
180	0.0000	0.0026	0.0140	0.0453	0.0706	0.1251	0.1663	0.2317	0.3450	0.5684	0.7737

RATIO OF MOTT TO RUTHERFORD SCATTERING IN CU, Z=29

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0241	1.0241	1.0239	1.0236	1.0232	1.0225	1.0219	1.0210	1.0193	1.0153	1.0105
10	1.0493	1.0492	1.0490	1.0483	1.0477	1.0465	1.0455	1.0439	1.0409	1.0338	1.0249
15	1.0675	1.0674	1.0671	1.0663	1.0657	1.0643	1.0631	1.0612	1.0576	1.0488	1.0374
20	1.0821	1.0821	1.0818	1.0811	1.0804	1.0790	1.0779	1.0760	1.0723	1.0629	1.0501
25	1.0903	1.0903	1.0901	1.0895	1.0890	1.0879	1.0870	1.0854	1.0822	1.0735	1.0606
30	1.0933	1.0933	1.0932	1.0930	1.0927	1.0922	1.0917	1.0907	1.0885	1.0814	1.0696
35	1.0899	1.0899	1.0900	1.0902	1.0903	1.0906	1.0906	1.0906	1.0899	1.0858	1.0761
40	1.0808	1.0808	1.0811	1.0819	1.0826	1.0838	1.0846	1.0858	1.0872	1.0869	1.0804
45	1.0655	1.0656	1.0662	1.0677	1.0689	1.0714	1.0732	1.0758	1.0798	1.0844	1.0822
50	1.0446	1.0448	1.0457	1.0481	1.0500	1.0539	1.0568	1.0612	1.0682	1.0786	1.0816
55	1.0181	1.0184	1.0196	1.0229	1.0256	1.0312	1.0354	1.0418	1.0522	1.0694	1.0786
60	0.9865	0.9868	0.9884	0.9928	0.9964	1.0039	1.0094	1.0181	1.0324	1.0572	1.0733
65	0.9499	0.9504	0.9524	0.9580	0.9625	0.9720	0.9791	0.9902	1.0087	1.0419	1.0658
70	0.9089	0.9095	0.9120	0.9188	0.9243	0.9361	0.9448	0.9586	0.9817	1.0240	1.0564
75	0.8640	0.8647	0.8677	0.8758	0.8824	0.8965	0.9070	0.9236	0.9516	1.0037	1.0451
80	0.8156	0.8163	0.8199	0.8294	0.8372	0.8537	0.8661	0.8856	0.9188	0.9812	1.0322
85	0.7643	0.7652	0.7692	0.7803	0.7892	0.8083	0.8226	0.8452	0.8838	0.9568	1.0180
90	0.7106	0.7116	0.7162	0.7288	0.7389	0.7606	0.7770	0.8027	0.8468	0.9309	1.0026
95	0.6552	0.6563	0.6615	0.6756	0.6870	0.7114	0.7298	0.7588	0.8085	0.9039	0.9863
100	0.5986	0.5999	0.6056	0.6212	0.6339	0.6610	0.6814	0.7137	0.7692	0.8760	0.9593
105	0.5416	0.5430	0.5493	0.5664	0.5803	0.6102	0.6327	0.6682	0.7294	0.8477	0.9519
110	0.4845	0.4861	0.4929	0.5116	0.5268	0.5593	0.5838	0.6227	0.6895	0.8192	0.9344
115	0.4283	0.4300	0.4374	0.4576	0.4740	0.5092	0.5357	0.5777	0.6501	0.7910	0.9168
120	0.3734	0.3751	0.3831	0.4048	0.4223	0.4601	0.4885	0.5336	0.6114	0.7633	0.8996
125	0.3204	0.3223	0.3307	0.3538	0.3725	0.4127	0.4430	0.4911	0.5741	0.7364	0.8829
130	0.2698	0.2718	0.2808	0.3052	0.3250	0.3675	0.3996	0.4505	0.5385	0.7108	0.8668
135	0.2224	0.2245	0.2339	0.2595	0.2803	0.3251	0.3588	0.4124	0.5050	0.6866	0.8517
140	0.1784	0.1806	0.1904	0.2172	0.2389	0.2857	0.3210	0.3770	0.4739	0.6642	0.8376
145	0.1384	0.1407	0.1509	0.1788	0.2014	0.2500	0.2866	0.3449	0.4457	0.6438	0.8248
150	0.1029	0.1052	0.1158	0.1446	0.1679	0.2182	0.2561	0.3163	0.4205	0.6256	0.8134
155	0.0722	0.0746	0.0854	0.1150	0.1390	0.1907	0.2296	0.2915	0.3988	0.6099	0.8035
160	0.0466	0.0490	0.0601	0.0904	0.1149	0.1677	0.2076	0.2709	0.3807	0.5968	0.7953
165	0.0264	0.0289	0.0402	0.0710	0.0959	0.1496	0.1902	0.2547	0.3664	0.5865	0.7888
170	0.0118	0.0144	0.0258	0.0569	0.0822	0.1366	0.1777	0.2429	0.3560	0.5790	0.7840
175	0.0029	0.0055	0.0170	0.0484	0.0739	0.1287	0.1701	0.2358	0.3498	0.5745	0.7812
180	0.0000	0.0026	0.0141	0.0456	0.0711	0.1261	0.1675	0.2334	0.3477	0.5729	0.7802

RATIO OF MOTT TO RUTHERFORD SCATTERING IN ZN, Z=30

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0248	1.0248	1.0247	1.0243	1.0239	1.0232	1.0226	1.0216	1.0198	1.0156	1.0105
10	1.0511	1.0511	1.0508	1.0501	1.0495	1.0482	1.0472	1.0455	1.0423	1.0347	1.0254
15	1.0704	1.0704	1.0701	1.0692	1.0685	1.0670	1.0658	1.0638	1.0599	1.0505	1.0383
20	1.0863	1.0863	1.0860	1.0852	1.0845	1.0829	1.0817	1.0796	1.0756	1.0655	1.0517
25	1.0957	1.0956	1.0954	1.0948	1.0942	1.0930	1.0919	1.0901	1.0866	1.0769	1.0629
30	1.0999	1.0998	1.0997	1.0994	1.0991	1.0983	1.0977	1.0965	1.0938	1.0858	1.0727
35	1.0975	1.0975	1.0975	1.0976	1.0977	1.0977	1.0977	1.0978	1.0962	1.0910	1.0800
40	1.0893	1.0894	1.0897	1.0904	1.0909	1.0919	1.0926	1.0935	1.0944	1.0929	1.0850
45	1.0749	1.0750	1.0756	1.0770	1.0781	1.0803	1.0820	1.0843	1.0878	1.0912	1.0875
50	1.0548	1.0550	1.0558	1.0580	1.0598	1.0636	1.0663	1.0704	1.0768	1.0860	1.0875
55	1.0288	1.0291	1.0303	1.0335	1.0361	1.0415	1.0454	1.0516	1.0615	1.0774	1.0850
60	0.9976	0.9980	0.9995	1.0038	1.0072	1.0145	1.0199	1.0283	1.0420	1.0656	1.0802
65	0.9613	0.9618	0.9638	0.9692	0.9736	0.9830	0.9899	1.0007	1.0188	1.0508	1.0732
70	0.9205	0.9210	0.9235	0.9302	0.9356	0.9472	0.9558	0.9693	0.9919	1.0332	1.0641
75	0.8755	0.8762	0.8792	0.8872	0.8937	0.9076	0.9180	0.9344	0.9620	1.0130	1.0531
80	0.8270	0.8277	0.8312	0.8407	0.8484	0.8648	0.8770	0.8963	0.9291	0.9905	1.0404
85	0.7754	0.7763	0.7803	0.7913	0.8001	0.8191	0.8333	0.8557	0.8940	0.9662	1.0263
90	0.7213	0.7223	0.7269	0.7394	0.7495	0.7711	0.7873	0.8130	0.8568	0.9403	1.0111
95	0.6654	0.6665	0.6717	0.6857	0.6971	0.7214	0.7397	0.7686	0.8182	0.9131	0.9948
100	0.6082	0.6095	0.6152	0.6308	0.6434	0.6705	0.6909	0.7231	0.7785	0.8850	0.9778
105	0.5505	0.5519	0.5582	0.5754	0.5893	0.6191	0.6416	0.6771	0.7383	0.8564	0.9604
110	0.4927	0.4942	0.5011	0.5198	0.5350	0.5676	0.5921	0.6310	0.6979	0.8277	0.9427
115	0.4357	0.4374	0.4448	0.4650	0.4815	0.5167	0.5433	0.5854	0.6579	0.7991	0.9251
120	0.3799	0.3817	0.3897	0.4114	0.4290	0.4669	0.4954	0.5407	0.6187	0.7710	0.9077
125	0.3261	0.3280	0.3365	0.3597	0.3784	0.4188	0.4492	0.4975	0.5809	0.7438	0.8908
130	0.2747	0.2767	0.2857	0.3102	0.3301	0.3729	0.4051	0.4562	0.5487	0.7178	0.8746
135	0.2264	0.2286	0.2380	0.2638	0.2847	0.3297	0.3636	0.4175	0.5196	0.6933	0.8593
140	0.1817	0.1839	0.1938	0.2208	0.2426	0.2897	0.3251	0.3815	0.4790	0.6705	0.8452
145	0.1410	0.1433	0.1536	0.1816	0.2044	0.2533	0.2902	0.3488	0.4503	0.6498	0.8322
150	0.1048	0.1072	0.1178	0.1468	0.1703	0.2209	0.2590	0.3197	0.4247	0.6313	0.8207
155	0.0735	0.0760	0.0869	0.1167	0.1409	0.1929	0.2321	0.2945	0.4025	0.6153	0.8107
160	0.0475	0.0499	0.0611	0.0916	0.1163	0.1695	0.2097	0.2735	0.3841	0.6020	0.8023
165	0.0269	0.0294	0.0408	0.0718	0.0969	0.1511	0.1919	0.2569	0.3695	0.5915	0.7957
170	0.0120	0.0146	0.0261	0.0575	0.0830	0.1378	0.1792	0.2450	0.3590	0.5839	0.7910
175	0.0030	0.0056	0.0172	0.0488	0.0745	0.1297	0.1714	0.2377	0.3526	0.5793	0.7881
180	0.0000	0.0026	0.0142	0.0460	0.0717	0.1270	0.1688	0.2353	0.3505	0.5777	0.7871

RATIO OF MOTT TO RUTHERFORD SCATTERING IN GE, Z=32

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0262	1.0262	1.0260	1.0256	1.0252	1.0244	1.0237	1.0227	1.0207	1.0161	1.0106
10	1.0547	1.0547	1.0544	1.0536	1.0529	1.0515	1.0503	1.0485	1.0449	1.0365	1.0261
15	1.0763	1.0762	1.0759	1.0749	1.0742	1.0724	1.0710	1.0687	1.0643	1.0537	1.0400
20	1.0947	1.0946	1.0943	1.0933	1.0925	1.0907	1.0893	1.0868	1.0822	1.0705	1.0547
25	1.1065	1.1065	1.1062	1.1053	1.1046	1.1031	1.1018	1.0996	1.0952	1.0838	1.0674
30	1.1131	1.1130	1.1129	1.1123	1.1118	1.1107	1.1098	1.1081	1.1046	1.0945	1.0787
35	1.1129	1.1129	1.1129	1.1128	1.1126	1.1123	1.1119	1.1111	1.1090	1.1015	1.0876
40	1.1068	1.1069	1.1071	1.1075	1.1078	1.1084	1.1088	1.1091	1.1090	1.1051	1.0942
45	1.0942	1.0943	1.0947	1.0959	1.0968	1.0986	1.0999	1.1017	1.1040	1.1049	1.0981
50	1.0756	1.0758	1.0765	1.0785	1.0801	1.0833	1.0857	1.0892	1.0946	1.1012	1.0994
55	1.0509	1.0511	1.0522	1.0552	1.0575	1.0625	1.0661	1.0716	1.0804	1.0938	1.0982
60	1.0206	1.0209	1.0224	1.0265	1.0297	1.0365	1.0415	1.0493	1.0620	1.0831	1.0944
65	0.9850	0.9854	0.9873	0.9925	0.9967	1.0056	1.0122	1.0224	1.0394	1.0690	1.0883
70	0.9444	0.9450	0.9474	0.9539	0.9591	0.9702	0.9785	0.9914	1.0131	1.0520	1.0800
75	0.8995	0.9001	0.9030	0.9109	0.9172	0.9308	0.9409	0.9567	0.9834	1.0322	1.0696
80	0.8506	0.8514	0.8548	0.8641	0.8716	0.8877	0.8997	0.9186	0.9506	1.0101	1.0574
85	0.7985	0.7994	0.8034	0.8142	0.8229	0.8416	0.8556	0.8777	0.9152	0.9858	1.0437
90	0.7436	0.7446	0.7491	0.7615	0.7715	0.7929	0.8090	0.8343	0.8776	0.9597	1.0286
95	0.6867	0.6878	0.6929	0.7069	0.7182	0.7424	0.7606	0.7893	0.8384	0.9323	1.0125
100	0.6282	0.6295	0.6352	0.6508	0.6634	0.6904	0.7107	0.7428	0.7980	0.9039	0.9955
105	0.5691	0.5705	0.5768	0.5940	0.6079	0.6378	0.6602	0.6958	0.7569	0.8748	0.9780
110	0.5098	0.5113	0.5182	0.5370	0.5522	0.5849	0.6095	0.6484	0.7155	0.8454	0.9603
115	0.4512	0.4528	0.4603	0.4806	0.4971	0.5326	0.5592	0.6015	0.6744	0.8162	0.9425
120	0.3936	0.3954	0.4035	0.4254	0.4431	0.4812	0.5099	0.5555	0.6341	0.7874	0.9249
125	0.3381	0.3400	0.3486	0.3720	0.3909	0.4316	0.4623	0.5110	0.5951	0.7595	0.9077
130	0.2850	0.2870	0.2961	0.3209	0.3410	0.3841	0.4167	0.4684	0.5577	0.7327	0.8913
135	0.2350	0.2372	0.2467	0.2728	0.2940	0.3395	0.3738	0.4283	0.5225	0.7075	0.8757
140	0.1887	0.1909	0.2009	0.2282	0.2504	0.2980	0.3339	0.3910	0.4898	0.6840	0.8613
145	0.1465	0.1488	0.1592	0.1877	0.2107	0.2603	0.2977	0.3571	0.4601	0.6626	0.8480
150	0.1089	0.1113	0.1221	0.1515	0.1754	0.2267	0.2654	0.3269	0.4335	0.6435	0.8363
155	0.0764	0.0789	0.0900	0.1203	0.1448	0.1976	0.2374	0.3008	0.4106	0.6270	0.8260
160	0.0493	0.0519	0.0632	0.0942	0.1193	0.1733	0.2141	0.2790	0.3914	0.6132	0.8175
165	0.0279	0.0305	0.0421	0.0736	0.0991	0.1542	0.1957	0.2617	0.3763	0.6023	0.8108
170	0.0125	0.0151	0.0268	0.0587	0.0846	0.1403	0.1824	0.2493	0.3653	0.5944	0.8059
175	0.0031	0.0058	0.0175	0.0497	0.0758	0.1319	0.1744	0.2418	0.3587	0.5897	0.8030
180	0.0000	0.0027	0.0145	0.0467	0.0729	0.1292	0.1717	0.2393	0.3565	0.5881	0.8020

RATIO OF MOTT TO RUTHERFORD SCATTERING IN RB, Z=37

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0293	1.0293	1.0290	1.0285	1.0280	1.0270	1.0262	1.0249	1.0224	1.0168	1.0102
10	1.0632	1.0632	1.0628	1.0618	1.0609	1.0591	1.0576	1.0552	1.0507	1.0401	1.0271
15	1.0905	1.0904	1.0899	1.0887	1.0876	1.0853	1.0834	1.0804	1.0746	1.0607	1.0429
20	1.1154	1.1153	1.1148	1.1135	1.1123	1.1098	1.1078	1.1044	1.0979	1.0819	1.0607
25	1.1337	1.1336	1.1331	1.1318	1.1307	1.1283	1.1263	1.1230	1.1164	1.0999	1.0770
30	1.1468	1.1467	1.1463	1.1452	1.1443	1.1422	1.1405	1.1375	1.1315	1.1156	1.0924
35	1.1528	1.1527	1.1525	1.1518	1.1511	1.1497	1.1484	1.1462	1.1414	1.1275	1.1054
40	1.1525	1.1524	1.1524	1.1522	1.1520	1.1514	1.1508	1.1496	1.1466	1.1360	1.1162
45	1.1450	1.1450	1.1452	1.1457	1.1460	1.1466	1.1469	1.1471	1.1464	1.1402	1.1242
50	1.1308	1.1309	1.1314	1.1327	1.1337	1.1357	1.1371	1.1389	1.1412	1.1405	1.1294
55	1.1098	1.1100	1.1108	1.1131	1.1149	1.1185	1.1211	1.1250	1.1307	1.1368	1.1317
60	1.0824	1.0827	1.0839	1.0872	1.0899	1.0955	1.0995	1.1056	1.1153	1.1291	1.1311
65	1.0488	1.0492	1.0509	1.0554	1.0590	1.0667	1.0723	1.0810	1.0950	1.1176	1.1278
70	1.0094	1.0099	1.0121	1.0180	1.0227	1.0326	1.0400	1.0515	1.0704	1.1026	1.1219
75	0.9648	0.9655	0.9681	0.9754	0.9813	0.9938	1.0030	1.0175	1.0416	1.0843	1.1135
80	0.9155	0.9162	0.9195	0.9283	0.9354	0.9505	0.9618	0.9794	1.0092	1.0631	1.1030
85	0.8621	0.8629	0.8668	0.8772	0.8855	0.9035	0.9169	0.9379	0.9735	1.0393	1.0906
90	0.8052	0.8061	0.8106	0.8226	0.8324	0.8532	0.8688	0.8933	0.9351	1.0133	1.0765
95	0.7456	0.7467	0.7517	0.7655	0.7766	0.8004	0.8182	0.8464	0.8945	0.9854	1.0610
100	0.6838	0.6851	0.6908	0.7063	0.7188	0.7456	0.7658	0.7977	0.8522	0.9562	1.0445
105	0.6210	0.6224	0.6287	0.6459	0.6598	0.6897	0.7122	0.7478	0.8088	0.9260	1.0272
110	0.5575	0.5590	0.5660	0.5849	0.6003	0.6333	0.6581	0.6973	0.7649	0.8953	1.0094
115	0.4943	0.4960	0.5036	0.5243	0.5410	0.5770	0.6041	0.6470	0.7210	0.8645	0.9914
120	0.4321	0.4340	0.4422	0.4645	0.4826	0.5216	0.5509	0.5974	0.6776	0.8340	0.9736
125	0.3718	0.3737	0.3825	0.4065	0.4259	0.4677	0.4992	0.5492	0.6355	0.8042	0.9559
130	0.3139	0.3159	0.3253	0.3508	0.3715	0.4160	0.4496	0.5028	0.5950	0.7755	0.9391
135	0.2592	0.2614	0.2713	0.2983	0.3201	0.3672	0.4027	0.4591	0.5566	0.7484	0.9229
140	0.2083	0.2106	0.2210	0.2493	0.2723	0.3217	0.3590	0.4183	0.5210	0.7231	0.9080
145	0.1619	0.1643	0.1752	0.2047	0.2287	0.2803	0.3192	0.3811	0.4884	0.6999	0.8942
150	0.1205	0.1230	0.1342	0.1649	0.1898	0.2433	0.2837	0.3479	0.4593	0.6793	0.8819
155	0.0846	0.0872	0.0988	0.1304	0.1560	0.2112	0.2528	0.3191	0.4341	0.6613	0.8712
160	0.0547	0.0573	0.0692	0.1016	0.1278	0.1844	0.2271	0.2950	0.4130	0.6463	0.8623
165	0.0310	0.0337	0.0457	0.0788	0.1055	0.1632	0.2067	0.2760	0.3963	0.6345	0.8553
170	0.0139	0.0166	0.0288	0.0623	0.0894	0.1479	0.1920	0.2623	0.3842	0.6259	0.8501
175	0.0035	0.0062	0.0186	0.0523	0.0797	0.1386	0.1831	0.2539	0.3770	0.6207	0.8471
180	0.0000	0.0028	0.0152	0.0490	0.0764	0.1355	0.1801	0.2511	0.3745	0.6189	0.8461

RATIO OF MOTT TO RUTHERFORD SCATTERING IN ZR, Z=40

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0308	1.0308	1.0305	1.0299	1.0294	1.0282	1.0274	1.0259	1.0232	1.0169	1.0098
10	1.0679	1.0678	1.0674	1.0662	1.0653	1.0631	1.0615	1.0588	1.0536	1.0416	1.0271
15	1.0985	1.0984	1.0978	1.0964	1.0951	1.0924	1.0903	1.0868	1.0800	1.0639	1.0436
20	1.1275	1.1274	1.1268	1.1252	1.1238	1.1208	1.1184	1.1143	1.1066	1.0878	1.0630
25	1.1499	1.1498	1.1492	1.1476	1.1462	1.1432	1.1408	1.1366	1.1287	1.1087	1.0819
30	1.1673	1.1672	1.1667	1.1652	1.1640	1.1612	1.1589	1.1551	1.1475	1.1276	1.0993
35	1.1774	1.1773	1.1769	1.1758	1.1748	1.1726	1.1708	1.1676	1.1610	1.1428	1.1151
40	1.1810	1.1810	1.1808	1.1801	1.1795	1.1782	1.1769	1.1747	1.1698	1.1544	1.1286
45	1.1771	1.1771	1.1771	1.1771	1.1771	1.1768	1.1764	1.1755	1.1728	1.1617	1.1393
50	1.1661	1.1662	1.1665	1.1673	1.1679	1.1690	1.1697	1.1704	1.1706	1.1649	1.1471
55	1.1478	1.1479	1.1486	1.1504	1.1517	1.1545	1.1564	1.1592	1.1627	1.1637	1.1519
60	1.1225	1.1228	1.1238	1.1267	1.1290	1.1336	1.1370	1.1420	1.1495	1.1583	1.1536
65	1.0905	1.0909	1.0924	1.0965	1.0997	1.1066	1.1115	1.1191	1.1311	1.1488	1.1524
70	1.0522	1.0527	1.0547	1.0601	1.0645	1.0736	1.0804	1.0908	1.1078	1.1354	1.1483
75	1.0081	1.0086	1.0112	1.0181	1.0236	1.0354	1.0441	1.0576	1.0799	1.1183	1.1416
80	0.9586	0.9593	0.9624	0.9709	0.9777	0.9922	1.0030	1.0198	1.0479	1.0980	1.1324
85	0.9085	0.9094	0.9091	0.9192	0.9273	0.9447	0.9577	0.9780	1.0123	1.0747	1.1211
90	0.8464	0.8474	0.8518	0.8636	0.8731	0.8936	0.9088	0.9328	0.9735	1.0489	1.1079
95	0.7852	0.7863	0.7913	0.8049	0.8159	0.8394	0.8571	0.8849	0.9322	1.0210	1.0931
100	0.7214	0.7227	0.7283	0.7438	0.7562	0.7830	0.8030	0.8347	0.8888	0.9915	1.0772
105	0.6561	0.6575	0.6633	0.6811	0.6951	0.7250	0.7475	0.7831	0.8441	0.9607	1.0602
110	0.5899	0.5914	0.5984	0.6175	0.6330	0.6662	0.6911	0.7306	0.7985	0.9293	1.0427
115	0.5237	0.5255	0.5331	0.5540	0.5710	0.6073	0.6347	0.6781	0.7528	0.8975	1.0287
120	0.4584	0.4603	0.4686	0.4913	0.5097	0.5492	0.5790	0.6262	0.7076	0.8660	1.0069
125	0.3948	0.3968	0.4058	0.4302	0.4500	0.4925	0.5246	0.5755	0.6634	0.8351	0.9892
130	0.3336	0.3358	0.3453	0.3714	0.3925	0.4380	0.4723	0.5267	0.6208	0.8054	0.9722
135	0.2758	0.2780	0.2881	0.3158	0.3382	0.3863	0.4227	0.4805	0.5805	0.7770	0.9559
140	0.2218	0.2242	0.2348	0.2639	0.2875	0.3382	0.3765	0.4373	0.5428	0.7506	0.9407
145	0.1726	0.1750	0.1862	0.2165	0.2412	0.2942	0.3343	0.3979	0.5084	0.7263	0.9267
150	0.1285	0.1311	0.1426	0.1742	0.1998	0.2549	0.2965	0.3627	0.4776	0.7047	0.9143
155	0.0903	0.0929	0.1049	0.1378	0.1639	0.2207	0.2637	0.3321	0.4508	0.6858	0.9034
160	0.0583	0.0611	0.0733	0.1067	0.1338	0.1922	0.2363	0.3065	0.4284	0.6701	0.8943
165	0.0331	0.0358	0.0483	0.0824	0.1101	0.1696	0.2146	0.2863	0.4107	0.6576	0.8871
170	0.0148	0.0176	0.0303	0.0649	0.0929	0.1533	0.1989	0.2716	0.3979	0.6485	0.8819
175	0.0037	0.0066	0.0193	0.0542	0.0825	0.1434	0.1895	0.2628	0.3902	0.6431	0.8788
180	0.0000	0.0029	0.0157	0.0506	0.0790	0.1401	0.1863	0.2598	0.3875	0.6413	0.8777

RATIO OF MOTT TO RUTHERFORD SCATTERING IN NB, Z=41

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0313	1.0312	1.0310	1.0303	1.0298	1.0286	1.0277	1.0262	1.0233	1.0169	1.0096
10	1.0693	1.0692	1.0688	1.0676	1.0666	1.0644	1.0627	1.0598	1.0545	1.0420	1.0270
15	1.1010	1.1009	1.1004	1.0988	1.0975	1.0947	1.0925	1.0888	1.0817	1.0649	1.0436
20	1.1315	1.1313	1.1307	1.1290	1.1275	1.1243	1.1218	1.1175	1.1094	1.0896	1.0636
25	1.1553	1.1552	1.1545	1.1528	1.1513	1.1481	1.1455	1.1411	1.1327	1.1115	1.0827
30	1.1742	1.1741	1.1735	1.1719	1.1706	1.1675	1.1651	1.1609	1.1527	1.1315	1.1013
35	1.1857	1.1856	1.1852	1.1839	1.1828	1.1803	1.1783	1.1747	1.1675	1.1478	1.1180
40	1.1907	1.1907	1.1904	1.1896	1.1889	1.1872	1.1858	1.1832	1.1775	1.1605	1.1325
45	1.1881	1.1880	1.1880	1.1879	1.1877	1.1874	1.1865	1.1852	1.1818	1.1689	1.1442
50	1.1782	1.1783	1.1785	1.1792	1.1796	1.1805	1.1809	1.1812	1.1806	1.1731	1.1529
55	1.1609	1.1610	1.1616	1.1632	1.1644	1.1669	1.1686	1.1709	1.1737	1.1729	1.1586
60	1.1364	1.1367	1.1377	1.1404	1.1425	1.1469	1.1500	1.1546	1.1613	1.1693	1.1612
65	1.1050	1.1054	1.1068	1.1107	1.1139	1.1204	1.1251	1.1323	1.1436	1.1595	1.1607
70	1.0671	1.0676	1.0695	1.0748	1.0790	1.0879	1.0945	1.1045	1.1208	1.1467	1.1573
75	1.0232	1.0238	1.0262	1.0330	1.0384	1.0499	1.0584	1.0716	1.0933	1.1301	1.1511
80	0.9737	0.9744	0.9775	0.9858	0.9925	1.0068	1.0174	1.0339	1.0615	1.1101	1.1425
85	0.9195	0.9203	0.9240	0.9340	0.9420	0.9592	0.9721	0.9921	1.0259	1.0871	1.1316
90	0.8610	0.8619	0.8663	0.8780	0.8875	0.9078	0.9229	0.9467	0.9870	1.0614	1.1189
95	0.7992	0.8003	0.8053	0.8188	0.8298	0.8532	0.8708	0.8984	0.9455	1.0335	1.1043
100	0.7347	0.7360	0.7416	0.7570	0.7695	0.7962	0.8162	0.8478	0.9018	1.0040	1.0986
105	0.6685	0.6699	0.6763	0.6936	0.7075	0.7375	0.7600	0.7956	0.8566	0.9730	1.0718
110	0.6014	0.6029	0.6099	0.6291	0.6446	0.6779	0.7029	0.7425	0.8105	0.9414	1.0540
115	0.5342	0.5359	0.5436	0.5646	0.5816	0.6181	0.6456	0.6892	0.7682	0.9093	1.0365
120	0.4678	0.4696	0.4780	0.5008	0.5193	0.5590	0.5890	0.6364	0.7183	0.8775	1.0187
125	0.4030	0.4050	0.4140	0.4386	0.4585	0.5014	0.5336	0.5849	0.6734	0.8462	1.0010
130	0.3407	0.3429	0.3525	0.3787	0.4000	0.4458	0.4804	0.5352	0.6301	0.8160	0.9840
135	0.2817	0.2840	0.2942	0.3220	0.3446	0.3932	0.4299	0.4881	0.5890	0.7873	0.9677
140	0.2266	0.2290	0.2398	0.2691	0.2929	0.3441	0.3828	0.4442	0.5507	0.7605	0.9525
145	0.1763	0.1789	0.1901	0.2208	0.2457	0.2992	0.3397	0.4040	0.5156	0.7359	0.9388
150	0.1314	0.1340	0.1456	0.1775	0.2034	0.2591	0.3011	0.3680	0.4842	0.7139	0.9259
155	0.0923	0.0950	0.1071	0.1400	0.1667	0.2242	0.2676	0.3368	0.4569	0.6947	0.9150
160	0.0597	0.0624	0.0748	0.1086	0.1360	0.1950	0.2396	0.3107	0.4380	0.6787	0.9059
165	0.0338	0.0366	0.0493	0.0827	0.1117	0.1720	0.2175	0.2900	0.4260	0.6660	0.8986
170	0.0151	0.0180	0.0308	0.0658	0.0941	0.1553	0.2015	0.2750	0.4029	0.6568	0.8934
175	0.0038	0.0067	0.0196	0.0549	0.0835	0.1452	0.1918	0.2660	0.3950	0.6513	0.8903
180	0.0000	0.0029	0.0159	0.0512	0.0799	0.1418	0.1885	0.2629	0.3923	0.6494	0.8893

RATIO OF MOTT TO RUTHERFORD SCATTERING IN MO, Z=42

ENERGY(MEV) ANGLE(DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0317	1.0316	1.0314	1.0307	1.0301	1.0289	1.0280	1.0264	1.0235	1.0168	1.0094
10	1.0707	1.0706	1.0702	1.0689	1.0679	1.0656	1.0638	1.0609	1.0553	1.0423	1.0269
15	1.1035	1.1034	1.1028	1.1012	1.0999	1.0969	1.0946	1.0907	1.0833	1.0657	1.0436
20	1.1354	1.1352	1.1345	1.1327	1.1312	1.1278	1.1251	1.1207	1.1121	1.0912	1.0640
25	1.1606	1.1605	1.1598	1.1580	1.1564	1.1530	1.1502	1.1455	1.1366	1.1141	1.0838
30	1.1810	1.1809	1.1803	1.1786	1.1771	1.1738	1.1712	1.1667	1.1579	1.1352	1.1032
35	1.1941	1.1940	1.1935	1.1920	1.1908	1.1881	1.1858	1.1819	1.1740	1.1527	1.1209
40	1.2005	1.2004	1.2001	1.1991	1.1983	1.1963	1.1947	1.1917	1.1853	1.1665	1.1363
45	1.1992	1.1991	1.1990	1.1987	1.1984	1.1975	1.1967	1.1950	1.1908	1.1761	1.1490
50	1.1905	1.1906	1.1908	1.1912	1.1915	1.1920	1.1922	1.1921	1.1907	1.1813	1.1587
55	1.1742	1.1743	1.1749	1.1763	1.1774	1.1795	1.1809	1.1828	1.1848	1.1821	1.1653
60	1.1506	1.1508	1.1518	1.1543	1.1562	1.1603	1.1632	1.1674	1.1733	1.1784	1.1687
65	1.1199	1.1202	1.1216	1.1253	1.1283	1.1345	1.1390	1.1458	1.1563	1.1703	1.1691
70	1.0824	1.0828	1.0847	1.0898	1.0939	1.1025	1.1089	1.1185	1.1341	1.1582	1.1664
75	1.0387	1.0392	1.0417	1.0483	1.0536	1.0648	1.0731	1.0859	1.1069	1.1421	1.1609
80	0.9892	0.9899	0.9929	1.0011	1.0077	1.0218	1.0322	1.0484	1.0754	1.1225	1.1528
85	0.9348	0.9356	0.9393	0.9492	0.9571	0.9741	0.9868	1.0066	1.0399	1.0997	1.1424
90	0.8759	0.8769	0.8812	0.8929	0.9023	0.9224	0.9374	0.9610	1.0009	1.0742	1.1300
95	0.8136	0.8147	0.8197	0.8332	0.8441	0.8674	0.8849	0.9124	0.9591	1.0464	1.1158
100	0.7484	0.7497	0.7553	0.7707	0.7831	0.8098	0.8298	0.8613	0.9151	1.0167	1.1003
105	0.6814	0.6828	0.6891	0.7064	0.7204	0.7504	0.7729	0.8085	0.8694	0.9857	1.0837
110	0.6132	0.6148	0.6218	0.6410	0.6566	0.6899	0.7150	0.7547	0.8228	0.9538	1.0664
115	0.5450	0.5467	0.5544	0.5755	0.5926	0.6293	0.6569	0.7006	0.7759	0.9214	1.0486
120	0.4774	0.4793	0.4877	0.5107	0.5292	0.5692	0.5993	0.6470	0.7293	0.8893	1.0309
125	0.4115	0.4135	0.4226	0.4474	0.4674	0.5105	0.5430	0.5946	0.6837	0.8576	1.0133
130	0.3480	0.3502	0.3599	0.3863	0.4078	0.4540	0.4888	0.5441	0.6397	0.8271	0.9963
135	0.2878	0.2901	0.3004	0.3285	0.3513	0.4003	0.4373	0.4961	0.5979	0.7980	0.9799
140	0.2316	0.2341	0.2449	0.2745	0.2985	0.3502	0.3893	0.4513	0.5588	0.7708	0.9647
145	0.1803	0.1828	0.1942	0.2252	0.2503	0.3044	0.3453	0.4103	0.5230	0.7458	0.9506
150	0.1343	0.1370	0.1488	0.1810	0.2071	0.2634	0.3059	0.3736	0.4910	0.7234	0.9380
155	0.0944	0.0971	0.1093	0.1426	0.1696	0.2278	0.2717	0.3417	0.4632	0.7040	0.9271
160	0.0610	0.0638	0.0763	0.1105	0.1382	0.1980	0.2431	0.3150	0.4399	0.6877	0.9179
165	0.0346	0.0374	0.0502	0.0851	0.1134	0.1744	0.2205	0.2939	0.4215	0.6748	0.9107
170	0.0155	0.0184	0.0313	0.0667	0.0954	0.1573	0.2041	0.2786	0.4081	0.6654	0.9054
175	0.0039	0.0068	0.0199	0.0556	0.0846	0.1470	0.1942	0.2693	0.4000	0.6598	0.9023
180	0.0000	0.0030	0.0161	0.0519	0.0809	0.1435	0.1909	0.2662	0.3973	0.6579	0.9012

