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# 1985
# Bibliography of Atomic and Molecular Processes

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# 1985
# BIBLIOGRAPHY OF ATOMIC AND MOLECULAR PROCESSES


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ABSTRACT

This annotated bibliography includes papers on atomic and molecular processes published during 1985. Sources include scientific journals, conference proceedings, and books. Each entry is designated by one or more of the 114 categories of atomic and molecular processes used by the Controlled Fusion Atomic Data Center, Oak Ridge National Laboratory to classify data. Also indicated is whether the work was experimental or theoretical, what energy range was covered, what reactants were investigated, and the country of origin of the first author. Following the bibliographical listing, the entries are indexed according to the categories and according to reactants within each subcategory.

# INTRODUCTION

This annotated bibliography on atomic and molecular processes reported in open literature during 1985 has been compiled as a part of the activities of the Controlled Fusion Atomic Data Center. Each entry is labeled by one or more of the 10 major categories and 114 subcategories of atomic and molecular processes given on page 2. Grouping according to specific categories is found in the reactants index. Each entry indicates whether the work was experimental (E) or theoretical (T), what energy range was covered, and what reactants were investigated. The classification scheme relates principally to atomic collisions and in particular does not specifically contain atomic structure information (energy levels or wavelength). Structure data are compiled by the National Bureau of Standards and information on atomic structure may be solicited from W. L. Wiese, NBS, Rm. A267, Bldg. 221, Washington, DC 20234.

The following remarks are offered to facilitate the use of the bibliography:

1. Sequencing of reactants in the index follows the order N, $N^*$ (excited state), $N^+$, $N_2$, $N^-$, NO, Na, Ne, etc.

2. Many papers do not refer to a particular collision system. Reactants in these cases are listed as undefined, denoted as Undef. Review papers are labeled Review rather than listing all reactants discussed in the paper. The abbreviation Seq, preceded by an atom, indicates all members of the isoelectronic sequence for that particular atom. PERT symbolizes "periodic table"; this notation is used when reactions involving a large number of the elements are covered by a publication. All of these codes are used in a general sense to avoid handling thousands of additional reactants at every stage in the production of these bibliographies.

3. The country listed at the end of each bibliographic entry is derived from the address of the first author given in the original publication.

Beginning in 1982 the Data Center adopted a revised categorization scheme in which some categories have been dropped and molecular reactants have been severely limited. This reduced categorization scheme reflects more precisely magnetic fusion interests but is still quite broad. Molecular species covered include $H_2$, $H_3$, HeH, $N_2$, $O_2$, CO, $CO_2$, OH, $H_2O$, $CH_2$, $CH_3$, $CH_4$, their ions and dissociated fragments.

## ATOMIC COLLISIONS BIBLIOGRAPHY CATEGORIZATIONS LIST

Controlled Fusion Atomic Data Center, ORNL

A. HEAVY PARTICLE — HEAVY PARTICLE INTERACTIONS

1. General
2. Elastic Scattering Collisions
3. Excitation
4. Dissociation
5. Fluorescence
6. Electron Capture
7. Ionization
8. Stripping
9. Recombination or Mutual Neutralization Leading to Neutral Products (ion-ion)
11. Collisional De-Excitation
12. Collisional Line Broadening
14. Heavy Particle Interchange (must involve some form of hydrogen or helium)
16. Electron Detachment from Negative Ions into Continuum
17. Interaction Potentials
18. Angular Scattering
20. Attenuation (unspecified process)

B. INTERACTIONS OF ATOMIC PARTICLES WITH FIELDS

1. Interaction of Individual Atoms or Molecules with External Fields
7. Collisions in Presence of Static or Time Varying Fields

C. PARTICLE PENETRATION IN MACROSCOPIC MATTER (IONS, NEUTRALS, AND ELECTRONS)

1. General
2. Energy Loss and Stopping Power
4. Particle Range
5. Multiple Scattering
6. Charge State Population
7. Excited State Population

D. PARTICLE INTERACTIONS WITH SOLID SURFACES

1. General
2. Sputtering by Electrons, Neutrons, and Heavy Particles (only total removal coefficients)
3. Sputtered Particle Charge and Quantum (Excited) State Distribution
4. Secondary Electron Ejection by Heavy Particle and Electrons
5. Photoelectric Ejection of Electrons (coefficients only)
6. Reflection of Electrons from Surfaces (coefficients only)
7. Reflection of Heavy Particles from Surfaces (total reflection coefficients only)
8. Charge and Quantum State Distributions of Reflected Heavy Particles
9. De-Excitation, Neutralization, Ionization, or Dissociation of Particles Interacting with Surfaces
11. Sticking Coefficients, Thermal Energies and Adsorption
12. Electromagnetic Radiation Induced by Electron or Heavy Particle Impact on Surfaces
13. Desorption of Gases from Surfaces
17. Electron-, Ion-, and Photon-Induced Chemical Changes to Surfaces
18. Trapping and Reemission of Hydrogen (all forms) and Helium

E. ELECTRON-PARTICLE INTERACTION

1. General
2. Elastic Collisions
3. Excitation
4. Dissociation
5. Ionization
6. Recombination (electron-ion)
7. Collisional De-Excitation
8. Collisional Line Broadening
9. Negative Ion Formation
11. Free-Free Transitions (Bremsstrahlung)
13. Electron Detachment from Negative Ions
16. Fluorescence
17. Angular Scattering
19. Momentum Transfer

H. PHOTON COLLISIONS WITH HEAVY PARTICLES AND ELECTRONS ($h\nu < 100$ keV)

1. General
2. Total Absorption
3. Elastic Scattering
4. Excitation
5. Dissociation
6. Ionization
7. Photodetachment
8. Fluorescence
11. Free-Free Absorption or Inverse Bremsstrahlung

J. DATA COMPILATION

1. Heavy Particle
2. Electrons
3. Photons
4. Particles on Surfaces and Solids
5. Transport
6. Structure

K. REVIEWS AND BOOKS

1. Heavy Particle
2. Electrons
3. Photons
4. Particles on Surfaces and Solids
5. Transport
6. Structure
7. General
8. Use of Atomic Data for Plasma Studies

L. BIBLIOGRAPHIES

1. Heavy Particle
2. Electrons
3. Photons
4. Particles on Surfaces and Solids
5. Transport
6. Structure

ABBREVIATIONS:

Li Seq — sequence (Li)

PERT — periodic table

Undef — undefined

No molecules except $H_2$, $H_3$, HeH, $N_2$, $O_2$, CO, $CO_2$, OH, $H_2O$, $CH_2$, $CH_3$, $CH_4$, and their ions

H or "hydrogen" also includes D and T

COUNTRY CODE:

1. United States
2. United Kingdom
3. Soviet Union
4. Japan
5. West Germany
6. France
7. Canada
8. Mexico
9. The Netherlands
10. Denmark
11. Finland
12. Norway
13. Switzerland
14. India
15. Israel
16. Italy
17. Czechoslovakia
18. Yugoslavia
19. Romania
20. Poland
21. Austria
22. Hungary
23. Belgium
24. Spain
25. Brazil
26. Australia
27. East Germany
28. Sweden
29. Greece
30. South Africa
31. Taiwan
32. Argentina
33. People's Republic of China
34. Saudi Arabia
35. Algeria
36. People's Republic of Singapore
37. Malaysia
38. Nigeria
39. Egypt
40. Jordan
41. New Zealand
42. Chile
43. Turkey
44. Bulgaria
45. Pakistan
46. Portugal