RATIO OF MOTT TO RUTHERFORD SCATTERING IN AG, Z=47

ENERGY(MEV) ANGLE(DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0333	1.0332	1.0329	1.0321	1.0315	1.0301	1.0290	1.0271	1.0237	1.0162	1.0082
10	1.0769	1.0768	1.0762	1.0747	1.0735	1.0708	1.0686	1.0651	1.0584	1.0431	1.0255
15	1.1151	1.1149	1.1142	1.1122	1.1105	1.1069	1.1040	1.0991	1.0901	1.0685	1.0422
20	1.1539	1.1537	1.1529	1.1505	1.1486	1.1443	1.1408	1.1351	1.1243	1.0980	1.0644
25	1.1867	1.1865	1.1856	1.1831	1.1811	1.1764	1.1728	1.1666	1.1548	1.1257	1.0872
30	1.2151	1.2149	1.2141	1.2116	1.2096	1.2049	1.2013	1.1950	1.1830	1.1524	1.1105
35	1.2362	1.2360	1.2352	1.2330	1.2311	1.2269	1.2234	1.2176	1.2060	1.1759	1.1329
40	1.2505	1.2503	1.2497	1.2478	1.2463	1.2427	1.2397	1.2346	1.2243	1.1959	1.1532
45	1.2565	1.2564	1.2560	1.2547	1.2536	1.2510	1.2488	1.2449	1.2365	1.2116	1.1713
50	1.2546	1.2545	1.2544	1.2539	1.2534	1.2521	1.2509	1.2485	1.2427	1.2227	1.1862
55	1.2442	1.2442	1.2444	1.2448	1.2451	1.2454	1.2454	1.2450	1.2425	1.2290	1.1980
60	1.2255	1.2257	1.2263	1.2278	1.2289	1.2312	1.2327	1.2345	1.2360	1.2303	1.2063
65	1.1987	1.1989	1.2000	1.2028	1.2050	1.2094	1.2126	1.2171	1.2232	1.2267	1.2112
70	1.1640	1.1644	1.1659	1.1702	1.1735	1.1805	1.1855	1.1930	1.2044	1.2183	1.2126
75	1.1220	1.1224	1.1246	1.1304	1.1350	1.1447	1.1518	1.1626	1.1798	1.2054	1.2109
80	1.0730	1.0736	1.0764	1.0839	1.0899	1.1026	1.1119	1.1263	1.1499	1.1883	1.2062
85	1.0179	1.0187	1.0221	1.0314	1.0389	1.0547	1.0665	1.0848	1.1151	1.1673	1.1986
90	0.9573	0.9583	0.9624	0.9736	0.9826	1.0019	1.0162	1.0386	1.0761	1.1430	1.1888
95	0.8922	0.8933	0.8982	0.9114	0.9220	0.9448	0.9618	0.9884	1.0334	1.1157	1.1766
100	0.8234	0.8246	0.8302	0.8455	0.8578	0.8842	0.9040	0.9351	0.9879	1.0861	1.1630
105	0.7518	0.7532	0.7596	0.7770	0.7910	0.8211	0.8437	0.8792	0.9400	1.0545	1.1477
110	0.6785	0.6801	0.6873	0.7068	0.7225	0.7563	0.7817	0.8219	0.8907	1.0218	1.1316
115	0.6045	0.6063	0.6142	0.6358	0.6533	0.6908	0.7190	0.7637	0.8405	0.9882	1.1147
120	0.5308	0.5328	0.5414	0.5651	0.5843	0.6255	0.6565	0.7057	0.7904	0.9545	1.0977
125	0.4585	0.4606	0.4700	0.4957	0.5165	0.5613	0.5950	0.6486	0.7410	0.9210	1.0804
130	0.3885	0.3908	0.4009	0.4286	0.4510	0.4992	0.5355	0.5933	0.6932	0.8887	1.0638
135	0.3219	0.3243	0.3351	0.3646	0.3885	0.4399	0.4788	0.5405	0.6474	0.8575	1.0476
140	0.2595	0.2620	0.2734	0.3047	0.3300	0.3845	0.4256	0.4911	0.6046	0.8284	1.0325
145	0.2022	0.2049	0.2169	0.2497	0.2762	0.3335	0.3768	0.4456	0.5652	0.8015	1.0185
150	0.1508	0.1536	0.1661	0.2003	0.2281	0.2878	0.3330	0.4049	0.5298	0.7774	1.0060
155	0.1061	0.1090	0.1220	0.1574	0.1861	0.2480	0.2948	0.3694	0.4990	0.7563	0.9949
160	0.0686	0.0716	0.0849	0.1214	0.1509	0.2147	0.2629	0.3396	0.4731	0.7387	0.9858
165	0.0389	0.0420	0.0556	0.0929	0.1231	0.1882	0.2375	0.3160	0.4527	0.7247	0.9784
170	0.0174	0.0205	0.0344	0.0722	0.1029	0.1691	0.2191	0.2989	0.4378	0.7145	0.9731
175	0.0044	0.0075	0.0215	0.0597	0.0907	0.1575	0.2081	0.2886	0.4289	0.7084	0.9700
180	0.0000	0.0032	0.0172	0.0555	0.0866	0.1536	0.2043	0.2851	0.4258	0.7064	0.9691

RATIO OF MOTT TO RUTHERFORD SCATTERING IN SN, Z=50

ENERGY (MEV) / ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0339	1.0338	1.0335	1.0326	1.0319	1.0304	1.0292	1.0272	1.0236	1.0156	1.0075
10	1.0799	1.0798	1.0792	1.0775	1.0762	1.0731	1.0708	1.0668	1.0596	1.0429	1.0244
15	1.1211	1.1209	1.1201	1.1178	1.1160	1.1118	1.1086	1.1032	1.0930	1.0691	1.0405
20	1.1641	1.1639	1.1629	1.1603	1.1580	1.1531	1.1492	1.1427	1.1303	1.1005	1.0632
25	1.2016	1.2014	1.2003	1.1974	1.1950	1.1896	1.1854	1.1782	1.1646	1.1310	1.0875
30	1.2352	1.2350	1.2339	1.2310	1.2285	1.2230	1.2186	1.2112	1.1969	1.1611	1.1128
35	1.2615	1.2613	1.2603	1.2576	1.2552	1.2500	1.2457	1.2386	1.2245	1.1884	1.1380
40	1.2811	1.2809	1.2800	1.2776	1.2755	1.2708	1.2670	1.2605	1.2474	1.2124	1.1614
45	1.2922	1.2920	1.2914	1.2895	1.2879	1.2841	1.2810	1.2755	1.2642	1.2323	1.1830
50	1.2950	1.2949	1.2945	1.2933	1.2923	1.2898	1.2876	1.2836	1.2747	1.2474	1.2013
55	1.2888	1.2888	1.2887	1.2885	1.2882	1.2873	1.2863	1.2842	1.2786	1.2575	1.2166
60	1.2738	1.2739	1.2742	1.2751	1.2757	1.2767	1.2771	1.2773	1.2757	1.2623	1.2282
65	1.2499	1.2501	1.2509	1.2530	1.2547	1.2579	1.2601	1.2630	1.2660	1.2620	1.2363
70	1.2175	1.2178	1.2191	1.2227	1.2255	1.2313	1.2358	1.2413	1.2498	1.2564	1.2408
75	1.1769	1.1773	1.1792	1.1844	1.1886	1.1972	1.2034	1.2128	1.2272	1.2459	1.2418
80	1.1286	1.1292	1.1317	1.1387	1.1443	1.1560	1.1646	1.1777	1.1987	1.2308	1.2396
85	1.0734	1.0741	1.0774	1.0862	1.0933	1.1084	1.1195	1.1367	1.1648	1.2113	1.2342
90	1.0119	1.0128	1.0168	1.0277	1.0368	1.0550	1.0689	1.0904	1.1261	1.1882	1.2264
95	0.9452	0.9463	0.9510	0.9640	0.9745	0.9968	1.0134	1.0394	1.0831	1.1615	1.2160
100	0.8741	0.8753	0.8809	0.8961	0.9083	0.9345	0.9541	0.9848	1.0368	1.1323	1.2039
105	0.7997	0.8011	0.8075	0.8249	0.8389	0.8690	0.8916	0.9271	0.9876	1.1006	1.1898
110	0.7230	0.7246	0.7318	0.7515	0.7674	0.8015	0.8271	0.8676	0.9367	1.0676	1.1748
115	0.6452	0.6470	0.6550	0.6770	0.6947	0.7328	0.7615	0.8068	0.8845	1.0333	1.1587
120	0.5674	0.5694	0.5783	0.6025	0.6220	0.6641	0.6958	0.7459	0.8323	0.9989	1.1425
125	0.4908	0.4929	0.5026	0.5290	0.5503	0.5962	0.6308	0.6857	0.7804	0.9644	1.1258
130	0.4164	0.4187	0.4292	0.4576	0.4807	0.5304	0.5678	0.6273	0.7301	0.9310	1.1197
135	0.3453	0.3478	0.3590	0.3895	0.4142	0.4673	0.5075	0.5713	0.6817	0.8986	1.0939
140	0.2787	0.2813	0.2932	0.3255	0.3517	0.4082	0.4509	0.5187	0.6368	0.8684	1.0791
145	0.2173	0.2201	0.2326	0.2666	0.2943	0.3538	0.3987	0.4703	0.5945	0.8403	1.0653
150	0.1623	0.1652	0.1782	0.2138	0.2427	0.3049	0.3519	0.4268	0.5570	0.8151	1.0530
155	0.1142	0.1172	0.1307	0.1677	0.1976	0.2622	0.3110	0.3888	0.5241	0.7930	1.0421
160	0.0739	0.0770	0.0909	0.1290	0.1599	0.2264	0.2768	0.3570	0.4966	0.7745	1.0330
165	0.0420	0.0451	0.0594	0.0983	0.1299	0.1980	0.2496	0.3317	0.4748	0.7598	1.0258
170	0.0188	0.0220	0.0365	0.0760	0.1082	0.1774	0.2298	0.3133	0.4588	0.7491	1.0205
175	0.0048	0.0080	0.0227	0.0626	0.0951	0.1650	0.2179	0.3023	0.4494	0.7428	1.0174
180	0.0000	0.0033	0.0180	0.0581	0.0906	0.1608	0.2139	0.2985	0.4461	0.7406	1.0165

RATIO OF MOTT TO RUTHERFORD SCATTERING IN CS, Z=55

ENERGY (MEV) / ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0342	1.0341	1.0338	1.0328	1.0320	1.0303	1.0290	1.0268	1.0228	1.0143	1.0064
10	1.0836	1.0835	1.0828	1.0808	1.0793	1.0757	1.0730	1.0685	1.0602	1.0415	1.0222
15	1.1292	1.1290	1.1280	1.1254	1.1231	1.1182	1.1143	1.1079	1.0959	1.0680	1.0368
20	1.1791	1.1789	1.1777	1.1744	1.1717	1.1656	1.1608	1.1529	1.1378	1.1021	1.0589
25	1.2246	1.2243	1.2230	1.2198	1.2163	1.2095	1.2042	1.1952	1.1781	1.1368	1.0848
30	1.2673	1.2670	1.2656	1.2618	1.2586	1.2514	1.2457	1.2361	1.2177	1.1723	1.1130
35	1.3033	1.3030	1.3016	1.2978	1.2946	1.2875	1.2817	1.2721	1.2534	1.2063	1.1426
40	1.3326	1.3323	1.3311	1.3275	1.3245	1.3176	1.3122	1.3029	1.2846	1.2373	1.1711
45	1.3534	1.3531	1.3520	1.3489	1.3462	1.3402	1.3353	1.3269	1.3100	1.2687	1.1986
50	1.3653	1.3651	1.3642	1.3617	1.3596	1.3547	1.3507	1.3435	1.3298	1.2873	1.2231
55	1.3675	1.3674	1.3668	1.3652	1.3638	1.3605	1.3575	1.3522	1.3406	1.3048	1.2489
60	1.3598	1.3598	1.3596	1.3591	1.3586	1.3572	1.3557	1.3526	1.3449	1.3166	1.2628
65	1.3421	1.3422	1.3425	1.3433	1.3439	1.3447	1.3449	1.3446	1.3416	1.3226	1.2771
70	1.3145	1.3147	1.3156	1.3179	1.3197	1.3231	1.3254	1.3283	1.3308	1.3229	1.2875
75	1.2773	1.2776	1.2792	1.2832	1.2863	1.2928	1.2973	1.3037	1.3126	1.3174	1.2940
80	1.2310	1.2315	1.2337	1.2396	1.2443	1.2540	1.2610	1.2716	1.2875	1.3066	1.2969
85	1.1761	1.1768	1.1798	1.1877	1.1941	1.2074	1.2172	1.2321	1.2557	1.2905	1.2962
90	1.1137	1.1145	1.1183	1.1284	1.1368	1.1538	1.1665	1.1862	1.2182	1.2701	1.2926
95	1.0444	1.0454	1.0500	1.0625	1.0726	1.0939	1.1097	1.1344	1.1752	1.2453	1.2859
100	0.9696	0.9708	0.9763	0.9912	1.0032	1.0289	1.0480	1.0779	1.1280	1.2173	1.2771
105	0.8901	0.8915	0.8979	0.9153	0.9294	0.9595	0.9819	1.0172	1.0769	1.1860	1.2660
110	0.8074	0.8091	0.8164	0.8364	0.8526	0.8871	0.9131	0.9539	1.0234	1.1529	1.2536
115	0.7227	0.7245	0.7328	0.7553	0.7736	0.8127	0.8421	0.8885	0.9678	1.1179	1.2397
120	0.6374	0.6394	0.6486	0.6737	0.6941	0.7377	0.7706	0.8225	0.9116	1.0825	1.2254
125	0.5526	0.5548	0.5650	0.5926	0.6150	0.6630	0.6993	0.7567	0.8556	1.0465	1.2104
130	0.4700	0.4724	0.4834	0.5135	0.5378	0.5902	0.6298	0.6925	0.8008	1.0115	1.1958
135	0.3905	0.3931	0.4050	0.4374	0.4636	0.5201	0.5627	0.6305	0.7477	0.9772	1.1811
140	0.3157	0.3186	0.3312	0.3658	0.3938	0.4541	0.4997	0.5722	0.6978	0.9451	1.1674
145	0.2466	0.2496	0.2630	0.2995	0.3291	0.3930	0.4413	0.5181	0.6515	0.9150	1.1544
150	0.1844	0.1875	0.2015	0.2399	0.2710	0.3380	0.3887	0.4695	0.6098	0.8880	1.1428
155	0.1299	0.1332	0.1478	0.1877	0.2201	0.2899	0.3427	0.4268	0.5733	0.8643	1.1325
160	0.0842	0.0875	0.1026	0.1438	0.1773	0.2494	0.3040	0.3910	0.5425	0.8443	1.1239
165	0.0478	0.0513	0.0667	0.1090	0.1433	0.2172	0.2732	0.3625	0.5181	0.8284	1.1170
170	0.0214	0.0249	0.0406	0.0836	0.1185	0.1938	0.2508	0.3417	0.5003	0.8168	1.1120
175	0.0055	0.0090	0.0249	0.0684	0.1037	0.1798	0.2374	0.3294	0.4897	0.8100	1.1090
180	0.0000	0.0036	0.0195	0.0632	0.0986	0.1750	0.2328	0.3251	0.4860	0.8077	1.1083

RATIO OF MOTT TO RUTHERFORD SCATTERING IN ND, Z=60

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0338	1.0337	1.0333	1.0323	1.0314	1.0295	1.0281	1.0257	1.0215	1.0128	1.0054
10	1.0856	1.0854	1.0846	1.0824	1.0806	1.0766	1.0736	1.0685	1.0592	1.0392	1.0201
15	1.1347	1.1344	1.1333	1.1302	1.1276	1.1218	1.1173	1.1098	1.0960	1.0647	1.0314
20	1.1910	1.1907	1.1893	1.1853	1.1820	1.1748	1.1690	1.1596	1.1417	1.1001	1.0521
25	1.2445	1.2442	1.2425	1.2380	1.2343	1.2259	1.2194	1.2084	1.1876	1.1382	1.0784
30	1.2968	1.2964	1.2947	1.2898	1.2857	1.2766	1.2694	1.2574	1.2344	1.1786	1.1082
35	1.3434	1.3430	1.3412	1.3362	1.3320	1.3226	1.3152	1.3027	1.2787	1.2192	1.1416
40	1.3838	1.3834	1.3816	1.3767	1.3725	1.3633	1.3559	1.3434	1.3191	1.2576	1.1748
45	1.4158	1.4154	1.4138	1.4092	1.4053	1.3966	1.3896	1.3777	1.3542	1.2934	1.2084
50	1.4385	1.4382	1.4368	1.4328	1.4294	1.4216	1.4153	1.4044	1.3827	1.3244	1.2394
55	1.4510	1.4508	1.4496	1.4464	1.4437	1.4374	1.4321	1.4229	1.4039	1.3505	1.2683
60	1.4526	1.4525	1.4517	1.4496	1.4477	1.4432	1.4394	1.4323	1.4171	1.3706	1.2935
65	1.4430	1.4429	1.4427	1.4419	1.4411	1.4389	1.4367	1.4325	1.4219	1.3846	1.3151
70	1.4220	1.4221	1.4224	1.4231	1.4236	1.4241	1.4241	1.4231	1.4182	1.3921	1.3325
75	1.3898	1.3900	1.3910	1.3935	1.3954	1.3991	1.4014	1.4042	1.4060	1.3932	1.3458
80	1.3467	1.3471	1.3488	1.3534	1.3569	1.3641	1.3692	1.3763	1.3857	1.3881	1.3552
85	1.2933	1.2939	1.2964	1.3032	1.3086	1.3197	1.3277	1.3396	1.3573	1.3768	1.3604
90	1.2306	1.2313	1.2348	1.2440	1.2513	1.2667	1.2780	1.2951	1.3220	1.3604	1.3624
95	1.1592	1.1602	1.1645	1.1763	1.1858	1.2057	1.2204	1.2431	1.2799	1.3386	1.3608
100	1.0807	1.0819	1.0872	1.1018	1.1134	1.1383	1.1566	1.1852	1.2325	1.3128	1.3566
105	0.9959	0.9973	1.0037	1.0211	1.0351	1.0649	1.0871	1.1218	1.1799	1.2828	1.3497
110	0.9068	0.9084	0.9159	0.9362	0.9525	0.9875	1.0136	1.0547	1.1241	1.2504	1.3410
115	0.8142	0.8161	0.8246	0.8478	0.8666	0.9068	0.9369	0.9844	1.0651	1.2154	1.3306
120	0.7203	0.7225	0.7321	0.7583	0.7794	0.8249	0.8590	0.9129	1.0052	1.1794	1.3193
125	0.6262	0.6286	0.6392	0.6683	0.6919	0.7425	0.7805	0.8408	0.9443	1.1423	1.3070
130	0.5340	0.5366	0.5483	0.5802	0.6061	0.6617	0.7036	0.7701	0.8846	1.1059	1.2946
135	0.4446	0.4475	0.4601	0.4948	0.5229	0.5833	0.6289	0.7013	0.8264	1.0699	1.2822
140	0.3603	0.3633	0.3769	0.4141	0.4443	0.5092	0.5583	0.6363	0.7714	1.0360	1.2702
145	0.2818	0.2851	0.2995	0.3391	0.3712	0.4403	0.4925	0.5757	0.7200	1.0040	1.2589
150	0.2111	0.2145	0.2297	0.2714	0.3052	0.3781	0.4332	0.5210	0.6736	0.9753	1.2486
155	0.1489	0.1525	0.1684	0.2119	0.2472	0.3234	0.3811	0.4729	0.6327	0.9498	1.2395
160	0.0966	0.1002	0.1167	0.1618	0.1984	0.2774	0.3371	0.4324	0.5983	0.9284	1.2318
165	0.0549	0.0587	0.0756	0.1220	0.1596	0.2407	0.3022	0.4002	0.5709	0.9113	1.2256
170	0.0245	0.0284	0.0456	0.0929	0.1312	0.2139	0.2766	0.3765	0.5509	0.8987	1.2211
175	0.0064	0.0103	0.0277	0.0755	0.1143	0.1980	0.2614	0.3626	0.5390	0.8914	1.2184
180	0.0000	0.0040	0.0215	0.0695	0.1084	0.1924	0.2561	0.3577	0.5349	0.8990	1.2176

RATIO OF MOTT TO RUTHERFORD SCATTERING IN TB, Z=65

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0327	1.0326	1.0322	1.0311	1.0302	1.0282	1.0267	1.0242	1.0199	1.0114	1.0048
10	1.0857	1.0855	1.0846	1.0822	1.0802	1.0758	1.0724	1.0669	1.0570	1.0363	1.0187
15	1.1371	1.1368	1.1355	1.1319	1.1289	1.1224	1.1173	1.1088	1.0933	1.0593	1.0262
20	1.1990	1.1986	1.1969	1.1923	1.1884	1.1799	1.1732	1.1622	1.1416	1.0945	1.0436
25	1.2603	1.2598	1.2579	1.2524	1.2479	1.2379	1.2300	1.2169	1.1923	1.1348	1.0687
30	1.3224	1.3219	1.3197	1.3136	1.3086	1.2974	1.2886	1.2738	1.2459	1.1792	1.0985
35	1.3803	1.3798	1.3775	1.3712	1.3658	1.3540	1.3446	1.3289	1.2989	1.2260	1.1347
40	1.4330	1.4325	1.4302	1.4237	1.4183	1.4062	1.3965	1.3803	1.3491	1.2719	1.1718
45	1.4780	1.4775	1.4753	1.4689	1.4637	1.4518	1.4423	1.4263	1.3951	1.3165	1.2111
50	1.5136	1.5132	1.5111	1.5052	1.5002	1.4891	1.4801	1.4648	1.4347	1.3568	1.2489
55	1.5386	1.5382	1.5364	1.5313	1.5269	1.5170	1.5089	1.4950	1.4672	1.3928	1.2853
60	1.5518	1.5515	1.5500	1.5459	1.5423	1.5341	1.5274	1.5155	1.4910	1.4226	1.3185
65	1.5526	1.5523	1.5514	1.5485	1.5460	1.5401	1.5350	1.5258	1.5060	1.4462	1.3484
70	1.5404	1.5403	1.5399	1.5386	1.5374	1.5343	1.5313	1.5255	1.5114	1.4627	1.3741
75	1.5151	1.5152	1.5155	1.5161	1.5164	1.5166	1.5161	1.5142	1.5071	1.4721	1.3955
80	1.4771	1.4774	1.4785	1.4813	1.4834	1.4873	1.4897	1.4925	1.4934	1.4745	1.4127
85	1.4266	1.4271	1.4290	1.4342	1.4383	1.4465	1.4522	1.4601	1.4701	1.4698	1.4256
90	1.3647	1.3654	1.3683	1.3762	1.3825	1.3954	1.4047	1.4184	1.4385	1.4589	1.4345
95	1.2919	1.2928	1.2968	1.3076	1.3162	1.3342	1.3474	1.3673	1.3985	1.4415	1.4396
100	1.2101	1.2112	1.2164	1.2303	1.2414	1.2649	1.2822	1.3088	1.3518	1.4193	1.4415
105	1.1199	1.1213	1.1276	1.1447	1.1585	1.1877	1.2093	1.2429	1.2984	1.3918	1.4404
110	1.0238	1.0255	1.0330	1.0535	1.0700	1.1051	1.1313	1.1722	1.2407	1.3611	1.4369
115	0.9225	0.9245	0.9333	0.9572	0.9764	1.0177	1.0485	1.0968	1.1785	1.3268	1.4313
120	0.8190	0.8212	0.8313	0.8586	0.8807	0.9281	0.9636	1.0195	1.1146	1.2910	1.4243
125	0.7141	0.7166	0.7279	0.7586	0.7835	0.8369	0.8770	0.9404	1.0488	1.2534	1.4161
130	0.6106	0.6134	0.6259	0.6600	0.6877	0.7470	0.7917	0.8624	0.9839	1.2160	1.4073
135	0.5097	0.5127	0.5264	0.5637	0.5940	0.6590	0.7080	0.7858	0.9199	1.1787	1.3982
140	0.4139	0.4172	0.4320	0.4724	0.5051	0.5756	0.6287	0.7132	0.8592	1.1432	1.3890
145	0.3244	0.3279	0.3437	0.3869	0.4219	0.4974	0.5543	0.6450	0.8020	1.1096	1.3803
150	0.2434	0.2471	0.2638	0.3096	0.3467	0.4266	0.4871	0.5833	0.7503	1.0791	1.3722
155	0.1719	0.1758	0.1934	0.2413	0.2802	0.3642	0.4276	0.5287	0.7045	1.0520	1.3650
160	0.1116	0.1157	0.1339	0.1837	0.2242	0.3114	0.3774	0.4827	0.6659	1.0291	1.3588
165	0.0636	0.0678	0.0865	0.1378	0.1795	0.2694	0.3375	0.4460	0.6351	1.0108	1.3538
170	0.0283	0.0326	0.0518	0.1042	0.1467	0.2386	0.3081	0.4190	0.6124	0.9973	1.3502
175	0.0074	0.0118	0.0312	0.0842	0.1273	0.2203	0.2908	0.4031	0.5991	0.9894	1.3479
180	0.0000	0.0044	0.0239	0.0772	0.1205	0.2139	0.2846	0.3975	0.5944	0.9869	1.3472

RATIO OF MOTT TO RUTHERFORD SCATTERING IN YB, Z=70

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0311	1.0310	1.0306	1.0295	1.0285	1.0265	1.0249	1.0224	1.0182	1.0102	1.0042
10	1.0840	1.0838	1.0829	1.0803	1.0781	1.0735	1.0699	1.0641	1.0537	1.0333	1.0184
15	1.1362	1.1358	1.1344	1.1304	1.1270	1.1197	1.1141	1.1048	1.0880	1.0526	1.0218
20	1.2023	1.2019	1.1999	1.1946	1.1902	1.1804	1.1728	1.1602	1.1370	1.0857	1.0344
25	1.2707	1.2702	1.2679	1.2614	1.2561	1.2443	1.2351	1.2198	1.1914	1.1265	1.0566
30	1.3424	1.3418	1.3392	1.3319	1.3258	1.3123	1.3017	1.2841	1.2509	1.1734	1.0846
35	1.4125	1.4118	1.4090	1.4010	1.3945	1.3798	1.3683	1.3490	1.3125	1.2257	1.1217
40	1.4786	1.4780	1.4750	1.4667	1.4598	1.4444	1.4322	1.4118	1.3729	1.2786	1.1515
45	1.5383	1.5377	1.5347	1.5263	1.5194	1.5038	1.4915	1.4707	1.4307	1.3323	1.2058
50	1.5890	1.5883	1.5854	1.5773	1.5705	1.5553	1.5432	1.5226	1.4828	1.3826	1.2499
55	1.6290	1.6284	1.6257	1.6182	1.6119	1.5976	1.5862	1.5667	1.5283	1.4296	1.2941
60	1.6564	1.6559	1.6536	1.6470	1.6414	1.6287	1.6183	1.6006	1.5650	1.4707	1.3359
65	1.6704	1.6700	1.6681	1.6627	1.6581	1.6476	1.6389	1.6236	1.5924	1.5056	1.3749
70	1.6697	1.6695	1.6682	1.6644	1.6612	1.6534	1.6468	1.6349	1.6093	1.5330	1.4101
75	1.6541	1.6539	1.6534	1.6516	1.6499	1.6456	1.6415	1.6337	1.6152	1.5527	1.4411
80	1.6235	1.6236	1.6238	1.6244	1.6246	1.6243	1.6233	1.6204	1.6104	1.5687	1.4677
85	1.5778	1.5781	1.5793	1.5825	1.5848	1.5892	1.5918	1.5945	1.5944	1.5685	1.4897
90	1.5184	1.5189	1.5212	1.5273	1.5321	1.5417	1.5482	1.5573	1.5684	1.5651	1.5075
95	1.4452	1.4460	1.4495	1.4589	1.4663	1.4816	1.4925	1.5085	1.5320	1.5540	1.5211
100	1.3607	1.3618	1.3666	1.3795	1.3897	1.4112	1.4269	1.4505	1.4874	1.5370	1.5308
105	1.2652	1.2665	1.2727	1.2893	1.3026	1.3306	1.3513	1.3830	1.4342	1.5136	1.5373
110	1.1618	1.1634	1.1710	1.1915	1.2080	1.2429	1.2688	1.3090	1.3752	1.4859	1.5408
115	1.0510	1.0530	1.0620	1.0865	1.1062	1.1483	1.1796	1.2285	1.3103	1.4535	1.5419
120	0.9366	0.9389	0.9494	0.9780	1.0010	1.0503	1.0871	1.1489	1.2425	1.4188	1.5408
125	0.8192	0.8219	0.8339	0.8665	0.8928	0.9493	0.9916	1.0583	1.1717	1.3815	1.5384
130	0.7028	0.7058	0.7192	0.7558	0.7854	0.8490	0.8967	0.9722	1.1012	1.3438	1.5346
135	0.5881	0.5914	0.6062	0.6467	0.6795	0.7498	0.8028	0.8867	1.0309	1.3057	1.5303
140	0.4788	0.4824	0.4986	0.5427	0.5785	0.6554	0.7133	0.8053	0.9638	1.2691	1.5253
145	0.3760	0.3799	0.3973	0.4448	0.4833	0.5663	0.6288	0.7283	0.9002	1.2340	1.5205
150	0.2826	0.2869	0.3053	0.3559	0.3969	0.4853	0.5521	0.6584	0.8424	1.2020	1.5156
155	0.2000	0.2043	0.2238	0.2771	0.3204	0.4136	0.4841	0.5962	0.7910	1.1734	1.5113
160	0.1300	0.1345	0.1548	0.2104	0.2555	0.3528	0.4264	0.5437	0.7474	1.1491	1.5074
165	0.0741	0.0788	0.0998	0.1572	0.2038	0.3043	0.3804	0.5017	0.7126	1.1297	1.5042
170	0.0330	0.0378	0.0593	0.1180	0.1657	0.2686	0.3465	0.4707	0.6870	1.1153	1.5020
175	0.0087	0.0136	0.0354	0.0949	0.1433	0.2476	0.3266	0.4525	0.6719	1.1068	1.5004
180	0.0001	0.0049	0.0268	0.0866	0.1352	0.2401	0.3195	0.4461	0.6667	1.1041	1.4995

RATIO OF MOTT TO RUTHERFORD SCATTERING IN HF, Z=72

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0304	1.0303	1.0299	1.0287	1.0278	1.0257	1.0242	1.0217	1.0175	1.0098	1.0040
10	1.0829	1.0827	1.0817	1.0791	1.0769	1.0721	1.0685	1.0626	1.0523	1.0323	1.0187
15	1.1348	1.1345	1.1330	1.1288	1.1254	1.1178	1.1120	1.1024	1.0853	1.0496	1.0205
20	1.2022	1.2017	1.1997	1.1941	1.1894	1.1792	1.1712	1.1581	1.1340	1.0814	1.0308
25	1.2731	1.2726	1.2701	1.2633	1.2576	1.2451	1.2354	1.2192	1.1893	1.1218	1.0513
30	1.3486	1.3479	1.3451	1.3372	1.3307	1.3163	1.3049	1.2861	1.2508	1.1692	1.0780
35	1.4235	1.4228	1.4197	1.4111	1.4040	1.3882	1.3757	1.3549	1.3157	1.2233	1.1149
40	1.4953	1.4946	1.4913	1.4823	1.4747	1.4579	1.4446	1.4224	1.3801	1.2788	1.1554
45	1.5614	1.5607	1.5574	1.5481	1.5404	1.5233	1.5096	1.4868	1.4430	1.3361	1.2012
50	1.6187	1.6179	1.6147	1.6056	1.5980	1.5810	1.5674	1.5445	1.5004	1.3906	1.2477
55	1.6655	1.6648	1.6618	1.6532	1.6460	1.6298	1.6168	1.5947	1.5517	1.4423	1.2949
60	1.6995	1.6989	1.6961	1.6884	1.6819	1.6671	1.6551	1.6347	1.5941	1.4882	1.3403
65	1.7196	1.7191	1.7168	1.7103	1.7047	1.6920	1.6817	1.6636	1.6272	1.5281	1.3831
70	1.7245	1.7242	1.7224	1.7175	1.7133	1.7034	1.6951	1.6803	1.6494	1.5605	1.4224
75	1.7136	1.7133	1.7123	1.7094	1.7068	1.7003	1.6946	1.6840	1.6602	1.5850	1.4576
80	1.6868	1.6867	1.6866	1.6860	1.6853	1.6830	1.6805	1.6749	1.6598	1.6015	1.4884
85	1.6437	1.6439	1.6448	1.6470	1.6485	1.6509	1.6520	1.6522	1.6473	1.6093	1.5146
90	1.5858	1.5863	1.5883	1.5935	1.5976	1.6055	1.6107	1.6175	1.6242	1.6095	1.5364
95	1.5129	1.5137	1.5169	1.5256	1.5324	1.5463	1.5561	1.5702	1.5898	1.6016	1.5540
100	1.4276	1.4287	1.4333	1.4456	1.4554	1.4759	1.4906	1.5128	1.5465	1.5872	1.5675
105	1.3300	1.3314	1.3374	1.3537	1.3667	1.3941	1.4142	1.4449	1.4937	1.5659	1.5776
110	1.2237	1.2253	1.2329	1.2533	1.2697	1.3044	1.3301	1.3698	1.4346	1.5399	1.5844
115	1.1089	1.1109	1.1200	1.1447	1.1646	1.2069	1.2383	1.2873	1.3687	1.5088	1.5888
120	0.9897	0.9921	1.0028	1.0319	1.0553	1.1053	1.1426	1.2011	1.2994	1.4748	1.5906
125	0.8669	0.8697	0.8819	0.9153	0.9423	1.0000	1.0433	1.1113	1.2266	1.4380	1.5911
130	0.7487	0.7478	0.7616	0.7993	0.8298	0.8951	0.9442	1.0216	1.1537	1.4004	1.5898
135	0.6239	0.6273	0.6426	0.6845	0.7183	0.7911	0.8458	0.9324	1.0808	1.3621	1.5880
140	0.5085	0.5122	0.5290	0.5708	0.6119	0.6917	0.7518	0.8470	1.0110	1.3252	1.5851
145	0.3996	0.4037	0.4218	0.4713	0.5114	0.5977	0.6628	0.7661	0.9446	1.2897	1.5823
150	0.3007	0.3050	0.3243	0.3771	0.4199	0.5122	0.5818	0.6925	0.8842	1.2572	1.5790
155	0.2128	0.2174	0.2378	0.2935	0.3387	0.4362	0.5098	0.6270	0.8302	1.2280	1.5762
160	0.1384	0.1431	0.1644	0.2227	0.2699	0.3718	0.4488	0.5715	0.7846	1.2033	1.5735
165	0.0790	0.0839	0.1059	0.1661	0.2150	0.3204	0.4001	0.5271	0.7480	1.1833	1.5713
170	0.0352	0.0402	0.0628	0.1244	0.1745	0.2824	0.3641	0.4944	0.7210	1.1687	1.5697
175	0.0093	0.0144	0.0373	0.0998	0.1506	0.2601	0.3430	0.4751	0.7051	1.1600	1.5685
180	0.0001	0.0052	0.0282	0.0910	0.1420	0.2521	0.3354	0.4683	0.6996	1.1571	1.5678

RATIO OF MOTT TO RUTHERFORD SCATTERING IN TA, Z=73

ENERGY(MEV) ANGLE(DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0300	1.0299	1.0295	1.0283	1.0274	1.0254	1.0238	1.0214	1.0172	1.0096	1.0039
10	1.0823	1.0821	1.0811	1.0784	1.0762	1.0714	1.0677	1.0618	1.0515	1.0318	1.0189
15	1.1339	1.1336	1.1321	1.1278	1.1243	1.1166	1.1107	1.1011	1.0837	1.0482	1.0200
20	1.2018	1.2013	1.1993	1.1935	1.1888	1.1783	1.1701	1.1567	1.1322	1.0791	1.0291
25	1.2739	1.2733	1.2708	1.2638	1.2580	1.2451	1.2351	1.2185	1.1879	1.1192	1.0486
30	1.3512	1.3505	1.3476	1.3395	1.3327	1.3178	1.3061	1.2866	1.2503	1.1667	1.0745
35	1.4285	1.4278	1.4246	1.4157	1.4083	1.3918	1.3789	1.3574	1.3168	1.2216	1.1112
40	1.5033	1.5025	1.4991	1.4896	1.4817	1.4642	1.4503	1.4272	1.3832	1.2784	1.1519
45	1.5726	1.5719	1.5684	1.5587	1.5506	1.5326	1.5183	1.4943	1.4486	1.3374	1.1984
50	1.6333	1.6326	1.6291	1.6195	1.6115	1.5935	1.5792	1.5551	1.5087	1.3940	1.2460
55	1.6838	1.6830	1.6798	1.6706	1.6630	1.6457	1.6319	1.6085	1.5630	1.4481	1.2947
60	1.7212	1.7206	1.7176	1.7093	1.7023	1.6864	1.6736	1.6517	1.6085	1.4965	1.3418
65	1.7446	1.7441	1.7416	1.7344	1.7284	1.7145	1.7033	1.6838	1.6445	1.5390	1.3866
70	1.7525	1.7521	1.7502	1.7446	1.7399	1.7288	1.7196	1.7034	1.6696	1.5741	1.4280
75	1.7441	1.7439	1.7427	1.7391	1.7360	1.7284	1.7218	1.7097	1.6831	1.6011	1.4654
80	1.7194	1.7194	1.7190	1.7179	1.7167	1.7133	1.7098	1.7028	1.6849	1.6199	1.4984
85	1.6779	1.6780	1.6787	1.6803	1.6814	1.6828	1.6831	1.6820	1.6744	1.6299	1.5269
90	1.6209	1.6213	1.6232	1.6279	1.6316	1.6386	1.6431	1.6486	1.6529	1.6321	1.5507
95	1.5483	1.5490	1.5521	1.5603	1.5668	1.5799	1.5891	1.6022	1.6197	1.6259	1.5705
100	1.4627	1.4637	1.4681	1.4802	1.4898	1.5096	1.5239	1.5452	1.5771	1.6130	1.5859
105	1.3641	1.3654	1.3714	1.3875	1.4003	1.4273	1.4471	1.4772	1.5247	1.5929	1.5981
110	1.2562	1.2579	1.2654	1.2858	1.3021	1.3367	1.3622	1.4015	1.4655	1.5678	1.6066
115	1.1393	1.1414	1.1505	1.1753	1.1952	1.2376	1.2691	1.3181	1.3992	1.5374	1.6128
120	1.0178	1.0202	1.0309	1.0602	1.0838	1.1342	1.1718	1.2306	1.3292	1.5039	1.5162
125	0.8921	0.8949	0.9073	0.9411	0.9684	1.0268	1.0705	1.1392	1.2554	1.4674	1.6183
130	0.7668	0.7700	0.7840	0.8223	0.8532	0.9195	0.9692	1.0477	1.1813	1.4299	1.6183
135	0.6428	0.6463	0.6619	0.7045	0.7389	0.8129	0.8685	0.9564	1.1071	1.3916	1.6179
140	0.5242	0.5280	0.5451	0.5918	0.6296	0.7109	0.7721	0.8691	1.0359	1.3545	1.6161
145	0.4122	0.4163	0.4348	0.4853	0.5262	0.6143	0.6807	0.7861	0.9680	1.3188	1.6144
150	0.3102	0.3146	0.3344	0.3884	0.4321	0.5264	0.5975	0.7106	0.9062	1.2861	1.6121
155	0.2197	0.2243	0.2452	0.3022	0.3485	0.4482	0.5235	0.6433	0.8510	1.2567	1.6101
160	0.1429	0.1477	0.1696	0.2292	0.2776	0.3819	0.4607	0.5863	0.8042	1.2317	1.6080
165	0.0815	0.0866	0.1091	0.1708	0.2209	0.3288	0.4105	0.5406	0.7667	1.2116	1.6064
170	0.0363	0.0415	0.0646	0.1278	0.1791	0.2897	0.3735	0.5069	0.7390	1.1968	1.6052
175	0.0097	0.0149	0.0383	0.1024	0.1545	0.2667	0.3517	0.4871	0.7227	1.1879	1.6042
180	0.0001	0.0053	0.0289	0.0933	0.1456	0.2585	0.3439	0.4801	0.7170	1.1851	1.6035

RATIO OF MOTT TO RUTHERFORD SCATTERING IN W, Z=74

ENERGY(MEV) ANGLE(DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0296	1.0295	1.0291	1.0280	1.0270	1.0250	1.0234	1.0210	1.0169	1.0095	1.0038
10	1.0816	1.0814	1.0804	1.0777	1.0754	1.0706	1.0669	1.0610	1.0507	1.0314	1.0192
15	1.1329	1.1326	1.1310	1.1267	1.1231	1.1154	1.1094	1.0996	1.0821	1.0467	1.0195
20	1.2012	1.2007	1.1986	1.1927	1.1879	1.1771	1.1688	1.1552	1.1303	1.0767	1.0274
25	1.2744	1.2738	1.2712	1.2640	1.2580	1.2448	1.2345	1.2176	1.1862	1.1164	1.0459
30	1.3534	1.3528	1.3497	1.3413	1.3344	1.3189	1.3069	1.2868	1.2495	1.1640	1.0709
35	1.4333	1.4325	1.4292	1.4199	1.4122	1.3952	1.3818	1.3594	1.3175	1.2196	1.1072
40	1.5109	1.5101	1.5065	1.4966	1.4884	1.4701	1.4557	1.4316	1.3859	1.2775	1.1480
45	1.5836	1.5828	1.5791	1.5690	1.5605	1.5416	1.5267	1.5016	1.4538	1.3383	1.1952
50	1.6479	1.6471	1.6434	1.6333	1.6248	1.6059	1.5908	1.5655	1.5168	1.3969	1.2439
55	1.7020	1.7012	1.6977	1.6880	1.6798	1.6615	1.6469	1.6222	1.5741	1.4535	1.2941
60	1.7431	1.7424	1.7392	1.7302	1.7227	1.7056	1.6920	1.6686	1.6227	1.5045	1.3429
65	1.7699	1.7693	1.7666	1.7588	1.7522	1.7372	1.7250	1.7039	1.6618	1.5497	1.3898
70	1.7810	1.7805	1.7783	1.7721	1.7668	1.7545	1.7444	1.7266	1.6899	1.5874	1.4333
75	1.7753	1.7750	1.7735	1.7693	1.7656	1.7568	1.7493	1.7356	1.7061	1.6170	1.4729
80	1.7528	1.7527	1.7521	1.7503	1.7486	1.7441	1.7397	1.7312	1.7104	1.6384	1.5081
85	1.7129	1.7130	1.7134	1.7145	1.7151	1.7154	1.7149	1.7123	1.7020	1.6507	1.5389
90	1.6569	1.6573	1.6590	1.6632	1.6664	1.6724	1.6762	1.6804	1.6822	1.6550	1.5650
95	1.5846	1.5853	1.5882	1.5961	1.6022	1.6145	1.6230	1.6350	1.6502	1.6506	1.5869
100	1.4987	1.4997	1.5041	1.5158	1.5251	1.5443	1.5581	1.5784	1.6085	1.6392	1.6044
105	1.3992	1.4005	1.4064	1.4223	1.4350	1.4616	1.4809	1.5104	1.5565	1.6204	1.6186
110	1.2898	1.2915	1.2990	1.3193	1.3356	1.3699	1.3953	1.4343	1.4973	1.5963	1.6291
115	1.1709	1.1729	1.1821	1.2069	1.2269	1.2694	1.3009	1.3498	1.4306	1.5667	1.6371
120	1.0468	1.0492	1.0601	1.0896	1.1134	1.1641	1.2019	1.2611	1.3599	1.5337	1.6422
125	0.9182	0.9211	0.9336	0.9678	0.9954	1.0544	1.0986	1.1680	1.2851	1.4976	1.6460
130	0.7898	0.7930	0.8073	0.8461	0.8775	0.9447	0.9951	1.0746	1.2099	1.4602	1.6475
135	0.6625	0.6660	0.6819	0.7252	0.7602	0.8354	0.8920	0.9814	1.1342	1.4220	1.6485
140	0.5405	0.5444	0.5619	0.6095	0.6480	0.7308	0.7932	0.8919	1.0616	1.3848	1.6479
145	0.4252	0.4294	0.4483	0.4999	0.5417	0.6316	0.6993	0.8069	0.9922	1.3490	1.6474
150	0.3202	0.3247	0.3449	0.4001	0.4448	0.5411	0.6139	0.7294	0.9290	1.3160	1.6461
155	0.2268	0.2315	0.2529	0.3113	0.3586	0.4606	0.5377	0.6602	0.8725	1.2864	1.6450
160	0.1475	0.1525	0.1749	0.2360	0.2855	0.3923	0.4731	0.6016	0.8245	1.2612	1.6436
165	0.0842	0.0894	0.1125	0.1757	0.2270	0.3377	0.4214	0.5546	0.7860	1.2408	1.6426
170	0.0375	0.0428	0.0665	0.1313	0.1839	0.2974	0.3832	0.5199	0.7576	1.2259	1.6418
175	0.0100	0.0153	0.0394	0.1051	0.1585	0.2736	0.3607	0.4996	0.7409	1.2169	1.6410
180	0.0001	0.0055	0.0296	0.0957	0.1494	0.2651	0.3527	0.4923	0.7351	1.2140	1.6403

RATIO OF MOTT TO RUTHERFORD SCATTERING IN AU, Z=79

ENERGY(MEV) ANGLE(DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0277	1.0276	1.0272	1.0260	1.0251	1.0231	1.0217	1.0194	1.0156	1.0089	1.0029
10	1.0774	1.0772	1.0762	1.0734	1.0712	1.0663	1.0627	1.0569	1.0470	1.0299	1.0212
15	1.1258	1.1255	1.1238	1.1192	1.1155	1.1073	1.1010	1.0909	1.0732	1.0396	1.0188
20	1.1948	1.1942	1.1919	1.1854	1.1801	1.1683	1.1593	1.1446	1.1181	1.0638	1.0202
25	1.2723	1.2717	1.2687	1.2605	1.2538	1.2389	1.2274	1.2085	1.1740	1.1001	1.0328
30	1.3594	1.3586	1.3550	1.3452	1.3372	1.3193	1.3054	1.2824	1.2401	1.1462	1.0518
35	1.4512	1.4503	1.4463	1.4353	1.4261	1.4059	1.3900	1.3638	1.3150	1.2041	1.0849
40	1.5436	1.5426	1.5383	1.5262	1.5161	1.4939	1.4764	1.4474	1.3930	1.2670	1.1248
45	1.6340	1.6330	1.6284	1.6156	1.6050	1.5815	1.5629	1.5320	1.4736	1.3360	1.1739
50	1.7174	1.7163	1.7116	1.6985	1.6876	1.6634	1.6442	1.6121	1.5511	1.4049	1.2271
55	1.7917	1.7907	1.7861	1.7731	1.7623	1.7380	1.7189	1.6866	1.6247	1.4738	1.2839
60	1.8531	1.8521	1.8476	1.8352	1.8248	1.8014	1.7828	1.7513	1.6903	1.5385	1.3315
65	1.8996	1.8987	1.8946	1.8831	1.8735	1.8518	1.8344	1.8048	1.7466	1.5982	1.3983
70	1.9288	1.9281	1.9245	1.9146	1.9062	1.8870	1.8715	1.8448	1.7914	1.6507	1.4530
75	1.9392	1.9386	1.9358	1.9279	1.9211	1.9054	1.8925	1.8698	1.8234	1.6949	1.5045
80	1.9303	1.9298	1.9280	1.9226	1.9178	1.9066	1.8970	1.8795	1.8421	1.7303	1.5520
85	1.9005	1.9004	1.8996	1.8973	1.8950	1.8891	1.8835	1.8725	1.8461	1.7558	1.5953
90	1.8516	1.8518	1.8523	1.8535	1.8541	1.8584	1.8535	1.8500	1.8367	1.7721	1.6337
95	1.7824	1.7829	1.7849	1.7901	1.7940	1.8013	1.8059	1.8110	1.8128	1.7786	1.6680
100	1.6962	1.6970	1.7007	1.7103	1.7179	1.7331	1.7435	1.7582	1.7768	1.7765	1.5974
105	1.5924	1.5936	1.5990	1.6135	1.6250	1.6487	1.6657	1.6909	1.7280	1.7658	1.7234
110	1.4757	1.4773	1.4846	1.5042	1.5199	1.5528	1.5767	1.6130	1.6698	1.7480	1.7448
115	1.3459	1.3479	1.3572	1.3823	1.4023	1.4448	1.4760	1.5241	1.6019	1.7236	1.7638
120	1.2086	1.2111	1.2224	1.2530	1.2776	1.3299	1.3687	1.4289	1.5281	1.6943	1.7788
125	1.0643	1.0673	1.0806	1.1168	1.1461	1.2083	1.2548	1.3273	1.4485	1.6610	1.7925
130	0.9188	0.9222	0.9376	0.9794	1.0132	1.0854	1.1394	1.2242	1.3672	1.6251	1.8028
135	0.7730	0.7769	0.7942	0.8416	0.8798	0.9617	1.0232	1.1200	1.2845	1.5879	1.8123
140	0.6326	0.6369	0.6561	0.7087	0.7512	0.8424	0.9110	1.0192	1.2042	1.5506	1.8193
145	0.4988	0.5035	0.5245	0.5820	0.6285	0.7284	0.8037	0.9228	1.1270	1.5145	1.8259
150	0.3764	0.3814	0.4041	0.4660	0.5162	0.6241	0.7054	0.8343	1.0561	1.4807	1.8306
155	0.2670	0.2724	0.2965	0.3624	0.4158	0.5307	0.6174	0.7550	0.9925	1.4502	1.8349
160	0.1740	0.1797	0.2050	0.2742	0.3303	0.4512	0.5425	0.6875	0.9382	1.4240	1.8380
165	0.0994	0.1053	0.1316	0.2035	0.2618	0.3875	0.4824	0.6333	0.8945	1.4028	1.8404
170	0.0443	0.0503	0.0774	0.1512	0.2111	0.3403	0.4379	0.5931	0.8622	1.3872	1.8422
175	0.0118	0.0180	0.0454	0.1204	0.1813	0.3125	0.4117	0.5695	0.8431	1.3776	1.8429
180	0.0001	0.0062	0.0338	0.1093	0.1706	0.3026	0.4023	0.5611	0.8365	1.3744	1.8423

RATIO OF MOTT TO RUTHERFORD SCATTERING IN PB, Z=82

ENERGY(MEV) ANGLE(DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0265	1.0265	1.0260	1.0249	1.0241	1.0222	1.0208	1.0186	1.0150	1.0086	1.0022
10	1.0745	1.0742	1.0732	1.0705	1.0683	1.0635	1.0600	1.0544	1.0450	1.0297	1.0229
15	1.1201	1.1197	1.1180	1.1133	1.1095	1.1012	1.0949	1.0848	1.0674	1.0359	1.0197
20	1.1881	1.1875	1.1851	1.1783	1.1727	1.1605	1.1512	1.1361	1.1092	1.0558	1.0172
25	1.2671	1.2664	1.2633	1.2545	1.2474	1.2316	1.2194	1.1996	1.1637	1.0888	1.0257
30	1.3580	1.3572	1.3533	1.3427	1.3340	1.3147	1.2997	1.2752	1.2301	1.1326	1.0400
35	1.4566	1.4557	1.4513	1.4391	1.4291	1.4069	1.3896	1.3610	1.3082	1.1906	1.0698
40	1.5579	1.5568	1.5520	1.5385	1.5273	1.5026	1.4832	1.4511	1.3918	1.2554	1.1078
45	1.6595	1.6583	1.6531	1.6387	1.6267	1.6001	1.5793	1.5446	1.4795	1.3296	1.1568
50	1.7554	1.7542	1.7488	1.7337	1.7212	1.6934	1.6715	1.6350	1.5661	1.4039	1.2118
55	1.8434	1.8422	1.8368	1.8216	1.8090	1.7808	1.7585	1.7212	1.6502	1.4798	1.2719
60	1.9188	1.9176	1.9123	1.8974	1.8850	1.8572	1.8352	1.7981	1.7270	1.5532	1.3343
65	1.9791	1.9780	1.9730	1.9590	1.9473	1.9209	1.8999	1.8642	1.7951	1.6223	1.3971
70	2.0216	2.0206	2.0161	2.0035	1.9929	1.9688	1.9495	1.9165	1.8516	1.6847	1.4588
75	2.0439	2.0430	2.0393	2.0286	2.0196	1.9990	1.9822	1.9531	1.8948	1.7390	1.5179
80	2.0452	2.0446	2.0418	2.0337	2.0268	2.0106	1.9972	1.9734	1.9239	1.7841	1.5734
85	2.0237	2.0233	2.0217	2.0168	2.0124	2.0018	1.9925	1.9753	1.9372	1.8191	1.6252
90	1.9807	1.9807	1.9804	1.9792	1.9779	1.9738	1.9695	1.9602	1.9358	1.8441	1.6719
95	1.9149	1.9151	1.9164	1.9196	1.9218	1.9253	1.9267	1.9266	1.9182	1.8586	1.7189
100	1.8295	1.8302	1.8332	1.8412	1.8474	1.8593	1.8672	1.8774	1.8871	1.8635	1.7526
105	1.7238	1.7249	1.7299	1.7432	1.7536	1.7750	1.7900	1.8116	1.8415	1.8590	1.7870
110	1.6028	1.6044	1.6114	1.6304	1.6455	1.6768	1.6995	1.7334	1.7848	1.8463	1.8163
115	1.4663	1.4684	1.4776	1.5026	1.5225	1.5645	1.5953	1.6422	1.7168	1.8263	1.8433
120	1.3205	1.3230	1.3345	1.3657	1.3907	1.4437	1.4828	1.5432	1.6416	1.8002	1.8657
125	1.1657	1.1688	1.1826	1.2201	1.2503	1.3144	1.3621	1.4363	1.5596	1.7694	1.8866
130	1.0087	1.0123	1.0283	1.0721	1.1074	1.1828	1.2390	1.3269	1.4743	1.7352	1.9035
135	0.8503	0.8544	0.8728	0.9228	0.9631	1.0494	1.1140	1.2156	1.3873	1.6992	1.9195
140	0.6971	0.7017	0.7222	0.7781	0.8233	0.9201	0.9928	1.1073	1.3021	1.6624	1.9322
145	0.5505	0.5556	0.5781	0.6396	0.6893	0.7961	0.8763	1.0031	1.2198	1.6266	1.9442
150	0.4160	0.4214	0.4458	0.5124	0.5663	0.6821	0.7692	0.9072	1.1439	1.5926	1.9535
155	0.2955	0.3013	0.3273	0.3984	0.4560	0.5798	0.6731	0.8210	1.0754	1.5619	1.9620
160	0.1927	0.1988	0.2263	0.3042	0.3619	0.4925	0.5910	0.7474	1.0169	1.5353	1.9685
165	0.1102	0.1166	0.1451	0.2231	0.2863	0.4223	0.5250	0.6881	0.9697	1.5137	1.9736
170	0.0491	0.0557	0.0850	0.1653	0.2303	0.3704	0.4762	0.6443	0.9348	1.4978	1.9774
175	0.0131	0.0198	0.0496	0.1312	0.1973	0.3398	0.4473	0.6183	0.9140	1.4879	1.9792
180	0.0001	0.0068	0.0368	0.1189	0.1854	0.3288	0.4371	0.6092	0.9069	1.4845	1.9789

RATIO OF MOTT TO RUTHERFORD SCATTERING IN FR, Z=87

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0249	1.0248	1.0245	1.0234	1.0226	1.0209	1.0196	1.0176	1.0143	1.0082	1.0003
10	1.0694	1.0692	1.0682	1.0656	1.0635	1.0591	1.0558	1.0508	1.0427	1.0308	1.0263
15	1.1084	1.1080	1.1063	1.1016	1.0979	1.0897	1.0836	1.0739	1.0578	1.0316	1.0235
20	1.1723	1.1717	1.1691	1.1620	1.1562	1.1436	1.1340	1.1187	1.0921	1.0429	1.0154
25	1.2512	1.2505	1.2470	1.2376	1.2298	1.2129	1.1999	1.1790	1.1418	1.0685	1.0165
30	1.3463	1.3454	1.3411	1.3292	1.3195	1.2981	1.2816	1.2547	1.2062	1.1057	1.0215
35	1.4549	1.4537	1.4487	1.4347	1.4232	1.3979	1.3782	1.3460	1.2873	1.1613	1.0432
40	1.5704	1.5692	1.5634	1.5475	1.5343	1.5054	1.4828	1.4457	1.3774	1.2269	1.0757
45	1.6912	1.6898	1.6835	1.6660	1.6516	1.6196	1.5947	1.5535	1.4772	1.3052	1.1217
50	1.8094	1.8079	1.8012	1.7825	1.7671	1.7329	1.7061	1.6617	1.5788	1.3888	1.1777
55	1.9227	1.9212	1.9142	1.8949	1.8789	1.8433	1.8153	1.7688	1.6813	1.4773	1.2418
60	2.0246	2.0231	2.0161	1.9966	1.9804	1.9444	1.9160	1.8685	1.7787	1.5655	1.3109
65	2.1121	2.1105	2.1037	2.0847	2.0689	2.0335	2.0055	1.9585	1.8686	1.6514	1.3830
70	2.1808	2.1794	2.1730	2.1551	2.1401	2.1066	2.0799	2.0347	1.9475	1.7319	1.4562
75	2.2274	2.2262	2.2204	2.2044	2.1909	2.1605	2.1360	2.0944	2.0127	1.8050	1.5286
80	2.2505	2.2494	2.2447	2.2312	2.2198	2.1937	2.1726	2.1360	2.0627	1.8690	1.5984
85	2.2468	2.2461	2.2425	2.2324	2.2237	2.2034	2.1866	2.1568	2.0951	1.9224	1.6656
90	2.2177	2.2172	2.2152	2.2091	2.2037	2.1905	2.1790	2.1577	2.1105	1.9648	1.7281
95	2.1605	2.1605	2.1602	2.1589	2.1575	2.1528	2.1477	2.1365	2.1070	1.9957	1.7875
100	2.0791	2.0795	2.0812	2.0855	2.0885	2.0934	2.0956	2.0961	2.0868	2.0150	1.8412
105	1.9718	1.9727	1.9767	1.9872	1.9952	2.0109	2.0214	2.0351	2.0490	2.0237	1.8920
110	1.8446	1.8460	1.8524	1.8695	1.8830	1.9105	1.9299	1.9579	1.9968	2.0219	1.9370
115	1.6968	1.6988	1.7079	1.7321	1.7514	1.7916	1.8207	1.8642	1.9305	2.0116	1.9798
120	1.5357	1.5383	1.5501	1.5818	1.6072	1.6605	1.6996	1.7592	1.8539	1.9929	2.0172
125	1.3619	1.3652	1.3797	1.4192	1.4508	1.5178	1.5672	1.6436	1.7680	1.9685	2.0528
130	1.1832	1.1871	1.2045	1.2516	1.2895	1.3701	1.4299	1.5230	1.6770	1.9385	2.0835
135	1.0012	1.0057	1.0258	1.0806	1.1247	1.2189	1.2891	1.3988	1.5825	1.9061	2.1127
140	0.8234	0.8285	0.8513	0.9134	0.9635	1.0706	1.1508	1.2765	1.4886	1.8712	2.1375
145	0.6521	0.6578	0.6831	0.7522	0.8080	0.9275	1.0170	1.1580	1.3973	1.8369	2.1607
150	0.4939	0.5001	0.5277	0.6031	0.6641	0.7949	0.8931	1.0480	1.3120	1.8034	2.1800
155	0.3516	0.3582	0.3879	0.4690	0.5346	0.6754	0.7813	0.9486	1.2348	1.7729	2.1971
160	0.2297	0.2367	0.2681	0.3540	0.4236	0.5730	0.6854	0.8633	1.1684	1.7461	2.2108
165	0.1315	0.1388	0.1717	0.2615	0.3341	0.4904	0.6080	0.7944	1.1146	1.7242	2.2217
170	0.0587	0.0663	0.1002	0.1928	0.2678	0.4291	0.5507	0.7434	1.0748	1.7081	2.2298
175	0.0156	0.0233	0.0579	0.1521	0.2285	0.3928	0.5166	0.7129	1.0508	1.6977	2.2340
180	0.0001	0.0078	0.0426	0.1375	0.2144	0.3799	0.5046	0.7023	1.0426	1.6939	2.2347

RATIO OF MOTT TO RUTHERFORD SCATTERING IN U, Z=92

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0238	1.0237	1.0234	1.0224	1.0217	1.0201	1.0190	1.0171	1.0141	1.0077	0.9976
10	1.0647	1.0645	1.0637	1.0613	1.0595	1.0556	1.0528	1.0486	1.0421	1.0338	1.0295
15	1.0950	1.0947	1.0930	1.0886	1.0850	1.0774	1.0718	1.0632	1.0494	1.0304	1.0300
20	1.1511	1.1506	1.1480	1.1408	1.1351	1.1226	1.1133	1.0985	1.0737	1.0325	1.0182
25	1.2261	1.2253	1.2217	1.2118	1.2037	1.1862	1.1730	1.1518	1.1151	1.0482	1.0124
30	1.3215	1.3205	1.3158	1.3029	1.2924	1.2694	1.2519	1.2235	1.1734	1.0753	1.0066
35	1.4370	1.4358	1.4301	1.4145	1.4016	1.3735	1.3519	1.3167	1.2536	1.1244	1.0174
40	1.5651	1.5636	1.5570	1.5387	1.5236	1.4905	1.4650	1.4232	1.3474	1.1870	1.0408
45	1.7048	1.7031	1.6956	1.6750	1.6580	1.6206	1.5916	1.5439	1.4567	1.2670	1.0800
50	1.8466	1.8448	1.8367	1.8141	1.7955	1.7544	1.7224	1.6697	1.5726	1.3571	1.1334
55	1.9880	1.9861	1.9775	1.9535	1.9337	1.8898	1.8555	1.7989	1.6939	1.4562	1.1977
60	2.1207	2.1187	2.1098	2.0850	2.0645	2.0189	1.9832	1.9240	1.8134	1.5590	1.2719
65	2.2405	2.2385	2.2296	2.2046	2.1840	2.1380	2.1018	2.0416	1.9281	1.6623	1.3518
70	2.3417	2.3397	2.3310	2.3068	2.2866	2.2415	2.2059	2.1464	2.0331	1.7627	1.4358
75	2.4194	2.4176	2.4094	2.3867	2.3677	2.3252	2.2913	2.2344	2.1248	1.8571	1.5215
80	2.4710	2.4694	2.4621	2.4418	2.4248	2.3863	2.3555	2.3030	2.2007	1.9431	1.6064
85	2.4918	2.4905	2.4845	2.4676	2.4533	2.4207	2.3942	2.3486	2.2575	2.0187	1.6905
90	2.4825	2.4816	2.4772	2.4646	2.4538	2.4287	2.4079	2.3710	2.2947	2.0823	1.7707
95	2.4394	2.4389	2.4365	2.4293	2.4229	2.4071	2.3933	2.3676	2.3104	2.1338	1.8489
100	2.3662	2.3661	2.3660	2.3650	2.3637	2.3587	2.3531	2.3404	2.3056	2.1717	1.9216
105	2.2605	2.2611	2.2636	2.2698	2.2742	2.2819	2.2858	2.2882	2.2798	2.1979	1.9919
110	2.1287	2.1299	2.1352	2.1493	2.1601	2.1815	2.1958	2.2149	2.2355	2.2108	2.0563
115	1.9701	1.9720	1.9805	2.0031	2.0210	2.0575	2.0833	2.1208	2.1737	2.2139	2.1184
120	1.7928	1.7955	1.8072	1.8388	1.8640	1.9163	1.9541	2.0109	2.0976	2.2058	2.1747
125	1.5979	1.6013	1.6165	1.6576	1.6903	1.7593	1.8098	1.8869	2.0094	2.1909	2.2287
130	1.3944	1.3985	1.4172	1.4676	1.5081	1.5938	1.6570	1.7544	1.9129	2.1677	2.2772
135	1.1846	1.1896	1.2116	1.2716	1.3198	1.4222	1.4982	1.6163	1.8113	2.1412	2.3232
140	0.9776	0.9832	1.0087	1.0778	1.1334	1.2520	1.3403	1.4781	1.7081	2.1101	2.3639
145	0.7767	0.7831	0.8117	0.8895	0.9522	1.0863	1.1864	1.3433	1.6070	2.0790	2.4015
150	0.5897	0.5968	0.6283	0.7141	0.7833	0.9315	1.0424	1.2167	1.5113	2.0471	2.4339
155	0.4207	0.4283	0.4624	0.5554	0.6305	0.7914	0.9120	1.1019	1.4243	2.0191	2.4625
160	0.2753	0.2834	0.3198	0.4188	0.4989	0.6706	0.7995	1.0028	1.3488	1.9918	2.4859
165	0.1578	0.1663	0.2044	0.3084	0.3925	0.5729	0.7084	0.9223	1.2873	1.9701	2.5044
170	0.0706	0.0794	0.1189	0.2265	0.3135	0.5004	0.6409	0.8628	1.2420	1.9543	2.5181
175	0.0186	0.0276	0.0678	0.1776	0.2663	0.4569	0.6002	0.8267	1.2141	1.9436	2.5257
180	0.0001	0.0091	0.0497	0.1602	0.2497	0.4417	0.5861	0.8143	1.2046	1.9395	2.5282

RATIO OF MOTT TO RUTHERFORD SCATTERING IN PU, Z=94

ENERGY (MEV) / ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0235	1.0235	1.0231	1.0222	1.0215	1.0200	1.0189	1.0171	1.0141	1.0073	0.9963
10	1.0632	1.0630	1.0622	1.0600	1.0583	1.0547	1.0521	1.0483	1.0425	1.0355	1.0305
15	1.0895	1.0891	1.0876	1.0833	1.0799	1.0727	1.0674	1.0593	1.0468	1.0310	1.0332
20	1.1414	1.1409	1.1383	1.1313	1.1256	1.1134	1.1043	1.0900	1.0665	1.0294	1.0207
25	1.2135	1.2126	1.2090	1.1991	1.1910	1.1735	1.1603	1.1393	1.1035	1.0407	1.0125
30	1.3076	1.3066	1.3018	1.2886	1.2779	1.2545	1.2367	1.2080	1.1580	1.0627	1.0023
35	1.4248	1.4235	1.4176	1.4014	1.3881	1.3590	1.3368	1.3007	1.2365	1.1079	1.0080
40	1.5570	1.5554	1.5485	1.5293	1.5135	1.4789	1.4522	1.4088	1.3306	1.1680	1.0268
45	1.7038	1.7021	1.6941	1.6722	1.6542	1.6147	1.5840	1.5339	1.4427	1.2475	1.0621
50	1.8553	1.8533	1.8446	1.8204	1.8005	1.7565	1.7224	1.6664	1.5638	1.3392	1.1132
55	2.0086	2.0065	1.9971	1.9711	1.9497	1.9023	1.8654	1.8046	1.6924	1.4418	1.1766
60	2.1547	2.1525	2.1427	2.1156	2.0932	2.0435	2.0047	1.9405	1.8211	1.5501	1.2517
65	2.2890	2.2868	2.2769	2.2493	2.2265	2.1758	2.1360	2.0700	1.9463	1.6605	1.3341
70	2.4050	2.4029	2.3931	2.3659	2.3434	2.2932	2.2536	2.1876	2.0629	1.7692	1.4220
75	2.4973	2.4953	2.4860	2.4602	2.4387	2.3906	2.3525	2.2885	2.1665	1.8727	1.5128
80	2.5625	2.5607	2.5523	2.5288	2.5091	2.4648	2.4295	2.3698	2.2542	1.9683	1.5039
85	2.5955	2.5939	2.5867	2.5666	2.5497	2.5112	2.4802	2.4272	2.3225	2.0539	1.6949
90	2.5962	2.5950	2.5895	2.5738	2.5604	2.5296	2.5043	2.4600	2.3701	2.1272	1.7828
95	2.5607	2.5599	2.5564	2.5463	2.5375	2.5163	2.4983	2.4655	2.3951	2.1883	1.8690
100	2.4922	2.4920	2.4909	2.4873	2.4838	2.4740	2.4645	2.4452	2.3981	2.2349	1.9502
105	2.3885	2.3889	2.3905	2.3946	2.3972	2.4007	2.4012	2.3980	2.3786	2.2694	2.0292
110	2.2555	2.2566	2.2613	2.2737	2.2831	2.3013	2.3129	2.3274	2.3386	2.2894	2.1024
115	2.0930	2.0948	2.1029	2.1246	2.1415	2.1758	2.1998	2.2339	2.2797	2.2992	2.1733
120	1.9090	1.9116	1.9233	1.9546	1.9794	2.0308	2.0677	2.1225	2.2044	2.2964	2.2384
125	1.7052	1.7086	1.7240	1.7655	1.7986	1.8680	1.9186	1.9954	2.1159	2.2863	2.3009
130	1.4907	1.4950	1.5141	1.5659	1.6073	1.6948	1.7592	1.8581	2.0175	2.2667	2.3578
135	1.2687	1.2738	1.2967	1.3588	1.4087	1.5145	1.5928	1.7141	1.9131	2.2434	2.4116
140	1.0484	1.0543	1.0809	1.1530	1.2110	1.3344	1.4262	1.5690	1.8061	2.2145	2.4599
145	0.8341	0.8408	0.8708	0.9525	1.0183	1.1587	1.2633	1.4270	1.7009	2.1852	2.5044
150	0.6340	0.6414	0.6746	0.7651	0.8380	0.9939	1.1104	1.2931	1.6007	2.1545	2.5432
155	0.4527	0.4608	0.4969	0.5952	0.6746	0.8444	0.9715	1.1714	1.5094	2.1264	2.5771
160	0.2965	0.3051	0.3436	0.4487	0.5335	0.7153	0.8515	1.0660	1.4300	2.1006	2.6053
165	0.1700	0.1791	0.2196	0.3300	0.4193	0.6106	0.7541	0.9803	1.3652	2.0793	2.6274
170	0.0762	0.0855	0.1275	0.2420	0.3345	0.5329	0.6819	0.9169	1.3174	2.0637	2.6438
175	0.0200	0.0296	0.0724	0.1892	0.2836	0.4861	0.6382	0.8783	1.2977	2.0530	2.6531
180	0.0001	0.0097	0.0529	0.1706	0.2657	0.4699	0.6231	0.8651	1.2776	2.0488	2.6566

RATIO OF MOTT TO RUTHERFORD SCATTERING IN ES, Z=99

ENERGY (MEV) / ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0233	1.0233	1.0230	1.0221	1.0215	1.0200	1.0189	1.0172	1.0140	1.0058	0.9927
10	1.0609	1.0607	1.0600	1.0583	1.0569	1.0541	1.0522	1.0493	1.0453	1.0405	1.0319
15	1.0762	1.0759	1.0746	1.0709	1.0681	1.0621	1.0579	1.0517	1.0429	1.0357	1.0418
20	1.1151	1.1145	1.1121	1.1057	1.1005	1.0896	1.0815	1.0693	1.0502	1.0257	1.0302
25	1.1760	1.1752	1.1717	1.1620	1.1541	1.1374	1.1250	1.1055	1.0738	1.0252	1.0182
30	1.2627	1.2616	1.2567	1.2433	1.2323	1.2087	1.1910	1.1628	1.1150	1.0322	0.9975
35	1.3799	1.3785	1.3722	1.3549	1.3408	1.3102	1.2870	1.2498	1.1852	1.0642	0.9892
40	1.5192	1.5175	1.5098	1.4886	1.4713	1.4335	1.4046	1.3581	1.2760	1.1143	0.9941
45	1.6819	1.6799	1.6708	1.6459	1.6255	1.5810	1.5467	1.4911	1.3919	1.1885	1.0163
50	1.8567	1.8544	1.8441	1.8159	1.7927	1.7418	1.7025	1.6386	1.5233	1.2809	1.0582
55	2.0405	2.0380	2.0267	1.9956	1.9700	1.9136	1.8700	1.7987	1.6689	1.3896	1.1160
60	2.2228	2.2201	2.2081	2.1747	2.1471	2.0865	2.0395	1.9622	1.8206	1.5099	1.1904
65	2.3973	2.3945	2.3819	2.3471	2.3184	2.2549	2.2054	2.1239	1.9734	1.6370	1.2763
70	2.5557	2.5528	2.5401	2.5048	2.4756	2.4110	2.3604	2.2767	2.1211	1.7666	1.3720
75	2.6904	2.6876	2.6751	2.6405	2.6117	2.5479	2.4978	2.4144	2.2579	1.8943	1.4745
80	2.7962	2.7936	2.7818	2.7490	2.7217	2.6608	2.6127	2.5321	2.3793	2.0159	1.5904
85	2.8661	2.8637	2.8531	2.8235	2.7988	2.7433	2.6990	2.6244	2.4807	2.1292	1.6891
90	2.8984	2.8964	2.8875	2.8624	2.8413	2.7934	2.7549	2.6889	2.5593	2.2297	1.7968
95	2.8878	2.8864	2.8797	2.8606	2.8444	2.8068	2.7760	2.7221	2.6127	2.3182	1.8947
100	2.8365	2.8356	2.8316	2.8198	2.8094	2.7845	2.7630	2.7240	2.6395	2.3903	2.0090
105	2.7416	2.7415	2.7406	2.7376	2.7343	2.7246	2.7146	2.6936	2.6402	2.4494	2.1117
110	2.6087	2.6093	2.6121	2.6188	2.6235	2.6308	2.6337	2.6331	2.6148	2.4910	2.2099
115	2.4379	2.4394	2.4462	2.4640	2.4776	2.5042	2.5217	2.5443	2.5663	2.5209	2.3053
120	2.2373	2.2398	2.2509	2.2804	2.3034	2.3505	2.3835	2.4309	2.4957	2.5348	2.3958
125	2.0101	2.0136	2.0292	2.0712	2.1044	2.1735	2.2231	2.2971	2.4084	2.5397	2.4827
130	1.7658	1.7704	1.7906	1.8453	1.8888	1.9901	2.0466	2.1476	2.3061	2.5320	2.5642
135	1.5099	1.5154	1.5404	1.6080	1.6620	1.7760	1.8598	1.9884	2.1955	2.5190	2.6408
140	1.2524	1.2590	1.2885	1.3686	1.4328	1.5689	1.6694	1.8248	2.0789	2.4977	2.7117
145	1.0000	1.0076	1.0415	1.1337	1.2077	1.3651	1.4818	1.6632	1.9631	2.4748	2.7762
150	0.7622	0.7707	0.8086	0.9119	0.9950	1.1720	1.3036	1.5089	1.8509	2.4485	2.8340
155	0.5457	0.5550	0.5966	0.7099	0.8012	0.9959	1.1410	1.3680	1.7482	2.4238	2.8840
160	0.3581	0.3681	0.4129	0.5347	0.6330	0.8428	0.9995	1.2450	1.6579	2.4003	2.9263
165	0.2055	0.2161	0.2634	0.3922	0.4961	0.7181	0.8841	1.1445	1.5838	2.3805	2.9594
170	0.0924	0.1034	0.1526	0.2865	0.3946	0.6257	0.7987	1.0703	1.5292	2.3661	2.9839
175	0.0239	0.0351	0.0854	0.2223	0.3328	0.5692	0.7462	1.0242	1.4946	2.3554	2.9983
180	0.0001	0.0115	0.0621	0.2002	0.3116	0.5500	0.7284	1.0088	1.4830	2.3515	3.0047

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN H, Z= 1

ENERGY(MEV) ANGLE(DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
15	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
20	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
25	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
30	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
35	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
40	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001
45	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001
50	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001
55	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001
60	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001
65	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001
70	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001
75	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001
80	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001
85	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001
90	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001
95	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001
100	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001
105	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001
110	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001
115	1.0002	1.0002	1.0002	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001
120	1.0002	1.0002	1.0002	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001
125	1.0002	1.0002	1.0002	1.0002	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001
130	1.0002	1.0002	1.0002	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001
135	1.0002	1.0002	1.0002	1.0002	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001
140	1.0002	1.0002	1.0002	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001
145	1.0002	1.0002	1.0002	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001
150	1.0002	1.0002	1.0002	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001
155	1.0002	1.0002	1.0002	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001
160	1.0002	1.0002	1.0002	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001
165	1.0002	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001
170	1.0003	1.0002	1.0002	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001
175	0.9995	0.9998	1.0000	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001
180	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN HE, Z= 2