# BIBLIOGRAPHY

Controlled Fusion Atomic Data Center

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03072 E-T | K04:<br>Excitation; Scattering | | Avouris, P.; Demuth, J. Electron energy loss spectroscopy in the study of surfaces. Ann. Rev. Phys. Chem. 35, 49 (1984)<br>United States |
| 03073 E-T | K01:<br>Excitation | | Leone, S. R. State-resolved molecular reaction dynamics. Ann. Rev. Phys. Chem. 35, 109 (1984)<br>United States |
| 03074 E | D03:<br>$Ar^+ + Pt_3Pb$ | 1 keV | Unger, W.; Marton, D. Chlorine induced positive secondary ion yield enhancement in SIMS experiments on a $Pt_3Pb$ alloy sample. Appl. Surf. Sci. 20, 89 (1984)<br>East Germany |
| 03075 T | H04:<br>$h\nu + C$ | Undef | Nussbaumer, H.; Storey, P. J. Bound-bound radiative transitions in C. Astron. Astrophys. 140, 383 (1984)<br>Switzerland |
| 03076 T | A12:<br>$H^* + H$; $H^* + H^+$<br>B07:<br>$H^* + H$; $H^* + H^+$ | Undef | Mathys, G. A theory of hydrogen line broadening in the presence of a magnetic field accounting for ion dynamics. Astron. Astrophys. 141, 248 (1984)<br>Switzerland |
| 03077 T | H04:<br>$h\nu + N$ | Undef | Butler, K.; Zeippen, C. J. N1 forbidden lines revisited. Astron. Astrophys. 141, 274 (1984)<br>United Kingdom |
| 03078 T | A03:<br>$He + CO$; $H_2 + CO$ | 50-250 K | Mukund, I.; Kurtadikar; Mehrotra, S. C. Collisional excitation of interstellar molecules. III. The effective straight-line trajectory approach. Astrophys. Space Sci. 100, 129 (1984)<br>India |
| 03079 T | A06:<br>$He^+ + Ne$ | 0.025-0.74 eV | Cooper, D. L.; Kirby, K.; Dalgarno, A. Radiative charge transfer and radiative association of helium ions with neon atoms. Can. J. Phys. 62, 1622 (1984)<br>United Kingdom |
| 03080 T | E03:<br>$e + Na$ | 2-5000 eV | Ganas, P. S. Excitation of sodium atoms by electron impact. J. Appl. Phys. 57, 154 (1985)<br>United States |
| 03081 T | C02:<br>$e + Be$; $e + Al$ | 2-3 keV | Liljequist, D. Simple generalized oscillator strength density model applied to the simulation of keV electron-energy-loss distributions. J. Appl. Phys. 57, 657 (1985)<br>Sweden |
| 03082 E | D06:<br>$e + Al$; $e + Cu$; $e + Au$; $e + Ag$ | 0.05-3.0 MeV | Soum, G.; Ahmed, H.; Arnal, F.; Jouffrey, B.; Verdier, P. Determination of the backscattering and transmission coefficients for monokinetic electrons (0.05-3 MeV). J. Microsc. (Paris) 9, 1 (1984)<br>France |
| 03083 E | H06:<br>$h\nu + Ca$; $2h\nu + Ca$; $3h\nu + Ca$ | 1064-560 nm | Agostini, P.; Petite, G. Multiphoton ionisation of calcium with picosecond pulses. J. Phys. B 17, L811 (1984)<br>France |
| 03084 E | H06:<br>$nh\nu + Xe$; $nh\nu + Ne$ | 1064-532 nm | Lompre, L. A.; L'Huillier, A.; Mainfray, G.; Fan, J. Y. Electron energy measurements in multiphoton ionisation of xenon and neon. J. Phys. B 17, L817 (1984)<br>France |
| 03085 T | A11:<br>$CO^* + H_2$ | 0.026-0.136 eV | Baker, D. J.; Flower, D. R. Vibrational relaxation in collisions between $^{12}C^{16}O$ and para-$H_2$. J. Phys. B 17, L829 (1984)<br>United Kingdom |
| 03086 T | A03:<br>$Na^+ + Na$<br>A10:<br>$Na^+ + Na$ | 37.5 eV | Von Busch, F. Comment on the integration of impact parameter equations and application to $Na^+$-Na inelastic scattering. J. Phys. B 17, L833 (1984)<br>West Germany |
| 03087 T | H06:<br>$2h\nu + Cs$ | 21500-22200 $cm^{-1}$ | Jaouen, M.; Laplanche, G.; Rachman, A. Use of the Green's function formalism in resonant two-photon ionisation of alkali-metal atoms: II. Two-photon ionisation of Cs near the $7P_{1/2}$-$7P_{3/2}$ resonances. J. Phys. B 17, 4665 (1984)<br>West Germany |
| 03088 T | A07:<br>$He^* + Ne$<br>A11:<br>$He^* + Ne$ | 0.025-0.21 eV | Pesnelle, A.; Runge, S. Molecular autoionisation width for He($3^1P$) + Ne: Penning and associative ionisation cross sections. J. Phys. B 17, 4689 (1984)<br>France |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03089 E | A06:<br>$Au^{5+} + H_2$; $Au^{5+}$ + He; $Au^{5+}$ + Ar;<br>$Au^{6+} + H_2$; $Au^{6+}$ + He; $Au^{6+}$ + Ar;<br>$Au^{7+} + H_2$; $Au^{7+}$ + He; $Au^{7+}$ + Ar;<br>$Au^{8+} + H_2$; $Au^{8+}$ + He; $Au^{8+}$ + Ar;<br>$Au^{9+} + H_2$; $Au^{9+}$ + He; $Au^{9+}$ + Ar;<br>$Au^{10+} + H_2$; $Au^{10+}$ + He; $Au^{10+}$ + Ar;<br>$Au^{11+} + H_2$; $Au^{11+}$ + He; $Au^{11+}$ + Ar;<br>$Au^{12+} + H_2$; $Au^{12+}$ + He; $Au^{12+}$ + Ar;<br>$Au^{13+} + H_2$; $Au^{13+}$ + He; $Au^{13+}$ + Ar;<br>$Au^{14+} + H_2$; $Au^{14+}$ + He; $Au^{14+}$ + Ar;<br>$Au^{15+} + H_2$; $Au^{15+}$ + He; $Au^{15+}$ + Ar;<br>$Au^{16+} + H_2$; $Au^{16+}$ + He; $Au^{16+}$ + Ar;<br>$Au^{17+} + H_2$; $Au^{17+}$ + He; $Au^{17+}$ + Ar;<br>$Au^{18+} + H_2$; $Au^{18+}$ + He; $Au^{18+}$ + Ar;<br>$Au^{19+} + H_2$; $Au^{19+}$ + He; $Au^{19+}$ + Ar<br>A07:<br>$Au^{5+} + H_2$; $Au^{5+}$ + He; $Au^{5+}$ + Ar;<br>$Au^{6+} + H_2$; $Au^{6+}$ + He; $Au^{6+}$ + Ar;<br>$Au^{7+} + H_2$; $Au^{7+}$ + He; $Au^{7+}$ + Ar;<br>$Au^{8+} + H_2$; $Au^{8+}$ + He; $Au^{8+}$ + Ar;<br>$Au^{9+} + H_2$; $Au^{9+}$ + He; $Au^{9+}$ + Ar;<br>$Au^{10+} + H_2$; $Au^{10+}$ + He; $Au^{10+}$ + Ar;<br>$Au^{11+} + H_2$; $Au^{11+}$ + He; $Au^{11+}$ + Ar;<br>$Au^{12+} + H_2$; $Au^{12+}$ + He; $Au^{12+}$ + Ar;<br>$Au^{13+} + H_2$; $Au^{13+}$ + He; $Au^{13+}$ + Ar;<br>$Au^{14+} + H_2$; $Au^{14+}$ + He; $Au^{14+}$ + Ar;<br>$Au^{15+} + H_2$; $Au^{15+}$ + He; $Au^{15+}$ + Ar;<br>$Au^{16+} + H_2$; $Au^{16+}$ + He; $Au^{16+}$ + Ar;<br>$Au^{17+} + H_2$; $Au^{17+}$ + He; $Au^{17+}$ + Ar;<br>$Au^{18+} + H_2$; $Au^{18+}$ + He; $Au^{18+}$ + Ar;<br>$Au^{19+} + H_2$; $Au^{19+}$ + He; $Au^{19+}$ + Ar | 20 keV | Andersen, L. H.; Frost, M.; Hvelplund, P.; Knudsen, H. Experimental investigation of the mechanisms creating projectile continuum electrons in highly charged ion-atom collisions. J. Phys. B 17, 4701 (1984)<br>Denmark |
| 03090 E | A06:<br>$Au^{12+} + H_2$; $Au^{13+} + H_2$; $Au^{14+} + H_2$;<br>$Au^{15+} + H_2$; $Au^{16+} + H_2$; $Au^{17+} + H_2$;<br>$Au^{18+} + H_2$ | 100 keV/amu | Sorensen, J.; Andersen, L. H.; Hvelplund, P.; Knudsen, H.; Liljeby, L.; Nielsen, E. H. Cross sections sigma (sub nl) for electron capture collisions between medium velocity, highly charged ions and molecular hydrogen. J. Phys. B 17, 4743 (1984)<br>Denmark |
| 03091 T | E02:<br>e + Ar<br>F18:<br>e + Ar | 0-19 eV | Bell, K. L.; Scott, N. S.; Lennon, M. A. The scattering of low-energy electrons by argon atoms. J. Phys. B 17, 4757 (1984)<br>United Kingdom |
| 03092 T | E03:<br>$e + N_2$; e + CO; $e + H_2$; e + HD<br>E04:<br>$e + N_2$; e + CO; $e + H_2$; e + HD | 2-10 eV | Kazansky, A. K.; Yelets, I. S. The semiclassical approximation in the local theory of resonance inelastic interaction of slow electrons with molecules. J. Phys. B 17, 4767 (1984)<br>Soviet Union |
| 03093 F | A07:<br>$He^+$ + Ne | 5-25 keV | Tokoro, N.; Oda, N. Measurement of electrons ejected from 5-25 keV $He^+$-Ne collisions: collisions-velocity-dependent features of autoionisation peaks. J. Phys. B 17, L871 (1984)<br>Japan |
| 03094 F | A06:<br>$Ar^+ + Ar$; $Ar^{2+} + Ar$; $Ar^{3+} + Ar$;<br>$Ar^{4+} + Ar$; $Ar^{5+} + Ar$; $Ar^{6+} + Ar$;<br>$Ar^{7+} + Ar$; $Ar^{8+} + Ar$; $Ar^{9+} + Ar$<br>A07:<br>$Ar^+ + Ar$; $Ar^{2+} + Ar$; $Ar^{3+} + Ar$;<br>$Ar^{4+} + Ar$; $Ar^{5+} + Ar$; $Ar^{6+} + Ar$;<br>$Ar^{7+} + Ar$; $Ar^{8+} + Ar$; $Ar^{9+} + Ar$<br>A08:<br>$Ar^+ + Ar$; $Ar^{2+} + Ar$; $Ar^{3+} + Ar$;<br>$Ar^{4+} + Ar$; $Ar^{5+} + Ar$; $Ar^{6+} + Ar$;<br>$Ar^{7+} + Ar$; $Ar^{8+} + Ar$; $Ar^{9+} + Ar$ | 1.8-16.2 keV | Astner, G.; Barany, A.; Cederquist, H.; Danared, H.; Huldt, S.; Hvelplund, P.; Johnson, A, Knudsen, H.; Liljeby, L.; Rensfelt, K. G. Absolute cross sections for multielectron processes in low-energy Ar(sup g)$^+$ + Ar collisions as measured with a new technique. J. Phys. B 17, L877 (1984)<br>Sweden |
| 03095 E | A06:<br>$Na^+$ + Ne<br>A18:<br>$Na^+$ + Ne | 79-93 eV | Kita, S.; Izawa, M.; Hasegawa, T.; Inouye, H. Charge exchange reactions arising from a quasi sigma (sub u) - sigma (sug g) crossing in collisions of $Na^+$ ions with Ne atoms. J. Phys. B 17, L885 (1984)<br>Japan |
| 03096 T | E03:<br>e + He<br>F17:<br>e + He | 80 eV | Andersen, N.; Hertel, I. V.; Kleinpoppen, H. Shape and dynamics of states excited in electron-atom collisions: a comment on orientation and alignment parameters by consideration of attractive and repulsive forces. J. Phys. B 17, L901 (1984)<br>United States |
| 03097 E | E04:<br>$e + H_3^+$; $e + HD_2^+$; $e + D_3^+$<br>E06:<br>$e + H_3^+$; $e + HD_2^+$; $e + D_3^+$ | 0.01-1 eV | Mitchell, J.B.A.; Ng, C. T.; Forand, L.; Janssen, R.; McGowan, J. W. Total cross sections for the dissociative recombination of $H_3^+$, $HD_2^+$ and $D_3^+$. J. Phys. B 17, L909 (1984)<br>Canada |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03098 E | T03:<br>e + $D_2$; e + $D_2$; e + $N_2$; e + CO | 35-600 eV | Becker, K.; Forand, J. L.; Zetner, P. W.; McConkey, J. W. Dipole and non-dipole excitation in collisions of low-energy electrons with diatomic molecules. J. Phys. B 17, L915 (1984)<br>Canada |
| 03099 E | H02:<br>hν + Na; hν + K; hν + Rb; hν + Cs | 32-100 nm | Mansfield, M.W.D. Subvalence s-subshell excitation in K, Rb and Cs atoms. J. Phys. B 17, 4851 (1984)<br>Ireland |
| 03100 E | A03:<br>$CO^+$ + $H_2$ | 6-63 eV | Teraoka, Y.; Ishikawa, T.; Inouye, H. Emission of Balmer lines in the collision of $CO^+$ ions with $H_2$ molecules in the CM energy range 6-63 eV. J. Phys. B 17, 4911 (1984)<br>Japan |
| 03101 E | A04:<br>$N^{2+}$ + He; $N^{2+}$ + Ne; $N^{2+}$ + Ar;<br>$N^{2+}$ + Kr; $N^{2+}$ + Xe; $N^{2+}$ + $N_2$;<br>$N^{2+}$ + $H_2$ | 6 keV | Kamber, E. Y.; Brenton, A. G.; Beynon, J. H. Single-electron capture collisions of ground and metastable $N^{2+}$ ions with atomic and molecular gases. J. Phys. B 17, 4919 (1984)<br>United Kingdom |
| 03102 I | E05:<br>e + $Mg^+$; e + $Ca^+$; e + $Sr^+$ | 10-1000 eV | Shrivastava, S. K.; Roy, B. N. Ionisation of $Mg^+$, $Ca^+$ and $Sr^+$ due to electron impact. J. Phys. B 17, 4935 (1984)<br>India |
| 03103 E | H08:<br>hν + Ba | 5535 Å | Bowen, J. L.; Thorne, A. P. Time-resolved fluorescence and population measurements in laser-pumped barium vapour. J. Phys. B 18, 35 (1985)<br>United Kingdom |
| 03104 E | H06:<br>hν + Kr; hν + Xe | 12-14 eV | Morioka, Y.; Watanabe, M.; Akahori, T.; Yagishita, A.; Nakamura, M. Angular distributions of photoelectrons from the autoionising states between the $^2P_{3/2}$ and $^2P_{1/2}$ ionisation thresholds of Kr and Xe. J. Phys. B 18, 71 (1985)<br>Japan |
| 03105 E | A12:<br>Na* + Ar; Na* + H; Na* + $H_2$ | 4500-6000 K | Lemaire, J. L.; Chotin, J. L.; Rostas, F. Broadening and shift parameters of the sodium D lines perturbed by atomic hydrogen. J. Phys. B 18, 95 (1985)<br>France |
| 03106 I | A07:<br>$N^+$ + Pb; $Ne^{2+}$ + Pb | 15-50 MeV | Valluri, S. R.; Becker, U.; Grun, N.; Scheid, W. Comparison of ionisation probabilities in the semiclassical approximation calculated with Rutherford and modified straight-line trajectories. J. Phys. B 18, 113 (1985)<br>West Germany |
| 03107 E | A06:<br>$Ar^{3+}$ + He; $Ar^{3+}$ + Ne; $Ar^{3+}$ + Ar;<br>$Ar^{3+}$ + Kr | 9 keV | Kamber, E. Y.; Hormis, W. G.; Brenton, A. G.; Hasted, J. B.; Beynon, J. H. Double electron capture by $Ar^{3+}$ from rare-gas atoms. J. Phys. B 18, 117 (1985)<br>United Kingdom |
| 03108 E | E01:<br>e + He; e + Ne; e + Ar; e + Xe | 4-300 eV | Nickel, J.; Imre, K.; Register, D. F.; Trajmar, S. Total electron scattering cross sections: I. He, Ne, Ar, Xe. J. Phys. B 18, 125 (1985)<br>United States |
| 03109 I | E03:<br>e + Li<br>E17:<br>e + Li | 20-200 eV | Kumar, M.; Tayal. S. S.; Tripathi, A. N. Electron impact excitation of the 3s state of lithium at intermediate and high energies. J. Phys. B 18, 135 (1985)<br>India |
| 03110 E | A05:<br>e + Ne<br>E17:<br>e + Ne | 8 keV | Daoud, A.; Lahmam-Bennani, A.; Duguet, A.; Dal Cappello, C.; Tavard, C. Coincidence study of the electron impact ionisation of neon: momentum density determination and test of various scattering models. J. Phys. B 18, 141 (1985)<br>France |
| 03111 I | T06:<br>e + $H_2^+$ | Under | Tennyson, J.; Noble, C. J. Low-energy electron-$H_2^+$ collisions: variation of resonance parameters with internuclear separation. J. Phys. B 18, 155 (1985)<br>United Kingdom |
| 03112 E | A03:<br>$He^{2+}$ + H; $C^{4+}$ + H<br>A04:<br>$He^{2+}$ + H; $C^{4+}$ + H | 0.8-13.6 keV/amu | Ciric, D.; Dijkkamp, D.; Vlieg, E.; de Heer, F. J. Subshell-selective electron capture cross sections in collisions of $He^{2+}$ and $C^{4+}$ with atomic hydrogen. J. Phys. B 18, L17 (1985)<br>The Netherlands |
| 03113 E | A03:<br>$Ne^{8+}$ + He; $Ne^{8+}$ + $H_2$<br>A04:<br>$Ne^{8+}$ + He; $Ne^{8+}$ + $H_2$ | 0.99-3.97 keV/amu | Bonnet, J. J.; Fleury, A.; Bonnefoy, M.; Politis, M. F.; Chassevent, M.; Bliman, S.; Dousson, S.; Hitz, D. Electron capture into different (nl) states in slow collisions of $Ne^{8+}$ projectiles on He and $H_2$ targets. J. Phys. B 18, L23 (1985)<br>France |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03114 I | A03:<br>e + Li | 0.3-4 Ry | Merts, A. L.; Collins, L. A. A least-squares technique for electron scattering by atoms and molecules. J. Phys. B 18, L29 (1985)<br>United States |
| 03115 E | F06:<br>hν + Ca | 42-35 nm | Sato, Y.; Hayaishi, T.; Itikawa, Y.; Itoh, Y.; Murakami, J.; Nagata, T.; Sasaki, T.; Sonntag, B.; Yagishita, A.; Yoshino, M. Single and double photoionisation of Ca atoms between 35 and 42 nm. J. Phys. B 18, 225 (1985)<br>Japan |
| 03116 I | A07:<br>He* + Ar<br>A11:<br>He* + Ar | Unref | Morgner, H. Population of fine-structure levels of $Ar^+(^2P_{3/2,1/2})$ in Penning ionisation of Ar by metastable He*. J. Phys. B 18, 251 (1985)<br>West Germany |
| 03117 I | A07:<br>He* + $H_2O$<br>A11:<br>He* + $H_2O$<br>A18:<br>He* + $H_2O$ | 45 meV | Haug, B.; Morgner, H.; Staemmler, V. Experimental and theoretical study of Penning ionisation of $H_2O$ by metastable helium He($2^3S$). J. Phys. B 18, 259 (1985)<br>West Germany |
| 03118 I | A03:<br>$Ne^{3+}$ + Ne; $Ne^{10+}$ + Ne; $Ar^{6+}$ + Ne; $Ar^{17+}$ + Ne<br>A07:<br>$Ne^{3+}$ + Ne; $Ne^{10+}$ + Ne; $Ar^{6+}$ + Ne; $Ar^{17+}$ + Ne | 5.5 MeV/amu | Kadar, I.; Ricz, S.; Shchegolev, V. A.; Salik, B.; Varga, D.; Vegh, J.; Berenyi, D.; Hock, G. Auger electron spectra in 5.5 MeV amu-1 Ne(sup i)+ and Ar(sup q)+ ion impact on Ne. J. Phys. B 18, 275 (1985)<br>Soviet Union |
| 03119 E | A07:<br>$K^+$ + He | 1-10 keV | Aizawa, H.; Nakiya, K.; Suzuki, H.; Koike, F.; Sasaki, F. Autoionising states of $K^+$ and K excited by slow $K^+$ impact on He. J. Phys. B 18, 289 (1985)<br>Japan |
| 03120 E | A03:<br>$D^+$ + K; $D^+$ + Au; $He^{2+}$ + K; $He^{2+}$ + Au<br>A07:<br>$D^+$ + K; $D^+$ + Au; $He^{2+}$ + K; $He^{2+}$ + Au | 1.3-4 MeV | Freire, F. L., Jr.; Montenegro, E. C.; de Pinho, A. G.; Sigaud, G. M. Deuteron- and alpha-particle-induced K-shell ionisation of K and Au atoms. J. Phys. B 18, 313 (1985)<br>Brazil |
| 03121 E | A06:<br>$U^{65+}$ + Ar; $U^{65+}$ + Xe; $U^{66+}$ + Ar; $U^{66+}$ + Xe; $U^{67+}$ + Ar; $U^{67+}$ + Xe; $U^{68+}$ + Ar; $U^{68+}$ + Xe; $U^{69+}$ + Ar; $U^{69+}$ + Xe; $U^{70+}$ + Ar; $U^{70+}$ + Xe; $U^{71+}$ + Ar; $U^{71+}$ + Xe; $U^{72+}$ + Ar; $U^{72+}$ + Xe; $U^{73+}$ + Ar; $U^{73+}$ + Xe; $U^{74+}$ + Ar; $U^{74+}$ + Xe; $U^{74+}$ + Xe; $U^{75+}$ + Ar; $U^{75+}$ + Xe<br>A07:<br>$U^{65+}$ + Ar; $U^{65+}$ + Xe; $U^{66+}$ + Ar; $U^{66+}$ + Xe; $U^{67+}$ + Ar; $U^{67+}$ + Xe; $U^{68+}$ + Ar; $U^{68+}$ + Xe; $U^{69+}$ + Ar; $U^{69+}$ +Xe; $U^{70+}$ + Ar; $U^{70+}$ + Xe; $U^{71+}$ + Ar; $U^{71+}$ + Xe; $U^{72+}$ + Ar; $U^{72+}$ + Xe; $U^{73+}$ + Ar; $U^{73+}$ + Xe; $U^{74+}$ + Ar; $U^{74+}$ + Xe; $U^{75+}$ + Ar; $U^{75+}$ + Xe | 3.6-15.5 MeV/amu | Kelbch, S.; Ullrich, J.; Mann, R.; Richard, P.; Schmidt-Bocking, H. Cross sections for the production of highly charged argon and xenon recoil ions in collisions with high-velocity uranium projectiles. J. Phys. B 18, 323 (1985)<br>West Germany |
| 03122 E | A03:<br>$I^{10+}$ + He; $I^{11+}$ + He; $I^{12+}$ + He; $I^{13+}$ + He; $I^{14+}$ + He; $I^{15+}$ + He; $I^{16+}$ + He; $I^{17+}$ + He; $I^{18+}$ + He; $I^{19+}$ + He; $I^{20+}$ + He; $I^{21+}$ + He; $I^{22+}$ + He; $I^{23+}$ + He; $I^{24+}$ + He; $I^{25+}$ + He; $I^{26+}$ + He; $I^{27+}$ + He; $I^{28+}$ + He; $I^{29+}$ + He; $I^{30+}$ + He; $I^{31+}$ + He; $I^{32+}$ + He; $I^{33+}$ + He; $I^{34+}$ + He; $I^{35+}$ + He; $I^{36+}$ + He; $I^{37+}$ + He; $I^{38+}$ + He; $I^{39+}$ + He; $I^{40+}$ + He; $I^{41+}$ + He<br>A06:<br>$I^{10+}$ + He; $I^{11+}$ + He; $I^{12+}$ + He; $I^{13+}$ + He; $I^{14+}$ + He; $I^{15+}$ + He; $I^{16+}$ + He; $I^{17+}$ + He; $I^{18+}$ + He; $I^{19+}$ + He; $I^{20+}$ + He; $I^{21+}$ + He; $I^{22+}$ + He; $I^{23+}$ + He; $I^{24+}$ + He; $I^{25+}$ + He; $I^{26+}$ + He; $I^{27+}$ + He; $I^{28+}$ + He; $I^{29+}$ + He; $I^{30+}$ + He; $I^{31+}$ + He; $I^{32+}$ + He; $I^{33+}$ + He; $I^{34+}$ + He; $I^{35+}$ + He; $I^{36+}$ + He; $I^{37+}$ + He; $I^{38+}$ + He; $I^{39+}$ + He; $I^{40+}$ + He; $I^{41+}$ + He | 5.25-31.25 keV | Iawara, H.; Iwai, T.; Kaneko, Y.; Kimura, M.; Kobayashi, N.; Matsumoto, A.; Ohtani, S.; Okuno, K.; Takagi, S.; Tsurubuchi, S. Electron capture processes of I(sup q)+ ions with very high charge states (41 greater than or equal to q greater than or equal to 10) in collisions with He atoms. J. Phys. B 18, 337 (1985)<br>Japan |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03123 E | E03:<br>e + Na<br>E17:<br>e + Na | 100 eV | Teubner, P.J.O.; Riley, J. L.; Furst, J. E.; Buckman, S. J. On the coherence of the excitation of the $3^2P$ state in sodium by 100 eV electrons. J. Phys. B 18, 351 (1985)<br>Australia |
| 03124 E | B01:<br>H*<br>H04:<br>hν + H* | 6.4-8.1 GHz | Bayfield, J. E.; Pinnaduwage, L. A. Microwave multiphoton n-decreasing transitions in electrically polarised, highly excited hydrogen atoms. J. Phys. B 18, L49 (1985)<br>United States |
| 03125 P | H06:<br>hν + $H_2$ | 584 A° | Hara, S.; Ogata, S. Photoionisation of the $H_2$ molecule. J. Phys. B 18, L59 (1985)<br>Japan |
| 03126 E | A06:<br>$H^+$ + $CH_4$; $H^+$ + $N_2$<br>A18:<br>$H^+$ + $CH_4$; $H^+$ $N_2$ | 350-1065 keV | Scheurer, J. M.; Baker, O. K.; Meyerhof, W. E. Large angle scattering and nuclear resonance effect in electron capture in $H^+$ + C and $H^+$ + N collisions. J. Phys. B 18, L85 (1985)<br>France |
| 03127 P | H06:<br>hν + Ar | 1000 eV | Miltroy, J.; McCarthy, I. E.; Weigold, E. Intensities of the 3s ionisation spectrum of argon. J. Phys. B 18, L91 (1985)<br>Australia |
| 03128 E | A03:<br>$Ar^+$ + Na*<br>A11:<br>$Ar^+$ + Na* | 1000 eV | MacAdam, K. B.; Smith, D. B.; Rolfes, R. G. l mixing in sodium n = 28 caused by multiple ion impact: evolution of the final-state distribution. J. Phys. B 18, 441 (1985)<br>United States |
| 03129 P | A06:<br>$H^+$ + H | 0.2-2 keV | Eichler, J.; Ho, T. S. Classical motion of the charge asymmetry in slow atomic collisions: I. Single-electron motion derived from Ehrenfest's theorem. J. Phys. B 18, 451 (1985)<br>West Germany |
| 03130 P | A03:<br>$N^{3+}$ + H; $N^{3+}$ + $H_2$; $C^{4+}$ + H; $C^{4+}$ + $H_2$; $N^{5+}$ + H; $N^{5+}$ + $H_2$<br>A06:<br>$N^{3+}$ + H; $N^{3+}$ + $H_2$; $C^{4+}$ + H; $C^{4+}$ + $H_2$; $N^{5+}$ + H; $N^{5+}$ + $H_2$ | 0.001-1 keV/amu | Gargaud, M.; McCarroll, R. Charge transfer in low-energy collisions of $N^{3+}$, $C^{4+}$ and $N^{5+}$ with H and $H_2$. J. Phys. B 18, 463 (1985)<br>France |
| 03131 E | A03:<br>$N^{2+}$ + H; $N^{2+}$ + $H_2$<br>A06:<br>$N^{2+}$ + H; $N^{2+}$ + $H_2$ | 0.6-8 keV | Wilkie, F. G.; Yousif, F. B.; McCullough, R. W.; Geddes, J.; Gilbody, H. B. Total and state-selective capture by slow $N^{2+}$ ions in atomic and molecular hydrogen. J. Phys. B 18, 479 (1985)<br>United Kingdom |
| 03132 E | A06:<br>$Xe^{2+}$ + $H_2$; $Ar^{3+}$ + $H_2$ | 6-29 eV | Huber, B. A.; Kahlert, H. J. Vibrational excitation of $H_2^+$ in electron capture collisions of $Xe^{2+}$ and $Ar^{3+}$ with $H_2$. J. Phys. B 18, 491 (1985)<br>West Germany |
| 03133 E | E05:<br>e + He<br>E17:<br>e + He | 425 eV | Stefani, G.; Camilloni, R. Impulsive (e,2e) energy-sharing experiments on He. J. Phys. B 18, 499 (1984)<br>Italy |
| 03134 P | E03:<br>e + Li<br>E17:<br>e + Li | 10-60 eV | Saxena, S.; Mathur, K. C. Angular correlation parameters and differential cross sections in electron-lithium scattering. J. Phys. B 18, 509 (1985)<br>India |