ENERGY(MEV) ANGLE(DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	1.0000	1.0000
10	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001
15	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0001	1.0001	1.0001	1.0001
20	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001
25	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001	1.0001
30	1.0002	1.0002	1.0002	1.0002	1.0002	1.0002	1.0002	1.0002	1.0002	1.0002	1.0002
35	1.0002	1.0002	1.0002	1.0002	1.0002	1.0002	1.0002	1.0002	1.0002	1.0002	1.0002
40	1.0002	1.0002	1.0002	1.0002	1.0002	1.0002	1.0002	1.0002	1.0002	1.0002	1.0002
45	1.0003	1.0003	1.0003	1.0003	1.0003	1.0003	1.0003	1.0003	1.0002	1.0002	1.0002
50	1.0003	1.0003	1.0003	1.0003	1.0003	1.0003	1.0003	1.0003	1.0003	1.0003	1.0002
55	1.0003	1.0003	1.0003	1.0003	1.0003	1.0003	1.0003	1.0003	1.0003	1.0003	1.0003
60	1.0004	1.0004	1.0004	1.0004	1.0004	1.0004	1.0003	1.0003	1.0003	1.0003	1.0003
65	1.0004	1.0004	1.0004	1.0004	1.0004	1.0004	1.0004	1.0004	1.0003	1.0003	1.0003
70	1.0004	1.0004	1.0004	1.0004	1.0004	1.0004	1.0004	1.0004	1.0004	1.0003	1.0003
75	1.0005	1.0004	1.0004	1.0004	1.0004	1.0004	1.0004	1.0004	1.0004	1.0004	1.0003
80	1.0005	1.0005	1.0005	1.0005	1.0005	1.0004	1.0004	1.0004	1.0004	1.0004	1.0003
85	1.0005	1.0005	1.0005	1.0005	1.0005	1.0005	1.0005	1.0004	1.0004	1.0004	1.0003
90	1.0005	1.0005	1.0005	1.0005	1.0005	1.0005	1.0005	1.0004	1.0004	1.0004	1.0004
95	1.0005	1.0005	1.0005	1.0005	1.0005	1.0005	1.0005	1.0004	1.0004	1.0004	1.0004
100	1.0006	1.0006	1.0006	1.0005	1.0005	1.0005	1.0005	1.0005	1.0004	1.0004	1.0004
105	1.0006	1.0006	1.0006	1.0006	1.0005	1.0005	1.0005	1.0005	1.0004	1.0004	1.0004
110	1.0006	1.0006	1.0006	1.0006	1.0005	1.0005	1.0005	1.0005	1.0004	1.0004	1.0004
115	1.0006	1.0006	1.0006	1.0006	1.0006	1.0005	1.0005	1.0005	1.0005	1.0004	1.0004
120	1.0006	1.0006	1.0006	1.0006	1.0006	1.0005	1.0005	1.0005	1.0004	1.0004	1.0004
125	1.0006	1.0006	1.0006	1.0006	1.0006	1.0005	1.0005	1.0005	1.0004	1.0004	1.0004
130	1.0006	1.0006	1.0006	1.0006	1.0006	1.0005	1.0005	1.0005	1.0004	1.0004	1.0004
135	1.0007	1.0007	1.0006	1.0006	1.0006	1.0005	1.0005	1.0005	1.0004	1.0004	1.0004
140	1.0007	1.0007	1.0006	1.0006	1.0006	1.0005	1.0005	1.0004	1.0004	1.0004	1.0004
145	1.0007	1.0007	1.0007	1.0006	1.0005	1.0005	1.0005	1.0004	1.0004	1.0004	1.0004
150	1.0007	1.0007	1.0006	1.0006	1.0005	1.0005	1.0004	1.0004	1.0004	1.0004	1.0004
155	1.0007	1.0007	1.0006	1.0005	1.0005	1.0004	1.0004	1.0004	1.0004	1.0004	1.0004
160	1.0007	1.0007	1.0006	1.0005	1.0005	1.0004	1.0004	1.0004	1.0004	1.0004	1.0004
165	1.0007	1.0006	1.0005	1.0004	1.0004	1.0004	1.0004	1.0004	1.0004	1.0004	1.0004
170	1.0009	1.0008	1.0006	1.0004	1.0004	1.0004	1.0004	1.0004	1.0004	1.0004	1.0004
175	0.9994	0.9999	1.0002	1.0003	1.0003	1.0003	1.0003	1.0004	1.0004	1.0004	1.0004
180	1.0004	1.0004	1.0004	1.0004	1.0004	1.0004	1.0004	1.0004	1.0004	1.0004	1.0004

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN BE, Z= 4

ENERGY (MEV) / ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	1.0000
10	1.0002	1.0002	1.0002	1.0002	1.0002	1.0002	1.0002	1.0002	1.0002	1.0002	1.0002
15	1.0002	1.0002	1.0002	1.0002	1.0002	1.0002	1.0002	1.0002	1.0002	1.0002	1.0002
20	1.0004	1.0004	1.0004	1.0004	1.0004	1.0004	1.0004	1.0004	1.0004	1.0004	1.0004
25	1.0005	1.0005	1.0005	1.0005	1.0005	1.0005	1.0005	1.0005	1.0005	1.0005	1.0005
30	1.0007	1.0007	1.0007	1.0007	1.0007	1.0007	1.0007	1.0007	1.0006	1.0006	1.0006
35	1.0008	1.0008	1.0008	1.0008	1.0008	1.0008	1.0008	1.0008	1.0008	1.0007	1.0007
40	1.0010	1.0010	1.0010	1.0010	1.0009	1.0009	1.0009	1.0009	1.0009	1.0008	1.0008
45	1.0011	1.0011	1.0011	1.0011	1.0011	1.0010	1.0010	1.0010	1.0010	1.0009	1.0009
50	1.0012	1.0012	1.0012	1.0012	1.0012	1.0012	1.0012	1.0011	1.0011	1.0010	1.0010
55	1.0013	1.0013	1.0013	1.0013	1.0013	1.0013	1.0013	1.0012	1.0012	1.0011	1.0011
60	1.0015	1.0015	1.0015	1.0014	1.0014	1.0014	1.0014	1.0014	1.0013	1.0012	1.0011
65	1.0016	1.0016	1.0016	1.0016	1.0015	1.0015	1.0015	1.0014	1.0014	1.0013	1.0012
70	1.0017	1.0017	1.0017	1.0017	1.0016	1.0016	1.0016	1.0015	1.0015	1.0014	1.0013
75	1.0018	1.0018	1.0018	1.0018	1.0017	1.0017	1.0017	1.0016	1.0015	1.0014	1.0013
80	1.0019	1.0019	1.0019	1.0019	1.0018	1.0018	1.0018	1.0017	1.0016	1.0015	1.0014
85	1.0020	1.0020	1.0020	1.0020	1.0019	1.0019	1.0019	1.0018	1.0017	1.0015	1.0014
90	1.0021	1.0021	1.0021	1.0021	1.0020	1.0020	1.0020	1.0019	1.0018	1.0016	1.0015
95	1.0022	1.0022	1.0022	1.0022	1.0021	1.0021	1.0021	1.0020	1.0019	1.0017	1.0015
100	1.0022	1.0022	1.0022	1.0022	1.0022	1.0021	1.0021	1.0020	1.0019	1.0017	1.0016
105	1.0023	1.0023	1.0023	1.0023	1.0022	1.0022	1.0021	1.0020	1.0019	1.0018	1.0016
110	1.0024	1.0024	1.0023	1.0023	1.0023	1.0022	1.0021	1.0020	1.0019	1.0018	1.0016
115	1.0025	1.0025	1.0024	1.0023	1.0023	1.0022	1.0021	1.0020	1.0019	1.0018	1.0016
120	1.0025	1.0025	1.0024	1.0023	1.0023	1.0022	1.0021	1.0020	1.0019	1.0018	1.0016
125	1.0026	1.0026	1.0025	1.0024	1.0023	1.0022	1.0021	1.0020	1.0019	1.0018	1.0016
130	1.0026	1.0026	1.0025	1.0024	1.0023	1.0022	1.0021	1.0020	1.0019	1.0018	1.0016
135	1.0027	1.0027	1.0026	1.0024	1.0023	1.0022	1.0021	1.0020	1.0019	1.0018	1.0016
140	1.0027	1.0027	1.0026	1.0024	1.0023	1.0022	1.0021	1.0020	1.0019	1.0018	1.0016
145	1.0028	1.0027	1.0026	1.0024	1.0023	1.0022	1.0021	1.0020	1.0019	1.0018	1.0016
150	1.0027	1.0027	1.0025	1.0023	1.0022	1.0021	1.0020	1.0019	1.0018	1.0017	1.0016
155	1.0028	1.0027	1.0025	1.0023	1.0022	1.0020	1.0019	1.0018	1.0017	1.0016	1.0015
160	1.0028	1.0027	1.0024	1.0022	1.0020	1.0019	1.0018	1.0017	1.0017	1.0016	1.0015
165	1.0027	1.0026	1.0022	1.0020	1.0018	1.0017	1.0017	1.0017	1.0016	1.0015	1.0015
170	1.0032	1.0028	1.0021	1.0018	1.0017	1.0016	1.0016	1.0016	1.0015	1.0015	1.0015
175	1.0003	1.0009	1.0013	1.0017	1.0016	1.0016	1.0015	1.0015	1.0015	1.0015	1.0015
180	1.0015	1.0015	1.0015	1.0014	1.0014	1.0014	1.0014	1.0015	1.0015	1.0015	1.0015
				1.0015	1.0015	1.0015	1.0015	1.0015	1.0015	1.0015	1.0015

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN C, Z= 6

ENERGY (MEV) / ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999
10	1.0004	1.0004	1.0004	1.0004	1.0004	1.0004	1.0004	1.0004	1.0004	1.0004	1.0003
15	1.0005	1.0005	1.0005	1.0005	1.0005	1.0005	1.0005	1.0005	1.0005	1.0005	1.0005
20	1.0009	1.0009	1.0009	1.0009	1.0009	1.0009	1.0009	1.0009	1.0009	1.0008	1.0008
25	1.0012	1.0012	1.0012	1.0012	1.0012	1.0011	1.0011	1.0011	1.0011	1.0011	1.0010
30	1.0015	1.0015	1.0015	1.0015	1.0015	1.0015	1.0015	1.0015	1.0014	1.0014	1.0013
35	1.0018	1.0018	1.0018	1.0018	1.0018	1.0018	1.0018	1.0017	1.0017	1.0016	1.0015
40	1.0021	1.0021	1.0021	1.0021	1.0021	1.0021	1.0021	1.0020	1.0020	1.0019	1.0018
45	1.0024	1.0024	1.0024	1.0024	1.0024	1.0024	1.0023	1.0023	1.0022	1.0021	1.0020
50	1.0027	1.0027	1.0027	1.0027	1.0027	1.0026	1.0026	1.0026	1.0025	1.0023	1.0022
55	1.0030	1.0030	1.0030	1.0030	1.0029	1.0029	1.0029	1.0028	1.0027	1.0025	1.0024
60	1.0033	1.0033	1.0033	1.0032	1.0032	1.0032	1.0031	1.0030	1.0029	1.0027	1.0026
65	1.0035	1.0035	1.0035	1.0035	1.0035	1.0034	1.0033	1.0033	1.0031	1.0029	1.0027
70	1.0038	1.0038	1.0038	1.0037	1.0037	1.0036	1.0035	1.0035	1.0033	1.0031	1.0029
75	1.0040	1.0040	1.0040	1.0040	1.0039	1.0038	1.0037	1.0036	1.0035	1.0032	1.0030
80	1.0043	1.0043	1.0042	1.0042	1.0041	1.0040	1.0039	1.0038	1.0036	1.0033	1.0031
85	1.0045	1.0045	1.0044	1.0044	1.0043	1.0042	1.0041	1.0040	1.0038	1.0034	1.0032
90	1.0047	1.0047	1.0046	1.0045	1.0045	1.0043	1.0042	1.0041	1.0039	1.0035	1.0033
95	1.0049	1.0049	1.0048	1.0047	1.0046	1.0045	1.0044	1.0042	1.0040	1.0036	1.0033
100	1.0050	1.0050	1.0050	1.0049	1.0048	1.0046	1.0045	1.0043	1.0041	1.0037	1.0034
105	1.0052	1.0052	1.0052	1.0050	1.0049	1.0047	1.0046	1.0044	1.0041	1.0037	1.0034
110	1.0054	1.0053	1.0053	1.0051	1.0050	1.0048	1.0046	1.0044	1.0041	1.0037	1.0034
115	1.0055	1.0055	1.0054	1.0052	1.0051	1.0048	1.0047	1.0044	1.0041	1.0037	1.0035
120	1.0056	1.0056	1.0055	1.0053	1.0051	1.0048	1.0047	1.0044	1.0041	1.0037	1.0035
125	1.0058	1.0058	1.0057	1.0054	1.0052	1.0049	1.0047	1.0044	1.0041	1.0037	1.0035
130	1.0059	1.0058	1.0057	1.0054	1.0052	1.0048	1.0046	1.0043	1.0040	1.0037	1.0035
135	1.0060	1.0060	1.0058	1.0054	1.0052	1.0048	1.0045	1.0043	1.0040	1.0037	1.0035
140	1.0061	1.0060	1.0058	1.0053	1.0051	1.0046	1.0044	1.0042	1.0039	1.0036	1.0035
145	1.0062	1.0061	1.0058	1.0053	1.0050	1.0045	1.0043	1.0041	1.0038	1.0036	1.0035
150	1.0062	1.0061	1.0058	1.0051	1.0048	1.0043	1.0041	1.0039	1.0037	1.0036	1.0035
155	1.0063	1.0062	1.0057	1.0049	1.0046	1.0042	1.0040	1.0038	1.0036	1.0035	1.0035
160	1.0064	1.0061	1.0055	1.0046	1.0043	1.0039	1.0038	1.0036	1.0035	1.0035	1.0035
165	1.0063	1.0059	1.0050	1.0042	1.0040	1.0037	1.0036	1.0035	1.0035	1.0035	1.0035
170	1.0069	1.0061	1.0047	1.0039	1.0037	1.0033	1.0033	1.0034	1.0034	1.0034	1.0035
175	1.0027	1.0030	1.0033	1.0033	1.0033	1.0034	1.0034	1.0034	1.0034	1.0034	1.0035
180	1.0033	1.0033	1.0033	1.0033	1.0034	1.0034	1.0034	1.0034	1.0034	1.0034	1.0035

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN O, Z= 8

ENERGY(MEV) ANGLE(DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9998	0.9998	0.9998	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999
10	1.0007	1.0007	1.0007	1.0007	1.0007	1.0007	1.0007	1.0006	1.0006	1.0006	1.0005
15	1.0009	1.0009	1.0009	1.0009	1.0009	1.0009	1.0009	1.0009	1.0009	1.0009	1.0008
20	1.0016	1.0016	1.0016	1.0016	1.0016	1.0016	1.0016	1.0015	1.0015	1.0014	1.0013
25	1.0021	1.0021	1.0021	1.0021	1.0020	1.0020	1.0020	1.0020	1.0019	1.0019	1.0017
30	1.0027	1.0027	1.0027	1.0027	1.0027	1.0026	1.0026	1.0026	1.0025	1.0024	1.0023
35	1.0032	1.0032	1.0032	1.0032	1.0032	1.0031	1.0031	1.0031	1.0030	1.0028	1.0027
40	1.0038	1.0038	1.0038	1.0038	1.0037	1.0037	1.0037	1.0036	1.0035	1.0033	1.0031
45	1.0043	1.0043	1.0043	1.0043	1.0042	1.0042	1.0041	1.0041	1.0039	1.0037	1.0035
50	1.0048	1.0048	1.0048	1.0048	1.0048	1.0047	1.0046	1.0045	1.0044	1.0041	1.0039
55	1.0053	1.0053	1.0053	1.0053	1.0052	1.0051	1.0051	1.0050	1.0048	1.0045	1.0043
60	1.0058	1.0058	1.0058	1.0057	1.0057	1.0056	1.0055	1.0054	1.0052	1.0049	1.0046
65	1.0063	1.0063	1.0063	1.0062	1.0061	1.0060	1.0059	1.0058	1.0056	1.0052	1.0049
70	1.0067	1.0067	1.0067	1.0066	1.0066	1.0064	1.0063	1.0062	1.0059	1.0055	1.0051
75	1.0072	1.0072	1.0071	1.0070	1.0070	1.0068	1.0067	1.0065	1.0062	1.0057	1.0054
80	1.0076	1.0076	1.0075	1.0074	1.0073	1.0071	1.0070	1.0068	1.0065	1.0059	1.0056
85	1.0080	1.0080	1.0079	1.0078	1.0077	1.0074	1.0073	1.0071	1.0067	1.0061	1.0057
90	1.0083	1.0083	1.0082	1.0081	1.0080	1.0077	1.0075	1.0073	1.0069	1.0063	1.0059
95	1.0087	1.0087	1.0086	1.0084	1.0083	1.0080	1.0078	1.0075	1.0071	1.0064	1.0060
100	1.0090	1.0090	1.0089	1.0087	1.0085	1.0082	1.0080	1.0077	1.0072	1.0065	1.0061
105	1.0093	1.0093	1.0092	1.0089	1.0088	1.0084	1.0081	1.0078	1.0073	1.0066	1.0062
110	1.0096	1.0095	1.0094	1.0091	1.0089	1.0085	1.0082	1.0079	1.0074	1.0067	1.0063
115	1.0099	1.0098	1.0097	1.0093	1.0091	1.0086	1.0083	1.0079	1.0074	1.0067	1.0063
120	1.0101	1.0100	1.0099	1.0095	1.0092	1.0087	1.0083	1.0079	1.0074	1.0067	1.0064
125	1.0103	1.0103	1.0101	1.0096	1.0093	1.0087	1.0084	1.0079	1.0074	1.0067	1.0064
130	1.0105	1.0104	1.0102	1.0096	1.0093	1.0086	1.0083	1.0078	1.0073	1.0067	1.0064
135	1.0107	1.0106	1.0103	1.0097	1.0093	1.0086	1.0082	1.0077	1.0072	1.0066	1.0064
140	1.0108	1.0107	1.0104	1.0096	1.0091	1.0084	1.0080	1.0075	1.0070	1.0066	1.0064
145	1.0110	1.0109	1.0104	1.0095	1.0089	1.0082	1.0078	1.0074	1.0069	1.0065	1.0065
150	1.0111	1.0109	1.0103	1.0092	1.0086	1.0078	1.0075	1.0071	1.0068	1.0065	1.0064
155	1.0112	1.0110	1.0102	1.0088	1.0082	1.0075	1.0072	1.0069	1.0066	1.0064	1.0064
160	1.0113	1.0110	1.0098	1.0083	1.0078	1.0071	1.0069	1.0067	1.0065	1.0064	1.0064
165	1.0112	1.0106	1.0091	1.0076	1.0072	1.0067	1.0066	1.0064	1.0063	1.0063	1.0064
170	1.0120	1.0107	1.0084	1.0070	1.0067	1.0065	1.0064	1.0063	1.0063	1.0063	1.0064
175	1.0065	1.0063	1.0061	1.0061	1.0061	1.0061	1.0061	1.0061	1.0062	1.0063	1.0064
180	1.0061	1.0061	1.0061	1.0061	1.0061	1.0061	1.0061	1.0061	1.0062	1.0063	1.0064

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN MG, Z=12

ENERGY(MEV) ANGLE(DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998
10	1.0013	1.0013	1.0013	1.0013	1.0013	1.0013	1.0013	1.0012	1.0012	1.0010	1.0008
15	1.0021	1.0021	1.0021	1.0020	1.0020	1.0020	1.0020	1.0020	1.0019	1.0018	1.0015
20	1.0034	1.0034	1.0034	1.0034	1.0034	1.0034	1.0033	1.0033	1.0032	1.0030	1.0027
25	1.0046	1.0046	1.0045	1.0045	1.0045	1.0044	1.0044	1.0043	1.0042	1.0040	1.0037
30	1.0059	1.0059	1.0059	1.0059	1.0058	1.0058	1.0057	1.0056	1.0055	1.0052	1.0048
35	1.0071	1.0071	1.0071	1.0071	1.0070	1.0069	1.0069	1.0068	1.0066	1.0062	1.0058
40	1.0084	1.0084	1.0084	1.0083	1.0083	1.0082	1.0081	1.0080	1.0078	1.0073	1.0068
45	1.0096	1.0096	1.0096	1.0095	1.0095	1.0093	1.0092	1.0091	1.0088	1.0083	1.0078
50	1.0108	1.0108	1.0108	1.0107	1.0106	1.0105	1.0104	1.0102	1.0099	1.0093	1.0087
55	1.0120	1.0120	1.0119	1.0118	1.0117	1.0115	1.0114	1.0112	1.0108	1.0101	1.0095
60	1.0131	1.0131	1.0130	1.0129	1.0128	1.0126	1.0124	1.0122	1.0117	1.0110	1.0103
65	1.0142	1.0142	1.0141	1.0139	1.0138	1.0136	1.0134	1.0131	1.0126	1.0117	1.0110
70	1.0152	1.0152	1.0151	1.0149	1.0148	1.0145	1.0142	1.0139	1.0134	1.0124	1.0116
75	1.0162	1.0162	1.0161	1.0159	1.0157	1.0153	1.0151	1.0147	1.0141	1.0130	1.0122
80	1.0171	1.0171	1.0170	1.0167	1.0165	1.0161	1.0158	1.0154	1.0147	1.0135	1.0127
85	1.0180	1.0180	1.0179	1.0176	1.0173	1.0169	1.0165	1.0160	1.0153	1.0140	1.0131
90	1.0188	1.0188	1.0186	1.0183	1.0180	1.0175	1.0171	1.0166	1.0157	1.0144	1.0135
95	1.0196	1.0196	1.0194	1.0190	1.0187	1.0181	1.0177	1.0171	1.0162	1.0148	1.0139
100	1.0203	1.0203	1.0201	1.0196	1.0193	1.0186	1.0181	1.0175	1.0165	1.0150	1.0141
105	1.0210	1.0210	1.0208	1.0203	1.0199	1.0191	1.0186	1.0178	1.0168	1.0153	1.0144
110	1.0216	1.0216	1.0213	1.0207	1.0203	1.0194	1.0188	1.0180	1.0169	1.0154	1.0146
115	1.0223	1.0222	1.0219	1.0212	1.0207	1.0197	1.0191	1.0182	1.0170	1.0155	1.0148
120	1.0228	1.0227	1.0224	1.0215	1.0209	1.0198	1.0191	1.0182	1.0170	1.0156	1.0149
125	1.0234	1.0233	1.0229	1.0219	1.0212	1.0199	1.0192	1.0182	1.0170	1.0156	1.0151
130	1.0237	1.0236	1.0231	1.0219	1.0212	1.0198	1.0190	1.0180	1.0168	1.0156	1.0152
135	1.0242	1.0241	1.0235	1.0221	1.0212	1.0197	1.0188	1.0178	1.0167	1.0156	1.0152
140	1.0245	1.0243	1.0236	1.0219	1.0209	1.0193	1.0184	1.0175	1.0164	1.0155	1.0153
145	1.0249	1.0247	1.0237	1.0217	1.0205	1.0188	1.0180	1.0171	1.0162	1.0154	1.0153
150	1.0251	1.0248	1.0235	1.0211	1.0199	1.0182	1.0174	1.0166	1.0158	1.0153	1.0154
155	1.0254	1.0250	1.0232	1.0204	1.0191	1.0175	1.0168	1.0161	1.0155	1.0152	1.0154
160	1.0256	1.0249	1.0225	1.0192	1.0180	1.0166	1.0161	1.0156	1.0152	1.0151	1.0154
165	1.0255	1.0243	1.0210	1.0177	1.0167	1.0157	1.0154	1.0151	1.0149	1.0150	1.0154
170	1.0268	1.0241	1.0193	1.0163	1.0157	1.0151	1.0149	1.0148	1.0147	1.0149	1.0154
175	1.0188	1.0164	1.0149	1.0145	1.0144	1.0144	1.0144	1.0144	1.0145	1.0149	1.0154
180	1.0142	1.0142	1.0142	1.0143	1.0143	1.0143	1.0144	1.0144	1.0145	1.0149	1.0154

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN AL, Z=13

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9997
10	1.0015	1.0015	1.0015	1.0015	1.0015	1.0014	1.0014	1.0014	1.0013	1.0011	1.0009
15	1.0024	1.0024	1.0024	1.0024	1.0024	1.0023	1.0023	1.0023	1.0022	1.0020	1.0017
20	1.0040	1.0040	1.0040	1.0040	1.0039	1.0039	1.0039	1.0038	1.0037	1.0034	1.0030
25	1.0053	1.0053	1.0053	1.0053	1.0052	1.0052	1.0051	1.0051	1.0049	1.0046	1.0042
30	1.0069	1.0069	1.0069	1.0069	1.0068	1.0067	1.0067	1.0066	1.0064	1.0060	1.0055
35	1.0083	1.0083	1.0083	1.0083	1.0082	1.0081	1.0080	1.0079	1.0077	1.0072	1.0067
40	1.0099	1.0099	1.0098	1.0098	1.0097	1.0096	1.0095	1.0093	1.0091	1.0085	1.0080
45	1.0113	1.0113	1.0112	1.0111	1.0111	1.0109	1.0108	1.0106	1.0103	1.0097	1.0091
50	1.0127	1.0127	1.0127	1.0126	1.0125	1.0123	1.0122	1.0119	1.0116	1.0108	1.0101
55	1.0141	1.0140	1.0140	1.0139	1.0138	1.0135	1.0134	1.0131	1.0127	1.0119	1.0111
60	1.0154	1.0154	1.0153	1.0152	1.0150	1.0148	1.0146	1.0143	1.0138	1.0129	1.0120
65	1.0166	1.0166	1.0166	1.0164	1.0162	1.0159	1.0157	1.0153	1.0148	1.0137	1.0129
70	1.0178	1.0178	1.0177	1.0175	1.0174	1.0170	1.0167	1.0163	1.0157	1.0145	1.0136
75	1.0190	1.0190	1.0189	1.0186	1.0184	1.0180	1.0177	1.0173	1.0165	1.0153	1.0143
80	1.0201	1.0201	1.0199	1.0196	1.0194	1.0189	1.0186	1.0181	1.0173	1.0159	1.0149
85	1.0211	1.0211	1.0210	1.0206	1.0204	1.0198	1.0194	1.0189	1.0180	1.0165	1.0154
90	1.0221	1.0221	1.0219	1.0215	1.0212	1.0206	1.0201	1.0195	1.0185	1.0170	1.0159
95	1.0231	1.0230	1.0228	1.0224	1.0220	1.0213	1.0208	1.0201	1.0190	1.0174	1.0163
100	1.0239	1.0238	1.0236	1.0231	1.0227	1.0219	1.0213	1.0206	1.0194	1.0177	1.0167
105	1.0247	1.0247	1.0244	1.0238	1.0234	1.0225	1.0218	1.0210	1.0198	1.0180	1.0170
110	1.0254	1.0254	1.0251	1.0244	1.0239	1.0228	1.0222	1.0212	1.0199	1.0182	1.0173
115	1.0262	1.0261	1.0258	1.0250	1.0244	1.0232	1.0225	1.0215	1.0201	1.0184	1.0175
120	1.0268	1.0267	1.0263	1.0253	1.0246	1.0234	1.0225	1.0215	1.0201	1.0184	1.0177
125	1.0275	1.0274	1.0269	1.0257	1.0249	1.0235	1.0226	1.0215	1.0201	1.0185	1.0179
130	1.0279	1.0278	1.0272	1.0259	1.0249	1.0234	1.0224	1.0213	1.0199	1.0185	1.0180
135	1.0285	1.0283	1.0276	1.0260	1.0249	1.0232	1.0222	1.0211	1.0197	1.0184	1.0181
140	1.0288	1.0286	1.0277	1.0258	1.0246	1.0228	1.0218	1.0207	1.0194	1.0183	1.0182
145	1.0293	1.0290	1.0279	1.0256	1.0242	1.0223	1.0213	1.0202	1.0191	1.0183	1.0182
150	1.0296	1.0292	1.0277	1.0249	1.0235	1.0215	1.0206	1.0197	1.0188	1.0181	1.0183
155	1.0299	1.0294	1.0273	1.0240	1.0225	1.0207	1.0199	1.0191	1.0184	1.0180	1.0183
160	1.0302	1.0293	1.0265	1.0227	1.0213	1.0197	1.0191	1.0185	1.0180	1.0179	1.0183
165	1.0301	1.0286	1.0248	1.0210	1.0198	1.0187	1.0183	1.0179	1.0177	1.0178	1.0183
170	1.0314	1.0283	1.0227	1.0193	1.0186	1.0179	1.0177	1.0175	1.0175	1.0178	1.0184
175	1.0228	1.0198	1.0178	1.0172	1.0171	1.0171	1.0171	1.0172	1.0173	1.0177	1.0183
180	1.0169	1.0169	1.0169	1.0169	1.0169	1.0170	1.0170	1.0171	1.0173	1.0177	1.0183

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN SI, Z=14

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9997	0.9997
10	1.0017	1.0017	1.0017	1.0017	1.0016	1.0016	1.0016	1.0015	1.0015	1.0013	1.0009
15	1.0027	1.0027	1.0027	1.0027	1.0027	1.0027	1.0026	1.0026	1.0025	1.0023	1.0019
20	1.0046	1.0046	1.0046	1.0045	1.0045	1.0045	1.0044	1.0043	1.0042	1.0039	1.0034
25	1.0061	1.0061	1.0061	1.0061	1.0060	1.0060	1.0059	1.0058	1.0057	1.0053	1.0048
30	1.0080	1.0080	1.0080	1.0079	1.0079	1.0078	1.0077	1.0076	1.0074	1.0069	1.0063
35	1.0096	1.0096	1.0096	1.0095	1.0095	1.0094	1.0093	1.0091	1.0089	1.0083	1.0077
40	1.0114	1.0114	1.0114	1.0113	1.0112	1.0111	1.0110	1.0108	1.0105	1.0098	1.0091
45	1.0131	1.0130	1.0130	1.0129	1.0128	1.0126	1.0125	1.0123	1.0119	1.0112	1.0104
50	1.0147	1.0147	1.0147	1.0145	1.0144	1.0142	1.0141	1.0138	1.0134	1.0125	1.0117
55	1.0163	1.0163	1.0162	1.0161	1.0160	1.0157	1.0155	1.0152	1.0147	1.0138	1.0128
60	1.0178	1.0178	1.0178	1.0176	1.0174	1.0171	1.0169	1.0166	1.0160	1.0149	1.0139
65	1.0193	1.0193	1.0192	1.0190	1.0188	1.0185	1.0182	1.0178	1.0171	1.0159	1.0149
70	1.0207	1.0207	1.0206	1.0203	1.0201	1.0197	1.0194	1.0190	1.0182	1.0169	1.0158
75	1.0221	1.0220	1.0219	1.0216	1.0214	1.0209	1.0206	1.0201	1.0192	1.0178	1.0166
80	1.0233	1.0233	1.0232	1.0228	1.0226	1.0220	1.0216	1.0210	1.0201	1.0185	1.0173
85	1.0245	1.0245	1.0244	1.0240	1.0237	1.0230	1.0226	1.0219	1.0209	1.0192	1.0180
90	1.0257	1.0256	1.0254	1.0250	1.0246	1.0239	1.0234	1.0227	1.0216	1.0198	1.0185
95	1.0268	1.0267	1.0265	1.0260	1.0256	1.0248	1.0242	1.0234	1.0222	1.0203	1.0191
100	1.0277	1.0277	1.0275	1.0269	1.0264	1.0255	1.0248	1.0239	1.0226	1.0207	1.0195
105	1.0287	1.0287	1.0284	1.0277	1.0272	1.0261	1.0254	1.0244	1.0230	1.0210	1.0199
110	1.0296	1.0295	1.0292	1.0284	1.0277	1.0266	1.0258	1.0247	1.0233	1.0213	1.0202
115	1.0305	1.0304	1.0300	1.0290	1.0283	1.0270	1.0262	1.0250	1.0235	1.0215	1.0205
120	1.0311	1.0310	1.0306	1.0295	1.0287	1.0272	1.0263	1.0251	1.0235	1.0216	1.0207
125	1.0319	1.0318	1.0313	1.0299	1.0290	1.0274	1.0264	1.0251	1.0235	1.0216	1.0209
130	1.0325	1.0323	1.0317	1.0301	1.0290	1.0272	1.0262	1.0249	1.0233	1.0216	1.0211
135	1.0331	1.0329	1.0321	1.0303	1.0291	1.0271	1.0259	1.0246	1.0231	1.0216	1.0212
140	1.0335	1.0333	1.0323	1.0301	1.0287	1.0266	1.0254	1.0242	1.0228	1.0215	1.0213
145	1.0341	1.0338	1.0325	1.0298	1.0283	1.0260	1.0249	1.0237	1.0224	1.0214	1.0214
150	1.0344	1.0340	1.0322	1.0291	1.0274	1.0251	1.0241	1.0230	1.0220	1.0213	1.0215
155	1.0348	1.0342	1.0319	1.0281	1.0263	1.0242	1.0232	1.0224	1.0216	1.0212	1.0215
160	1.0351	1.0341	1.0309	1.0266	1.0249	1.0230	1.0223	1.0217	1.0212	1.0210	1.0216
165	1.0350	1.0334	1.0289	1.0245	1.0232	1.0219	1.0214	1.0210	1.0208	1.0209	1.0216
170	1.0364	1.0329	1.0265	1.0226	1.0217	1.0210	1.0207	1.0206	1.0205	1.0209	1.0216
175	1.0273	1.0234	1.0209	1.0202	1.0201	1.0201	1.0201	1.0201	1.0203	1.0208	1.0216
180	1.0198	1.0198	1.0198	1.0198	1.0199	1.0199	1.0200	1.0201	1.0203	1.0208	1.0216

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN K, Z=19

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9996	0.9996	0.9996	0.9996	0.9996	0.9996	0.9995	0.9995	0.9995	0.9993	0.9990
10	1.0026	1.0026	1.0026	1.0025	1.0025	1.0024	1.0024	1.0023	1.0021	1.0016	1.0009
15	1.0046	1.0046	1.0046	1.0046	1.0045	1.0045	1.0044	1.0043	1.0040	1.0035	1.0026
20	1.0079	1.0079	1.0079	1.0078	1.0078	1.0077	1.0076	1.0074	1.0071	1.0063	1.0052
25	1.0109	1.0108	1.0108	1.0107	1.0107	1.0105	1.0104	1.0102	1.0099	1.0090	1.0078
30	1.0143	1.0142	1.0142	1.0141	1.0140	1.0138	1.0137	1.0134	1.0130	1.0120	1.0106
35	1.0174	1.0174	1.0173	1.0172	1.0171	1.0169	1.0167	1.0164	1.0159	1.0147	1.0133
40	1.0207	1.0207	1.0206	1.0205	1.0204	1.0201	1.0199	1.0195	1.0189	1.0176	1.0160
45	1.0238	1.0238	1.0237	1.0235	1.0234	1.0231	1.0228	1.0224	1.0217	1.0202	1.0185
50	1.0270	1.0269	1.0269	1.0266	1.0264	1.0260	1.0257	1.0253	1.0244	1.0228	1.0210
55	1.0299	1.0299	1.0298	1.0295	1.0293	1.0288	1.0285	1.0279	1.0270	1.0251	1.0232
60	1.0328	1.0328	1.0327	1.0324	1.0321	1.0316	1.0312	1.0305	1.0294	1.0274	1.0253
65	1.0356	1.0356	1.0354	1.0351	1.0348	1.0341	1.0336	1.0329	1.0317	1.0294	1.0273
70	1.0383	1.0382	1.0381	1.0376	1.0373	1.0365	1.0360	1.0352	1.0338	1.0313	1.0291
75	1.0408	1.0408	1.0406	1.0401	1.0397	1.0388	1.0382	1.0373	1.0357	1.0330	1.0307
80	1.0432	1.0432	1.0430	1.0424	1.0419	1.0409	1.0402	1.0392	1.0375	1.0346	1.0322
85	1.0456	1.0455	1.0452	1.0446	1.0440	1.0429	1.0421	1.0409	1.0391	1.0360	1.0336
90	1.0477	1.0476	1.0473	1.0465	1.0459	1.0447	1.0438	1.0425	1.0404	1.0372	1.0349
95	1.0498	1.0497	1.0494	1.0485	1.0477	1.0463	1.0453	1.0439	1.0417	1.0383	1.0360
100	1.0517	1.0516	1.0512	1.0501	1.0493	1.0477	1.0466	1.0450	1.0426	1.0391	1.0370
105	1.0536	1.0535	1.0530	1.0517	1.0508	1.0490	1.0478	1.0460	1.0435	1.0399	1.0379
110	1.0552	1.0550	1.0545	1.0531	1.0520	1.0500	1.0486	1.0467	1.0441	1.0405	1.0386
115	1.0568	1.0567	1.0560	1.0544	1.0531	1.0508	1.0493	1.0473	1.0445	1.0410	1.0394
120	1.0582	1.0580	1.0572	1.0553	1.0539	1.0513	1.0497	1.0475	1.0447	1.0414	1.0400
125	1.0596	1.0594	1.0585	1.0562	1.0546	1.0517	1.0499	1.0477	1.0448	1.0416	1.0405
130	1.0607	1.0605	1.0593	1.0566	1.0548	1.0516	1.0497	1.0474	1.0446	1.0417	1.0410
135	1.0619	1.0616	1.0602	1.0570	1.0549	1.0514	1.0494	1.0471	1.0444	1.0418	1.0414
140	1.0628	1.0624	1.0606	1.0568	1.0544	1.0506	1.0486	1.0463	1.0439	1.0418	1.0418
145	1.0638	1.0632	1.0610	1.0563	1.0536	1.0497	1.0477	1.0455	1.0433	1.0417	1.0421
150	1.0644	1.0636	1.0607	1.0552	1.0522	1.0482	1.0463	1.0444	1.0426	1.0416	1.0423
155	1.0651	1.0640	1.0601	1.0534	1.0503	1.0465	1.0449	1.0433	1.0419	1.0414	1.0425
160	1.0656	1.0640	1.0585	1.0509	1.0478	1.0445	1.0432	1.0421	1.0412	1.0413	1.0427
165	1.0657	1.0629	1.0552	1.0473	1.0448	1.0424	1.0416	1.0409	1.0406	1.0412	1.0428
170	1.0676	1.0617	1.0506	1.0437	1.0421	1.0407	1.0403	1.0401	1.0402	1.0411	1.0429
175	1.0559	1.0472	1.0412	1.0395	1.0393	1.0392	1.0392	1.0394	1.0398	1.0410	1.0429
180	1.0385	1.0385	1.0386	1.0386	1.0387	1.0389	1.0390	1.0392	1.0397	1.0409	1.0429

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN TI, Z=22

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9994	0.9994	0.9994	0.9993	0.9993	0.9993	0.9993	0.9992	0.9991	0.9988	0.9984
10	1.0031	1.0031	1.0031	1.0030	1.0030	1.0029	1.0028	1.0026	1.0024	1.0016	1.0005
15	1.0059	1.0059	1.0058	1.0058	1.0057	1.0056	1.0055	1.0053	1.0050	1.0040	1.0026
20	1.0102	1.0102	1.0102	1.0101	1.0100	1.0098	1.0097	1.0094	1.0090	1.0078	1.0061
25	1.0142	1.0142	1.0141	1.0140	1.0139	1.0137	1.0135	1.0132	1.0127	1.0114	1.0095
30	1.0187	1.0187	1.0187	1.0185	1.0184	1.0181	1.0179	1.0176	1.0169	1.0154	1.0133
35	1.0230	1.0230	1.0229	1.0227	1.0226	1.0223	1.0220	1.0216	1.0209	1.0192	1.0169
40	1.0275	1.0275	1.0274	1.0272	1.0270	1.0266	1.0263	1.0258	1.0250	1.0231	1.0206
45	1.0317	1.0317	1.0316	1.0314	1.0311	1.0307	1.0303	1.0298	1.0288	1.0267	1.0241
50	1.0360	1.0360	1.0359	1.0356	1.0353	1.0348	1.0344	1.0337	1.0326	1.0302	1.0275
55	1.0401	1.0400	1.0399	1.0395	1.0392	1.0386	1.0381	1.0374	1.0361	1.0335	1.0306
60	1.0440	1.0440	1.0438	1.0434	1.0431	1.0423	1.0418	1.0409	1.0395	1.0366	1.0336
65	1.0478	1.0478	1.0476	1.0471	1.0467	1.0458	1.0452	1.0442	1.0426	1.0394	1.0364
70	1.0515	1.0514	1.0512	1.0506	1.0502	1.0492	1.0485	1.0473	1.0455	1.0421	1.0389
75	1.0550	1.0549	1.0547	1.0540	1.0534	1.0523	1.0515	1.0502	1.0482	1.0445	1.0413
80	1.0583	1.0582	1.0579	1.0571	1.0565	1.0552	1.0543	1.0529	1.0506	1.0467	1.0434
85	1.0615	1.0614	1.0610	1.0601	1.0594	1.0580	1.0569	1.0554	1.0529	1.0487	1.0454
90	1.0644	1.0643	1.0639	1.0629	1.0621	1.0604	1.0592	1.0575	1.0548	1.0504	1.0472
95	1.0673	1.0672	1.0667	1.0655	1.0646	1.0627	1.0614	1.0595	1.0566	1.0520	1.0489
100	1.0699	1.0698	1.0692	1.0678	1.0668	1.0647	1.0632	1.0611	1.0580	1.0533	1.0504
105	1.0724	1.0723	1.0717	1.0701	1.0689	1.0665	1.0649	1.0626	1.0592	1.0545	1.0517
110	1.0747	1.0745	1.0738	1.0719	1.0706	1.0679	1.0661	1.0636	1.0601	1.0554	1.0529
115	1.0769	1.0767	1.0759	1.0737	1.0721	1.0691	1.0672	1.0645	1.0609	1.0562	1.0540
120	1.0788	1.0786	1.0776	1.0751	1.0733	1.0699	1.0678	1.0649	1.0612	1.0568	1.0550
125	1.0808	1.0805	1.0793	1.0763	1.0742	1.0705	1.0682	1.0652	1.0615	1.0573	1.0559
130	1.0823	1.0820	1.0805	1.0770	1.0746	1.0705	1.0680	1.0650	1.0613	1.0576	1.0567
135	1.0840	1.0835	1.0817	1.0776	1.0748	1.0703	1.0677	1.0646	1.0611	1.0578	1.0574
140	1.0852	1.0846	1.0824	1.0774	1.0743	1.0694	1.0668	1.0637	1.0605	1.0578	1.0580
145	1.0865	1.0858	1.0829	1.0769	1.0734	1.0682	1.0656	1.0627	1.0598	1.0578	1.0585
150	1.0874	1.0864	1.0827	1.0754	1.0716	1.0663	1.0639	1.0613	1.0590	1.0577	1.0590
155	1.0884	1.0870	1.0819	1.0732	1.0692	1.0641	1.0619	1.0598	1.0581	1.0576	1.0594
160	1.0891	1.0870	1.0798	1.0699	1.0659	1.0615	1.0598	1.0583	1.0572	1.0575	1.0597
165	1.0892	1.0856	1.0756	1.0652	1.0619	1.0587	1.0577	1.0568	1.0564	1.0574	1.0599
170	1.0914	1.0839	1.0695	1.0604	1.0582	1.0565	1.0560	1.0557	1.0558	1.0573	1.0601
175	1.0786	1.0662	1.0574	1.0550	1.0546	1.0545	1.0545	1.0548	1.0554	1.0572	1.0602
180	1.0535	1.0535	1.0535	1.0536	1.0537	1.0540	1.0542	1.0545	1.0552	1.0571	1.0602

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN V, Z=23

ENERGY (MEV) / ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9993	0.9993	0.9993	0.9992	0.9992	0.9992	0.9991	0.9991	0.9990	0.9987	0.9981
10	1.0032	1.0032	1.0032	1.0031	1.0031	1.0030	1.0029	1.0027	1.0024	1.0016	1.0003
15	1.0063	1.0063	1.0062	1.0062	1.0061	1.0059	1.0058	1.0056	1.0052	1.0042	1.0026
20	1.0110	1.0110	1.0109	1.0108	1.0107	1.0105	1.0104	1.0101	1.0096	1.0083	1.0063
25	1.0153	1.0153	1.0153	1.0152	1.0150	1.0148	1.0146	1.0143	1.0137	1.0122	1.0100
30	1.0203	1.0203	1.0203	1.0201	1.0200	1.0197	1.0194	1.0190	1.0183	1.0166	1.0142
35	1.0250	1.0250	1.0249	1.0247	1.0246	1.0242	1.0239	1.0235	1.0227	1.0207	1.0182
40	1.0300	1.0299	1.0298	1.0296	1.0294	1.0290	1.0287	1.0281	1.0272	1.0250	1.0222
45	1.0346	1.0346	1.0345	1.0342	1.0340	1.0335	1.0331	1.0325	1.0314	1.0290	1.0261
50	1.0393	1.0393	1.0392	1.0388	1.0385	1.0379	1.0375	1.0368	1.0355	1.0329	1.0298
55	1.0438	1.0437	1.0436	1.0432	1.0429	1.0422	1.0416	1.0408	1.0394	1.0365	1.0333
60	1.0481	1.0481	1.0479	1.0475	1.0471	1.0463	1.0457	1.0447	1.0431	1.0399	1.0366
65	1.0523	1.0523	1.0521	1.0515	1.0511	1.0501	1.0495	1.0484	1.0466	1.0431	1.0396
70	1.0563	1.0563	1.0560	1.0554	1.0549	1.0538	1.0530	1.0518	1.0498	1.0460	1.0425
75	1.0602	1.0601	1.0598	1.0591	1.0585	1.0573	1.0564	1.0550	1.0528	1.0487	1.0451
80	1.0638	1.0637	1.0634	1.0626	1.0619	1.0605	1.0595	1.0580	1.0555	1.0512	1.0475
85	1.0673	1.0672	1.0669	1.0659	1.0651	1.0635	1.0624	1.0607	1.0580	1.0534	1.0497
90	1.0706	1.0705	1.0701	1.0689	1.0680	1.0662	1.0650	1.0631	1.0601	1.0554	1.0518
95	1.0737	1.0736	1.0731	1.0718	1.0708	1.0688	1.0674	1.0653	1.0621	1.0571	1.0538
100	1.0766	1.0765	1.0759	1.0744	1.0733	1.0710	1.0694	1.0671	1.0637	1.0586	1.0553
105	1.0794	1.0793	1.0786	1.0769	1.0756	1.0730	1.0712	1.0687	1.0651	1.0599	1.0569
110	1.0819	1.0817	1.0810	1.0789	1.0774	1.0745	1.0726	1.0699	1.0661	1.0610	1.0582
115	1.0844	1.0842	1.0833	1.0809	1.0792	1.0759	1.0738	1.0709	1.0670	1.0619	1.0595
120	1.0865	1.0862	1.0851	1.0824	1.0805	1.0768	1.0745	1.0714	1.0674	1.0626	1.0607
125	1.0886	1.0883	1.0870	1.0838	1.0816	1.0775	1.0750	1.0717	1.0677	1.0632	1.0617
130	1.0903	1.0900	1.0884	1.0846	1.0820	1.0775	1.0749	1.0716	1.0676	1.0635	1.0626
135	1.0922	1.0917	1.0897	1.0852	1.0823	1.0773	1.0745	1.0712	1.0673	1.0638	1.0634
140	1.0935	1.0929	1.0905	1.0851	1.0817	1.0764	1.0735	1.0703	1.0667	1.0639	1.0641
145	1.0950	1.0942	1.0911	1.0846	1.0808	1.0751	1.0723	1.0692	1.0660	1.0639	1.0648
150	1.0959	1.0949	1.0908	1.0830	1.0788	1.0731	1.0704	1.0677	1.0651	1.0639	1.0653
155	1.0970	1.0955	1.0900	1.0807	1.0762	1.0707	1.0684	1.0661	1.0642	1.0638	1.0657
160	1.0978	1.0955	1.0878	1.0770	1.0727	1.0679	1.0661	1.0644	1.0633	1.0637	1.0661
165	1.0980	1.0941	1.0833	1.0720	1.0684	1.0649	1.0637	1.0628	1.0624	1.0635	1.0664
170	1.1003	1.0922	1.0766	1.0667	1.0643	1.0624	1.0619	1.0616	1.0618	1.0634	1.0666
175	1.0871	1.0734	1.0636	1.0608	1.0604	1.0602	1.0603	1.0606	1.0613	1.0634	1.0667
180	1.0591	1.0591	1.0592	1.0593	1.0594	1.0597	1.0600	1.0604	1.0611	1.0633	1.0667

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN CR, Z=24

ENERGY (MEV) / ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9991	0.9991	0.9991	0.9991	0.9991	0.9990	0.9990	0.9990	0.9988	0.9984	0.9978
10	1.0034	1.0034	1.0033	1.0033	1.0032	1.0031	1.0030	1.0028	1.0024	1.0015	1.0001
15	1.0067	1.0067	1.0066	1.0065	1.0065	1.0063	1.0062	1.0059	1.0055	1.0043	1.0024
20	1.0118	1.0118	1.0117	1.0116	1.0115	1.0113	1.0111	1.0108	1.0102	1.0087	1.0065
25	1.0165	1.0165	1.0165	1.0163	1.0162	1.0159	1.0157	1.0154	1.0147	1.0130	1.0105
30	1.0220	1.0220	1.0219	1.0217	1.0216	1.0212	1.0210	1.0205	1.0197	1.0178	1.0150
35	1.0271	1.0271	1.0270	1.0268	1.0266	1.0262	1.0259	1.0254	1.0245	1.0223	1.0194
40	1.0325	1.0325	1.0324	1.0321	1.0319	1.0314	1.0311	1.0305	1.0294	1.0270	1.0239
45	1.0376	1.0376	1.0375	1.0372	1.0369	1.0363	1.0359	1.0352	1.0340	1.0314	1.0281
50	1.0427	1.0427	1.0426	1.0422	1.0419	1.0412	1.0408	1.0400	1.0386	1.0356	1.0322
55	1.0476	1.0476	1.0474	1.0470	1.0466	1.0459	1.0453	1.0444	1.0428	1.0396	1.0360
60	1.0524	1.0524	1.0522	1.0517	1.0513	1.0504	1.0497	1.0487	1.0469	1.0434	1.0397
65	1.0570	1.0569	1.0567	1.0561	1.0557	1.0546	1.0539	1.0527	1.0507	1.0469	1.0430
70	1.0614	1.0613	1.0611	1.0604	1.0598	1.0587	1.0578	1.0565	1.0543	1.0502	1.0462
75	1.0656	1.0656	1.0653	1.0645	1.0638	1.0625	1.0615	1.0600	1.0576	1.0531	1.0491
80	1.0696	1.0695	1.0692	1.0683	1.0675	1.0660	1.0649	1.0633	1.0606	1.0559	1.0518
85	1.0735	1.0734	1.0730	1.0719	1.0711	1.0694	1.0681	1.0663	1.0633	1.0583	1.0543
90	1.0771	1.0769	1.0765	1.0753	1.0743	1.0724	1.0710	1.0689	1.0657	1.0605	1.0565
95	1.0805	1.0804	1.0799	1.0785	1.0774	1.0752	1.0736	1.0714	1.0679	1.0625	1.0586
100	1.0837	1.0835	1.0829	1.0813	1.0801	1.0776	1.0759	1.0734	1.0697	1.0642	1.0605
105	1.0868	1.0866	1.0859	1.0840	1.0826	1.0798	1.0779	1.0752	1.0713	1.0657	1.0623
110	1.0895	1.0893	1.0885	1.0863	1.0847	1.0816	1.0795	1.0765	1.0724	1.0669	1.0639
115	1.0922	1.0920	1.0910	1.0885	1.0866	1.0831	1.0808	1.0777	1.0734	1.0679	1.0653
120	1.0945	1.0943	1.0931	1.0902	1.0880	1.0841	1.0816	1.0783	1.0739	1.0687	1.0666
125	1.0969	1.0966	1.0952	1.0917	1.0893	1.0849	1.0822	1.0787	1.0743	1.0694	1.0678
130	1.0988	1.0984	1.0967	1.0926	1.0898	1.0850	1.0821	1.0785	1.0742	1.0698	1.0688
135	1.1008	1.1003	1.0982	1.0933	1.0901	1.0848	1.0817	1.0781	1.0740	1.0702	1.0698
140	1.1023	1.1016	1.0990	1.0932	1.0896	1.0838	1.0807	1.0772	1.0734	1.0703	1.0706
145	1.1039	1.1030	1.0997	1.0927	1.0886	1.0825	1.0794	1.0760	1.0726	1.0704	1.0714
150	1.1050	1.1038	1.0995	1.0910	1.0865	1.0803	1.0774	1.0744	1.0717	1.0704	1.0720
155	1.1061	1.1045	1.0986	1.0885	1.0837	1.0778	1.0752	1.0727	1.0707	1.0703	1.0725
160	1.1070	1.1045	1.0962	1.0846	1.0799	1.0747	1.0727	1.0709	1.0697	1.0702	1.0730
165	1.1072	1.1031	1.0914	1.0791	1.0752	1.0715	1.0702	1.0692	1.0688	1.0701	1.0733
170	1.1096	1.1009	1.0841	1.0734	1.0708	1.0687	1.0682	1.0679	1.0681	1.0700	1.0735
175	1.0962	1.0810	1.0701	1.0670	1.0666	1.0664	1.0665	1.0668	1.0676	1.0699	1.0737
180	1.0651	1.0651	1.0652	1.0654	1.0655	1.0658	1.0661	1.0665	1.0674	1.0699	1.0737

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN FE, Z=26

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9989	0.9989	0.9989	0.9988	0.9988	0.9987	0.9987	0.9986	0.9984	0.9979	0.9971
10	1.0036	1.0036	1.0035	1.0035	1.0034	1.0032	1.0031	1.0029	1.0024	1.0013	0.9995
15	1.0075	1.0074	1.0074	1.0073	1.0072	1.0070	1.0068	1.0065	1.0060	1.0045	1.0021
20	1.0134	1.0134	1.0133	1.0132	1.0131	1.0128	1.0125	1.0122	1.0114	1.0096	1.0067
25	1.0190	1.0190	1.0189	1.0188	1.0186	1.0183	1.0180	1.0176	1.0167	1.0146	1.0113
30	1.0254	1.0254	1.0253	1.0251	1.0249	1.0245	1.0242	1.0236	1.0226	1.0202	1.0167
35	1.0315	1.0315	1.0314	1.0311	1.0309	1.0304	1.0300	1.0294	1.0283	1.0256	1.0219
40	1.0379	1.0378	1.0377	1.0374	1.0371	1.0366	1.0361	1.0354	1.0341	1.0311	1.0271
45	1.0439	1.0439	1.0438	1.0434	1.0431	1.0424	1.0419	1.0411	1.0396	1.0363	1.0322
50	1.0500	1.0500	1.0498	1.0494	1.0490	1.0483	1.0477	1.0467	1.0451	1.0414	1.0371
55	1.0558	1.0558	1.0556	1.0551	1.0547	1.0538	1.0531	1.0520	1.0502	1.0462	1.0417
60	1.0615	1.0615	1.0613	1.0607	1.0602	1.0591	1.0584	1.0571	1.0550	1.0508	1.0461
65	1.0670	1.0669	1.0667	1.0660	1.0654	1.0642	1.0634	1.0620	1.0596	1.0550	1.0502
70	1.0722	1.0722	1.0719	1.0711	1.0704	1.0691	1.0681	1.0665	1.0639	1.0589	1.0540
75	1.0773	1.0772	1.0769	1.0759	1.0752	1.0736	1.0725	1.0708	1.0679	1.0625	1.0576
80	1.0821	1.0820	1.0816	1.0805	1.0797	1.0779	1.0766	1.0747	1.0715	1.0659	1.0609
85	1.0867	1.0866	1.0861	1.0849	1.0839	1.0819	1.0804	1.0783	1.0748	1.0689	1.0639
90	1.0909	1.0908	1.0903	1.0889	1.0878	1.0855	1.0839	1.0815	1.0778	1.0716	1.0667
95	1.0951	1.0950	1.0943	1.0927	1.0914	1.0889	1.0871	1.0844	1.0804	1.0740	1.0693
100	1.0989	1.0987	1.0980	1.0961	1.0947	1.0918	1.0898	1.0869	1.0826	1.0761	1.0717
105	1.1026	1.1024	1.1016	1.0994	1.0977	1.0945	1.0923	1.0892	1.0846	1.0780	1.0739
110	1.1059	1.1056	1.1047	1.1022	1.1003	1.0967	1.0942	1.0909	1.0861	1.0796	1.0759
115	1.1091	1.1089	1.1077	1.1048	1.1027	1.0986	1.0959	1.0923	1.0873	1.0809	1.0778
120	1.1119	1.1116	1.1102	1.1069	1.1044	1.0999	1.0970	1.0931	1.0881	1.0820	1.0795
125	1.1147	1.1143	1.1127	1.1087	1.1059	1.1008	1.0977	1.0937	1.0885	1.0829	1.0810
130	1.1170	1.1165	1.1146	1.1099	1.1067	1.1011	1.0978	1.0936	1.0886	1.0835	1.0824
135	1.1193	1.1188	1.1164	1.1108	1.1071	1.1009	1.0974	1.0932	1.0884	1.0840	1.0837
140	1.1212	1.1204	1.1174	1.1108	1.1066	1.0999	1.0963	1.0922	1.0878	1.0843	1.0848
145	1.1230	1.1221	1.1183	1.1102	1.1055	1.0984	1.0948	1.0909	1.0870	1.0845	1.0858
150	1.1244	1.1231	1.1181	1.1084	1.1032	1.0960	1.0926	1.0891	1.0860	1.0846	1.0866
155	1.1258	1.1239	1.1171	1.1055	1.0999	1.0930	1.0901	1.0872	1.0849	1.0846	1.0874
160	1.1268	1.1240	1.1145	1.1010	1.0955	1.0895	1.0872	1.0851	1.0838	1.0845	1.0880
165	1.1272	1.1224	1.1089	1.0947	1.0901	1.0858	1.0843	1.0832	1.0828	1.0844	1.0884
170	1.1297	1.1198	1.1004	1.0879	1.0850	1.0826	1.0819	1.0816	1.0820	1.0844	1.0888
175	1.1159	1.0977	1.0844	1.0806	1.0801	1.0799	1.0800	1.0804	1.0814	1.0843	1.0890
180	1.0783	1.0783	1.0784	1.0786	1.0788	1.0792	1.0795	1.0801	1.0812	1.0843	1.0890

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN NI, Z=28

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9985	0.9985	0.9985	0.9985	0.9984	0.9984	0.9983	0.9982	0.9980	0.9973	0.9963
10	1.0037	1.0037	1.0037	1.0036	1.0035	1.0033	1.0031	1.0029	1.0023	1.0009	0.9987
15	1.0082	1.0082	1.0081	1.0080	1.0079	1.0076	1.0074	1.0070	1.0063	1.0044	1.0015
20	1.0150	1.0150	1.0149	1.0148	1.0146	1.0143	1.0140	1.0135	1.0126	1.0103	1.0066
25	1.0216	1.0216	1.0215	1.0213	1.0211	1.0207	1.0203	1.0198	1.0187	1.0161	1.0120
30	1.0290	1.0290	1.0289	1.0286	1.0284	1.0279	1.0275	1.0269	1.0256	1.0226	1.0182
35	1.0361	1.0361	1.0360	1.0357	1.0354	1.0348	1.0344	1.0336	1.0323	1.0289	1.0242
40	1.0436	1.0436	1.0434	1.0430	1.0427	1.0420	1.0415	1.0407	1.0391	1.0354	1.0308
45	1.0507	1.0507	1.0505	1.0501	1.0497	1.0489	1.0483	1.0473	1.0456	1.0416	1.0364
50	1.0579	1.0578	1.0576	1.0571	1.0567	1.0558	1.0551	1.0540	1.0520	1.0476	1.0422
55	1.0647	1.0647	1.0644	1.0638	1.0633	1.0623	1.0615	1.0602	1.0580	1.0533	1.0476
60	1.0714	1.0714	1.0711	1.0704	1.0698	1.0686	1.0677	1.0663	1.0638	1.0586	1.0529
65	1.0778	1.0778	1.0775	1.0767	1.0760	1.0746	1.0736	1.0720	1.0692	1.0637	1.0578
70	1.0840	1.0840	1.0836	1.0827	1.0819	1.0803	1.0792	1.0774	1.0743	1.0684	1.0624
75	1.0900	1.0899	1.0895	1.0884	1.0876	1.0858	1.0844	1.0824	1.0790	1.0727	1.0666
80	1.0956	1.0955	1.0951	1.0938	1.0928	1.0908	1.0893	1.0871	1.0834	1.0767	1.0706
85	1.1011	1.1009	1.1004	1.0990	1.0979	1.0956	1.0939	1.0914	1.0874	1.0804	1.0743
90	1.1061	1.1060	1.1054	1.1037	1.1025	1.0999	1.0980	1.0952	1.0909	1.0836	1.0778
95	1.1110	1.1109	1.1102	1.1083	1.1068	1.1039	1.1018	1.0988	1.0941	1.0866	1.0810
100	1.1155	1.1153	1.1145	1.1124	1.1107	1.1074	1.1051	1.1018	1.0968	1.0892	1.0839
105	1.1199	1.1197	1.1187	1.1163	1.1144	1.1107	1.1081	1.1045	1.0992	1.0915	1.0867
110	1.1238	1.1236	1.1224	1.1196	1.1174	1.1133	1.1105	1.1066	1.1011	1.0935	1.0892
115	1.1276	1.1273	1.1260	1.1227	1.1203	1.1156	1.1125	1.1084	1.1026	1.0952	1.0915
120	1.1310	1.1306	1.1291	1.1252	1.1224	1.1172	1.1139	1.1095	1.1036	1.0966	1.0937
125	1.1343	1.1338	1.1320	1.1275	1.1243	1.1185	1.1149	1.1102	1.1043	1.0978	1.0956
130	1.1370	1.1365	1.1343	1.1289	1.1253	1.1189	1.1151	1.1103	1.1045	1.0987	1.0974
135	1.1398	1.1391	1.1364	1.1301	1.1258	1.1188	1.1148	1.1099	1.1044	1.0994	1.0991
140	1.1419	1.1411	1.1377	1.1302	1.1254	1.1178	1.1136	1.1089	1.1038	1.0999	1.1005
145	1.1442	1.1431	1.1388	1.1296	1.1242	1.1161	1.1120	1.1075	1.1030	1.1002	1.1018
150	1.1458	1.1444	1.1387	1.1276	1.1216	1.1134	1.1095	1.1055	1.1019	1.1004	1.1030
155	1.1474	1.1453	1.1376	1.1244	1.1180	1.1101	1.1066	1.1034	1.1008	1.1005	1.1040
160	1.1487	1.1455	1.1347	1.1193	1.1130	1.1060	1.1034	1.1010	1.0995	1.1005	1.1048
165	1.1491	1.1438	1.1284	1.1121	1.1068	1.1018	1.1001	1.0988	1.0984	1.1005	1.1054
170	1.1518	1.1406	1.1186	1.1042	1.1008	1.0980	1.0973	1.0970	1.0975	1.1005	1.1058
175	1.1378	1.1163	1.1004	1.0959	1.0952	1.0950	1.0951	1.0956	1.0968	1.1005	1.1061
180	1.0930	1.0930	1.0931	1.0934	1.0936	1.0941	1.0945	1.0952	1.0966	1.1004	1.1062

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN CU, Z=29

ENERGY(MEV) ANGLE(DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9983	0.9983	0.9983	0.9983	0.9982	0.9981	0.9981	0.9979	0.9977	0.9970	0.9959
10	1.0038	1.0038	1.0037	1.0036	1.0035	1.0033	1.0031	1.0028	1.0022	1.0006	0.9982
15	1.0085	1.0085	1.0085	1.0083	1.0082	1.0079	1.0077	1.0073	1.0065	1.0044	1.0011
20	1.0158	1.0158	1.0157	1.0155	1.0154	1.0150	1.0147	1.0142	1.0132	1.0106	1.0065
25	1.0229	1.0229	1.0228	1.0225	1.0223	1.0219	1.0215	1.0209	1.0197	1.0168	1.0123
30	1.0309	1.0308	1.0307	1.0304	1.0302	1.0296	1.0292	1.0285	1.0272	1.0238	1.0188
35	1.0386	1.0385	1.0384	1.0381	1.0378	1.0371	1.0366	1.0358	1.0343	1.0306	1.0254
40	1.0466	1.0465	1.0464	1.0460	1.0456	1.0449	1.0443	1.0434	1.0417	1.0376	1.0320
45	1.0543	1.0542	1.0540	1.0536	1.0532	1.0523	1.0517	1.0506	1.0487	1.0443	1.0385
50	1.0620	1.0619	1.0617	1.0612	1.0607	1.0597	1.0590	1.0577	1.0556	1.0508	1.0447
55	1.0694	1.0693	1.0691	1.0684	1.0679	1.0668	1.0659	1.0645	1.0621	1.0569	1.0507
60	1.0766	1.0766	1.0763	1.0755	1.0749	1.0736	1.0726	1.0711	1.0684	1.0628	1.0564
65	1.0836	1.0835	1.0832	1.0823	1.0816	1.0801	1.0790	1.0773	1.0743	1.0683	1.0617
70	1.0903	1.0902	1.0898	1.0888	1.0880	1.0863	1.0851	1.0831	1.0798	1.0734	1.0667
75	1.0967	1.0966	1.0962	1.0950	1.0941	1.0922	1.0908	1.0886	1.0849	1.0781	1.0714
80	1.1028	1.1027	1.1022	1.1009	1.0999	1.0977	1.0961	1.0936	1.0897	1.0825	1.0758
85	1.1087	1.1086	1.1080	1.1065	1.1053	1.1028	1.1010	1.0983	1.0940	1.0865	1.0798
90	1.1142	1.1141	1.1134	1.1117	1.1103	1.1075	1.1055	1.1026	1.0979	1.0901	1.0836
95	1.1195	1.1194	1.1186	1.1166	1.1151	1.1119	1.1097	1.1064	1.1014	1.0933	1.0871
100	1.1244	1.1242	1.1233	1.1210	1.1193	1.1158	1.1133	1.1098	1.1044	1.0962	1.0904
105	1.1291	1.1289	1.1279	1.1253	1.1232	1.1193	1.1166	1.1127	1.1070	1.0988	1.0934
110	1.1334	1.1331	1.1319	1.1289	1.1266	1.1222	1.1192	1.1150	1.1091	1.1010	1.0963
115	1.1375	1.1372	1.1358	1.1323	1.1297	1.1247	1.1215	1.1170	1.1109	1.1029	1.0988
120	1.1412	1.1408	1.1391	1.1350	1.1321	1.1265	1.1230	1.1183	1.1120	1.1045	1.1013
125	1.1447	1.1443	1.1423	1.1375	1.1341	1.1279	1.1241	1.1191	1.1128	1.1058	1.1035
130	1.1477	1.1472	1.1448	1.1392	1.1353	1.1284	1.1244	1.1192	1.1131	1.1069	1.1055
135	1.1507	1.1500	1.1471	1.1404	1.1359	1.1284	1.1241	1.1189	1.1130	1.1077	1.1073
140	1.1531	1.1522	1.1486	1.1406	1.1355	1.1273	1.1230	1.1179	1.1125	1.1083	1.1090
145	1.1555	1.1544	1.1497	1.1400	1.1342	1.1256	1.1212	1.1164	1.1117	1.1087	1.1105
150	1.1573	1.1557	1.1497	1.1380	1.1316	1.1228	1.1187	1.1144	1.1106	1.1090	1.1118
155	1.1590	1.1568	1.1486	1.1345	1.1277	1.1193	1.1156	1.1121	1.1093	1.1092	1.1129
160	1.1604	1.1570	1.1456	1.1291	1.1224	1.1150	1.1121	1.1096	1.1081	1.1092	1.1139
165	1.1609	1.1553	1.1389	1.1215	1.1158	1.1104	1.1086	1.1073	1.1069	1.1093	1.1146
170	1.1637	1.1518	1.1284	1.1130	1.1094	1.1064	1.1057	1.1054	1.1059	1.1092	1.1151
175	1.1497	1.1264	1.1091	1.1041	1.1034	1.1032	1.1034	1.1039	1.1053	1.1092	1.1154
180	1.1010	1.1010	1.1011	1.1014	1.1017	1.1022	1.1027	1.1035	1.1050	1.1092	1.1155

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN ZN, Z=30

ENERGY(MEV) ANGLE(DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9981	0.9981	0.9981	0.9980	0.9980	0.9979	0.9978	0.9977	0.9974	0.9966	0.9955
10	1.0038	1.0038	1.0037	1.0036	1.0035	1.0033	1.0031	1.0027	1.0021	1.0003	0.9977
15	1.0089	1.0088	1.0088	1.0086	1.0085	1.0081	1.0079	1.0074	1.0066	1.0043	1.0006
20	1.0166	1.0166	1.0165	1.0163	1.0161	1.0157	1.0154	1.0148	1.0137	1.0108	1.0068
25	1.0242	1.0242	1.0241	1.0238	1.0236	1.0231	1.0227	1.0220	1.0207	1.0174	1.0125
30	1.0328	1.0327	1.0326	1.0323	1.0320	1.0314	1.0310	1.0302	1.0287	1.0250	1.0195
35	1.0410	1.0410	1.0409	1.0405	1.0402	1.0395	1.0389	1.0380	1.0364	1.0323	1.0265
40	1.0496	1.0496	1.0494	1.0490	1.0486	1.0478	1.0472	1.0462	1.0443	1.0398	1.0336
45	1.0579	1.0579	1.0577	1.0572	1.0567	1.0558	1.0551	1.0539	1.0518	1.0470	1.0406
50	1.0662	1.0662	1.0660	1.0653	1.0649	1.0638	1.0630	1.0617	1.0593	1.0540	1.0474
55	1.0742	1.0741	1.0739	1.0732	1.0726	1.0714	1.0705	1.0690	1.0663	1.0607	1.0538
60	1.0820	1.0820	1.0817	1.0808	1.0802	1.0788	1.0777	1.0761	1.0731	1.0670	1.0600
65	1.0895	1.0895	1.0891	1.0882	1.0874	1.0858	1.0846	1.0827	1.0795	1.0730	1.0657
70	1.0968	1.0967	1.0963	1.0952	1.0943	1.0925	1.0912	1.0891	1.0855	1.0785	1.0712
75	1.1037	1.1036	1.1032	1.1019	1.1009	1.0989	1.0974	1.0950	1.0911	1.0837	1.0763
80	1.1103	1.1102	1.1097	1.1083	1.1071	1.1048	1.1031	1.1005	1.0962	1.0884	1.0811
85	1.1167	1.1166	1.1160	1.1143	1.1131	1.1104	1.1085	1.1056	1.1010	1.0928	1.0855
90	1.1226	1.1225	1.1218	1.1199	1.1185	1.1155	1.1134	1.1102	1.1052	1.0967	1.0897
95	1.1284	1.1282	1.1274	1.1253	1.1236	1.1203	1.1179	1.1144	1.1090	1.1003	1.0936
100	1.1337	1.1335	1.1325	1.1301	1.1282	1.1245	1.1218	1.1180	1.1123	1.1035	1.0972
105	1.1388	1.1385	1.1375	1.1347	1.1325	1.1283	1.1254	1.1213	1.1152	1.1063	1.1005
110	1.1434	1.1431	1.1419	1.1386	1.1362	1.1315	1.1283	1.1239	1.1178	1.1088	1.1036
115	1.1479	1.1475	1.1461	1.1423	1.1395	1.1343	1.1308	1.1260	1.1195	1.1109	1.1065
120	1.1518	1.1514	1.1497	1.1453	1.1422	1.1363	1.1325	1.1275	1.1208	1.1127	1.1092
125	1.1557	1.1552	1.1531	1.1480	1.1444	1.1378	1.1337	1.1284	1.1217	1.1143	1.1117
130	1.1589	1.1583	1.1558	1.1498	1.1457	1.1384	1.1341	1.1286	1.1221	1.1155	1.1140
135	1.1622	1.1614	1.1584	1.1512	1.1465	1.1385	1.1339	1.1284	1.1221	1.1164	1.1160
140	1.1647	1.1638	1.1600	1.1515	1.1460	1.1374	1.1327	1.1273	1.1216	1.1171	1.1179
145	1.1673	1.1661	1.1613	1.1509	1.1448	1.1356	1.1309	1.1258	1.1208	1.1177	1.1196
150	1.1693	1.1677	1.1613	1.1488	1.1420	1.1327	1.1283	1.1237	1.1196	1.1180	1.1211
155	1.1712	1.1688	1.1602	1.1452	1.1380	1.1289	1.1250	1.1213	1.1184	1.1183	1.1228
160	1.1726	1.1691	1.1569	1.1395	1.1323	1.1244	1.1214	1.1187	1.1171	1.1184	1.1234
165	1.1733	1.1673	1.1499	1.1314	1.1253	1.1195	1.1176	1.1162	1.1158	1.1185	1.1243
170	1.1760	1.1636	1.1387	1.1223	1.1184	1.1153	1.1145	1.1142	1.1148	1.1185	1.1249
175	1.1621	1.1371	1.1183	1.1129	1.1121	1.1118	1.1120	1.1126	1.1141	1.1185	1.1253
180	1.1095	1.1095	1.1096	1.1099	1.1102	1.1108	1.1113	1.1122	1.1139	1.1184	1.1253