| 03135 E | E05:<br>e + Li; e + Na; e + K | 1-10 Threshold | Baum, G.; Moede, M.; Raith, W.; Schroder, W. Measurement of spin asymmetries in the electron impact ionisation of alkali atoms. J. Phys. B 18, 531 (1985)<br>West Germany |
| 03136 P | E02:<br>e + $H_2$<br>E03:<br>e + $H_2$ | 0.03-20 eV | Sur, S.; Ghosh, A. S. Model exchange potential and $e^-$-$H_2$ scattering. J. Phys. B 18, 539 (1985)<br>India |
| 03137 E | E03:<br>e + $CO^+$<br>E04:<br>e + $CO^+$<br>E06:<br>e + $CO^+$ | 8-50 eV | Mitchell, J.B.A.; Hus, H. The dissociative recombination and excitation of $CO^+$. J. Phys. B 18, 547 (1985)<br>Canada |
| 03138 E | H06:<br>hν + Ca | 6-8 eV | Karamatskos, M.; Mueller, M.; Schmidt, M.; Zimmermann, P. The double-electron resonances 3dnp $^1P_1$ in the photoionisation spectrum of Ca I. J. Phys. B 18, L107 (1985)<br>West Germany |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03139 T | A08:<br>$Li^{+} + H$; $Li^{2+} + H$ | 160-1200 keV | Watanabe, T. Comment on the relation between the cross section for electron stripping from a helium-like ion in collision with atomic hydrogen and the K-shell ionisation cross section for proton impact. J. Phys. B 18, L111 (1985)<br>Japan |
| 03140 T | A03:<br>Na + He | 30-10000 eV | Courbin-Gaussorgues, C.; Sidis, V. theoretical study of the Na(3s-3p) excitation in Na + He collisions. J. Phys. B 18, 699 (1985)<br>France |
| 03141 E | A07:<br>$H^{+} + Cd$; $H^{+} + Sb$; $H^{+} + Te$ | 0.3-2.0 MeV | Cuzzocrea, P.; Perillo, E.; Rosato, E.; Spadaccini, G.; Vigilante, M. Proton-induced L-subshell ionisation on Cd, Sb and Te. J. Phys. B 18, 711 (1985)<br>Italy |
| 03142 E | A16:<br>$H^{-} + N_2$; $H^{-} + O_2$; $H^{-} + CO$; $H^{-} + D_2$; $H^{-} + CO_2$ | 420-1020 eV | Tuan, V. N.; Esaulov, V.; Gauyacq, J. P.; Herzenberg, A. Electron detachment in H--molecule collisions. J. Phys. B 18, 721 (1985)<br>France |
| 03143 E | A03:<br>$C^{6+} + He$; $C^{6+} + H_2$; $C^{6+} + Ar$; $N^{6+} + He$; $N^{6+} + H_2$; $N^{6+} + Ar$; $O^{6+} + He$; $O^{6+} + H_2$; $O^{6+} + Ar$; $Ne^{6+} + He$; $Ne^{6+} + H_2$; $Ne^{6+} + Ar$<br>A06:<br>$C^{6+} + He$; $C^{6+} + H_2$; $C^{6+} + Ar$; $N^{6+} + He$; $N^{6+} + H_2$; $N^{6+} + Ar$; $O^{6+} + He$; $O^{6+} + H_2$; $O^{6+} + Ar$; $Ne^{6+} + He$; $Ne^{6+} + H_2$; $Ne^{6+} + Ar$ | 0.56-6.21 keV/amu | Dijkkamp, D.; Gordeev, Y. S.; Brazuk, A.; Drentje, A. G.; de Heer, F. J. Selective single-electron capture into (n, l) subshells in slow collisions of $C^{6+}$, $N^{6+}$, $O^{6+}$ and $Ne^{6+}$ with He, $H_2$ and Ar. J. Phys. B 18, 737 (1985)<br>The Netherlands |
| 03144 T | A06:<br>$H^{+} + Ne$; $H^{+} + Si$; $H^{+} + Ni$; $He^{2+} + O$; $He^{2+} + Ne$; $He^{2+} + Si$ | 1.5-3.5 MeV | Jakubassa-Amundsen, D. H.; Amundsen, P. A. Electron capture across a nuclear resonance in the strong potential Born approximation. J. Phys. B 18, 757 (1985)<br>West Germany |
| 03145 E | E03:<br>e + Al<br>E05:<br>e + Al | 20-500 eV | James, G. K.; Forrest, L. F.; Ross, K. J.; Wilson, M. The ejected-electron spectrum of Al I autoionising transitions resulting from 20-500 eV electron impact excitation. J. Phys. B 18, 775 (1985)<br>United Kingdom |
| 03146 T | E04:<br>$e + H_2^{+}$<br>E06:<br>$e + H_2^{+}$ | 0.2-7 eV | Schneider, I.; Mihailescu, I. N.; Nanu, L.; Iovit-Popescu, I. The direct dissociative recombination of the hydrogen molecular ion at low energies. J. Phys. B 18, 791 (1985)<br>Romania |
| 03147 E | H05:<br>$h\nu + O_2$<br>H06:<br>$h\nu + O_2$ | 490-539 A° | Frasinski, L. J.; Randall, K. J.; Codling, K. Predissociation of the c $^4\Sigma$(sub u)- state of $O_2^{+}$. J. Phys. B 18, L129 (1985)<br>United Kingdom |
| 03148 T | A03:<br>$OH + H_2$ | Undef | Dewangan, D. P.; Flower, D. R. Rotational excitation of OH by $H_2$: a clarification. J. Phys. B 18, L137 (1985)<br>United Kingdom |
| 03149 E | E03:<br>e + He<br>E05:<br>e + He | 23.8-26.9 eV | Hammond, P.; Read, F. H.; Cvejanovic, S.; King, G. C. Energy partitioning in near-threshold excitation and ionisation of helium by electron impact. J. Phys. B 18, L141 (1985)<br>United Kingdom |
| 03150 E | A07:<br>$H^{+} + He$; $He^{2+} + He$; $Li^{3+} + He$ | 50-2380 keV/amu | Shah, M. B.; Gilbody, H. B. Single and double ionisation of helium by $H^{+}$, $H^{2+}$ and $Li^{3+}$ ions. J. Phys. B 18, 899 (1985)<br>United Kingdom |
| 03151 T | D09:<br>$He^{+} + W$ | Undef | Janev, R. K.; Nedeljkovic, N. N. Interaction of atomic particles with solid surfaces: VI. Auger neutralisation of positive ions. J. Phys. B 18, 915 (1985)<br>Yugoslavia |
| 03152 T | B07:<br>$He^{2+} + H$ | | Grosdanov, T. P.; McDowell, M.R.C. A classical trajectroy Monte Carlo study of collisions of $He^{2+}$ with H in a strong magnetic field. J. Phys. B 18, 921 (1985)<br>United Kingdom |
| 03153 E | A06:<br>$O^{2+} + He$; $O^{2+} + N_2$; $O^{2+} + H_2$ | 6 keV | Kamber, E. Y.; Brenton, A. G.; Beynon, J. H.; Hasted, J. B. Single-electron capture spectra for collisions of $O^{2+}$ on He, $N_2$ and $H_2$. J. Phys. B 18, 933 (1985)<br>United Kingdom |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03154 E | A06:<br>$Ar^{18+} + N_2$ | 250 MeV | Bozet, J. P.; Chevallier, P.; Lagagneux-Piquemal, P.; Chetioui, A.; Stephan, C. Capture cross sections in highly excited p states of $Ar^{17+}$ in high-velocity collisions of 250 MeV $Ar^{18+}$ on N J. Phys. B 18, 943 (1985)<br>France |
| 03155 T | E03:<br>$e + Li^{+}$; $e + Be^{2+}$; $e + B^{3+}$; $e + C^{4+}$;<br>$e + N^{5+}$; $e + O^{6+}$; $e + Ne^{8+}$;<br>$e + Mg^{10+}$; $e + Si^{12+}$; $e + Ca^{18+}$;<br>$e + Fe^{24+}$ | Thresh.-4Z² Ry | Badnell, N. R. Electron impact excitation of He-like ions. J. Phys. B 18, 955 (1985)<br>United Kingdom |
| 03156 E | E02:<br>e + Ar | 0.03-20 eV | Ferch, J.; Granitza, B.; Masche, C.; Raith, W. Electron-argon total cross section measurements at low energies by time-of-flight spectroscopy. J. Phys. B 18, 967 (1985)<br>West Germany |
| 03157 E | E03:<br>e + Hg | 4.6-17.2 eV | Newman, D. S.; Zubek, M.; King, G. C. A study of resonance structure in mercury using metastable excitation by electron impact with high resolution. J. Phys. B 18, 985 (1985)<br>United Kingdom |
| 03158 E | E03:<br>e + He<br>E05:<br>e + He | 57-62 eV | Van der Burgt, P.J.M.; Van Eck, J.; Heideman, H.G.M. Orbital angular momentum exchange in post-collision interaction. J. Phys. B 18, 999 (1985)<br>The Netherlands |
| 03159 E-T | C02:<br>e + Al; e + Au<br>D06:<br>e + Al; e + Au | 15-60 keV | Neubert, G.; Rogaschewski, S. Measurements of the back-scattering and absorption of 15-60 keV electrons for transparent solid films at various angles of incidence. J. Phys. D 17, 2439 (1984)<br>East Germany |
| 03160 T | C02:<br>e + Si<br>C04:<br>e + Si<br>C05:<br>e + Si | 100 keV | Desalvo, A.; Parisini, A.; Rosa, R. Monte Carlo simulation of elastic and inelastic scattering of electrons in thin films: I. Valence electron losses. J. Phys. D 17, 2455 (1984)<br>Italy |
| 03161 T | D02:<br>Undef | Undef | King, B. V.; Tsong, I.S.T. A model for atomic mixing and preferential sputtering effects in SIMS depth profiling. J. Vac. Sci. Technol. A 2, 1443 (1984)<br>United States |
| 03162 E | D03:<br>$Ar^{+} + CuO$; $Ar^{+} + ZnO$; $Ar^{+} + NiO$;<br>$Ar^{+} + Co_3O_4$; $Ar^{+} + Cr_2O_3$; $Ar^{+} + TiO_2$;<br>$Ar^{+} + Ti$; $Ar^{+} + Cr$; $Ar^{+} + Co$;<br>$Ar^{+} + Ni$; $Ar^{+} + Zn$; $Ar^{+} + Cu$ | 10 keV | Sato, K.; Inoue, Y.; Ohno, M.; Someno, M. Effects of gaseous oxygen on SIMS analysis of oxygen-isotopes in metal oxides. J. Vac. Sci. Technol. A 2, 1448 (1984)<br>Japan |
| 03163 E | C04:<br>$He^{+} + SiC$ | 1-20 keV | Miyagawa, S.; Ato, Y.; Miyagawa, Y. Implantation profiles of low-energy helium in silicon carbide. Jpn. J. Appl. Phys. Pt. 1 23, 1380 (1984)<br>Japan |
| 03164 E | D03:<br>$O_2^{+} + Si$ | 2-20 keV | Ohwaki, T.; Taga, Y. Secondary ion emission from Si subjected to oxygen ion bombardment. Jpn. J. Appl. Phys. Pt. 1 23, 1466 (1984)<br>Japan |
| 03165 T | H04:<br>$h\nu + Ca^{18+}$; $h\nu + Ca^{17+}$; $h\nu + Ca^{16+}$;<br>$h\nu + Sc^{19+}$; $h\nu + Sc^{17+}$; $h\nu + Ti^{20+}$;<br>$h\nu + Ti^{19+}$; $h\nu + Ti^{18+}$; $h\nu + V^{21+}$;<br>$h\nu + V^{20+}$; $h\nu + V^{19+}$; $h\nu + Cr^{22+}$;<br>$h\nu + Cr^{21+}$; $h\nu + Cr^{20+}$; $h\nu + Mn^{23+}$;<br>$h\nu + Mn^{22+}$; $h\nu + Mn^{21+}$; $h\nu + Fe^{24+}$;<br>$h\nu + Fe^{23+}$; $h\nu + Fe^{22+}$; $h\nu + Co^{25+}$;<br>$h\nu + Co^{24+}$; $h\nu + Co^{23+}$; $h\nu + Ni^{26+}$;<br>$h\nu + Ni^{25+}$; $h\nu + Ni^{24+}$; $h\nu + Cu^{27+}$;<br>$h\nu + Cu^{26+}$; $h\nu + Cu^{25+}$ | Undef | Hata, J.; Grant, I. P. Wavelengths and radiative transition rates for selected lines of 2-, 3- and 4-electron systems for the elements from Ca to Cu. Mon. Not. R. Astron. Soc. 211, 549 (1984)<br>United Kingdom |
| 03166 E | C02:<br>$Li^{+} + C$; $Li^{+} + Al$; $Li^{+} + Si$;<br>$Li^{+} + Ni$; $Li^{+} + Ag$; $Li^{+} + Au$ | 0.2-1.8 MeV | Santry, D. C.; Werner, R. D. Stopping powers of C, Al, Si, Ni, Ag and Au for $^{7}Li$ ions. Nucl. Instrum. Methods Phys. Res. B 233, 449 (1984)<br>Canada |
| 03167 T | C05:<br>Undef | Undef | Tschalar, C. Energy dependent 4-dimensional multiple scattering distributions. Nucl. Instrum. Methods Phys. Res. B 233, 455 (1984)<br>Switzerland |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03168 E | D03:<br>$He^+ + H_2O$; $He^+ + NH_3$; $He^+ + CO$;<br>$Ar^+ + H_2O$; $Ar^+ + NH_3$; $Ar^+ + CO$;<br>$H_2^+ + H_2O$; $H_2^+ + NH_3$; $H_2^+ + CO$ | 3-6 keV | Haring, R. A.; Pedrys, R.; Oostra, D. J.; Haring, A.; De Vries, A. E. Reactive sputtering of simple condensed gases by keV ions: II. Mass spectra. Nucl. Instrum. Methods Phys. Res. B 233, 476 (1984)<br>The Netherlands |
| 03169 E | D03:<br>$H^+ + H_2O$; $H^+ + NH_3$; $H^+ + CO$;<br>$H_2^+ + H_2O$; $H_2^+ + NH_3$; $H_2^+ + CO$;<br>$He^+ + H_2O$; $He^+ + NH_3$; $He^+ + CO$;<br>$Ar^+ + H_2O$; $Ar^+ + NH_3$; $Ar^+ + CO$ | 3-6 keV | Haring, R. A.; Pedrys, R.; Oostra, D. J.; Haring, A. De Vries, A. E. Reactive sputtering of simple condensed gases by keV ions: III. Kinetic energy distributions. Nucl. Instrum. Methods Phys. Res. B 233, 483 (1984)<br>The Netherlands |