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN GE, Z=32

ENERGY (MEV) / ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9976	0.9976	0.9976	0.9975	0.9975	0.9973	0.9972	0.9971	0.9967	0.9958	0.9945
10	1.0038	1.0038	1.0037	1.0035	1.0034	1.0031	1.0029	1.0025	1.0017	0.9996	0.9965
15	1.0094	1.0094	1.0094	1.0092	1.0090	1.0086	1.0083	1.0077	1.0067	1.0039	0.9995
20	1.0182	1.0182	1.0181	1.0178	1.0176	1.0171	1.0167	1.0160	1.0147	1.0112	1.0058
25	1.0268	1.0268	1.0267	1.0264	1.0261	1.0255	1.0250	1.0242	1.0227	1.0187	1.0126
30	1.0366	1.0366	1.0364	1.0361	1.0357	1.0350	1.0345	1.0335	1.0317	1.0272	1.0205
35	1.0461	1.0461	1.0459	1.0455	1.0451	1.0443	1.0436	1.0426	1.0406	1.0357	1.0285
40	1.0560	1.0560	1.0558	1.0552	1.0548	1.0539	1.0531	1.0519	1.0497	1.0443	1.0368
45	1.0655	1.0655	1.0653	1.0647	1.0642	1.0631	1.0623	1.0609	1.0584	1.0526	1.0448
50	1.0751	1.0751	1.0748	1.0741	1.0735	1.0723	1.0713	1.0698	1.0670	1.0607	1.0526
55	1.0843	1.0843	1.0840	1.0832	1.0825	1.0811	1.0800	1.0783	1.0752	1.0685	1.0601
60	1.0934	1.0933	1.0930	1.0920	1.0913	1.0897	1.0884	1.0865	1.0831	1.0759	1.0673
65	1.1021	1.1020	1.1016	1.1005	1.0997	1.0978	1.0964	1.0943	1.0905	1.0828	1.0741
70	1.1105	1.1104	1.1099	1.1087	1.1077	1.1056	1.1041	1.1016	1.0975	1.0893	1.0805
75	1.1185	1.1184	1.1179	1.1165	1.1154	1.1130	1.1113	1.1086	1.1041	1.0954	1.0865
80	1.1262	1.1261	1.1255	1.1239	1.1226	1.1199	1.1180	1.1150	1.1101	1.1010	1.0922
85	1.1336	1.1334	1.1328	1.1309	1.1295	1.1265	1.1243	1.1210	1.1157	1.1062	1.0975
90	1.1405	1.1403	1.1396	1.1375	1.1358	1.1324	1.1300	1.1264	1.1207	1.1109	1.1024
95	1.1472	1.1470	1.1461	1.1437	1.1418	1.1380	1.1353	1.1314	1.1252	1.1152	1.1071
100	1.1534	1.1531	1.1521	1.1493	1.1472	1.1430	1.1400	1.1357	1.1292	1.1190	1.1114
105	1.1593	1.1590	1.1578	1.1547	1.1523	1.1475	1.1442	1.1395	1.1327	1.1224	1.1155
110	1.1647	1.1644	1.1630	1.1593	1.1566	1.1513	1.1477	1.1427	1.1355	1.1255	1.1193
115	1.1699	1.1695	1.1679	1.1637	1.1606	1.1546	1.1507	1.1453	1.1379	1.1281	1.1228
120	1.1745	1.1741	1.1721	1.1673	1.1637	1.1571	1.1528	1.1471	1.1396	1.1304	1.1262
125	1.1790	1.1785	1.1762	1.1704	1.1664	1.1590	1.1544	1.1484	1.1408	1.1323	1.1292
130	1.1828	1.1822	1.1794	1.1727	1.1680	1.1599	1.1550	1.1488	1.1414	1.1339	1.1321
135	1.1866	1.1858	1.1824	1.1744	1.1690	1.1600	1.1549	1.1486	1.1415	1.1352	1.1347
140	1.1896	1.1886	1.1844	1.1748	1.1687	1.1590	1.1537	1.1476	1.1411	1.1362	1.1371
145	1.1926	1.1913	1.1859	1.1743	1.1674	1.1571	1.1518	1.1461	1.1404	1.1370	1.1392
150	1.1949	1.1931	1.1860	1.1721	1.1645	1.1539	1.1489	1.1438	1.1392	1.1375	1.1411
155	1.1971	1.1945	1.1849	1.1681	1.1600	1.1498	1.1454	1.1412	1.1379	1.1379	1.1428
160	1.1988	1.1949	1.1814	1.1617	1.1537	1.1447	1.1413	1.1383	1.1365	1.1382	1.1441
165	1.1997	1.1930	1.1736	1.1527	1.1458	1.1393	1.1371	1.1355	1.1351	1.1384	1.1452
170	1.2025	1.1887	1.1609	1.1424	1.1379	1.1344	1.1335	1.1332	1.1341	1.1385	1.1459
175	1.1890	1.1601	1.1382	1.1318	1.1308	1.1305	1.1308	1.1315	1.1333	1.1385	1.1465
180	1.1277	1.1277	1.1279	1.1283	1.1286	1.1293	1.1299	1.1310	1.1330	1.1385	1.1466

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN RB, Z=37

ENERGY (MEV) / ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9959	0.9959	0.9959	0.9958	0.9957	0.9955	0.9954	0.9951	0.9946	0.9933	0.9916
10	1.0031	1.0031	1.0030	1.0028	1.0026	1.0022	1.0018	1.0012	1.0001	0.9970	0.9927
15	1.0104	1.0104	1.0103	1.0099	1.0097	1.0091	1.0086	1.0078	1.0061	1.0018	0.9954
20	1.0218	1.0218	1.0217	1.0213	1.0209	1.0201	1.0195	1.0185	1.0164	1.0110	1.0029
25	1.0334	1.0334	1.0332	1.0327	1.0323	1.0314	1.0307	1.0295	1.0271	1.0209	1.0115
30	1.0466	1.0465	1.0463	1.0457	1.0453	1.0442	1.0434	1.0420	1.0392	1.0323	1.0218
35	1.0596	1.0595	1.0593	1.0586	1.0581	1.0569	1.0559	1.0543	1.0513	1.0437	1.0325
40	1.0731	1.0730	1.0728	1.0720	1.0714	1.0700	1.0689	1.0671	1.0638	1.0555	1.0437
45	1.0863	1.0862	1.0859	1.0851	1.0843	1.0828	1.0816	1.0796	1.0759	1.0671	1.0547
50	1.0996	1.0995	1.0991	1.0981	1.0973	1.0955	1.0942	1.0920	1.0879	1.0784	1.0656
55	1.1124	1.1123	1.1119	1.1108	1.1099	1.1079	1.1063	1.1039	1.0994	1.0893	1.0762
60	1.1250	1.1249	1.1245	1.1232	1.1221	1.1199	1.1182	1.1154	1.1105	1.0998	1.0864
65	1.1372	1.1371	1.1366	1.1351	1.1339	1.1314	1.1295	1.1264	1.1211	1.1098	1.0961
70	1.1490	1.1489	1.1483	1.1466	1.1453	1.1424	1.1403	1.1369	1.1311	1.1192	1.1054
75	1.1604	1.1602	1.1595	1.1576	1.1561	1.1529	1.1505	1.1468	1.1405	1.1280	1.1142
80	1.1712	1.1711	1.1703	1.1681	1.1664	1.1628	1.1602	1.1561	1.1493	1.1362	1.1225
85	1.1817	1.1815	1.1806	1.1781	1.1762	1.1722	1.1692	1.1647	1.1574	1.1438	1.1304
90	1.1915	1.1913	1.1903	1.1875	1.1853	1.1808	1.1775	1.1727	1.1648	1.1509	1.1379
95	1.2010	1.2008	1.1996	1.1964	1.1939	1.1889	1.1853	1.1799	1.1716	1.1573	1.1449
100	1.2098	1.2095	1.2082	1.2045	1.2017	1.1961	1.1922	1.1864	1.1775	1.1633	1.1517
105	1.2183	1.2179	1.2163	1.2122	1.2090	1.2027	1.1984	1.1922	1.1829	1.1686	1.1579
110	1.2260	1.2256	1.2238	1.2191	1.2155	1.2085	1.2037	1.1970	1.1874	1.1734	1.1640
115	1.2335	1.2330	1.2308	1.2254	1.2213	1.2135	1.2083	1.2011	1.1912	1.1777	1.1696
120	1.2401	1.2396	1.2370	1.2307	1.2261	1.2174	1.2118	1.2043	1.1942	1.1815	1.1750
125	1.2465	1.2458	1.2428	1.2354	1.2301	1.2205	1.2144	1.2065	1.1964	1.1848	1.1800
130	1.2521	1.2512	1.2477	1.2390	1.2329	1.2223	1.2159	1.2077	1.1979	1.1877	1.1847
135	1.2574	1.2563	1.2520	1.2417	1.2347	1.2230	1.2163	1.2080	1.1986	1.1901	1.1891
140	1.2619	1.2606	1.2551	1.2428	1.2350	1.2223	1.2153	1.2073	1.1987	1.1921	1.1932
145	1.2661	1.2644	1.2575	1.2426	1.2337	1.2202	1.2133	1.2056	1.1982	1.1938	1.1968
150	1.2695	1.2672	1.2581	1.2402	1.2303	1.2164	1.2099	1.2031	1.1971	1.1952	1.2001
155	1.2726	1.2693	1.2570	1.2354	1.2247	1.2113	1.2055	1.1999	1.1958	1.1962	1.2029
160	1.2750	1.2701	1.2528	1.2273	1.2167	1.2049	1.2003	1.1964	1.1942	1.1970	1.2052
165	1.2765	1.2681	1.2432	1.2156	1.2065	1.1978	1.1950	1.1929	1.1927	1.1976	1.2071
170	1.2794	1.2620	1.2262	1.2019	1.1960	1.1914	1.1903	1.1900	1.1914	1.1980	1.2084
175	1.2685	1.2287	1.1975	1.1882	1.1868	1.1864	1.1868	1.1879	1.1906	1.1983	1.2094
180	1.1822	1.1823	1.1825	1.1831	1.1836	1.1847	1.1856	1.1872	1.1902	1.1982	1.2096

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN ZR, Z=40

ENERGY (MEV) / ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9946	0.9946	0.9946	0.9945	0.9944	0.9941	0.9939	0.9936	0.9930	0.9914	0.9896
10	1.0023	1.0023	1.0022	1.0019	1.0017	1.0011	1.0007	1.0000	0.9985	0.9948	0.9898
15	1.0105	1.0105	1.0103	1.0099	1.0096	1.0088	1.0082	1.0072	1.0052	0.9998	0.9920
20	1.0237	1.0236	1.0234	1.0229	1.0225	1.0215	1.0207	1.0194	1.0168	1.0101	1.0000
25	1.0372	1.0371	1.0369	1.0363	1.0358	1.0347	1.0337	1.0322	1.0292	1.0214	1.0096
30	1.0526	1.0526	1.0523	1.0516	1.0510	1.0497	1.0486	1.0468	1.0434	1.0346	1.0213
35	1.0680	1.0679	1.0676	1.0668	1.0661	1.0646	1.0635	1.0615	1.0577	1.0481	1.0338
40	1.0841	1.0840	1.0837	1.0827	1.0819	1.0802	1.0789	1.0767	1.0725	1.0620	1.0469
45	1.0998	1.0997	1.0994	1.0983	1.0974	1.0955	1.0940	1.0916	1.0870	1.0758	1.0601
50	1.1157	1.1156	1.1151	1.1139	1.1129	1.1108	1.1091	1.1064	1.1013	1.0894	1.0731
55	1.1311	1.1310	1.1305	1.1291	1.1280	1.1256	1.1237	1.1207	1.1152	1.1026	1.0858
60	1.1463	1.1461	1.1456	1.1440	1.1428	1.1400	1.1380	1.1346	1.1287	1.1153	1.0981
65	1.1610	1.1608	1.1602	1.1584	1.1570	1.1540	1.1517	1.1480	1.1415	1.1274	1.1099
70	1.1752	1.1750	1.1743	1.1723	1.1707	1.1673	1.1648	1.1607	1.1537	1.1389	1.1213
75	1.1890	1.1888	1.1879	1.1857	1.1839	1.1801	1.1772	1.1728	1.1652	1.1497	1.1321
80	1.2021	1.2019	1.2010	1.1984	1.1964	1.1921	1.1890	1.1841	1.1759	1.1598	1.1424
85	1.2148	1.2145	1.2135	1.2106	1.2083	1.2035	1.2001	1.1947	1.1859	1.1693	1.1522
90	1.2268	1.2265	1.2253	1.2220	1.2195	1.2142	1.2103	1.2045	1.1951	1.1781	1.1615
95	1.2383	1.2380	1.2366	1.2329	1.2300	1.2241	1.2198	1.2135	1.2035	1.1862	1.1703
100	1.2490	1.2487	1.2471	1.2429	1.2396	1.2330	1.2284	1.2216	1.2111	1.1937	1.1789
105	1.2593	1.2589	1.2571	1.2523	1.2486	1.2413	1.2362	1.2288	1.2178	1.2005	1.1868
110	1.2688	1.2684	1.2662	1.2607	1.2566	1.2484	1.2429	1.2350	1.2236	1.2068	1.1946
115	1.2779	1.2773	1.2748	1.2685	1.2638	1.2547	1.2487	1.2403	1.2285	1.2123	1.2018
120	1.2861	1.2854	1.2825	1.2752	1.2699	1.2598	1.2533	1.2445	1.2326	1.2174	1.2088
125	1.2938	1.2930	1.2896	1.2811	1.2750	1.2638	1.2568	1.2476	1.2357	1.2218	1.2153
130	1.3007	1.2998	1.2957	1.2857	1.2787	1.2664	1.2589	1.2495	1.2379	1.2257	1.2216
135	1.3072	1.3060	1.3010	1.2892	1.2812	1.2677	1.2598	1.2502	1.2392	1.2291	1.2273
140	1.3127	1.3113	1.3059	1.2909	1.2819	1.2672	1.2592	1.2498	1.2397	1.2320	1.2327
145	1.3179	1.3159	1.3080	1.2910	1.2807	1.2651	1.2571	1.2482	1.2395	1.2344	1.2376
150	1.3221	1.3195	1.3092	1.2886	1.2772	1.2611	1.2535	1.2456	1.2387	1.2364	1.2420
155	1.3259	1.3222	1.3082	1.2833	1.2710	1.2554	1.2486	1.2422	1.2374	1.2381	1.2457
160	1.3289	1.3232	1.3035	1.2742	1.2619	1.2481	1.2428	1.2383	1.2358	1.2393	1.2489
165	1.3309	1.3213	1.2928	1.2609	1.2503	1.2401	1.2368	1.2345	1.2343	1.2403	1.2515
170	1.3337	1.3140	1.2730	1.2448	1.2379	1.2326	1.2313	1.2311	1.2330	1.2409	1.2533
175	1.3256	1.2783	1.2405	1.2291	1.2274	1.2270	1.2275	1.2289	1.2322	1.2414	1.2545
180	1.2218	1.2219	1.2221	1.2229	1.2235	1.2249	1.2260	1.2279	1.2317	1.2414	1.2549

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN NB, Z=41

ENERGY (MEV) / ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9942	0.9941	0.9941	0.9940	0.9939	0.9936	0.9934	0.9931	0.9924	0.9908	0.9889
10	1.0020	1.0020	1.0018	1.0015	1.0013	1.0007	1.0002	0.9994	0.9979	0.9940	0.9887
15	1.0104	1.0104	1.0103	1.0098	1.0095	1.0086	1.0080	1.0069	1.0047	0.9990	0.9908
20	1.0242	1.0241	1.0239	1.0234	1.0229	1.0219	1.0210	1.0196	1.0169	1.0096	0.9988
25	1.0384	1.0383	1.0381	1.0374	1.0369	1.0357	1.0347	1.0330	1.0298	1.0214	1.0087
30	1.0546	1.0546	1.0543	1.0535	1.0529	1.0514	1.0503	1.0484	1.0447	1.0352	1.0210
35	1.0709	1.0708	1.0705	1.0696	1.0689	1.0673	1.0660	1.0638	1.0598	1.0494	1.0341
40	1.0878	1.0877	1.0874	1.0864	1.0855	1.0837	1.0823	1.0799	1.0754	1.0641	1.0478
45	1.1045	1.1044	1.1040	1.1029	1.1019	1.0999	1.0983	1.0957	1.0907	1.0787	1.0617
50	1.1213	1.1212	1.1207	1.1194	1.1184	1.1161	1.1143	1.1114	1.1060	1.0931	1.0754
55	1.1376	1.1375	1.1370	1.1355	1.1343	1.1318	1.1298	1.1266	1.1207	1.1071	1.0889
60	1.1537	1.1536	1.1530	1.1513	1.1500	1.1471	1.1449	1.1414	1.1350	1.1206	1.1020
65	1.1693	1.1692	1.1685	1.1666	1.1651	1.1619	1.1595	1.1555	1.1486	1.1335	1.1146
70	1.1844	1.1843	1.1835	1.1814	1.1797	1.1761	1.1734	1.1691	1.1616	1.1457	1.1267
75	1.1991	1.1989	1.1980	1.1956	1.1937	1.1897	1.1867	1.1820	1.1738	1.1573	1.1382
80	1.2131	1.2128	1.2119	1.2092	1.2070	1.2025	1.1992	1.1940	1.1853	1.1681	1.1492
85	1.2265	1.2263	1.2252	1.2221	1.2197	1.2147	1.2110	1.2054	1.1960	1.1783	1.1597
90	1.2393	1.2390	1.2378	1.2343	1.2316	1.2260	1.2220	1.2159	1.2059	1.1878	1.1698
95	1.2516	1.2513	1.2498	1.2459	1.2429	1.2366	1.2322	1.2255	1.2149	1.1965	1.1793
100	1.2631	1.2627	1.2610	1.2566	1.2532	1.2463	1.2414	1.2342	1.2231	1.2046	1.1884
105	1.2740	1.2736	1.2717	1.2666	1.2628	1.2550	1.2497	1.2419	1.2303	1.2119	1.1971
110	1.2842	1.2837	1.2815	1.2757	1.2713	1.2628	1.2570	1.2487	1.2366	1.2187	1.2055
115	1.2938	1.2932	1.2906	1.2840	1.2791	1.2695	1.2632	1.2544	1.2420	1.2247	1.2133
120	1.3026	1.3019	1.2989	1.2912	1.2856	1.2751	1.2682	1.2589	1.2464	1.2303	1.2209
125	1.3108	1.3100	1.3064	1.2975	1.2911	1.2794	1.2720	1.2623	1.2498	1.2351	1.2280
130	1.3182	1.3172	1.3129	1.3025	1.2952	1.2823	1.2745	1.2645	1.2523	1.2394	1.2348
135	1.3251	1.3239	1.3186	1.3063	1.2980	1.2838	1.2755	1.2655	1.2539	1.2431	1.2410
140	1.3311	1.3295	1.3230	1.3083	1.2988	1.2835	1.2750	1.2652	1.2546	1.2464	1.2470
145	1.3365	1.3345	1.3263	1.3085	1.2978	1.2814	1.2730	1.2637	1.2545	1.2491	1.2523
150	1.3411	1.3384	1.3276	1.3061	1.2941	1.2773	1.2693	1.2610	1.2538	1.2514	1.2571
155	1.3451	1.3412	1.3266	1.3007	1.2878	1.2718	1.2643	1.2576	1.2525	1.2533	1.2612
160	1.3483	1.3424	1.3219	1.2912	1.2783	1.2639	1.2583	1.2536	1.2510	1.2547	1.2648
165	1.3505	1.3405	1.3108	1.2774	1.2662	1.2555	1.2520	1.2496	1.2495	1.2559	1.2676
170	1.3532	1.3328	1.2900	1.2604	1.2532	1.2476	1.2463	1.2461	1.2481	1.2566	1.2696
175	1.3464	1.2965	1.2562	1.2440	1.2423	1.2418	1.2423	1.2438	1.2473	1.2572	1.2709
180	1.2363	1.2363	1.2366	1.2374	1.2381	1.2396	1.2408	1.2428	1.2468	1.2572	1.2713

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN MO, Z=42

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9936	0.9936	0.9936	0.9934	0.9933	0.9930	0.9928	0.9925	0.9918	0.9901	0.9882
10	1.0016	1.0016	1.0014	1.0011	1.0008	1.0002	0.9997	0.9989	0.9972	0.9931	0.9876
15	1.0103	1.0103	1.0101	1.0097	1.0093	1.0084	1.0077	1.0065	1.0042	0.9981	0.9894
20	1.0246	1.0246	1.0244	1.0238	1.0233	1.0222	1.0213	1.0198	1.0168	1.0090	0.9975
25	1.0396	1.0395	1.0392	1.0385	1.0379	1.0366	1.0356	1.0338	1.0303	1.0213	1.0078
30	1.0566	1.0565	1.0562	1.0554	1.0547	1.0532	1.0520	1.0499	1.0460	1.0357	1.0204
35	1.0737	1.0736	1.0733	1.0724	1.0716	1.0699	1.0685	1.0662	1.0618	1.0507	1.0342
40	1.0916	1.0915	1.0911	1.0901	1.0892	1.0872	1.0857	1.0831	1.0783	1.0662	1.0486
45	1.1092	1.1091	1.1087	1.1075	1.1065	1.1043	1.1026	1.0998	1.0945	1.0816	1.0632
50	1.1270	1.1269	1.1264	1.1250	1.1239	1.1214	1.1195	1.1164	1.1106	1.0968	1.0777
55	1.1443	1.1442	1.1436	1.1421	1.1408	1.1381	1.1360	1.1325	1.1262	1.1117	1.0920
60	1.1613	1.1612	1.1606	1.1588	1.1574	1.1543	1.1520	1.1482	1.1414	1.1260	1.1059
65	1.1779	1.1777	1.1770	1.1750	1.1735	1.1700	1.1674	1.1633	1.1559	1.1397	1.1193
70	1.1939	1.1938	1.1930	1.1907	1.1890	1.1851	1.1823	1.1777	1.1697	1.1527	1.1321
75	1.2095	1.2093	1.2083	1.2058	1.2038	1.1996	1.1964	1.1914	1.1828	1.1650	1.1444
80	1.2244	1.2241	1.2231	1.2203	1.2180	1.2133	1.2097	1.2043	1.1950	1.1766	1.1562
85	1.2387	1.2384	1.2372	1.2341	1.2315	1.2262	1.2223	1.2164	1.2065	1.1875	1.1674
90	1.2523	1.2520	1.2506	1.2470	1.2442	1.2383	1.2341	1.2276	1.2170	1.1977	1.1782
95	1.2653	1.2650	1.2635	1.2594	1.2562	1.2496	1.2449	1.2379	1.2267	1.2070	1.1884
100	1.2776	1.2772	1.2754	1.2708	1.2672	1.2599	1.2548	1.2472	1.2354	1.2158	1.1983
105	1.2892	1.2888	1.2868	1.2815	1.2774	1.2693	1.2637	1.2555	1.2432	1.2237	1.2076
110	1.3001	1.2995	1.2972	1.2912	1.2866	1.2776	1.2715	1.2628	1.2501	1.2310	1.2166
115	1.3103	1.3097	1.3070	1.3001	1.2949	1.2849	1.2782	1.2690	1.2559	1.2376	1.2251
120	1.3197	1.3190	1.3158	1.3078	1.3020	1.2909	1.2837	1.2740	1.2607	1.2436	1.2334
125	1.3285	1.3276	1.3239	1.3146	1.3079	1.2956	1.2879	1.2777	1.2645	1.2489	1.2410
130	1.3364	1.3354	1.3309	1.3200	1.3124	1.2989	1.2906	1.2802	1.2674	1.2537	1.2485
135	1.3437	1.3424	1.3370	1.3241	1.3154	1.3005	1.2919	1.2814	1.2692	1.2577	1.2553
140	1.3501	1.3485	1.3417	1.3264	1.3165	1.3004	1.2915	1.2812	1.2701	1.2614	1.2618
145	1.3559	1.3538	1.3452	1.3267	1.3155	1.2984	1.2895	1.2798	1.2701	1.2644	1.2675
150	1.3608	1.3580	1.3468	1.3244	1.3118	1.2942	1.2858	1.2772	1.2695	1.2670	1.2729
155	1.3651	1.3611	1.3459	1.3188	1.3053	1.2881	1.2807	1.2736	1.2683	1.2691	1.2774
160	1.3685	1.3624	1.3410	1.3090	1.2955	1.2803	1.2745	1.2695	1.2668	1.2708	1.2813
165	1.3709	1.3605	1.3295	1.2946	1.2829	1.2716	1.2679	1.2654	1.2653	1.2721	1.2843
170	1.3736	1.3524	1.3078	1.2767	1.2692	1.2633	1.2620	1.2618	1.2639	1.2729	1.2865
175	1.3682	1.3154	1.2727	1.2597	1.2578	1.2573	1.2579	1.2594	1.2632	1.2736	1.2880
180	1.2514	1.2515	1.2518	1.2526	1.2533	1.2549	1.2562	1.2584	1.2627	1.2737	1.2885

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN AG, Z=47

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9906	0.9906	0.9905	0.9904	0.9902	0.9899	0.9896	0.9891	0.9882	0.9863	0.9845
10	0.9989	0.9988	0.9987	0.9982	0.9978	0.9970	0.9964	0.9953	0.9931	0.9878	0.9816
15	1.0089	1.0088	1.0086	1.0080	1.0074	1.0062	1.0053	1.0036	1.0004	0.9923	0.9815
20	1.0262	1.0261	1.0258	1.0250	1.0243	1.0227	1.0215	1.0194	1.0153	1.0046	0.9895
25	1.0447	1.0446	1.0443	1.0433	1.0425	1.0406	1.0392	1.0367	1.0318	1.0192	1.0010
30	1.0661	1.0660	1.0656	1.0645	1.0635	1.0614	1.0597	1.0569	1.0513	1.0369	1.0158
35	1.0880	1.0879	1.0874	1.0861	1.0851	1.0827	1.0808	1.0776	1.0714	1.0557	1.0326
40	1.1110	1.1109	1.1103	1.1089	1.1076	1.1049	1.1028	1.0993	1.0925	1.0754	1.0505
45	1.1339	1.1337	1.1331	1.1315	1.1301	1.1272	1.1248	1.1209	1.1135	1.0953	1.0691
50	1.1570	1.1568	1.1561	1.1543	1.1528	1.1495	1.1469	1.1426	1.1346	1.1151	1.0878
55	1.1797	1.1796	1.1788	1.1767	1.1751	1.1714	1.1685	1.1638	1.1552	1.1346	1.1064
60	1.2022	1.2020	1.2011	1.1988	1.1970	1.1929	1.1897	1.1846	1.1752	1.1536	1.1247
65	1.2241	1.2239	1.2230	1.2204	1.2183	1.2137	1.2103	1.2047	1.1946	1.1719	1.1425
70	1.2455	1.2452	1.2442	1.2413	1.2389	1.2339	1.2301	1.2240	1.2132	1.1895	1.1597
75	1.2662	1.2659	1.2647	1.2615	1.2589	1.2533	1.2491	1.2424	1.2308	1.2062	1.1764
80	1.2861	1.2858	1.2845	1.2809	1.2779	1.2718	1.2672	1.2599	1.2476	1.2221	1.1925
85	1.3054	1.3050	1.3035	1.2994	1.2962	1.2893	1.2843	1.2764	1.2632	1.2371	1.2079
90	1.3237	1.3234	1.3216	1.3170	1.3134	1.3058	1.3003	1.2918	1.2779	1.2513	1.2229
95	1.3413	1.3409	1.3389	1.3337	1.3297	1.3213	1.3152	1.3061	1.2914	1.2645	1.2372
100	1.3579	1.3574	1.3552	1.3494	1.3448	1.3356	1.3290	1.3192	1.3038	1.2769	1.2511
105	1.3737	1.3731	1.3706	1.3640	1.3589	1.3486	1.3414	1.3309	1.3148	1.2883	1.2644
110	1.3885	1.3879	1.3850	1.3774	1.3717	1.3603	1.3526	1.3414	1.3248	1.2990	1.2774
115	1.4024	1.4017	1.3983	1.3897	1.3832	1.3706	1.3622	1.3504	1.3334	1.3087	1.2897
120	1.4153	1.4144	1.4105	1.4006	1.3933	1.3794	1.3704	1.3579	1.3409	1.3178	1.3019
125	1.4272	1.4262	1.4216	1.4101	1.4018	1.3865	1.3767	1.3638	1.3469	1.3258	1.3132
130	1.4382	1.4369	1.4314	1.4180	1.4086	1.3917	1.3814	1.3682	1.3517	1.3333	1.3243
135	1.4481	1.4465	1.4399	1.4241	1.4133	1.3949	1.3840	1.3707	1.3551	1.3398	1.3345
140	1.4570	1.4551	1.4468	1.4280	1.4158	1.3958	1.3847	1.3717	1.3575	1.3458	1.3443
145	1.4649	1.4623	1.4519	1.4293	1.4154	1.3942	1.3831	1.3708	1.3586	1.3508	1.3531
150	1.4717	1.4683	1.4547	1.4273	1.4119	1.3900	1.3794	1.3685	1.3588	1.3553	1.3612
155	1.4775	1.4727	1.4543	1.4211	1.4045	1.3831	1.3737	1.3648	1.3582	1.3590	1.3682
160	1.4822	1.4749	1.4490	1.4097	1.3929	1.3739	1.3666	1.3604	1.3570	1.3620	1.3742
165	1.4859	1.4734	1.4357	1.3924	1.3777	1.3635	1.3589	1.3558	1.3558	1.3644	1.3789
170	1.4880	1.4626	1.4084	1.3699	1.3605	1.3532	1.3516	1.3515	1.3544	1.3660	1.3823
175	1.4921	1.4239	1.3669	1.3494	1.3468	1.3460	1.3468	1.3489	1.3538	1.3672	1.3845
180	1.3381	1.3382	1.3386	1.3398	1.3407	1.3429	1.3447	1.3476	1.3533	1.3675	1.3854

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN SN, Z=50

ENERGY(MEV) ANGLE(DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9885	0.9884	0.9884	0.9882	0.9880	0.9876	0.9873	0.9868	0.9858	0.9838	0.9823
10	0.9966	0.9965	0.9964	0.9958	0.9954	0.9945	0.9937	0.9924	0.9900	0.9841	0.9777
15	1.0072	1.0071	1.0069	1.0061	1.0055	1.0040	1.0029	1.0010	0.9972	0.9878	0.9759
20	1.0262	1.0262	1.0258	1.0248	1.0240	1.0221	1.0207	1.0181	1.0132	1.0007	0.9834
25	1.0471	1.0470	1.0465	1.0454	1.0444	1.0422	1.0404	1.0374	1.0316	1.0166	0.9954
30	1.0713	1.0712	1.0707	1.0694	1.0682	1.0657	1.0636	1.0602	1.0535	1.0362	1.0113
35	1.0964	1.0962	1.0957	1.0941	1.0928	1.0900	1.0877	1.0838	1.0764	1.0574	1.0299
40	1.1227	1.1226	1.1220	1.1202	1.1188	1.1155	1.1130	1.1087	1.1005	1.0798	1.0499
45	1.1492	1.1491	1.1484	1.1464	1.1448	1.1412	1.1384	1.1337	1.1248	1.1027	1.0711
50	1.1760	1.1758	1.1751	1.1729	1.1711	1.1671	1.1640	1.1589	1.1492	1.1256	1.0924
55	1.2025	1.2024	1.2015	1.1990	1.1970	1.1927	1.1893	1.1837	1.1733	1.1484	1.1140
60	1.2288	1.2286	1.2276	1.2249	1.2226	1.2178	1.2141	1.2080	1.1968	1.1705	1.1351
65	1.2545	1.2543	1.2532	1.2501	1.2477	1.2423	1.2382	1.2316	1.2196	1.1921	1.1560
70	1.2796	1.2793	1.2781	1.2747	1.2720	1.2661	1.2616	1.2544	1.2415	1.2129	1.1763
75	1.3040	1.3037	1.3023	1.2986	1.2955	1.2890	1.2841	1.2762	1.2625	1.2327	1.1960
80	1.3276	1.3273	1.3257	1.3215	1.3181	1.3109	1.3055	1.2971	1.2824	1.2517	1.2151
85	1.3504	1.3500	1.3482	1.3435	1.3397	1.3318	1.3259	1.3167	1.3011	1.2697	1.2335
90	1.3722	1.3717	1.3698	1.3645	1.3603	1.3515	1.3451	1.3352	1.3188	1.2868	1.2515
95	1.3930	1.3925	1.3903	1.3843	1.3797	1.3700	1.3630	1.3523	1.3350	1.3027	1.2688
100	1.4129	1.4123	1.4098	1.4031	1.3979	1.3872	1.3796	1.3682	1.3501	1.3179	1.2857
105	1.4316	1.4310	1.4281	1.4205	1.4147	1.4029	1.3946	1.3825	1.3637	1.3318	1.3019
110	1.4494	1.4486	1.4453	1.4367	1.4302	1.4172	1.4083	1.3954	1.3760	1.3451	1.3179
115	1.4659	1.4650	1.4612	1.4515	1.4441	1.4298	1.4201	1.4064	1.3867	1.3571	1.3330
120	1.4814	1.4804	1.4760	1.4648	1.4565	1.4407	1.4303	1.4160	1.3962	1.3685	1.3480
125	1.4956	1.4944	1.4893	1.4763	1.4669	1.4495	1.4384	1.4236	1.4039	1.3787	1.3621
130	1.5088	1.5074	1.5012	1.4861	1.4755	1.4564	1.4446	1.4295	1.4104	1.3883	1.3759
135	1.5206	1.5189	1.5114	1.4937	1.4816	1.4607	1.4484	1.4331	1.4151	1.3967	1.3887
140	1.5314	1.5292	1.5201	1.4990	1.4852	1.4626	1.4499	1.4350	1.4187	1.4045	1.4010
145	1.5408	1.5380	1.5264	1.5010	1.4854	1.4614	1.4488	1.4348	1.4206	1.4111	1.4121
150	1.5491	1.5453	1.5302	1.4995	1.4821	1.4573	1.4453	1.4329	1.4217	1.4172	1.4224
155	1.5560	1.5507	1.5302	1.4931	1.4743	1.4501	1.4394	1.4293	1.4216	1.4221	1.4313
160	1.5617	1.5536	1.5248	1.4807	1.4617	1.4401	1.4318	1.4247	1.4209	1.4263	1.4389
165	1.5664	1.5526	1.5105	1.4616	1.4449	1.4287	1.4234	1.4199	1.4199	1.4295	1.4449
170	1.5678	1.5399	1.4796	1.4361	1.4254	1.4171	1.4153	1.4152	1.4166	1.4317	1.4493
175	1.5800	1.5013	1.4343	1.4134	1.4103	1.4093	1.4102	1.4126	1.4182	1.4334	1.4521
180	1.4000	1.4002	1.4006	1.4020	1.4031	1.4057	1.4077	1.4111	1.4177	1.4338	1.4533

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN CS, Z=55

ENERGY(MEV) ANGLE(DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9843	0.9843	0.9842	0.9839	0.9837	0.9833	0.9829	0.9823	0.9813	0.9793	0.9787
10	0.9916	0.9916	0.9914	0.9907	0.9902	0.9890	0.9881	0.9865	0.9836	0.9770	0.9710
15	1.0028	1.0027	1.0024	1.0014	1.0006	0.9987	0.9973	0.9948	0.9901	0.9787	0.9656
20	1.0246	1.0245	1.0240	1.0227	1.0217	1.0192	1.0173	1.0140	1.0077	0.9918	0.9713
25	1.0493	1.0492	1.0487	1.0471	1.0458	1.0429	1.0405	1.0366	1.0290	1.0095	0.9833
30	1.0786	1.0785	1.0778	1.0760	1.0745	1.0711	1.0684	1.0638	1.0549	1.0321	1.0004
35	1.1094	1.1092	1.1085	1.1064	1.1047	1.1009	1.0978	1.0927	1.0828	1.0575	1.0218
40	1.1421	1.1419	1.1411	1.1387	1.1368	1.1325	1.1291	1.1234	1.1124	1.0846	1.0452
45	1.1753	1.1751	1.1742	1.1716	1.1695	1.1647	1.1610	1.1547	1.1428	1.1130	1.0708
50	1.2091	1.2089	1.2079	1.2050	1.2026	1.1974	1.1932	1.1864	1.1735	1.1416	1.0969
55	1.2429	1.2426	1.2415	1.2383	1.2357	1.2299	1.2254	1.2180	1.2041	1.1704	1.1238
60	1.2765	1.2762	1.2749	1.2714	1.2685	1.2621	1.2572	1.2491	1.2342	1.1987	1.1504
65	1.3096	1.3093	1.3078	1.3039	1.3007	1.2937	1.2884	1.2796	1.2636	1.2264	1.1769
70	1.3421	1.3417	1.3401	1.3358	1.3322	1.3246	1.3187	1.3093	1.2922	1.2534	1.2030
75	1.3738	1.3734	1.3716	1.3668	1.3629	1.3544	1.3481	1.3378	1.3196	1.2794	1.2285
80	1.4046	1.4041	1.4022	1.3968	1.3925	1.3832	1.3763	1.3653	1.3460	1.3045	1.2536
85	1.4343	1.4338	1.4316	1.4257	1.4209	1.4107	1.4031	1.3913	1.3709	1.3284	1.2779
90	1.4631	1.4625	1.4600	1.4534	1.4481	1.4369	1.4287	1.4160	1.3945	1.3513	1.3018
95	1.4905	1.4899	1.4871	1.4796	1.4738	1.4615	1.4526	1.4390	1.4164	1.3729	1.3289
100	1.5168	1.5161	1.5130	1.5046	1.4981	1.4847	1.4750	1.4605	1.4370	1.3936	1.3478
105	1.5416	1.5408	1.5373	1.5279	1.5206	1.5059	1.4954	1.4800	1.4557	1.4128	1.3698
110	1.5653	1.5644	1.5603	1.5498	1.5417	1.5255	1.5142	1.4979	1.4730	1.4313	1.3917
115	1.5873	1.5862	1.5816	1.5696	1.5605	1.5427	1.5306	1.5134	1.4881	1.4482	1.4127
120	1.6081	1.6069	1.6015	1.5878	1.5776	1.5581	1.5452	1.5272	1.5018	1.4645	1.4336
125	1.6270	1.6256	1.6193	1.6036	1.5921	1.5707	1.5569	1.5383	1.5132	1.4792	1.4534
130	1.6448	1.6431	1.6357	1.6174	1.6045	1.5810	1.5665	1.5475	1.5232	1.4933	1.4729
135	1.6606	1.6585	1.6495	1.6282	1.6135	1.5879	1.5728	1.5538	1.5309	1.5057	1.4912
140	1.6752	1.6726	1.6617	1.6363	1.6197	1.5921	1.5765	1.5580	1.5372	1.5175	1.5087
145	1.6877	1.6844	1.6706	1.6402	1.6214	1.5921	1.5766	1.5592	1.5413	1.5276	1.5247
150	1.6991	1.6946	1.6767	1.6400	1.6190	1.5888	1.5740	1.5585	1.5442	1.5370	1.5395
155	1.7083	1.7020	1.6779	1.6335	1.6107	1.5811	1.5680	1.5554	1.5456	1.5447	1.5524
160	1.7159	1.7064	1.6725	1.6196	1.5965	1.5701	1.5598	1.5510	1.5460	1.5514	1.5635
165	1.7227	1.7065	1.6566	1.5975	1.5770	1.5571	1.5505	1.5460	1.5458	1.5566	1.5723
170	1.7227	1.6903	1.6189	1.5663	1.5533	1.5432	1.5410	1.5409	1.5450	1.5602	1.5788
175	1.7528	1.6540	1.5675	1.5400	1.5358	1.5344	1.5354	1.5383	1.5451	1.5628	1.5828
180	1.5227	1.5228	1.5234	1.5252	1.5266	1.5298	1.5323	1.5366	1.5447	1.5637	1.5845