| 03170 E-T | H04:<br>$h\nu + Ga^*$<br>H06:<br>$h\nu + Ga^*$ | 2.2-3.0 eV | Tursunov, A. T.; Eshkobilov, N. B. Measurement of photoionization cross sections and lifetimes of excited states of the gallium atom by laser stepwise photoionization. Opt. Spectrosc. 56, 241 (1984)<br>Soviet Union |
| 03171 E | A07:<br>$Hg^* + Hg^*$ | 295 K | Sepman, V. Y.; Sheverev, V. A.; Vuinovich, V. Associative ionization during binary collisions of 6 $^3P_0$ excited mercury atoms. Opt. Spectrosc. 56, 361 (1984)<br>Soviet Union |
| 03172 E | A12:<br>Tm + He | 1000-1200 °C | Aleksandrov, E. B.; Vedenin, V. D.; Kulyasov, V. N. Broadening and shift of thulium resonance lines by helium. Opt. Spectrosc. 56, 365 (1984)<br>Soviet Union |
| 03173 E | E03:<br>e + Gd | 30-300 eV | Shimon, L. L.; Kurta, I. V.; Garga, I. I. Experimental study of effective cross sections for excitation of the spectral lines of gadolinium atoms by electron impact. Opt. Spectrosc. 56, 368 (1984)<br>Soviet Union |
| 03174 E-T | H02:<br>$h\nu + H_2$<br>H06:<br>$h\nu + H_2$ | 17-400 eV | Kosarev, E. L.; Podolyak, E. R. X-ray photoabsorption in molecular hydrogen in the 17-400-eV photon energy range. Opt. Spectrosc. 56, 393 (1984)<br>Soviet Union |
| 03175 T | A03:<br>$Ar + Li_2$; $Ar + LiH$; $Ar + N_2$ | 0.03-4.2 eV | Mukhametzyanov, R. E. Analytical and numerical calculations of the cross sections of the rotational excitation of diatomic molecules in collisions with atoms. Opt. Spectrosc. 56, 403 (1984)<br>Soviet Union |
| 03176 E | A11:<br>$He^* + He$ | 300-600 K | Kasyanenko, S. V.; Malyshev, G. M.; Tolmachev, Y. A. Quenching of excited helium atoms in the $2^1P_1$ and $2^3P$(sub j) states by normal atoms of the inert gases. Opt. Spectrosc. 56, 583 (1984)<br>Soviet Union |
| 03177 T | C02:<br>Cu + Cu; Ne + Cu; Ar + Cu; Kr + Cu;<br>Xe + Cu | 0.5-100 keV | Karpuzov, D. S.; Yordanova, K. I. Inelastic energy-loss estimate for the Biersack-Ziegler interatomic potential. Phys. Lett. A 106, 246 (1984)<br>Bulgaria |
| 03178 T | E05:<br>e + H; e + He<br>E17:<br>e + H; e + He | 250 eV | Byron, F. W., Jr.; Joachain, C. J.; Piraux, B. On the theory of (e, 2e) reactions in atomic hydrogen and helium. Phys. Lett. A 106, 299 (1984)<br>Belgium |
| 03179 T | A17:<br>$He^* + Ne$ | | Valance, A.; Rahal, H. Diabatic non-local model potential for $He(2^3S) + Ne(2p^6\,{}^1S_0)$. Phys. Lett. A 106, 391 (1984)<br>France |
| 03180 E-T | C02:<br>Sb + Si<br>C04:<br>Sb + Si | 300 keV | Tatarkiewicz, J.; Krynicki, J.; Grotzschel, R.; Paprocki, K. Radiation damage distributions for 300 keV antimony ions implanted into silicon. Phys. Lett. A 107, 48 (1985)<br>Poland |
| 03181 E | E05:<br>e + Si; e + Ar; e + $O_2$; e + Ne | 1.2-10 keV | Platten, H.; Schiwietz, G.; Nolte, G. Cross sections for K-shell ionization of Si and Ar by 4 keV to 10 keV electron impact. Phys. Lett. A 107, 83 (1985)<br>West Germany |
| 03182 E | A03:<br>$H^+ + H_2$; $H^+ + D_2$<br>A06:<br>$H^+ + H_2$; $H^+ + D_2$<br>A18:<br>$H^+ + H_2$; $H^+ + D_2$ | 2-25 keV | Lee, A. R.; Williams, D. G.; Butcher, E. C. Isotope effect in electron capture by protons into the 2S-state of hydrogen. Phys. Lett. A 107, 218 (1985)<br>Australia |
| 03183 E-T | K05:<br>Ion mobility; Diffusion | | McDaniel, E. W.; Viehland, L. A. The transport of slow ions in gases: experiment, theory, and applications. Phys. Rep. 110, 333 (1984)<br>United States |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03184 T | F02:<br>Ionization | | Rau, A.R.P. The Wannier theory for two electrons escaping from a positive ion. Phys. Rep. 110, 369 (1984)<br>United States |
| 03185 E-T | D05:<br>$h\nu$ + Cu<br>E04:<br>Photoemission from Cu | Undef | Courths, R.; Hufner, S. Photoemission experiments on copper. Phys. Rep. 112, 53 (1984)<br>West Germany |
| 03186 T | F05:<br>Ion mobility; Diffusion | | Kumar, K. The physics of swarms and some basic questions of kinetic theory. Phys. Rep. 112, 319 (1984)<br>Australia |
| 03187 E | A06:<br>$H^+$ + Li; $H_2^+$ + Li; $He^+$ + Li; $Ne^+$ + Li | 2-20 keV | Aumayr, F.; Winter, H. Total single-electron-capture cross sections for impact of $H^+$, $H_2^+$, $He^+$, and $Ne^+$ (2-20 keV) on Li. Phys. Rev. A 31, 67 (1985)<br>Austria |
| 03188 E | A06:<br>$Ne^{2+}$ + H; $Ne^{2+}$ + $H_2$; $Ne^{3+}$ + H; $Ne^{3+}$ + $H_2$; $Ne^{4+}$ + H; $Ne^{4+}$ + $H_2$; $Ne^{5+}$ + H; $Ne^{5+}$ + $H_2$; $Ne^{6+}$ + H; $Ne^{6+}$ + $H_2$; $Ne^{7+}$ + H; $Ne^{7+}$ + $H_2$; $Ar^{2+}$ + H; $Ar^{2+}$ + $H_2$; $Ar^{3+}$ + H; $Ar^{3+}$ + $H_2$; $Ar^{4+}$ + H; $Ar^{4+}$ + $H_2$; $Ar^{5+}$ + H; $Ar^{5+}$ + $H_2$; $Ar^{6+}$ + H; $Ar^{6+}$ + $H_2$; $Ar^{7+}$ + H; $Ar^{7+}$ + $H_2$; $Ar^{8+}$ + H; $Ar^{8+}$ + $H_2$; $Ar^{9+}$ + H; $Ar^{9+}$ + $H_2$; $Ar^{10+}$ + H; $Ar^{10+}$ + $H_2$ | 0.4-21 keV | Can, C.; Gray, T. J.; Varghese, S. L.; Hall, J. M.; Tunnell, L. N. Electron-capture cross sections for low-energy highly charged neon and argon ions from molecular and atomic hydrogen. Phys. Rev. A 31, 72 (1985)<br>United States |
| 03189 E | C07:<br>$H^+$ + C; $H_2^+$ + C; H + C | 800 keV/amu | Clouvas, A.; Gaillard, M. J.; Poizat, J. C.; Remillieux, J.; Denis, A.; Desesquelles, J. Experimental study of the 2s and 2p populations of hydrogen atoms resulting from the interaction of 0.8-MeV/amu $H^+$, $H^0$, and $H_2^+$ projectiles with thin carbon foils. Phys. Rev. A 31, 84 (1984)<br>France |
| 03190 E | A11:<br>$Kr^*$ + Xe | 300 K | Cook, J. D.; Leichner, P. K. Collisional and radiative excitation transfers in Kr-Xe mixtures: quenching of Kr. Phys. Rev. A 31, 90 (1985)<br>United States |
| 03191 E | A07:<br>$H^+$ + $H_2$; $D^+$ + $H_2$ | 0.16-3.5 MeV | Edwards, A. K.; Wood, R. M.; Ezell, R. L. Double ionization of $H_2$ by fast $H^+$ and $D^+$ projectiles. Phys. Rev. A 31, 99 (1985)<br>United States |
| 03192 E | A03:<br>$Ca^*$ + He; $Ca^*$ + Ne; $Ca^*$ + Xe | 773-823 K | Hale, M. O.; Leone, S. R. Laser studies of near-resonant state-changing collisions of calcium ($4s6s\ ^1S_0$) with the rare gases. Phys. Rev. A 31, 103 (1985)<br>United States |
| 03193 E | A03:<br>$He^+$ + Ir; $He^+$ + Pt; $He^+$ + Pb<br>A07:<br>$He^+$ + Ir; $He^+$ + Pt; $He^+$ + Pb<br>D12:<br>$He^+$ + Ir; $He^+$ + Pt; $He^+$ + Pb | 0.4-2.2 MeV | Gowda, R.; Powers, D. M-shell x-ray production cross sections in thick targets of Ir, Pt, and Pb by 0.4-2.2-MeV $^4He^+$ ions. Phys. Rev. A 31, 134 (1985)<br>United States |
| 03194 T | E03:<br>e + $Li^+$ | 4.3-5.5 Ry | Christensen, R. B.; Norcross, D. W. Electron-impact excitation of Li: II. A model study of wave-function and collisional approximations and of resonance effects. Phys. Rev. A 31, 142 (1985)<br>United States |
| 03195 T | A02:<br>$He^*$ + Na<br>A07:<br>$He^*$ + Na<br>A17:<br>$He^*$ + Na<br>A18:<br>$He^*$ + Na | 0.01-1.0 eV(c.m.) | Cohen, J. S.; Martin, R. L.; Lane, N. F. Theoretical calculation of Penning-ionization cross sections for collisions of $He(2^{1,3}S)$ with sodium atoms. Phys. Rev. A 31, 152 (1985)<br>United States |
| 03196 E | E05:<br>e + Ar | 1000 eV | McCarthy, I. E.; Weigold, E. Noncoplanar symmetric (e,2e) reaction on argon. Phys. Rev. A 31, 160 (1985)<br>Australia |
| 03197 E | H05:<br>$h\nu$ + $O_2^+$ | Undef | Bjerre, N.; Andersen, T.; Kaivola, M.; Poulsen, O. Perturbations in the $b\ ^4\Sigma$(sub g)$^-$ state of $O_2^+$ immediately below the predissociation limit, studied by high-resolution optical-optical double-resonance photofragment spectroscopy. Phys. Rev. A 31, 167 (1985)<br>Denmark |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03198 E | C07:<br>$Li^+ + C$ | 400 keV | Cederquist, H.; Mannervik, S. Autoionizing states in Li I observed in optical-emission spectra. Phys. Rev. A 31, 171 (1985)<br>Sweden |
| 03199 T | E06:<br>$e + H^+$ | $10^{-2}$-$10^{+2}$ eV | Fazio, P. M.; Copeland, G. E. Partial radiative-recombination cross sections for excited states of hydrogen. Phys. Rev. A 31, 187 (1985)<br>United States |
| 03200 E | E04:<br>$h\nu + Cs$<br>H06:<br>$h\nu + Cs$<br>E08:<br>$h\nu + Cs$ | 459-420 nm | Huennekens, J.; Wu, Z.; Walker, T. G. Ionization, excitation of high-lying atomic states, and molecular fluorescence in Cs vapor excited at lambda = 455.7 and 459.4 nm. Phys. Rev. A 31, 195 (1985)<br>United States |
| 03201 T | A07:<br>$Na^* + Na^*$ | Undef | Jones, D. M.; Dahler, J. S. Analysis of the polarization-dependent rate of associative ionizaion of radiatively excited Na(3p) atoms. Phys. Rev. A 31, 210 (1985)<br>United States |
| 03202 E | E04:<br>$h\nu + Ba$<br>E06:<br>$h\nu + Ba$ | Undef | Kachru, R.; Tran, N.; Pillet, P.; Gallagher, T. F. Angular distributions and branching ratios of the electrons ejected from the Ba $[6p_{1/2}(3/4)ns_{1/2}]$ (sub j = 1) autoionizing states. Phys. Rev. A 31, 218 (1985)<br>United States |
| 03203 T | E04:<br>$h\nu + Mg$<br>H06:<br>$h\nu + Mg$ | 1-1.3 Ry | O'Mahony, P. F.; Greene, C. H. Doubly excited states of beryllium and magnesium. Phys. Rev. A 31, 250 (1985)<br>United States |
| 03204 E | A03:<br>$K^* + Xe$; $Rb^* + Xe$; $Cs^* + Xe$ | 300 K | Zeng, X.; Wu, Z.; Call, T.; Miron, E.; Schreiber, D.; Happer, W. Experimental determination of the rate constants for spin exchange between optically pumped K, Rb, and Cs atoms and $^{129}Xe$ nuclei in alkali-metal-noble-gas van der Waals molecules. Phys. Rev. A 31, 260 (1985)<br>United States |
| 03205 T | E01:<br>Undef | Undef | Gontier, Y. Summation of four-operator perturbation series: application to atom-atom intensity-dependent correlations. Phys. Rev. A 31, 279 (1985)<br>France |
| 03206 T | H07:<br>$h\nu + Cr^-$; $h\nu + Ni^-$; $h\nu + Ti^-$;<br>$h\nu + Zr^-$; $h\nu + V^-$; $h\nu + Nb^-$;<br>$h\nu + Ta^-$; $h\nu + W^-$; $h\nu + Mo^-$;<br>$h\nu + Fe^-$; $h\nu + Co^-$; $h\nu + Rh^-$;<br>$h\nu + Ir^-$ | 0.5-3.5 eV | Stehman, R. M.; Clodius, W. B.; Grot, S.; Woo, S. B.; Helmy, E. M. Zero-core-contribution calculation of photodetachment cross sections and photoelectron spectra of transitin-metal anions. Phys. Rev. A 31, 297 (1985)<br>United States |