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN ND, Z=60

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9794	0.9794	0.9793	0.9790	0.9788	0.9783	0.9780	0.9774	0.9763	0.9748	0.9753
10	0.9852	0.9851	0.9849	0.9841	0.9835	0.9821	0.9810	0.9792	0.9759	0.9690	0.9644
15	0.9961	0.9960	0.9956	0.9944	0.9934	0.9911	0.9893	0.9863	0.9807	0.9676	0.9585
20	1.0203	1.0202	1.0196	1.0180	1.0166	1.0135	1.0111	1.0070	0.9991	0.9799	0.9572
25	1.0489	1.0488	1.0480	1.0460	1.0444	1.0406	1.0376	1.0326	1.0229	0.9988	0.9682
30	1.0834	1.0833	1.0824	1.0800	1.0781	1.0736	1.0701	1.0642	1.0528	1.0239	0.9855
35	1.1205	1.1203	1.1193	1.1167	1.1144	1.1094	1.1055	1.0988	1.0859	1.0533	1.0090
40	1.1603	1.1600	1.1589	1.1559	1.1534	1.1478	1.1433	1.1359	1.1215	1.0854	1.0355
45	1.2013	1.2010	1.1998	1.1964	1.1936	1.1874	1.1825	1.1743	1.1587	1.1196	1.0654
50	1.2432	1.2429	1.2416	1.2378	1.2347	1.2279	1.2225	1.2136	1.1966	1.1546	1.0965
55	1.2855	1.2852	1.2837	1.2796	1.2762	1.2687	1.2628	1.2531	1.2348	1.1902	1.1290
60	1.3279	1.3275	1.3258	1.3213	1.3175	1.3093	1.3029	1.2924	1.2727	1.2256	1.1617
65	1.3699	1.3695	1.3677	1.3626	1.3585	1.3495	1.3426	1.3312	1.3102	1.2607	1.1947
70	1.4114	1.4109	1.4089	1.4034	1.3988	1.3890	1.3814	1.3691	1.3467	1.2951	1.2274
75	1.4521	1.4516	1.4493	1.4432	1.4382	1.4274	1.4192	1.4059	1.3821	1.3285	1.2598
80	1.4918	1.4913	1.4888	1.4820	1.4765	1.4647	1.4558	1.4415	1.4163	1.3610	1.2918
85	1.5303	1.5297	1.5269	1.5194	1.5133	1.5004	1.4908	1.4755	1.4489	1.3922	1.3232
90	1.5677	1.5670	1.5639	1.5556	1.5489	1.5348	1.5244	1.5080	1.4801	1.4224	1.3543
95	1.6035	1.6027	1.5992	1.5899	1.5826	1.5671	1.5559	1.5384	1.5092	1.4510	1.3847
100	1.6380	1.6371	1.6333	1.6229	1.6148	1.5979	1.5858	1.5672	1.5369	1.4788	1.4148
105	1.6705	1.6696	1.6652	1.6536	1.6446	1.6261	1.6130	1.5934	1.5621	1.5047	1.4443
110	1.7018	1.7007	1.6957	1.6827	1.6727	1.6526	1.6385	1.6179	1.5858	1.5300	1.4736
115	1.7307	1.7294	1.7238	1.7091	1.6980	1.6760	1.6609	1.6392	1.6067	1.5532	1.5020
120	1.7584	1.7569	1.7504	1.7338	1.7213	1.6973	1.6812	1.6587	1.6261	1.5759	1.5303
125	1.7834	1.7817	1.7741	1.7551	1.7411	1.7148	1.6978	1.6746	1.6425	1.5965	1.5576
130	1.8072	1.8052	1.7963	1.7743	1.7586	1.7299	1.7120	1.6884	1.6574	1.6165	1.5843
135	1.8280	1.8256	1.8149	1.7893	1.7716	1.7405	1.7219	1.6982	1.6691	1.6344	1.6097
140	1.8478	1.8447	1.8317	1.8015	1.7814	1.7479	1.7288	1.7058	1.6793	1.6515	1.6341
145	1.8643	1.8603	1.8441	1.8080	1.7855	1.7500	1.7310	1.7094	1.6865	1.6665	1.6566
150	1.8796	1.8744	1.8534	1.8098	1.7846	1.7480	1.7299	1.7106	1.6923	1.6804	1.6773
155	1.8918	1.8845	1.8563	1.8036	1.7764	1.7405	1.7244	1.7087	1.6959	1.6921	1.6956
160	1.9021	1.8910	1.8513	1.7886	1.7608	1.7287	1.7160	1.7049	1.6982	1.7021	1.7113
165	1.9117	1.8928	1.8342	1.7634	1.7386	1.7142	1.7060	1.7003	1.6994	1.7101	1.7238
170	1.9097	1.8725	1.7888	1.7260	1.7102	1.6979	1.6951	1.6948	1.6994	1.7157	1.7330
175	1.9638	1.8417	1.7317	1.6960	1.6904	1.6883	1.6893	1.6925	1.7003	1.7196	1.7387
180	1.6740	1.6741	1.6749	1.6770	1.6787	1.6826	1.6856	1.6907	1.7001	1.7210	1.7409

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN TB, Z=65

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9740	0.9740	0.9739	0.9736	0.9734	0.9729	0.9725	0.9720	0.9711	0.9703	0.9722
10	0.9772	0.9771	0.9768	0.9760	0.9753	0.9737	0.9725	0.9706	0.9671	0.9606	0.9586
15	0.9870	0.9869	0.9863	0.9849	0.9837	0.9810	0.9789	0.9754	0.9690	0.9549	0.9435
20	1.0129	1.0127	1.0120	1.0100	1.0083	1.0045	1.0016	0.9966	0.9872	0.9651	0.9418
25	1.0451	1.0449	1.0440	1.0415	1.0394	1.0347	1.0310	1.0248	1.0129	0.9841	0.9504
30	1.0848	1.0846	1.0835	1.0805	1.0780	1.0725	1.0680	1.0606	1.0463	1.0110	0.9666
35	1.1287	1.1284	1.1272	1.1237	1.1209	1.1145	1.1095	1.1010	1.0847	1.0441	0.9913
40	1.1761	1.1758	1.1744	1.1706	1.1673	1.1601	1.1545	1.1449	1.1266	1.0809	1.0201
45	1.2259	1.2256	1.2240	1.2197	1.2161	1.2082	1.2019	1.1914	1.1713	1.1214	1.0541
50	1.2772	1.2769	1.2751	1.2703	1.2664	1.2576	1.2507	1.2391	1.2172	1.1631	1.0900
55	1.3296	1.3292	1.3273	1.3220	1.3176	1.3080	1.3004	1.2879	1.2642	1.2065	1.1285
60	1.3823	1.3818	1.3797	1.3739	1.3691	1.3585	1.3503	1.3367	1.3112	1.2499	1.1677
65	1.4351	1.4346	1.4322	1.4258	1.4206	1.4090	1.4001	1.3854	1.3581	1.2935	1.2078
70	1.4875	1.4869	1.4843	1.4773	1.4715	1.4589	1.4492	1.4333	1.4042	1.3365	1.2481
75	1.5391	1.5385	1.5356	1.5279	1.5215	1.5078	1.4972	1.4802	1.4493	1.3788	1.2883
80	1.5899	1.5892	1.5861	1.5775	1.5705	1.5555	1.5442	1.5259	1.4932	1.4203	1.3285
85	1.6393	1.6385	1.6351	1.6256	1.6179	1.6016	1.5893	1.5697	1.5352	1.4603	1.3682
90	1.6876	1.6867	1.6828	1.6724	1.6640	1.6462	1.6329	1.6120	1.5758	1.4995	1.4078
95	1.7338	1.7328	1.7285	1.7169	1.7077	1.6883	1.6740	1.6518	1.6140	1.5369	1.4470
100	1.7787	1.7777	1.7729	1.7600	1.7499	1.7287	1.7134	1.6898	1.6506	1.5734	1.4860
105	1.8211	1.8199	1.8145	1.8002	1.7890	1.7660	1.7495	1.7246	1.6842	1.6079	1.5245
110	1.8621	1.8607	1.8546	1.8386	1.8263	1.8013	1.7836	1.7575	1.7162	1.6416	1.5629
115	1.8999	1.8983	1.8915	1.8735	1.8598	1.8326	1.8138	1.7865	1.7448	1.6732	1.6008
120	1.9364	1.9346	1.9268	1.9065	1.8913	1.8616	1.8417	1.8133	1.7716	1.7040	1.6383
125	1.9692	1.9672	1.9581	1.9350	1.9181	1.8859	1.8648	1.8357	1.7946	1.7324	1.6751
130	2.0009	1.9984	1.9878	1.9613	1.9423	1.9073	1.8852	1.8556	1.8159	1.7601	1.7110
135	2.0283	2.0253	2.0127	1.9820	1.9607	1.9229	1.9000	1.8706	1.8333	1.7853	1.7457
140	2.0546	2.0510	2.0356	1.9996	1.9755	1.9349	1.9115	1.8828	1.8488	1.8094	1.7787
145	2.0764	2.0718	2.0526	2.0099	1.9829	1.9400	1.9168	1.8899	1.8605	1.8309	1.8098
150	2.0970	2.0909	2.0662	2.0147	1.9847	1.9404	1.9182	1.8942	1.8704	1.8509	1.8382
155	2.1131	2.1046	2.0716	2.0096	1.9770	1.9337	1.9140	1.8943	1.8773	1.8679	1.8636
160	2.1268	2.1140	2.0678	1.9937	1.9605	1.9216	1.9059	1.8919	1.8823	1.8827	1.8852
165	2.1399	2.1181	2.0497	1.9657	1.9357	1.9058	1.8956	1.8881	1.8857	1.8944	1.9027
170	2.1357	2.0931	1.9959	1.9213	1.9022	1.8871	1.8835	1.8827	1.8871	1.9028	1.9156
175	2.2197	2.0708	1.9332	1.8874	1.8801	1.8768	1.8777	1.8810	1.8892	1.9084	1.9234
180	1.8600	1.8602	1.8611	1.8635	1.8655	1.8699	1.8734	1.8790	1.8893	1.9105	1.9260

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN YB, Z=70

ENERGY (MEV) / ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9681	0.9681	0.9680	0.9678	0.9676	0.9672	0.9669	0.9664	0.9659	0.9661	0.9692
10	0.9678	0.9677	0.9674	0.9665	0.9657	0.9641	0.9628	0.9609	0.9575	0.9523	0.9538
15	0.9751	0.9750	0.9744	0.9727	0.9714	0.9683	0.9660	0.9621	0.9551	0.9411	0.9338
20	1.0018	1.0016	1.0007	0.9983	0.9963	0.9919	0.9884	0.9826	0.9718	0.9477	0.9259
25	1.0370	1.0367	1.0356	1.0326	1.0301	1.0244	1.0199	1.0125	0.9984	0.9656	0.9308
30	1.0818	1.0815	1.0802	1.0765	1.0734	1.0665	1.0611	1.0520	1.0346	0.9930	0.9443
35	1.1326	1.1323	1.1307	1.1264	1.1229	1.1150	1.1087	1.0982	1.0781	1.0291	0.9688
40	1.1884	1.1880	1.1862	1.1814	1.1773	1.1683	1.1612	1.1492	1.1263	1.0703	0.9989
45	1.2479	1.2475	1.2455	1.2401	1.2355	1.2255	1.2175	1.2043	1.1790	1.1169	1.0360
50	1.3099	1.3094	1.3072	1.3011	1.2961	1.2850	1.2762	1.2616	1.2338	1.1658	1.0765
55	1.3739	1.3733	1.3709	1.3642	1.3587	1.3464	1.3368	1.3208	1.2907	1.2174	1.1208
60	1.4388	1.4382	1.4355	1.4281	1.4220	1.4086	1.3981	1.3807	1.3482	1.2699	1.1669
65	1.5044	1.5037	1.5009	1.4926	1.4859	1.4712	1.4598	1.4410	1.4061	1.3231	1.2146
70	1.5699	1.5692	1.5659	1.5570	1.5497	1.5336	1.5212	1.5010	1.4636	1.3763	1.2631
75	1.6349	1.6341	1.6306	1.6207	1.6127	1.5952	1.5818	1.5600	1.5202	1.4289	1.3122
80	1.6993	1.6984	1.6945	1.6837	1.6749	1.6559	1.6414	1.6180	1.5759	1.4810	1.3617
85	1.7622	1.7612	1.7568	1.7449	1.7353	1.7146	1.6990	1.6740	1.6296	1.5318	1.4112
90	1.8240	1.8229	1.8181	1.8050	1.7945	1.7720	1.7552	1.7285	1.6819	1.5818	1.4608
95	1.8834	1.8822	1.8768	1.8624	1.8508	1.8264	1.8083	1.7800	1.7314	1.6300	1.5104
100	1.9415	1.9402	1.9342	1.9182	1.9056	1.8791	1.8597	1.8297	1.7792	1.6774	1.5599
105	1.9963	1.9948	1.9882	1.9705	1.9566	1.9278	1.9071	1.8755	1.8235	1.7226	1.6096
110	2.0497	2.0480	2.0406	2.0209	2.0056	1.9745	1.9523	1.9192	1.8661	1.7669	1.6591
115	2.0990	2.0971	2.0887	2.0667	2.0499	2.0161	1.9926	1.9581	1.9045	1.8089	1.7086
120	2.1469	2.1447	2.1352	2.1105	2.0918	2.0552	2.0303	1.9946	1.9409	1.8501	1.7576
125	2.1899	2.1874	2.1764	2.1485	2.1278	2.0882	2.0620	2.0255	1.9728	1.8887	1.8063
130	2.2316	2.2287	2.2159	2.1840	2.1609	2.1181	2.0906	2.0536	2.0025	1.9262	1.8537
135	2.2676	2.2641	2.2490	2.2123	2.1866	2.1406	2.1123	2.0755	2.0275	1.9610	1.9002
140	2.3025	2.2982	2.2800	2.2371	2.2082	2.1588	2.1300	2.0941	2.0502	1.9943	1.9444
145	2.3312	2.3258	2.3033	2.2526	2.2204	2.1685	2.1399	2.1063	2.0681	2.0245	1.9864
150	2.3586	2.3515	2.3226	2.2618	2.2259	2.1724	2.1452	2.1151	2.0838	2.0524	2.0247
155	2.3799	2.3701	2.3317	2.2586	2.2198	2.1674	2.1431	2.1183	2.0954	2.0767	2.0593
160	2.3980	2.3833	2.3297	2.2425	2.2029	2.1557	2.1362	2.1183	2.1044	2.0977	2.0887
165	2.4158	2.3907	2.3112	2.2118	2.1757	2.1391	2.1262	2.1161	2.1110	2.1145	2.1126
170	2.4092	2.3606	2.2480	2.1597	2.1367	2.1180	2.1132	2.1113	2.1145	2.1267	2.1302
175	2.5281	2.3492	2.1794	2.1217	2.1122	2.1072	2.1076	2.1105	2.1182	2.1346	2.1408
180	2.0883	2.0885	2.0895	2.0921	2.0943	2.0991	2.1027	2.1085	2.1188	2.1375	2.1440

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN HF, Z=72

ENERGY (MEV) / ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9657	0.9657	0.9656	0.9654	0.9652	0.9648	0.9646	0.9642	0.9638	0.9645	0.9680
10	0.9637	0.9636	0.9632	0.9623	0.9616	0.9599	0.9587	0.9568	0.9535	0.9491	0.9523
15	0.9697	0.9695	0.9689	0.9672	0.9657	0.9626	0.9602	0.9562	0.9491	0.9355	0.9298
20	0.9962	0.9960	0.9951	0.9925	0.9904	0.9857	0.9821	0.9760	0.9647	0.9402	0.9197
25	1.0324	1.0321	1.0310	1.0277	1.0250	1.0189	1.0142	1.0062	0.9913	0.9571	0.9227
30	1.0791	1.0788	1.0773	1.0733	1.0700	1.0626	1.0568	1.0470	1.0284	0.9843	0.9346
35	1.1327	1.1323	1.1306	1.1260	1.1221	1.1135	1.1067	1.0954	1.0737	1.0214	0.9585
40	1.1919	1.1915	1.1896	1.1843	1.1798	1.1700	1.1622	1.1492	1.1244	1.0641	0.9888
45	1.2556	1.2551	1.2530	1.2470	1.2421	1.2311	1.2224	1.2079	1.1803	1.1131	1.0269
50	1.3222	1.3216	1.3192	1.3126	1.3071	1.2949	1.2853	1.2693	1.2389	1.1649	1.0690
55	1.3913	1.3907	1.3880	1.3807	1.3746	1.3612	1.3506	1.3331	1.3000	1.2200	1.1155
60	1.4616	1.4610	1.4581	1.4499	1.4433	1.4285	1.4170	1.3979	1.3621	1.2762	1.1643
65	1.5330	1.5322	1.5290	1.5201	1.5127	1.4966	1.4841	1.4634	1.4249	1.3336	1.2151
70	1.6045	1.6037	1.6001	1.5903	1.5823	1.5647	1.5510	1.5287	1.4875	1.3912	1.2672
75	1.6756	1.6748	1.6708	1.6600	1.6512	1.6320	1.6173	1.5933	1.5494	1.4485	1.3201
80	1.7463	1.7453	1.7410	1.7291	1.7195	1.6986	1.6827	1.6569	1.6104	1.5054	1.3735
85	1.8154	1.8143	1.8096	1.7965	1.7860	1.7633	1.7461	1.7185	1.6694	1.5610	1.4273
90	1.8836	1.8824	1.8771	1.8627	1.8512	1.8266	1.8081	1.7787	1.7271	1.6160	1.4813
95	1.9491	1.9478	1.9419	1.9261	1.9135	1.8868	1.8669	1.8357	1.7819	1.6691	1.5356
100	2.0134	2.0119	2.0054	1.9880	1.9742	1.9452	1.9239	1.8909	1.8350	1.7214	1.5900
105	2.0741	2.0725	2.0652	2.0459	2.0308	1.9993	1.9766	1.9419	1.8844	1.7716	1.6447
110	2.1334	2.1315	2.1235	2.1020	2.0854	2.0513	2.0271	1.9906	1.9319	1.8209	1.6992
115	2.1881	2.1860	2.1769	2.1531	2.1347	2.0979	2.0722	2.0343	1.9750	1.8679	1.7541
120	2.2414	2.2391	2.2287	2.2020	2.1817	2.1418	2.1146	2.0754	2.0160	1.9139	1.8083
125	2.2893	2.2866	2.2747	2.2446	2.2222	2.1791	2.1505	2.1104	2.0521	1.9573	1.8626
130	2.3358	2.3326	2.3189	2.2845	2.2595	2.2130	2.1831	2.1425	2.0859	1.9995	1.9155
135	2.3760	2.3722	2.3560	2.3165	2.2888	2.2389	2.2081	2.1678	2.1186	2.0389	1.9675
140	2.4150	2.4104	2.3909	2.3448	2.3136	2.2603	2.2289	2.1896	2.1408	2.0766	2.0169
145	2.4470	2.4412	2.4172	2.3629	2.3283	2.2722	2.2412	2.2044	2.1618	2.1110	2.0641
150	2.4776	2.4701	2.4393	2.3743	2.3358	2.2780	2.2484	2.2153	2.1803	2.1427	2.1071
155	2.5015	2.4911	2.4503	2.3723	2.3306	2.2740	2.2476	2.2203	2.1983	2.1706	2.1460
160	2.5218	2.5062	2.4493	2.3563	2.3137	2.2627	2.2415	2.2216	2.2054	2.1946	2.1791
165	2.5417	2.5152	2.4308	2.3245	2.2857	2.2459	2.2318	2.2202	2.2136	2.2138	2.2061
170	2.5343	2.4831	2.3637	2.2692	2.2444	2.2240	2.2185	2.2159	2.2182	2.2279	2.2260
175	2.6679	2.4763	2.2925	2.2294	2.2188	2.2129	2.2130	2.2156	2.2227	2.2369	2.2379
180	2.1935	2.1937	2.1946	2.1973	2.1995	2.2043	2.2079	2.2137	2.2236	2.2402	2.2414

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN TA, Z=73

ENERGY(MEV) ANGLE(DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9645	0.9645	0.9644	0.9642	0.9640	0.9637	0.9634	0.9631	0.9628	0.9637	0.9674
10	0.9615	0.9615	0.9611	0.9602	0.9594	0.9578	0.9566	0.9547	0.9516	0.9476	0.9516
15	0.9668	0.9666	0.9660	0.9642	0.9628	0.9596	0.9571	0.9531	0.9460	0.9327	0.9281
20	0.9932	0.9930	0.9920	0.9894	0.9872	0.9824	0.9787	0.9725	0.9610	0.9363	0.9167
25	1.0298	1.0295	1.0283	1.0249	1.0221	1.0159	1.0110	1.0028	0.9875	0.9527	0.9186
30	1.0774	1.0771	1.0756	1.0714	1.0680	1.0603	1.0542	1.0441	1.0249	0.9797	0.9296
35	1.1324	1.1320	1.1302	1.1254	1.1214	1.1124	1.1054	1.0935	1.0711	1.0171	0.9531
40	1.1933	1.1929	1.1909	1.1853	1.1807	1.1705	1.1624	1.1488	1.1230	1.0606	0.9834
45	1.2591	1.2586	1.2564	1.2502	1.2450	1.2335	1.2245	1.2094	1.1806	1.1107	1.0219
50	1.3281	1.3275	1.3250	1.3181	1.3123	1.2996	1.2895	1.2728	1.2410	1.1639	1.0648
55	1.3999	1.3992	1.3965	1.3888	1.3824	1.3683	1.3573	1.3390	1.3044	1.2208	1.1123
60	1.4731	1.4724	1.4693	1.4608	1.4538	1.4384	1.4263	1.4063	1.3688	1.2790	1.1625
65	1.5474	1.5467	1.5433	1.5339	1.5262	1.5093	1.4962	1.4745	1.4342	1.3386	1.2149
70	1.6221	1.6213	1.6175	1.6072	1.5988	1.5804	1.5661	1.5427	1.4995	1.3984	1.2687
75	1.6965	1.6956	1.6915	1.6802	1.6709	1.6508	1.6353	1.6102	1.5641	1.4581	1.3236
80	1.7705	1.7695	1.7649	1.7525	1.7424	1.7205	1.7038	1.6768	1.6279	1.5175	1.3791
85	1.8429	1.8418	1.8368	1.8231	1.8121	1.7883	1.7703	1.7414	1.6898	1.5757	1.4351
90	1.9144	1.9132	1.9077	1.8927	1.8806	1.8548	1.8354	1.8045	1.7503	1.6332	1.4914
95	1.9833	1.9819	1.9758	1.9593	1.9461	1.9180	1.8972	1.8645	1.8079	1.6890	1.5482
100	2.0509	2.0494	2.0426	2.0244	2.0099	1.9795	1.9572	1.9226	1.8638	1.7440	1.6050
105	2.1147	2.1130	2.1055	2.0854	2.0695	2.0366	2.0128	1.9764	1.9159	1.7968	1.6624
110	2.1772	2.1753	2.1668	2.1445	2.1271	2.0915	2.0661	2.0279	1.9661	1.8488	1.7196
115	2.2349	2.2327	2.2232	2.1984	2.1792	2.1408	2.1139	2.0741	2.0117	1.8984	1.7773
120	2.2911	2.2886	2.2779	2.2500	2.2289	2.1873	2.1588	2.1177	2.0552	1.9469	1.8344
125	2.3416	2.3388	2.3265	2.2951	2.2718	2.2269	2.1970	2.1550	2.0936	1.9930	1.8916
130	2.3907	2.3874	2.3731	2.3374	2.3114	2.2630	2.2317	2.1891	2.1296	2.0377	1.9473
135	2.4331	2.4293	2.4125	2.3715	2.3426	2.2907	2.2585	2.2163	2.1603	2.0796	2.0023
140	2.4743	2.4696	2.4494	2.4016	2.3693	2.3137	2.2810	2.2398	2.1884	2.1196	2.0545
145	2.5082	2.5022	2.4774	2.4212	2.3853	2.3270	2.2946	2.2561	2.2112	2.1563	2.1045
150	2.5406	2.5328	2.5010	2.4338	2.3939	2.3338	2.3029	2.2683	2.2311	2.1901	2.1500
155	2.5659	2.5551	2.5131	2.4324	2.3893	2.3304	2.3028	2.2742	2.2465	2.2199	2.1913
160	2.5873	2.5713	2.5127	2.4166	2.3724	2.3193	2.2971	2.2762	2.2587	2.2455	2.2264
165	2.6083	2.5811	2.4941	2.3842	2.3439	2.3025	2.2876	2.2754	2.2678	2.2661	2.2550
170	2.6006	2.5480	2.4250	2.3273	2.3015	2.2802	2.2743	2.2713	2.2731	2.2812	2.2762
175	2.7417	2.5435	2.3524	2.2865	2.2753	2.2690	2.2689	2.2713	2.2780	2.2908	2.2888
180	2.2493	2.2495	2.2505	2.2532	2.2554	2.2601	2.2637	2.2694	2.2790	2.2942	2.2924

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN W, Z=74

ENERGY(MEV) ANGLE(DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9633	0.9633	0.9632	0.9630	0.9628	0.9625	0.9623	0.9620	0.9618	0.9630	0.9668
10	0.9594	0.9593	0.9589	0.9580	0.9573	0.9556	0.9544	0.9526	0.9496	0.9461	0.9509
15	0.9638	0.9636	0.9630	0.9612	0.9597	0.9565	0.9540	0.9499	0.9428	0.9298	0.9265
20	0.9900	0.9898	0.9888	0.9861	0.9839	0.9790	0.9751	0.9688	0.9571	0.9324	0.9137
25	1.0270	1.0267	1.0254	1.0220	1.0191	1.0126	1.0076	0.9992	0.9835	0.9482	0.9145
30	1.0754	1.0751	1.0735	1.0692	1.0657	1.0577	1.0514	1.0410	1.0212	0.9749	0.9245
35	1.1318	1.1314	1.1296	1.1245	1.1204	1.1111	1.1037	1.0915	1.0682	1.0126	0.9476
40	1.1945	1.1940	1.1919	1.1862	1.1814	1.1707	1.1623	1.1482	1.1214	1.0567	0.9777
45	1.2624	1.2619	1.2596	1.2531	1.2477	1.2357	1.2263	1.2105	1.1805	1.1079	1.0166
50	1.3338	1.3333	1.3306	1.3234	1.3174	1.3040	1.2935	1.2760	1.2429	1.1626	1.0602
55	1.4083	1.4077	1.4048	1.3967	1.3901	1.3754	1.3638	1.3447	1.3085	1.2212	1.1088
60	1.4845	1.4838	1.4805	1.4717	1.4643	1.4482	1.4355	1.4146	1.3753	1.2814	1.1603
65	1.5619	1.5612	1.5576	1.5478	1.5398	1.5221	1.5083	1.4856	1.4433	1.3432	1.2143
70	1.6399	1.6390	1.6351	1.6243	1.6155	1.5962	1.5812	1.5567	1.5114	1.4054	1.2699
75	1.7177	1.7167	1.7124	1.7006	1.6909	1.6698	1.6536	1.6272	1.5788	1.4676	1.3267
80	1.7951	1.7940	1.7893	1.7763	1.7657	1.7428	1.7253	1.6969	1.6456	1.5295	1.3844
85	1.8710	1.8698	1.8646	1.8503	1.8388	1.8138	1.7949	1.7646	1.7104	1.5904	1.4427
90	1.9461	1.9448	1.9390	1.9233	1.9106	1.8836	1.8633	1.8309	1.7740	1.6506	1.5014
95	2.0184	2.0169	2.0105	1.9933	1.9794	1.9501	1.9283	1.8939	1.8345	1.7092	1.5607
100	2.0894	2.0878	2.0808	2.0617	2.0466	2.0148	1.9914	1.9551	1.8933	1.7669	1.6201
105	2.1566	2.1548	2.1470	2.1259	2.1094	2.0750	2.0500	2.0118	1.9482	1.8225	1.6802
110	2.2224	2.2204	2.2116	2.1883	2.1701	2.1329	2.1063	2.0662	2.0012	1.8772	1.7402
115	2.2831	2.2809	2.2710	2.2451	2.2252	2.1850	2.1568	2.1151	2.0495	1.9295	1.8009
120	2.3424	2.3399	2.3287	2.2997	2.2777	2.2342	2.2044	2.1613	2.0955	1.9808	1.8608
125	2.3957	2.3928	2.3800	2.3474	2.3231	2.2762	2.2450	2.2010	2.1364	2.0296	1.9212
130	2.4475	2.4441	2.4293	2.3922	2.3652	2.3147	2.2820	2.2374	2.1747	2.0769	1.9799
135	2.4924	2.4883	2.4710	2.4284	2.3984	2.3443	2.3108	2.2665	2.2075	2.1214	2.0379
140	2.5359	2.5310	2.5101	2.4605	2.4270	2.3692	2.3350	2.2919	2.2376	2.1639	2.0931
145	2.5717	2.5655	2.5398	2.4817	2.4444	2.3838	2.3500	2.3096	2.2622	2.2030	2.1459
150	2.6059	2.5979	2.5651	2.4956	2.4542	2.3917	2.3595	2.3232	2.2838	2.2390	2.1941
155	2.6327	2.6216	2.5782	2.4949	2.4502	2.3890	2.3602	2.3301	2.3006	2.2708	2.2379
160	2.6554	2.6389	2.5785	2.4792	2.4334	2.3782	2.3550	2.3329	2.3140	2.2982	2.2751
165	2.6776	2.6496	2.5600	2.4464	2.4045	2.3614	2.3457	2.3326	2.3240	2.3202	2.3055
170	2.6695	2.6156	2.4889	2.3877	2.3610	2.3386	2.3323	2.3289	2.3300	2.3364	2.3279
175	2.8181	2.6132	2.4147	2.3459	2.3342	2.3273	2.3270	2.3291	2.3353	2.3466	2.3413
180	2.3074	2.3077	2.3086	2.3113	2.3135	2.3182	2.3217	2.3272	2.3365	2.3502	2.3451

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN AU, Z=79

ENERGY(MEV) ANGLE(DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9572	0.9572	0.9571	0.9570	0.9569	0.9567	0.9567	0.9566	0.9569	0.9593	0.9636
10	0.9480	0.9479	0.9476	0.9467	0.9460	0.9446	0.9435	0.9420	0.9398	0.9392	0.9484
15	0.9472	0.9471	0.9464	0.9445	0.9430	0.9397	0.9371	0.9331	0.9264	0.9162	0.9158
20	0.9715	0.9713	0.9702	0.9672	0.9647	0.9593	0.9551	0.9483	0.9361	0.9123	0.9001
25	1.0095	1.0092	1.0077	1.0037	1.0004	0.9930	0.9873	0.9779	0.9605	0.9237	0.8947
30	1.0616	1.0612	1.0593	1.0543	1.0501	1.0407	1.0334	1.0213	0.9986	0.9479	0.8987
35	1.1245	1.1241	1.1219	1.1158	1.1108	1.0997	1.0910	1.0765	1.0492	0.9861	0.9181
40	1.1960	1.1954	1.1929	1.1858	1.1800	1.1671	1.1569	1.1399	1.1079	1.0327	0.9465
45	1.2751	1.2744	1.2716	1.2636	1.2570	1.2423	1.2308	1.2115	1.1752	1.0890	0.9859
50	1.3593	1.3586	1.3553	1.3464	1.3389	1.3224	1.3095	1.2880	1.2474	1.1506	1.0324
55	1.4485	1.4477	1.4440	1.4340	1.4258	1.4075	1.3932	1.3694	1.3246	1.2181	1.0855
60	1.5406	1.5397	1.5357	1.5246	1.5154	1.4952	1.4794	1.4533	1.4044	1.2885	1.1435
65	1.6352	1.6342	1.6298	1.6176	1.6075	1.5853	1.5680	1.5395	1.4865	1.3618	1.2053
70	1.7313	1.7302	1.7254	1.7119	1.7008	1.6765	1.6577	1.6268	1.5696	1.4366	1.2701
75	1.8280	1.8268	1.8214	1.8065	1.7944	1.7678	1.7474	1.7140	1.6528	1.5122	1.3372
80	1.9249	1.9236	1.9177	1.9013	1.8880	1.8591	1.8370	1.8011	1.7359	1.5882	1.4060
85	2.0206	2.0191	2.0125	1.9946	1.9801	1.9487	1.9248	1.8863	1.8172	1.6637	1.4765
90	2.1157	2.1141	2.1069	2.0872	2.0713	2.0372	2.0115	1.9704	1.8976	1.7389	1.5479
95	2.2079	2.2061	2.1981	2.1765	2.1591	2.1222	2.0946	2.0510	1.9748	1.8127	1.6211
100	2.2989	2.2969	2.2881	2.2643	2.2454	2.2054	2.1759	2.1296	2.0504	1.8858	1.6946
105	2.3853	2.3832	2.3734	2.3472	2.3265	2.2830	2.2519	2.2033	2.1216	1.9572	1.7701
110	2.4703	2.4679	2.4570	2.4281	2.4054	2.3588	2.3253	2.2743	2.1906	2.0274	1.8454
115	2.5491	2.5464	2.5343	2.5023	2.4775	2.4273	2.3919	2.3390	2.2543	2.0957	1.9227
120	2.6263	2.6232	2.6095	2.5738	2.5466	2.4925	2.4551	2.4003	2.3154	2.1624	1.9991
125	2.6959	2.6923	2.6768	2.6369	2.6070	2.5490	2.5098	2.4540	2.3705	2.2269	2.0769
130	2.7637	2.7596	2.7416	2.6965	2.6634	2.6010	2.5602	2.5037	2.4224	2.2894	2.1527
135	2.8226	2.8178	2.7969	2.7455	2.7090	2.6425	2.6006	2.5446	2.4679	2.3492	2.2284
140	2.8797	2.8739	2.8489	2.7895	2.7488	2.6779	2.6354	2.5808	2.5098	2.4060	2.3003
145	2.9270	2.9198	2.8894	2.8200	2.7750	2.7010	2.6590	2.6078	2.5452	2.4592	2.3699
150	2.9721	2.9627	2.9241	2.8416	2.7918	2.7157	2.6756	2.6293	2.5765	2.5080	2.4334
155	3.0076	2.9947	2.9440	2.8455	2.7919	2.7173	2.6813	2.6426	2.6018	2.5517	2.4914
160	3.0376	3.0186	2.9483	2.8312	2.7763	2.7087	2.6795	2.6504	2.6225	2.5893	2.5408
165	3.0668	3.0405	2.9304	2.7960	2.7456	2.6922	2.6720	2.6538	2.6384	2.6198	2.5813
170	3.0580	2.9962	2.8490	2.7287	2.6961	2.6676	2.6587	2.6522	2.6486	2.6423	2.6112
175	3.2423	3.0030	2.7654	2.6810	2.6659	2.6558	2.6539	2.6540	2.6565	2.6561	2.6291
180	2.6361	2.6363	2.6372	2.6395	2.6414	2.6458	2.6483	2.6525	2.6586	2.6607	2.6339

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN PB, Z=82

ENERGY(MEV) ANGLE(DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9536	0.9536	0.9535	0.9535	0.9534	0.9534	0.9534	0.9536	0.9542	0.9573	0.9614
10	0.9409	0.9408	0.9405	0.9397	0.9391	0.9378	0.9369	0.9357	0.9342	0.9358	0.9474
15	0.9363	0.9361	0.9354	0.9335	0.9320	0.9287	0.9263	0.9225	0.9163	0.9086	0.9171
20	0.9584	0.9581	0.9570	0.9539	0.9513	0.9457	0.9414	0.9344	0.9222	0.9001	0.8932
25	0.9961	0.9956	0.9942	0.9899	0.9864	0.9786	0.9725	0.9626	0.9446	0.9081	0.8837
30	1.0497	1.0493	1.0473	1.0417	1.0372	1.0270	1.0191	1.0061	0.9820	0.9295	0.8832
35	1.1162	1.1157	1.1133	1.1066	1.1011	1.0889	1.0793	1.0635	1.0339	0.9671	0.8993
40	1.1928	1.1921	1.1893	1.1815	1.1750	1.1606	1.1493	1.1306	1.0955	1.0143	0.9257
45	1.2788	1.2781	1.2748	1.2659	1.2585	1.2420	1.2291	1.2077	1.1674	1.0731	0.9644
50	1.3712	1.3704	1.3667	1.3566	1.3482	1.3296	1.3151	1.2909	1.2455	1.1385	1.0117
55	1.4699	1.4690	1.4649	1.4536	1.4442	1.4235	1.4073	1.3804	1.3300	1.2111	1.0669
60	1.5727	1.5717	1.5671	1.5545	1.5441	1.5211	1.5032	1.4735	1.4181	1.2879	1.1284
65	1.6790	1.6779	1.6728	1.6589	1.6474	1.6221	1.6024	1.5699	1.5096	1.3685	1.1946
70	1.7876	1.7863	1.7807	1.7653	1.7527	1.7249	1.7034	1.6680	1.6028	1.4515	1.2649
75	1.8973	1.8959	1.8898	1.8728	1.8589	1.8285	1.8051	1.7668	1.6967	1.5359	1.3384
80	2.0080	2.0064	1.9996	1.9810	1.9657	1.9326	1.9072	1.8659	1.7909	1.6213	1.4143
85	2.1175	2.1159	2.1084	2.0879	2.0712	2.0351	2.0077	1.9634	1.8838	1.7067	1.4927
90	2.2270	2.2252	2.2169	2.1944	2.1761	2.1370	2.1074	2.0600	1.9759	1.7921	1.5725
95	2.3334	2.3313	2.3222	2.2975	2.2776	2.2352	2.2035	2.1531	2.0689	1.8766	1.6549
100	2.4388	2.4366	2.4265	2.3993	2.3776	2.3317	2.2977	2.2443	2.1523	1.9604	1.7380
105	2.5393	2.5367	2.5256	2.4957	2.4721	2.4226	2.3863	2.3302	2.2353	2.0428	1.8238
110	2.6382	2.6354	2.6230	2.5900	2.5642	2.5107	2.4721	2.4132	2.3158	2.1240	1.9098
115	2.7303	2.7272	2.7134	2.6770	2.6487	2.5913	2.5505	2.4894	2.3908	2.2036	1.9984
120	2.8205	2.8169	2.8014	2.7609	2.7300	2.6681	2.6251	2.5618	2.4627	2.2814	2.0864
125	2.9021	2.8981	2.8806	2.8355	2.8015	2.7353	2.6904	2.6259	2.5283	2.3572	2.1763
130	2.9817	2.9770	2.9569	2.9060	2.8685	2.7974	2.7506	2.6853	2.5901	2.4306	2.2643
135	3.0511	3.0457	3.0224	2.9646	2.9234	2.8478	2.7998	2.7352	2.6451	2.5015	2.3524
140	3.1183	3.1118	3.0840	3.0174	2.9716	2.8912	2.8425	2.7794	2.6957	2.5687	2.4365
145	3.1742	3.1662	3.1324	3.0551	3.0046	2.9208	2.8728	2.8135	2.7393	2.6322	2.5180
150	3.2273	3.2169	3.1743	3.0826	3.0268	2.9408	2.8948	2.8411	2.7779	2.6904	2.5926
155	3.2694	3.2553	3.1995	3.0903	3.0303	2.9460	2.9047	2.8594	2.8097	2.7429	2.6608
160	3.3050	3.2841	3.2071	3.0774	3.0160	2.9394	2.9056	2.8711	2.8359	2.7880	2.7191
165	3.3390	3.3038	3.1899	3.0409	2.9843	2.9235	2.8998	2.8774	2.8562	2.8247	2.7868
170	3.3309	3.2638	3.1022	2.9683	2.9313	2.8981	2.8871	2.8778	2.8698	2.8520	2.8023
175	3.5335	3.2730	3.0106	2.9159	2.8984	2.8857	2.8826	2.8807	2.8796	2.8685	2.8234
180	2.8674	2.8675	2.8683	2.8702	2.8717	2.8747	2.8768	2.8796	2.8823	2.8738	2.8293

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN FR, Z=87

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9478	0.9478	0.9479	0.9479	0.9480	0.9482	0.9484	0.9489	0.9501	0.9539	0.9572
10	0.9290	0.9289	0.9287	0.9281	0.9277	0.9269	0.9264	0.9258	0.9259	0.9315	0.9461
15	0.9165	0.9164	0.9157	0.9140	0.9126	0.9096	0.9075	0.9043	0.8997	0.8976	0.9146
20	0.9333	0.9330	0.9318	0.9286	0.9260	0.9203	0.9160	0.9092	0.8978	0.8805	0.8846
25	0.9689	0.9685	0.9668	0.9621	0.9583	0.9499	0.9435	0.9331	0.9149	0.8812	0.8678
30	1.0233	1.0228	1.0205	1.0143	1.0092	0.9979	0.9892	0.9749	0.9491	0.8962	0.8586
35	1.0947	1.0940	1.0913	1.0836	1.0773	1.0633	1.0524	1.0345	1.0016	0.9306	0.8673
40	1.1790	1.1783	1.1750	1.1658	1.1582	1.1414	1.1283	1.1066	1.0665	0.9772	0.8883
45	1.2765	1.2757	1.2718	1.2611	1.2523	1.2328	1.2175	1.1923	1.1453	1.0384	0.9237
50	1.3831	1.3822	1.3778	1.3655	1.3554	1.3331	1.3156	1.2867	1.2329	1.1092	0.9707
55	1.4991	1.4980	1.4930	1.4792	1.4678	1.4426	1.4229	1.3904	1.3298	1.1898	1.0279
60	1.6214	1.6201	1.6145	1.5990	1.5863	1.5581	1.5361	1.4999	1.4326	1.2770	1.0940
65	1.7495	1.7481	1.7418	1.7246	1.7104	1.6791	1.6549	1.6149	1.5408	1.3701	1.1670
70	1.8817	1.8801	1.8732	1.8541	1.8384	1.8039	1.7772	1.7333	1.6526	1.4675	1.2461
75	2.0166	2.0149	2.0072	1.9861	1.9687	1.9308	1.9016	1.8539	1.7665	1.5679	1.3302
80	2.1538	2.1519	2.1434	2.1201	2.1010	2.0596	2.0277	1.9760	1.8820	1.6706	1.4184
85	2.2908	2.2887	2.2793	2.2537	2.2328	2.1876	2.1531	2.0973	1.9970	1.7745	1.5107
90	2.4285	2.4262	2.4159	2.3877	2.3648	2.3156	2.2782	2.2184	2.1118	1.8792	1.6057
95	2.5634	2.5608	2.5494	2.5184	2.4935	2.4401	2.4000	2.3362	2.2241	1.9840	1.7048
100	2.6976	2.6948	2.6822	2.6481	2.6209	2.5631	2.5200	2.4522	2.3347	2.0883	1.8057
105	2.8264	2.8233	2.8094	2.7720	2.7423	2.6800	2.6341	2.5626	2.4410	2.1923	1.9109
110	2.9535	2.9501	2.9346	2.8935	2.8611	2.7938	2.7449	2.6698	2.5445	2.2948	2.0170
115	3.0728	3.0689	3.0518	3.0065	2.9712	2.8990	2.8474	2.7694	2.6422	2.3967	2.1273
120	3.1896	3.1852	3.1661	3.1158	3.0772	2.9995	2.9451	2.8643	2.7359	2.4963	2.2376
125	3.2963	3.2914	3.2698	3.2141	3.1719	3.0890	3.0322	2.9498	2.8229	2.5948	2.3511
130	3.3998	3.3942	3.3695	3.3069	3.2606	3.1718	3.1126	3.0291	2.9049	2.6899	2.4628
135	3.4913	3.4848	3.4563	3.3858	3.3350	3.2408	3.1803	3.0976	2.9794	2.7831	2.5753
140	3.5791	3.5713	3.5377	3.4567	3.4006	3.3008	3.2394	3.1584	3.0479	2.8713	2.6833
145	3.6532	3.6437	3.6032	3.5098	3.4481	3.3443	3.2838	3.2075	3.1085	2.9557	2.7883
150	3.7228	3.7105	3.6598	3.5497	3.4819	3.3755	3.3175	3.2479	3.1622	3.0330	2.8851
155	3.7788	3.7622	3.6963	3.5659	3.4931	3.3888	3.3364	3.2771	3.2077	3.1034	2.9737
160	3.8259	3.8016	3.7112	3.5567	3.4822	3.3871	3.3437	3.2973	3.2455	3.1639	3.0499
165	3.8695	3.8289	3.6957	3.5183	3.4493	3.3730	3.3417	3.3100	3.2752	3.2135	3.1123
170	3.8658	3.7879	3.5980	3.4365	3.3905	3.3470	3.3309	3.3150	3.2960	3.2506	3.1589
175	4.0877	3.7920	3.4869	3.3737	3.3515	3.3332	3.3268	3.3201	3.3096	3.2725	3.1866
180	3.3199	3.3200	3.3202	3.3208	3.3211	3.3214	3.3211	3.3197	3.3136	3.2793	3.1950

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN U, Z=92

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9426	0.9427	0.9427	0.9429	0.9431	0.9436	0.9440	0.9447	0.9464	0.9504	0.9522
10	0.9177	0.9177	0.9175	0.9173	0.9171	0.9170	0.9170	0.9174	0.9192	0.9288	0.9447
15	0.8958	0.8957	0.8951	0.8937	0.8926	0.8903	0.8887	0.8866	0.8845	0.8896	0.9146
20	0.9046	0.9043	0.9032	0.9001	0.8976	0.8923	0.8883	0.8823	0.8730	0.8633	0.8801
25	0.9353	0.9349	0.9331	0.9283	0.9244	0.9159	0.9095	0.8993	0.8821	0.8549	0.8565
30	0.9879	0.9874	0.9849	0.9782	0.9727	0.9606	0.9514	0.9364	0.9102	0.8609	0.8376
35	1.0620	1.0613	1.0582	1.0496	1.0425	1.0270	1.0150	0.9955	0.9604	0.8890	0.8367
40	1.1527	1.1519	1.1481	1.1375	1.1288	1.1097	1.0949	1.0706	1.0263	0.9321	0.8496
45	1.2610	1.2600	1.2555	1.2430	1.2327	1.2100	1.1924	1.1634	1.1101	0.9932	0.8786
50	1.3821	1.3809	1.3757	1.3611	1.3492	1.3228	1.3023	1.2685	1.2062	1.0673	0.9225
55	1.5163	1.5150	1.5090	1.4924	1.4787	1.4486	1.4251	1.3865	1.3152	1.1544	0.9790
60	1.6602	1.6587	1.6519	1.6331	1.6176	1.5836	1.5571	1.5136	1.4332	1.2513	1.0477
65	1.8131	1.8114	1.8037	1.7826	1.7653	1.7271	1.6975	1.6490	1.5595	1.3569	1.1258
70	1.9728	1.9709	1.9623	1.9388	1.9194	1.8770	1.8442	1.7905	1.6919	1.4693	1.2127
75	2.1376	2.1354	2.1259	2.0997	2.0783	2.0314	1.9952	1.9363	1.8287	1.5871	1.3070
80	2.3067	2.3043	2.2938	2.2647	2.2410	2.1894	2.1498	2.0854	1.9687	1.7089	1.4075
85	2.4771	2.4745	2.4628	2.4308	2.4047	2.3482	2.3050	2.2353	2.1099	1.8339	1.5144
90	2.6497	2.6468	2.6338	2.5985	2.5699	2.5081	2.4612	2.3860	2.2519	1.9606	1.6256
95	2.8200	2.8168	2.8025	2.7637	2.7324	2.6653	2.6147	2.5342	2.3923	2.0893	1.7432
100	2.9904	2.9868	2.9711	2.9283	2.8941	2.8212	2.7667	2.6808	2.5314	2.2179	1.8640
105	3.1552	3.1513	3.1339	3.0870	3.0497	2.9710	2.9129	2.8221	2.6667	2.3477	1.9910
110	3.3182	3.3139	3.2946	3.2430	3.2022	3.1172	3.0552	2.9594	2.7985	2.4760	2.1207
115	3.4726	3.4677	3.4464	3.3897	3.3453	3.2542	3.1886	3.0889	2.9249	2.6051	2.2561
120	3.6235	3.6181	3.5942	3.5315	3.4830	3.3850	3.3158	3.2123	3.0461	2.7314	2.3930
125	3.7629	3.7568	3.7301	3.6607	3.6080	3.5034	3.4312	3.3255	3.1605	2.8578	2.5342
130	3.8975	3.8906	3.8602	3.7825	3.7247	3.6130	3.5378	3.4305	3.2680	2.9799	2.6748
135	4.0181	4.0100	3.9752	3.8881	3.8250	3.7068	3.6299	3.5233	3.3678	3.1009	2.8166
140	4.1326	4.1231	4.0822	3.9829	3.9134	3.7884	3.7103	3.6058	3.4592	3.2156	2.9543
145	4.2311	4.2195	4.1706	4.0567	3.9807	3.8509	3.7739	3.6748	3.5420	3.3264	3.0880
150	4.3220	4.3074	4.2466	4.1131	4.0299	3.8970	3.8230	3.7320	3.6152	3.4279	3.2125
155	4.3967	4.3770	4.2985	4.1412	4.0521	3.9217	3.8544	3.7758	3.6788	3.5211	3.3263
160	4.4592	4.4306	4.3236	4.1379	4.0465	3.9270	3.8706	3.8077	3.7317	3.6013	3.4250
165	4.5147	4.4673	4.3106	4.0977	4.0128	3.9159	3.8740	3.8290	3.7738	3.6673	3.5057
170	4.5209	4.4297	4.2038	4.0066	3.9485	3.8904	3.8668	3.8406	3.8044	3.7170	3.5661
175	4.7389	4.4095	4.0615	3.9281	3.9003	3.8742	3.8628	3.8482	3.8228	3.7460	3.6023
180	3.8712	3.8710	3.8704	3.8684	3.8666	3.8620	3.8576	3.8491	3.8286	3.7548	3.6146

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN PU, Z=94

ENERGY (MEV) / ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9407	0.9408	0.9408	0.9411	0.9413	0.9419	0.9423	0.9432	0.9450	0.9488	0.9500
10	0.9135	0.9135	0.9134	0.9133	0.9133	0.9134	0.9137	0.9145	0.9171	0.9282	0.9439
15	0.8875	0.8874	0.8869	0.8856	0.8847	0.8828	0.8815	0.8800	0.8790	0.8874	0.9151
20	0.8923	0.8921	0.8910	0.8880	0.8856	0.8806	0.8769	0.8714	0.8633	0.8575	0.8795
25	0.9202	0.9199	0.9180	0.9132	0.9093	0.9010	0.8947	0.8848	0.8685	0.8451	0.8535
30	0.9711	0.9706	0.9681	0.9612	0.9556	0.9434	0.9341	0.9191	0.8932	0.8467	0.8307
35	1.0455	1.0447	1.0415	1.0326	1.0253	1.0093	0.9971	0.9771	0.9416	0.8714	0.8254
40	1.1381	1.1372	1.1332	1.1222	1.1131	1.0931	1.0777	1.0525	1.0070	0.9120	0.8343
45	1.2503	1.2492	1.2445	1.2313	1.2204	1.1965	1.1779	1.1475	1.0920	0.9722	0.8599
50	1.3770	1.3758	1.3702	1.3547	1.3420	1.3140	1.2923	1.2565	1.1910	1.0468	0.9016
55	1.5188	1.5173	1.5109	1.4931	1.4785	1.4463	1.4213	1.3801	1.3045	1.1358	0.9669
60	1.6718	1.6702	1.6628	1.6426	1.6260	1.5894	1.5610	1.5144	1.4286	1.2363	1.0258
65	1.8354	1.8335	1.8253	1.8025	1.7837	1.7426	1.7107	1.6584	1.5624	1.3467	1.1053
70	2.0072	2.0052	1.9959	1.9703	1.9494	1.9034	1.8679	1.8098	1.7035	1.4651	1.1948
75	2.1853	2.1830	2.1727	2.1442	2.1209	2.0699	2.0307	1.9667	1.8501	1.5901	1.2929
80	2.3689	2.3663	2.3548	2.3232	2.2974	2.2411	2.1980	2.1279	2.0010	1.7200	1.3981
85	2.5546	2.5518	2.5390	2.5040	2.4756	2.4139	2.3667	2.2906	2.1539	1.8541	1.5109
90	2.7432	2.7401	2.7259	2.6873	2.6560	2.5884	2.5371	2.4548	2.3081	1.9905	1.6289
95	2.9301	2.9266	2.9110	2.8685	2.8342	2.7606	2.7052	2.6169	2.4614	2.1297	1.7541
100	3.1173	3.1134	3.0962	3.0494	3.0118	2.9318	2.8721	2.7776	2.6134	2.2692	1.8835
105	3.2991	3.2949	3.2758	3.2245	3.1835	3.0971	3.0333	2.9333	2.7621	2.4106	2.0200
110	3.4790	3.4743	3.4532	3.3966	3.3519	3.2585	3.1903	3.0848	2.9071	2.5506	2.1599
115	3.6502	3.6449	3.6215	3.5594	3.5108	3.4106	3.3384	3.2284	3.0469	2.6921	2.3064
120	3.8173	3.8114	3.7853	3.7166	3.6635	3.5558	3.4795	3.3652	3.1809	2.8306	2.4552
125	3.9725	3.9659	3.9367	3.8608	3.8030	3.6881	3.6085	3.4916	3.3082	2.9699	2.5088
130	4.1219	4.1144	4.0812	3.9964	3.9332	3.8104	3.7275	3.6087	3.4278	3.1045	2.7626
135	4.2566	4.2479	4.2100	4.1151	4.0460	3.9163	3.8314	3.7132	3.5395	3.2384	2.9176
140	4.3840	4.3736	4.3292	4.2212	4.1454	4.0082	3.9221	3.8060	3.6418	3.3653	3.0689
145	4.4943	4.4818	4.4289	4.3052	4.2223	4.0800	3.9949	3.8848	3.7352	3.4885	3.2157
150	4.5956	4.5798	4.5142	4.3697	4.2790	4.1334	4.0515	3.9500	3.8177	3.6013	3.3530
155	4.6793	4.6582	4.5738	4.4038	4.3067	4.1638	4.0891	4.0009	3.8899	3.7053	3.4785
160	4.7494	4.7188	4.6040	4.4035	4.3040	4.1726	4.1096	4.0384	3.9502	3.7948	3.5876
165	4.8104	4.7599	4.5922	4.3625	4.2700	4.1630	4.1159	4.0640	3.9982	3.8685	3.6768
170	4.8228	4.7252	4.4821	4.2678	4.2036	4.1381	4.1105	4.0789	4.0335	3.9242	3.7437
175	5.0301	4.6878	4.3229	4.1810	4.1505	4.1204	4.1064	4.0876	4.0541	3.9565	3.7839
180	4.1235	4.1233	4.1221	4.1187	4.1157	4.1082	4.1016	4.0892	4.0607	3.9664	3.7981

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN ES, Z=99

ENERGY (MEV) / ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9364	0.9365	0.9368	0.9370	0.9373	0.9380	0.9386	0.9396	0.9414	0.9445	0.9442
10	0.9044	0.9044	0.9045	0.9049	0.9052	0.9062	0.9071	0.9090	0.9135	0.9275	0.9409
15	0.8675	0.8674	0.8672	0.8665	0.8661	0.8654	0.8651	0.8654	0.8679	0.8845	0.9170
20	0.8607	0.8605	0.8595	0.8571	0.8552	0.8513	0.8487	0.8450	0.8408	0.8453	0.8809
25	0.8788	0.8785	0.8768	0.8723	0.8687	0.8611	0.8556	0.8472	0.8346	0.8234	0.8507
30	0.9227	0.9222	0.9196	0.9127	0.9071	0.8950	0.8860	0.8718	0.8482	0.8125	0.8186
35	0.9949	0.9942	0.9907	0.9813	0.9736	0.9570	0.9443	0.9240	0.8890	0.8261	0.8113
40	1.0899	1.0889	1.0845	1.0724	1.0625	1.0409	1.0244	0.9976	0.9503	0.8581	0.7985
45	1.2101	1.2089	1.2035	1.1887	1.1765	1.1498	1.1292	1.0958	1.0359	0.9128	0.8130
50	1.3500	1.3486	1.3421	1.3244	1.3098	1.2778	1.2531	1.2129	1.1401	0.9862	0.8465
55	1.5104	1.5087	1.5012	1.4804	1.4633	1.4258	1.3968	1.3495	1.2634	1.0779	0.8962
60	1.6871	1.6852	1.6765	1.6525	1.6328	1.5895	1.5561	1.5015	1.4021	1.1854	0.9631
65	1.8793	1.8771	1.8671	1.8397	1.8172	1.7679	1.7299	1.6678	1.5547	1.3066	1.0439
70	2.0842	2.0816	2.0704	2.0393	2.0139	1.9583	1.9154	1.8456	1.7186	1.4398	1.1381
75	2.2993	2.2965	2.2838	2.2489	2.2204	2.1581	2.1103	2.0325	1.8916	1.5829	1.2443
80	2.5235	2.5203	2.5061	2.4671	2.4353	2.3660	2.3129	2.2269	2.0719	1.7339	1.3606
85	2.7529	2.7494	2.7335	2.6901	2.6548	2.5783	2.5199	2.4257	2.2571	1.8921	1.4875
90	2.9876	2.9836	2.9660	2.9178	2.8788	2.7945	2.7305	2.6278	2.4455	2.0547	1.6225
95	3.2225	3.2182	3.1986	3.1454	3.1025	3.0103	2.9408	2.8301	2.6351	2.2228	1.7674
100	3.4590	3.4542	3.4325	3.3737	3.3265	3.2259	3.1506	3.0314	2.8241	2.3923	1.9194
105	3.6911	3.6858	3.6618	3.5972	3.5456	3.4366	3.3557	3.2290	3.0115	2.5662	2.0808
110	3.9211	3.9151	3.8886	3.8173	3.7609	3.6427	3.5560	3.4216	3.1945	2.7391	2.2488
115	4.1423	4.1356	4.1063	4.0280	3.9666	3.8395	3.7476	3.6069	3.3735	2.9157	2.4252
120	4.3578	4.3504	4.3177	4.2312	4.1641	4.0273	3.9299	3.7832	3.5449	3.0892	2.6071
125	4.5606	4.5523	4.5158	4.4204	4.3474	4.2015	4.0996	3.9490	3.7103	3.2652	2.7950
130	4.7547	4.7452	4.7039	4.5976	4.5179	4.3619	4.2557	4.1021	3.8652	3.4359	2.9857
135	4.9324	4.9215	4.8744	4.7558	4.6690	4.5042	4.3953	4.2418	4.0124	3.6070	3.1780
140	5.0984	5.0857	5.0309	4.8966	4.8014	4.6274	4.5167	4.3654	4.1469	3.7698	3.3679
145	5.2453	5.2300	5.1650	5.0118	4.9081	4.7275	4.6178	4.4732	4.2717	3.9287	3.5521
150	5.3778	5.3585	5.2786	5.1007	4.9877	4.8029	4.6970	4.5627	4.3819	4.0788	3.7262
155	5.4896	5.4641	5.3620	5.1535	5.0326	4.8508	4.7535	4.6352	4.4799	4.2100	3.8851
160	5.5827	5.5461	5.4080	5.1629	5.0388	4.8707	4.7874	4.6896	4.5619	4.3269	4.0244
165	5.6599	5.6001	5.3999	5.1200	5.0043	4.8658	4.8019	4.7279	4.6276	4.4233	4.1383
170	5.6945	5.5778	5.2829	5.0156	4.9326	4.8433	4.8027	4.7530	4.6771	4.4966	4.2238
175	5.8452	5.4727	5.0660	4.9015	4.8631	4.8204	4.7976	4.7646	4.7041	4.5388	4.2758
180	4.8455	4.8449	4.8419	4.8334	4.8260	4.8087	4.7943	4.7684	4.7135	4.5524	4.2958

DIFFERENTIAL RUTHERFORD SCATTERING WITHOUT Z SQUARED FACTOR (BARNS PER STERADIAN)

ENERGY (MEV) / ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
2	.553D 01	.508D 03	.282D 04	.965D 04	.158D 05	.312D 05	.452D 05	.728D 05	.143D 06	.473D 06	.166D 07
4	.346D 00	.318D 02	.176D 03	.603D 03	.988D 03	.195D 04	.283D 04	.455D 04	.896D 04	.296D 05	.104D 06
6	.684D-01	.628D 01	.348D 02	.119D 03	.195D 03	.386D 03	.559D 03	.901D 03	.177D 04	.585D 04	.205D 05
8	.217D-01	.199D 01	.110D 02	.378D 02	.619D 02	.122D 03	.177D 03	.285D 03	.562D 03	.185D 04	.649D 04
10	.889D-02	.817D 00	.453D 01	.155D 02	.254D 02	.502D 02	.727D 02	.117D 03	.230D 03	.760D 03	.266D 04
12	.430D-02	.395D 00	.219D 01	.750D 01	.123D 02	.243D 02	.351D 02	.566D 02	.111D 03	.368D 03	.129D 04
14	.233D-02	.214D 00	.119D 01	.406D 01	.664D 01	.131D 02	.190D 02	.306D 02	.603D 02	.199D 03	.697D 03
16	.137D-02	.126D 00	.697D 00	.239D 01	.391D 01	.772D 01	.112D 02	.180D 02	.354D 02	.117D 03	.410D 03
18	.857D-03	.787D-01	.437D 00	.149D 01	.245D 01	.483D 01	.700D 01	.113D 02	.222D 02	.733D 02	.257D 03
20	.564D-03	.519D-01	.288D 00	.984D 00	.161D 01	.318D 01	.461D 01	.743D 01	.146D 02	.483D 02	.169D 03
22	.387D-03	.356D-01	.197D 00	.675D 00	.111D 01	.218D 01	.316D 01	.510D 01	.100D 02	.331D 02	.116D 03
24	.275D-03	.252D-01	.140D 00	.479D 00	.784D 00	.155D 01	.224D 01	.362D 01	.712D 01	.235D 02	.823D 02
26	.200D-03	.184D-01	.102D 00	.349D 00	.572D 00	.113D 01	.164D 01	.264D 01	.519D 01	.171D 02	.600D 02
28	.150D-03	.138D-01	.763D-01	.261D 00	.428D 00	.845D 00	.122D 01	.197D 01	.388D 01	.128D 02	.449D 02
30	.114D-03	.105D-01	.583D-01	.199D 00	.326D 00	.645D 00	.935D 00	.151D 01	.296D 01	.978D 01	.343D 02
32	.889D-04	.817D-02	.453D-01	.155D 00	.254D 00	.502D 00	.727D 00	.117D 01	.230D 01	.760D 01	.266D 02
34	.702D-04	.645D-02	.358D-01	.122D 00	.201D 00	.396D 00	.574D 00	.925D 00	.182D 01	.600D 01	.210D 02
36	.563D-04	.517D-02	.287D-01	.981D-01	.161D 00	.318D 00	.460D 00	.741D 00	.146D 01	.481D 01	.169D 02
38	.457D-04	.420D-02	.233D-01	.796D-01	.130D 00	.258D 00	.373D 00	.601D 00	.118D 01	.391D 01	.137D 02
40	.375D-04	.345D-02	.191D-01	.654D-01	.107D 00	.212D 00	.306D 00	.494D 00	.972D 00	.321D 01	.112D 02
42	.311D-04	.286D-02	.159D-01	.543D-01	.888D-01	.176D 00	.254D 00	.410D 00	.806D 00	.266D 01	.932D 01
44	.261D-04	.239D-02	.133D-01	.454D-01	.744D-01	.147D 00	.213D 00	.343D 00	.675D 00	.223D 01	.781D 01
46	.220D-04	.202D-02	.112D-01	.384D-01	.629D-01	.124D 00	.180D 00	.290D 00	.571D 00	.188D 01	.660D 01
48	.188D-04	.172D-02	.955D-02	.327D-01	.535D-01	.106D 00	.153D 00	.247D 00	.486D 00	.160D 01	.562D 01
50	.161D-04	.148D-02	.820D-02	.281D-01	.459D-01	.908D-01	.131D 00	.212D 00	.417D 00	.138D 01	.482D 01
52	.139D-04	.128D-02	.708D-02	.242D-01	.397D-01	.784D-01	.114D 00	.183D 00	.360D 00	.119D 01	.416D 01
54	.121D-04	.111D-02	.615D-02	.211D-01	.345D-01	.682D-01	.987D-01	.159D 00	.313D 00	.103D 01	.362D 01
56	.106D-04	.971D-03	.538D-02	.184D-01	.302D-01	.596D-01	.863D-01	.139D 00	.274D 00	.903D 00	.316D 01
58	.929D-05	.853D-03	.473D-02	.162D-01	.265D-01	.524D-01	.759D-01	.122D 00	.241D 00	.794D 00	.278D 01
60	.821D-05	.754D-03	.418D-02	.143D-01	.234D-01	.463D-01	.671D-01	.108D 00	.213D 00	.702D 00	.246D 01
62	.729D-05	.670D-03	.372D-02	.127D-01	.208D-01	.411D-01	.596D-01	.960D-01	.189D 00	.624D 00	.218D 01
64	.651D-05	.598D-03	.332D-02	.113D-01	.186D-01	.367D-01	.532D-01	.857D-01	.169D 00	.556D 00	.195D 01
66	.583D-05	.536D-03	.297D-02	.102D-01	.167D-01	.329D-01	.477D-01	.768D-01	.151D 00	.499D 00	.175D 01
68	.525D-05	.482D-03	.267D-02	.915D-02	.150D-01	.296D-01	.429D-01	.691D-01	.136D 00	.449D 00	.157D 01
70	.474D-05	.436D-03	.242D-02	.827D-02	.135D-01	.267D-01	.387D-01	.624D-01	.123D 00	.405D 00	.142D 01
72	.430D-05	.395D-03	.219D-02	.750D-02	.123D-01	.243D-01	.351D-01	.566D-01	.111D 00	.368D 00	.129D 01
74	.391D-05	.359D-03	.199D-02	.682D-02	.112D-01	.221D-01	.320D-01	.515D-01	.101D 00	.334D 00	.117D 01
76	.357D-05	.328D-03	.182D-02	.623D-02	.102D-01	.202D-01	.292D-01	.470D-01	.926D-01	.305D 00	.107D 01
78	.327D-05	.301D-03	.167D-02	.571D-02	.934D-02	.185D-01	.267D-01	.431D-01	.848D-01	.280D 00	.980D 00
80	.301D-05	.276D-03	.153D-02	.524D-02	.858D-02	.170D-01	.246D-01	.396D-01	.779D-01	.257D 00	.901D 00
82	.277D-05	.255D-03	.141D-02	.483D-02	.791D-02	.156D-01	.226D-01	.365D-01	.718D-01	.237D 00	.830D 00
84	.256D-05	.235D-03	.130D-02	.446D-02	.731D-02	.144D-01	.209D-01	.337D-01	.663D-01	.219D 00	.767D 00
86	.237D-05	.218D-03	.121D-02	.414D-02	.677D-02	.134D-01	.194D-01	.312D-01	.615D-01	.203D 00	.711D 00
88	.220D-05	.202D-03	.112D-02	.384D-02	.629D-02	.124D-01	.180D-01	.290D-01	.571D-01	.188D 00	.660D 00
90	.205D-05	.189D-03	.105D-02	.358D-02	.586D-02	.116D-01	.168D-01	.270D-01	.532D-01	.176D 00	.615D 00
92	.192D-05	.176D-03	.976D-03	.334D-02	.547D-02	.108D-01	.157D-01	.252D-01	.497D-01	.164D 00	.574D 00
94	.179D-05	.165D-03	.914D-03	.313D-02	.512D-02	.101D-01	.147D-01	.236D-01	.465D-01	.153D 00	.537D 00
96	.168D-05	.155D-03	.857D-03	.293D-02	.480D-02	.949D-02	.138D-01	.222D-01	.436D-01	.144D 00	.504D 00
98	.158D-05	.145D-03	.806D-03	.276D-02	.452D-02	.892D-02	.129D-01	.208D-01	.410D-01	.135D 00	.474D 00
100	.149D-05	.137D-03	.759D-03	.260D-02	.425D-02	.841D-02	.122D-01	.196D-01	.386D-01	.127D 00	.446D 00
102	.141D-05	.129D-03	.717D-03	.245D-02	.402D-02	.794D-02	.115D-01	.185D-01	.365D-01	.120D 00	.421D 00
104	.133D-05	.122D-03	.678D-03	.232D-02	.380D-02	.751D-02	.109D-01	.175D-01	.345D-01	.114D 00	.399D 00
106	.126D-05	.116D-03	.643D-03	.220D-02	.360D-02	.712D-02	.103D-01	.166D-01	.327D-01	.108D 00	.378D 00
108	.120D-05	.110D-03	.610D-03	.209D-02	.342D-02	.676D-02	.979D-02	.158D-01	.310D-01	.102D 00	.359D 00
110	.114D-05	.105D-03	.581D-03	.199D-02	.325D-02	.643D-02	.931D-02	.150D-01	.295D-01	.975D-01	.341D 00
112	.109D-05	.998D-04	.553D-03	.189D-02	.310D-02	.613D-02	.888D-02	.143D-01	.282D-01	.929D-01	.325D 00
114	.104D-05	.953D-04	.528D-03	.181D-02	.296D-02	.585D-02	.848D-02	.137D-01	.269D-01	.887D-01	.311D 00
116	.992D-06	.912D-04	.505D-03	.173D-02	.283D-02	.560D-02	.811D-02	.131D-01	.257D-01	.848D-01	.297D 00
118	.951D-06	.873D-04	.484D-03	.166D-02	.271D-02	.536D-02	.777D-02	.125D-01	.246D-01	.813D-01	.285D 00
120	.912D-06	.838D-04	.465D-03	.159D-02	.260D-02	.515D-02	.746D-02	.120D-01	.236D-01	.780D-01	.273D 00
122	.877D-06	.806D-04	.447D-03	.153D-02	.250D-02	.495D-02	.717D-02	.115D-01	.227D-01	.750D-01	.263D 00
124	.844D-06	.776D-04	.430D-03	.147D-02	.241D-02	.476D-02	.690D-02	.111D-01	.219D-01	.722D-01	.253D 00
126	.814D-06	.748D-04	.415D-03	.142D-02	.232D-02	.459D-02	.665D-02	.107D-01	.211D-01	.696D-01	.244D 00
128	.786D-06	.722D-04	.401D-03	.137D-02	.225D-02	.444D-02	.643D-02	.104D-01	.204D-01	.672D-01	.236D 00
130	.761D-06	.699D-04	.388D-03	.133D-02	.217D-02	.429D-02	.622D-02	.100D-01	.197D-01	.650D-01	.228D 00
132	.737D-06	.677D-04	.375D-03	.128D-02	.210D-02	.416D-02	.602D-02	.970D-02	.191D-01	.630D-01	.221D 00
134	.715D-06	.657D-04	.364D-03	.125D-02	.204D-02	.403D-02	.584D-02	.941D-02	.185D-01	.611D-01	.214D 00
136	.694D-06	.638D-04	.354D-03	.121D-02	.198D-02	.392D-02	.568D-02	.914D-02	.180D-01	.594D-01	.208D 00
138	.676D-06	.621D-04	.344D-03	.118D-02	.193D-02	.381D-02	.552D-02	.889D-02	.175D-01	.578D-01	.202D 00
140	.658D-06	.605D-04	.335D-03	.115D-02	.188D-02	.371D-02	.538D-02	.867D-02	.171D-01	.563D-01	.197D 00
142	.642D-06	.590D-04	.327D-03	.112D-02	.183D-02	.362D-02	.525D-02	.845D-02	.166D-01	.549D-01	.192D 00
144	.627D-06	.576D-04	.320D-03	.109D-02	.179D-02	.354D-02	.513D-02	.826D-02	.163D-01	.536D-01	.188D 00
146	.614D-06	.564D-04	.313D-03	.107D-02	.175D-02	.346D-02	.501D-02	.808D-02	.159D-01	.525D-01	.184D 00
148	.601D-06	.552D-04	.306D-03	.105D-02	.172D-02	.339D-02	.491D-02	.791D-02	.156D-01	.514D-01	.180D 00
150	.590D-06	.542D-04	.300D-03	.103D-02	.168D-02	.333D-02	.482D-02	.776D-02	.153D-01	.504D-01	.177D 00
152	.579D-06	.532D-04	.295D-03	.101D-02	.165D-02	.327D-02	.473D-02	.762D-02	.150D-01	.495D-01	.173D 00
154	.569D-06	.523D-04	.290D-03	.993D-03	.163D-02	.321D-02	.465D-02	.750D-02	.148D-01	.487D-01	.171D 00
156	.561D-06	.515D-04	.286D-03	.978D-03	.160D-02	.316D-02	.458D-02	.738D-02	.145D-01	.479D-01	.168D 00
158	.553D-06	.508D-04	.282D-03	.964D-03	.158D-02	.312D-02	.452D-02	.728D-02	.143D-01	.473D-01	.166D 00
160	.546D-06	.501D-04	.278D-03	.951D-03	.156D-02	.308D-02	.446D-02	.718D-02	.141D-01	.466D-01	.163D 00
162	.539D-06	.495D-04	.275D-03	.940D-03	.154D-02	.304D-02	.441D-02	.710D-02	.140D-01	.461D-01	.162D 00
164	.534D-06	.490D-04	.272D-03	.931D-03	.152D-02	.301D-02	.436D-02	.703D-02	.138D-01	.456D-01	.160D 00
166	.529D-06	.486D-04	.269D-03	.922D-03	.151D-02	.298D-02	.432D-02	.696D-02	.137D-01	.452D-01	.158D 00
168	.525D-06	.482D-04	.267D-03	.915D-03	.150D-02	.296D-02	.429D-02	.691D-02	.136D-01	.449D-01	.157D 00
170	.521D-06	.479D-04	.265D-03	.909D-03	.149D-02	.294D-02	.426D-02	.686D-02	.135D-01	.446D-01	.156D 00
172	.518D-06	.476D-04	.264D-03	.904D-03	.148D-02	.292D-02	.424D-02	.682D-02	.134D-01	.443D-01	.155D 00
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