| 03207 E-T | A07:<br>$C^+ + CH_4$ | 300 keV | Bruch, R.; Chung, K. T.; Luken, W. L.; Culberson, J. C. Recalibration of the KLL Auger spectrum of carbon. Phys. Rev. A 31, 310 (1985)<br>United States |
| 03208 T | B01:<br>$He^*$ | | Dimitrijevic, M. S.; Sahal-Brechot, S. Comparison of measured and calculatel Stark broadening parameters for neutral-helium lines. Phys. Rev. A 31, 316 (1985)<br>Yugoslavia |
| 03209 E | H06:<br>$h\nu + Ca^*$; $h\nu + Sr^*$; $h\nu + Ba^*$ | 337-398 nm | Mullins, O. C.; Chien, R.; Hunter, J. E., III; Keller, J. S.; Berry, R. S. Angular distributions of photoelectrons from excited valence $^{1,3}P_1^0$ states of Ca, Sr, and Ba. Phys. Rev. A 31, 321 (1985)<br>United States |
| 03210 T | A03:<br>$Ar^{8+} + He$<br>A06:<br>$Ar^{8+} + He$<br>A17:<br>$Ar^{8+} + He$ | 0.01-10 keV/amu | Kimura, M.; Olson, R. E. Electron capture in pseudo-two-electron systems: $Ar^{8+} + He$. Phys. Rev. A 31, 489 (1985)<br>United States |
| 03211 E | A07:<br>$H^+ + H_2O$ | 7-4000 keV | Fudd, M. E.; Goffe, T. V.; DuBois, R. D.; Toburen, L. H. Cross sections for ionization of water vapor by 7-4000-keV protons. Phys. Rev. A 31, 492 (1985)<br>United States |
| 03212 E | H06:<br>$h\nu + Na$<br>H09:<br>$h\nu + Na$ | 6200-5800 Å | Burkhardt, C. E.; Garver, W. P.; Leventhal, J. J. Off-resonance production of ions in laser-excited sodium vapor. Phys. Rev. A 31, 505 (1985)<br>United States |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03213 E | B07:<br>$nh\nu$ + Cs<br>H06:<br>$nh\nu$ + Cs | 645-636 nm | Klots, C. E.; Compton, R. N. Effects of uniform dc electric fields on multiphoton ionization of cesium atoms. Phys. Rev. A 31, 525 (1985)<br>United States |
| 03214 E | B07:<br>$h\nu$ + H*<br>H06:<br>$h\nu$ + H* | 365 nm | Glab, W. L.; Nayfeh, M. H. Stark-induced resonances in the photoionization of hydrogen. Phys. Rev. A 31, 530 (1985)<br>United States |
| 03215 T | E06:<br>e + $B^{2+}$; e + $C^{3+}$; e + $O^{5+}$ | 0-5 eV | Griffin, D. C.; Pindzola, M. S.; Bottcher, C. Distorted-wave calculations of dielectronic recombination cross sections in the Li isoelectronic sequence. Phys. Rev. A 31, 568 (1985)<br>United States |
| 03216 T | A06:<br>$K^+$ + Na<br>B07:<br>$K^+$ + Na | 0.0025-2.23 keV/amu | Hsu, Y. P.; Kimura, M.; Olson, R. E. Laser-assisted charge-transfer collisions: $K^+$ + Na. Phys. Rev. A 31, 576 (1985)<br>United States |
| 03217 T | E03:<br>e + $H_2$ | 1-10 eV | Jerjian, K. A.; Henry, R.J.W. Energy-modified frame-transformation theory: application to near-threshold rovibrational excitation of hydrogen molecules by electrons. Phys. Rev. A 31, 585 (1985)<br>United States |
| 03218 T | A03:<br>$H^+$ + $He^+$<br>A06:<br>$H^+$ + $He^+$ | 1.2-7.5 keV | Kimura, M.; Kim, C. D. Unified treatment of slow atom-atom and ion-atom collisions. Phys. Rev. A 31, 590 (1985)<br>United States |
| 03219 E | C07:<br>$Mg^{3+}$ + C | 48 MeV | Palinkas, J.; Pedrazzini, G. J.; Church, D. A.; Kenefick, R. A.; Fulton, C. A.; Watson, R. L.; Wang, D. W. Alignment of He- and H-like P states of 48-MeV foil-excited Mg ions. Phys. Rev. A 31, 598 (1985)<br>United States |
| 03220 T | H06:<br>$h\nu$ + Mg; $h\nu$ + Mg* | 5-40 eV | Rescigno, T. N. Atomic photoionization by the complex-basis-function expansion method: application to ground-state and metastable Mg. Phys. Rev. A 31, 607 (1985)<br>United States |
| 03221 T | H06:<br>$h\nu$ + $H_2^+$ | 0-8 a.u. | Rescigno, T. N.; McCurdy, C. W. Locally complex distortions of the energy spectrum in the calculation of scattering amplitudes and photoionization cross sections. Phys. Rev. A 31, 624 (1985)<br>United States |
| 03222 T | A03:<br>$H^+$ + H<br>A06:<br>$H^+$ + H<br>A18:<br>$H^+$ + H | 0.02-10 MeV | Burgdorfer, J.; Dube, L. J. Population of Rydberg states by electron capture in fast-ion-atom collisions. Phys. Rev. A 31, 634 (1985)<br>West Germany |
| 03223 T | E02:<br>e + $H_2$<br>E17:<br>e + $H_2$ | 0-10 eV | Berman, M.; Hundel, C.; Domcke, W. Projection-operator calculations for molecular shape resonances: the $^2\Sigma$(sub u)+ resonance in electron-hydrogen scattering. Phys. Rev. A 31, 641 (1985)<br>West Germany |
| 03224 T | E03:<br>e + He<br>E17:<br>e + He | 100-200 eV | Kumar, M.; Srivastava, R.; Tripathi, A. N. Systematic approach for discrete excitation of helium in the Coulomb-Born model. Phys. Rev. A 31, 652 (1985)<br>India |
| 03225 T | B01:<br>Undef | | Ho, T. S.; Chu, S. I. Semiclassical many-mode Floquet theory: III. SU (3) dynamical evolution of three-level systems in intense bichromatic fields. Phys. Rev. A 31, 659 (1985)<br>United States |
| 03226 E | A03:<br>$Ne^{4+}$ + He; $Ne^{4+}$ + $CH_4$; $Ne^{4+}$ + Ar;<br>$Ne^{5+}$ + He; $Ne^{5+}$ + $CH_4$; $Ne^{5+}$ + Ar;<br>$Ne^{6+}$ + He; $Ne^{6+}$ + $CH_4$; $Ne^{6+}$ + Ar<br>A08:<br>$Ne^{4+}$ + He; $Ne^{4+}$ + $CH_4$; $Ne^{4+}$ + Ar;<br>$Ne^{5+}$ + He; $Ne^{5+}$ + $CH_4$; $Ne^{5+}$ + Ar;<br>$Ne^{6+}$ + He; $Ne^{6+}$ + $CH_4$; $Ne^{6+}$ + Ar | 70-100 MeV | Itoh, A.; Schneider, D.; Schneider, T.; Zouros, T.J.M.; Wolte, G.; Schiwietz, G.; Zeitz, H.; Stolterfoht, N. Selective production of Li-, Be-, and B-like K vacancy states in fast Ne projectiles studied by zero-degree Auger spectroscopy. Phys. Rev. A 31, 684 (1985)<br>West Germany |
| 03227 E | H06:<br>$h\nu$ + $He^+$ | 67.5-90 eV | Lindle, D. W.; Ferrett, T. A.; Becker, U.; Kobrin, P. H.; Truesdale, C. M.; Kerkhoff, H. G.; Shirley, D. A. Photoionization of helium above the $He^+$ (n = 2) threshold: autoionization and final-state symmetry. Phys. Rev. A 31, 714 (1985)<br>United States |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03228 E | A03:<br>$F^{8+}$ + He; $F^{8+}$ + Ne; $F^{8+}$ + Ar<br>A06:<br>$F^{8+}$ + He; $F^{8+}$ + Ne; $F^{8+}$ + Ar | 13-31 MeV | Pepmiller, P. L.; Richard, P.; Newcomb, J.; Hall, J.; Dillingham, T. R. Formation of doubly excited two-electron ions during $F^{8+}$ + He, $F^{8+}$ + Ne, and $F^{8+}$ + Ar collisions. Phys. Rev. A 31, 734 (1985)<br>United States |
| 03229 E | A07:<br>$Cl^{3+}$ + K; $Cl^{3+}$ + Ti; $Cl^{3+}$ + Mn;<br>$Cl^{6+}$ + K; $Cl^{6+}$ + Ti; $Cl^{6+}$ + Mn;<br>$Cl^{7+}$ + K; $Cl^{7+}$ + Ti; $Cl^{7+}$ + Mn;<br>$Cl^{7+}$ + Br; $Cl^{8+}$ + K; $Cl^{8+}$ + Ti;<br>$Cl^{8+}$ + Mn; $Cl^{8+}$ + Br; $Cl^{10+}$ + K;<br>$Cl^{10+}$ + Br | 20-80 MeV | Tanis, J. A.; Shafroth, S. M.; Jacobs, W. W.; McAbee, T.; Lapicki, G. K-shell x-ray production in $^{19}K$, $^{22}Ti$, $^{25}Mn$, and $^{35}Br$ by 20-80-MeV $^{17}Cl$ ions. Phys. Rev. A 31, 750 (1985)<br>United States |
| 03230 I | E02:<br>e + $Na^+$<br>H06:<br>hν + Na | 4.1-8.2 eV | Dasgupta, A.; Bhatia, A. K. Photoionization of sodium atoms and electron scattering from ionized sodium. Phys. Rev. A 31, 759 (1985)<br>United States |
| 03231 I | D12:<br>Undef | | Becker, W.; McIver, J. K. Classical theory of stimulated Cerenkov radiation. Phys. Rev. A 31, 783 (1985)<br>United States |
| 03232 I | D12:<br>Undef | Undef | Datta, S.; Kaplan, A. E. Quantum theory of spontaneous and stimulated resonant transition radiation. Phys. Rev. A 31, 790 (1985)<br>United States |
| 03233 I | H04:<br>Undef | Undef | Peterson, G. L.; Cantrell, C. D. Adiabatic excitation of multilevel systems. Phys. Rev. A 31, 807 (1985)<br>United States |
| 03234 I | H08:<br>hν + Li | Undef | Ritchie, B. Third-harmonic generation from a laser-induced autoionizing level. Phys. Rev. A 31, 823 (1985)<br>United States |
| 03235 I | H08:<br>Undef | Undef | Zubairy, M. S.; McIver, J. K. Analytic approach to second-harmonic generation with depletion and diffraction. Phys. Rev. A 31, 856 (1985)<br>United States |
| 03236 E | A06:<br>$S^{3+}$ + Ar; $S^{3+}$ + He; $S^{4+}$ + Ar;<br>$S^{4+}$ + He; $S^{5+}$ + Ar; $S^{5+}$ + He;<br>$S^{7+}$ + Ar; $S^{7+}$ + He; $S^{8+}$ + Ar;<br>$S^{8+}$ + He; $S^{9+}$ + Ar; $S^{9+}$ + He;<br>$S^{10+}$ + Ar; $S^{10+}$ + He; $S^{11+}$ + Ar;<br>$S^{11+}$ + He; $S^{13+}$ + Ar; $S^{13+}$ + He;<br>$S^{14+}$ + Ar; $S^{14+}$ + He; $S^{15+}$ + Ar;<br>$S^{15+}$ + He; $S^{16+}$ + Ar; $S^{16+}$ + He<br>A08:<br>$S^{3+}$ + Ar; $S^{3+}$ + He; $S^{4+}$ + Ar;<br>$S^{4+}$ + He; $S^{5+}$ + Ar; $S^{5+}$ + He;<br>$S^{7+}$ + Ar; $S^{7+}$ + He; $S^{8+}$ + Ar;<br>$S^{8+}$ + He; $S^{9+}$ + Ar; $S^{9+}$ + He;<br>$S^{10+}$ + Ar; $S^{10+}$ + He; $S^{11+}$ + Ar;<br>$S^{11+}$ + He; $S^{13+}$ + Ar; $S^{13+}$ + He;<br>$S^{14+}$ + Ar; $S^{14+}$ + He; $S^{15+}$ + Ar;<br>$S^{15+}$ + He; $S^{16+}$ + Ar; $S^{16+}$ + He | 10-20 MeV | Johnson, B. M.; Barrette, J.; Da-Hai, W.; Jones, K. W.; Tserruya, I.; Schuch, R.; Kruse, T. H. Projectile-charge-state dependence of K-x-ray production. Phys. Rev. A 31, 1158 (1985)<br>United States |
| 03237 E | E02:<br>e + Na*<br>E03:<br>e + Na*<br>E05:<br>e + Na* | 6-25 eV | Jaduszliwer, B.; Shen, G. F.; Cai, J. L.; Bederson, B. Total cross sections for electrons scattered by $3^2P_{3/2}$ sodium atoms. Phys. Rev. A 31, 1157 (1985)<br>United States |
| 03238 I | A03:<br>HD + He; HD + HD | 300 K | Tabisz, G. C.; Nelson, J. B. Rotational-level mixing and intracollisional interference in the pure rotational spectrum of HD gas. Phys. Rev. A 31, 1160 (1985)<br>Canada |
| 03239 I | A07:<br>$F^{8+}$ + Ne; $S^{15+}$ + Ar<br>A18:<br>$F^{8+}$ + Ne; $S^{15+}$ + Ar | 4.4-90 MeV | Fritsch, W.; Lin, C. D. Close-coupling study of K-shell-vacancy production in near-symmetric collisions. Phys. Rev. A 31, 1164 (1985)<br>West Germany |
| 03240 I | D12:<br>$Kr^+$ + PERT; $Ti^+$ + PERT | 1.4 MeV/amu | Ishii, K.; Morita, S. Atomic bresstrahlung produced by heavy-ion bombardments. Phys. Rev. A 31, 1168 (1985)<br>Japan |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03241 T | A06:<br>$He^+ + He$<br>B07:<br>$He^+ + He$ | 300-100 eV | Ganguly, S.; Rai Dastidar, K.; Rai Dastidar, T. K. Charge transfer in helium in a laser field. Phys. Rev. A 31, 1171 (1985)<br>India |
| 03242 E | H06:<br>$3h\nu + H_2$ | 193-1000 nm | Bjerre, N.; Kachru, R.; Helm, H. Three-photon double-resonance spectroscopy of autoionizing Rydberg states in $H_2$. Phys. Rev. A 31, 1206 (1985)<br>United States |
| 03243 T | C04:<br>$PERT^+ + Si$ | 10-200 keV | Yarkulov, U. Ranges of heavy ions in solids. Radiat. Eff. 83, 233 (1984)<br>Soviet Union |
| 03244 E | C04:<br>$Ga^+ + Si$ | 15-350 keV | Behar, M.; Biersack, J. P.; Fichtner, P.F.P.; Fink, D.; Deb, C. V.; Filho, L.; Olivieri, C. A.; Patnaik, B. K.; De Souza, J. P.; Zawislak, F. C. Range and range straggling of 15 to 350 keV $^{69}Ga$ in amorphous silicon. 501; Radiat. Eff. Lett. 85, 117 (1984)<br>Brazil |
| 03245 E | E03:<br>$e + Ti^+$ | 10-200 eV | Kuchenev, A. N.; Smirnov, Y. M. Measurement of electron-impact excitation cross sections for Ti II. Sov. Astron.-AJ 27, 135 (1983)<br>Soviet Union |
| 03246 E | E03:<br>e + Fe | 5-200 eV | Kolosov, P. A.; Smirnov, Y. M. Cross sections for excitation of the $^5P^0$ and $^5D^0$ states of the iron atom by electron impact. Sov. Astron.-AJ 27, 304 (1983)<br>Soviet Union |
| 03247 T | K08:<br>Review | Undef | Bochkarev, N. G. Compilation of atomic parameters and the cross sections and rates of atomic processes of astrophysical interest. Sov. Astron.-AJ 27, 716 (1983)<br>Soviet Union |
| 03248 T | B01:<br>$H^-$ | | Karbovanets, M. I.; Lazur, V. Y.; Chibisov, M. I. Two-electron decay of a negative ion in a constant uniform electric field. Sov. Phys.-Dokl. 29, 315 (1984)<br>Soviet Union |
| 03249 E | D04:<br>e + W | 180-240 eV | Mamaev, Y. A.; Makarov, B. S.; Mishin, A. N.; Petrov, V. N.; Yakovlev, V. N.; Yashin, Y. P. Influence of spin polarization of electrons on secondary electron emission. Sov. Phys.-Solid State 26, 1322 (1984)<br>Soviet Union |
| 03250 E | D02:<br>Review<br>K04:<br>Sputtering | Undef | Carter, G. Some problems and prospects in high erosion yield sputtering. Vacuum 34, 819 (1984)<br>United Kingdom |
| 03251 E | D02:<br>$Ne^+ + Ag$; $Ne^+ + Au$ | 1 keV | Onsgaard, J.; Taglauer, E. Depth profiling of thin films of Ag and Au on Mo deposited on a quartz crystal microbalance. Vacuum 34, 831 (1984)<br>Denmark |
| 03252 T | D01:<br>$Ar^+ + Cu$ | 5 keV | Webb, R. P.; Harrison, D. E., Jr. A molecular dynamics computer simulation of the time dependence of surface damage production in ion irradiated metal targets. Vacuum 34, 847 (1984)<br>United States |
| 03253 E | D03:<br>Review<br>D04:<br>Review<br>D12:<br>Review<br>K04:<br>Photon; Electron emission | 1-100 keV | Thomas, E. W. Ion bombardment induced photon and Auger emission for surface analysis. Vacuum 34, 1031 (1984)<br>United States |
| 03254 E | A05:<br>$H^+ + Ar$; $H_2^+ + Ar$; $H^+ + H_2$ | 25-900 eV | Ottinger, C.; Yang, M. L(sub alpha) emission from low-energy collisions $H^+ + Ar$, $H_2^+ + Ar$, $H^+ + H_2$. Z. Naturforsch. A 39, 1296 (1984)<br>West Germany |
| 03255 E | A18:<br>$Na^* + Ne$ | 8 eV | Van den Berg, F.; Bijl, P.; Morgenstern, R. The effect of electron-spin uncoupling on differential scattering cross sections for excited alkali-rare gas systems. Z. Phys. A 320, 1 (1985)<br>The Netherlands |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03256 E | H06:<br>hν + Zn | 11-12.4 eV | Brehm, B.; Pfeiffenberger-Pertl, H. The angular distribution of photoelectrons from zinc atoms. Z. Phys. A 320, 37 (1985)<br>West Germany |
| 03257 E | A05:<br>$Ar^+ + H_2$; $Ar^{+*} + H_2$ | 50-700 eV | Ottinger, C.; Yang, M. L(sub alpha) emission from $Ar^+ + H_2$ collisions in the threshold energy region. Z. Phys. A 320, 51 (1985)<br>West Germany |
| 03258 E | A03:<br>$Ar^+ + H$ | 200-800 eV | Muller, B.; Ottinger, C.; Yang, M. L(sub alpha) emission from collisional excitation of H atoms by threshold energy $Ar^+$ ions. Z. Phys. A 320, 61 (1985)<br>West Germany |
| 03259 E | A03:<br>$Li^+ + He$<br>A07:<br>$Li^+ + He$<br>A18:<br>$Li^+ + He$ | 2 keV | Straten, P.v.d.; Koenraad, P. M.; Morgenstern, R. Quasimolecular or kinematical broadening of autoionization electron spectra from $Li^+$/He collisions? A coincedence study. Z. Phys. A 320, 81 (1985)<br>The Netherlands |
| 03260 E | E05:<br>e + He<br>E17:<br>e + He | 256 eV | Muller-Fiedler, R.; Schlemmer, P.; Jung, K.; Ehrhardt, H. Absolute triple differential cross sections for electron impact ionization of helium: comparison between experimental and theoretical results at 256 eV collisin energy. Z. Phys. A 320, 89 (1985)<br>West Germany |
| 03261 E | A03:<br>$H^- + H_2$; $H^- + N_2$; $H^- + O_2$; $H^- + CO_2$<br>A18:<br>$H^- + H_2$; $H^- + N_2$; $H^- + O_2$; $H^- + CO_2$ | 20-180 eV | Hege, U.; Linder, F. Vibrationally inelastic scattering of $H^-$ ions from $H_2$, $N_2$, $O_2$, and $CO_2$. Z. Phys. A 320, 95 (1985)<br>West Germany |
| 03262 E | A07:<br>Ne* + Ar | 500-1.200 M/sec | Bussert, W.; Bregel, T.; Allan, R. J.; Ruf, M. W.; Hotop, H. Polarization effects in ionizing thermal energy collisions of laser-excited Ne($3p^3D_3$) atoms with Ar atoms. Z. Phys. A 320, 105 (1985)<br>West Germany |
| 03263 E-T | A03:<br>Na* + $Na^+$ | 20-45 eV(c.m.) | Bahring, A.; Meyer, E.; Hertel, I. V.; Schmidt, H. Coherence effects in low energy Na*(3p) + $Na^+$ scattering: experiment and semiclassical calculations. Z. Phys. A 320, 141 (1985)<br>West Germany |
| 03264 E | A03:<br>Ar + H<br>A05:<br>Ar + H | 100-1000 eV | Grosser, J.; Kruger, W. Analysis of hydrogen L gamma alpha emission by the intensity variation in a electric field. Z. Phys. A 320, 155 (1985)<br>West Germany |
| 03265 E | A03:<br>$Cl^{16+} + Ar$<br>A05:<br>$Cl^{16+} + Ar$<br>A18:<br>$Cl^{16+} + Ar$ | 2.5-20 MeV | Schuch, R.; Schmidt-Bocking, H.; Tserruya, I.; Johnson, B. M.; Jones, K. W.; Meron, M. X-ray spectroscopy of Cl-Ar quasi-molecular orbitals from 1 s sigma - 2p tau transitions. Z. Phys. A 320, 185 (1985)<br>West Germany |
| 03266 E | A03:<br>$Na^+ + Na$<br>A11:<br>$Na^+ + Na$ | 0-200 eV | Allan, R. J.; Korsch, H. J. Two-state curve crossing processes involving rotational coupling in the $Na_2^+$ molecular ion. Z. Phys. A 320, 191 (1985)<br>West Germany |
| 03267 E | D12:<br>$H^+ + Cu$; $H^+ + Au$; $H^+ + Si$; $H_2^+ + Cu$; $H_2^+ + Au$; $H_2^+ + Si$; $He^+ + Cu$; $He^+ + Au$; $He^+ + Si$ | 50-300 keV | Frohling, R.; Andra, H. J. Influence of the surface electric field in ion-beam-surface interaction at grazing incidence. Z. Phys. A 320, 207 (1985)<br>West Germany |
| 03268 E | A06:<br>I + Pb; I + U; Au + U<br>A07:<br>I + Pb; I + U; Au + U<br>A18:<br>I + Pb; I + U; Au + U | 466-630 MeV | Mehler, G.; de Reus, T.; Reinhardt, J.; Soff, G.; Muller, U. Delta electron emission in superheavy quasiatoms with Z greater than or approximately 137. Z. Phys. A 320, 355 (1985)<br>West Germany |
| 03269 E | B01:<br>H<br>J03:<br>H Stark broadening | | Mathys, G. Hydrogen lines Stark broadening tables in the presence of a magnetic field. Astron. Astrophys. Suppl. Ser. 59, 229 (1985)<br>Switzerland |
| 03270 E-T | E05:<br>e + H<br>E17:<br>e + H | 250 eV | Weigold, E. Electron momentum spectroscopy - some recent developments. Comments At. Mol. Phys. 15, 223 (1984)<br>Australia |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03271 E-T | E03:<br>e + $CH_4$; e + $H_2O$<br>E17:<br>e + $CH_4$; e + $H_2O$<br>E19:<br>e + CO | 0-60 eV | Camilloni, R.; Gianturco, F. A.; Giardini Guidoni, A. Wavefunction and mechanisms from electron scattering processes: highlights of a symposium. Comments At. Mol. Phys. 15, 263 (1984)<br>Italy |
| 03272 I | A06:<br>$H^+$ + He<br>A18:<br>$H^+$ + He | 50-1500 keV | Roy, P. K.; Guha, S.; Sinha, C.; Sil, N. C. Differential and total cross-sections for electron capture from helium by protons and positrons. Indian J. Pure Appl. Phys. 22, 398 (1984)<br>India |
| 03273 I | E03:<br>e + H<br>E17:<br>e + H | 20-500 eV | Saha, B. C.; Saha, H. P.; Sil, N. C. Asymptotic behaviour of $e^-$ + H excitation cross sections. Indian J. Phys. B 55, 16 (1981)<br>India |
| 03274 E-T | D04:<br>Undef<br>J04:<br>Electron ejection | 0.4-60 keV | Dixit, S. D.; Ghosh, S. N. On SEE by neutrals and negative ions. Indian J. Phys. B 55, 87 (1981)<br>India |
| 03275 I | A06:<br>$H^+$ + C; $H^+$ + N; $H^+$ + O; $H^+$ + Ne; $H^+$ + Ar | 0.2-6 MeV | Roy, A.; Bhattacharyya, S. Studies in capture of K-electrons by fast protons. Indian J. Phys. B 55, 287 (1981)<br>India |
| 03276 I | E03:<br>e + H<br>E17:<br>e + H | 13.9-16.5 eV | Basu M. Mazumdar, P. S.; Ghosh, A. S. Excitation of n = 2 level of atomic hydrogen by electron impact. Indian J. Phys. B 55, 430 (1981)<br>India |
| 03277 E | D02:<br>$Ne^+$ + Si | 1.0 keV | Barish, E. L.; Vitkavage, D. J.; Mayer, T. M. Sputtering of chlorinated silicon surfaces studied by secondary ion mass spectrometry and ion scattering spectroscopy. J. Appl. Phys. 57, 1336 (1985)<br>United States |
| 03278 E | E03:<br>e + Y | 2-200 eV | Kuchenev, A. N.; Smirnov, Y. M. Effective excitation cross sections of transitions of the yttrium atom. J. Appl. Spectrosc. 40, 368 (1984)<br>Soviet Union |
| 03279 I | A03:<br>Ne + He | Thermal | Baran, V. M.; Kononchuk, G. L.; Yakunov, A. V. Transitions between fine-structure components of neon in inelastic collisions of neon and helium atoms. J. Appl. Spectrosc. 41, 840 (1984)<br>Soviet Union |
| 03280 E | D08:<br>$H_2^+$ + Au | 580-700 keV | Kimura, K.; Mannami, M. Backscattered $H_2^+$ ions at the glancing incidence on Au target. J. Phys. Soc. Jpn. 53, 3372 (1984)<br>Japan |
| 03281 E | A06:<br>$He^{2+}$ + $H_2$; $He^{2+}$ + $N_2$ | 0.8-2.0 keV | Kobayashi, N.; Iwai, T.; Kaneko, Y.; Kimura, M.; Matsumoto, A.; Ohtani, S.; Okuno, K.; Takagi, S.; Tawara, H.; Tsurubuchi, S. Translational-energy spectroscopy of one-electron capture processes in $He^{2+}$-$H_2$ and $N_2$ collisions. J. Phys. Soc. Jpn. 53, 3736 (1984)<br>Japan |
| 03282 E-T | A14:<br>Undef | 297 K | Kosmas, A. M. The average cos theta approach to the theoretical calculation of thermal energy ion-dipolar molecule reaction rate constant. J. Phys. [Orsay] Lett. 45, 1083 (1984)<br>Greece |
| 03283 E | A02:<br>Ne* + $H_2$<br>A03:<br>Ne* + $H_2$ | 67 meV | Bocvarski, V.; Robert, J.; Colomb de Daunant, I.; Reinhardt, J.; Baudon, J. Differential measurements on elastic and rotationally inelastic Ne* ($^3P_{0,2}$)-$H_2$ collisions at thermal energies. J. Phys. [Orsay] Lett. 46, 13 (1985)<br>France |
| 03284 I | E02:<br>e + H* | 50-1000 eV | Biswas, A. K. Elastic scattering of electrons by hydrogen atoms in the (2p) state. Chez. J. Phys. 34, 908 (1984)<br>India |
| 03285 I | A06:<br>$H^+$ + H | 3-5 eV | Men'shikov, L. I. Ion-atom charge exchange at low energies. Sov. Phys.-JETP 58, 675 (1983)<br>Soviet Union |
| 03286 E-T | H08:<br>hν + K | 13030-13060 $cm^{-1}$ | Dabagyan, A. A.; Movsesyan, M. E.; Ovakimyan, T. O.; Shmavonyan, S. V. Stimulated processes in potassium vapor in the presence of a buffer gas. Sov. Phys.-JETP 58, 700 (1983)<br>Soviet Union |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03287 T | H11:<br>hν + Mg | 2348-2852 A° | Krasnov, I. V. Translational disequilibrium induced by resonance radiation pressure in a mixture of gases. Sov. Phys.-JETP 58, 909 (1983)<br>Soviet Union |
| 03288 T | A06:<br>$H_2^+ + H_2$ | 0.01-50 keV | Duman, E. L.; Evseev, A. V. Charge exchange of a molecular ion on a neutral molecule with allowance for vibrational transitions in the collision process. Sov. Phys.-JETP 58, 1138 (1983)<br>Soviet Union |
| 03289 E-T | A06:<br>$C^{++}$ + He<br>A07:<br>$C^{++}$ + He | $10^7$-$12 \times 10^7$ cm/sec | Karbovanets, M. I.; Lazur, V. Y.; Chibisov, M. I. Nonresonant exchange between two electrons. Sov. Phys.-JETP 59, 47 (1984)<br>Soviet Union |
| 03290 E-T | H11:<br>hν + Na | 5833 A° | Grinchuk, V. A.; Kazantsev, A. P.; Kuzin, E. P.; Nagaeva, M. L.; Byabenko, G. A.; Surdutovich, G. I.; Yakovlev, V. P. Scattering of atoms by the forces of stimulated radiation pressure. Sov. Phys.-JETP 59, 56 (1984)<br>Soviet Union |
| 03291 T | E02:<br>e + PERT<br>E17:<br>e + PERT | Undef | Demkov, Y. N.; Ostrovskii, V. N.; Tel'nov, D. A. New type of cross section singularity in backward scattering: the Coulomb glory. Sov. Phys.-JETP 59, 257 (1984)<br>Soviet Union |
| 03292 E | A11:<br>$D_2^* + D_2$<br>A12:<br>$D_2^* + D_2$ | Undef | Malikov, M. R.; Savel'ev, A. D.; Smirnov, V. V. Determination of the translational-relaxation cross sections from the measured Dicke contraction in the coherent anti-Stokes Raman spectra of the $D_2$ molecule. Sov. Phys.-JETP Lett. 39, 643 (1984)<br>Soviet Union |
| 03293 E | H01:<br>hν + Na | 5893 A° | Balykin, V. I.; Letokhov, V. S.; Silorov, A. I. Radiative collimatin of an atomic beam by two-dimensional cooling by a laser beam. Sov. Phys.-JETP Lett. 40, 1026 (1984)<br>Soviet Union |
| 03294 T | E06:<br>e + $Ar^{16+}$; e + $Fe^{24+}$ | Undef | Pradhan, A. K. Recombination-cascade x-ray spectra of highly charged helium-like ions. Astrophys. J., Part 1 288, 824 (1985)<br>United States |
| 03295 T | H06:<br>hν + Li Seq | Undef | Tully, J. A. On the Z-dependence of lithium-like photoionization cross sections. Astrophys. J., Part 1 288, 831 (1985)<br>France |
| 03296 T | J03:<br>Photoionization | 0-8048 eV | Yeh, J. J.; Lindau, I. Atomic subshell photoionization cross sections and asymmetry parameters: 1 less than or equal to Z less than or equal to 103. At. Data Nucl. Data Tables 32, 1 (1985)<br>United States |
| 03297 E | J01:<br>Electron capture | | Tawara, H.; Kato, T.; Nakai, Y. Cross sections for electron capture and loss by positive ions in collisions with atomic and molecular hydrogen. At. Data Nucl. Data Tables 32, 235 (1985)<br>Japan |
| 03298 E | K04:<br>General | | MacDonald, R. J.; O'Connor, D. J. Low energy ion-surface interaction--atomic physics in an ordered atom environment. Aust. J. Phys. 37, 389 (1984)<br>United Kingdom |
| 03299 E | A03:<br>$H^+$ + Gd; $He^+$ + W; $He^+$ + Au<br>A07:<br>$H^+$ + Gd; $He^+$ + W; $He^+$ + Au<br>D12:<br>$H^+$ + Gd; $He^+$ + W; $He^+$ + Au | 0.1-1.0 MeV | Harrigan, M. F.; Spicer, B. M.; Cohen, D. D. L-subshell x-ray production by 100-250 keV/amu ions. Aust. J. Phys. 37, 475 (1984)<br>Australia |
| 03300 E-T | H03:<br>hν + $CO_2$ | 514 nm | Murthy, C. S.; Vallauri, R.; Versmold, H.; Zimmermann, U.; Singer, K. Depolarized Rayleigh scattering from $CO_2$: an experimental and molecular dynamics investigation. Ber. Bunsenges. Phys. Chem. 89, 18 (1985)<br>United States |
| 03301 E-T | A02:<br>He + $N_2$<br>A11:<br>He + $N_2$; Ar + $N_2$<br>A17:<br>He + $N_2$; Ar + $N_2$<br>A18:<br>He + $N_2$ | 1-2.5 km/s; 0-3 eV | Candori, R.; Pirani, F.; Vecchiocattivi, F.; Gianturco, F. A.; Lamanna, U. T.; Petrella, G. Interaction potentials and collisional (V,T) transfer in He-$N_2$ and Ar-$N_2$ gaseous mixtures. Chem. Phys. 92, 345 (1985)<br>Italy |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03302 E | D09:<br>$Na^* + W$ | 600 K | Auschwitz, B.; Lacmann, K. The ionisation of excited sodium atoms on a tungsten surface. Chem. Phys. Lett. 113, 230 (1985)<br>West Germany |
| 03303 E | H02:<br>$h\nu + O_2$ | 1150-1300 A° | Black, G.; Sharpless, R. L.; Slanger, T. G.; Taherian, M. R. The 1150-1300 A° absorption spectrum of $O_2$ at 930 K. Chem. Phys. Lett. 113, 311 (1985)<br>United States |
| 03304 T | H05:<br>$2h\nu + HD^+$ | 17000-16000 A° | Chakrabarti, M. K.; Bhattacharyya, S. S.; Datta, K. K.; Saha, S. Two-photon dissociation of $HD^+$ by the 1s sigma (sub g) going to 2p sigma (sub u) electronic transition. Chem. Phys. Lett. 113, 492 (1985)<br>India |
| 03305 T | A14:<br>$D + H_2$ | 200-500 K | Pollak, E.; Abusalbi, N.; Kouri, D. J. Thermal rate constants for the D + HH (N = 1) reaction - comparison of rotationally averaged quantal sudden theory and experimental rates. Chem. Phys. Lett. 113, 585 (1985)<br>Israel |
| 03306 T | A03:<br>H + CO | 2.3-2.5 eV | Geiger, L. C.; Schatz, G. C.; Harding, L. B. A quasi-classical trajectory study of collisions of fast H atoms with CO using an accurate ab initio potential surface. Chem. Phys. Lett. 114, 520 (1985)<br>United States |
| 03307 E-T | A06:<br>$Fe^{2+} + H$; $Fe^{3+} + H$; $Fe^{4+} + H$;<br>$Fe^{5+} + H$; $Fe^{6+} + H$; $Fe^{7+} + H$;<br>$Fe^{8+} + H$; $Fe^{9+} + H$; $Fe^{10+} + H$;<br>$Fe^{11+} + H$; $Fe^{12+} + H$; $Fe^{13+} + H$;<br>$Fe^{14+} + H$; $Al^{2+} + H$; $Al^{3+} + H$;<br>$Al^{4+} + H$; $Al^{5+} + H$; $Al^{6+} + H$;<br>$Al^{7+} + H$; $Al^{8+} + H$; $Al^{9+} + H$;<br>$Al^{10+} + H$; $Al^{11+} + H$; $Al^{12+} + H$;<br>$Al^{13+} + H$; $Al^{14+} + H$; $Xe^{2+} + H$;<br>$Xe^{3+} + H$; $Xe^{4+} + H$; $Xe^{5+} + H$;<br>$Xe^{6+} + H$; $Xe^{7+} + H$; $Xe^{8+} + H$;<br>$Xe^{9+} + H$; $Xe^{10+} + H$; $Xe^{11+} + H$;<br>$Xe^{12+} + H$; $Xe^{13+} + H$; $Xe^{14+} + H$;<br>$O^{6+} + He$; $He^{2+} + H$; $Xe^{2+} + Ar$;<br>$Xe^{3+} + Ar$; $Xe^{4+} + Ar$; $Xe^{5+} + Ar$;<br>$Xe^{6+} + Ar$; $Xe^{7+} + Ar$; $Xe^{8+} + Ar$;<br>$Xe^{9+} + Ar$; $Xe^{10+} + Ar$; $Xe^{11+} + Ar$<br>A07:<br>Ar + Ar<br>A17:<br>Ar + Ar<br>A18:<br>$H^+ + He$; $H^+ + H$; $H^+ + D$; $D^+ + H$;<br>$D^+ + D$ | 0.088-7.4 MeV | Morgenstern, R.; Niehaus, A. Report on the 8th International Seminar on Ion-Atom Collisions (ISIAC VIII). Comments At. Mol. Phys. 15, 299 (1985)<br>The Netherlands |
| 03308 E | D08:<br>$Na^+ + Cu$; $Ne^+ + Cu$ | 5-9 keV | Boers, A. L. Developments in low energy ion scattering on metal surfaces. Comments At. Mol. Phys. 16, 65 (1985)<br>The Netherlands |
| 03309 E | A07:<br>$Na^* + Na^*$ | Thermal | Bonanno, R.; Boulmer, J.; Weiner, J. On the determination of the absolute rate constant for associative ionization in crossed-beam collisions between Na(3p $^2P_{3/2}$) atoms. Comments At. Mol. Phys. 16, 109 (1985)<br>United States |
| 03310 E-T | A02:<br>$H_3^+ + H_2$<br>A09:<br>$H^- + H_3^+$ | 0.01-10 eV(c.m.) | Bruneteau, A. M.; Bacal, M. Effect of positive and negative ion energies on $H^-$ destruction by mutual neutralization in low-pressure plasmas. J. Appl. Phys. 57, 4342 (1985)<br>France |
| 03311 E | H06:<br>$h\nu + N_2$ | 410-440 eV | Lindle, D. W.; Truesdale, C. M.; Kobrin, P. H.; Ferrett, T. A.; Heimann, P. A.; Becker, U.; Kerkhoff, H. G.; Shirley, D. A. Nitrogen K-shell photoemission and Auger emission from $N_2$ and NO. J. Chem. Phys. 81, 5375 (1984)<br>United States |
| 03312 T | A03:<br>$He + N_2$<br>A18:<br>$He + N_2$ | 27 meV | Faubel, M. The "Fraunhofer theory" of rotational inelastic scattering of He on small molecules. J. Chem. Phys. 81, 5559 (1984)<br>West Germany |
| 03313 T | A03:<br>$OH + H_2$<br>A18:<br>$OH + H_2$ | 83 meV | Schinke, R.; Andersen, P. Inelastic collisions of OH ($^2\Pi$) with $H_2$: comparison between theory and experiment including rotational, fine structure, and A-doublet transitions. J. Chem. Phys. 81, 5644 (1984)<br>West Germany |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03314 T | H05:<br>hν + OH | 9-13 eV | Van Dishoeck, E. F.; Van Hemert, M. C.; Allison, A. C.; Dalgarno, A. Resonances in the photodissociation of OH by absorption into coupled $^2\Pi$ states: adiabatic and diabatic formulations. J. Chem. Phys. 81, 5709 (1984)<br>The Netherlands |
| 03315 T | A14:<br>F + $H_2$ | 0-0.4 eV | Ashton, C. J.; Muckerman, J. T.; Schubert, F. E. An improved quasiclassical trajectroy method for state to state reactive scattering cross sections and rate constants. J. Chem. Phys. 81, 5786 (1984)<br>United States |
| 03316 T | D09:<br>KCl + Re | 950-2100 K | Kawano, H.; Kenpo, T. Thermal positive ion production from KCl impinging upon Re: comparison between theory and experiment. J. Chem. Phys. 81, 6310 (1984)<br>Japan |
| 03317 T | D13:<br>hν + NO + LiF | 0-2000 K | Lucchese, R. R.; Tully, J. C. Laser induced thermal desorption from surface. J. Chem. Phys. 81, 6313 (1984)<br>United States |
| 03318 T | A11:<br>CO* + $H_2$<br>A17:<br>CO* + $H_2$ | 0-250 meV | Bacic, Z.; Schinke, R.; Diercksen, G.H.F. Vibrational relaxation of CO (n = 1) in collisions with $H_2$. I. Potential energy surface and test of dynamical approximations. J. Chem. Phys. 82, 236 (1985)<br>West Germany |
| 03319 T | A11:<br>CO* + $H_2$ | 0-255 meV | Bacic, Z.; Schinke, R.; Diercksen, G.H.F. Vibrational relaxation of CO (n = 1) in collisions with $H_2$. II. Influence of $H_2$ rotation. J. Chem. Phys. 82, 245 (1985)<br>West Germany |
| 03320 E | H06:<br>3hν + C | 2870 Å | Pratt, S. T.; Dehmer, J. L.; Dehmer, P. M. Photoelectron angular distributions from resonant multiphoton ionization of atomic carbon. J. Chem. Phys. 82, 676 (1985)<br>United States |
| 03321 E | A07:<br>Ne* + Ar | 0.01-1.0 eV | Aguilar-Navarro, A.; Brunetti, B.; Rosi, S.; Vecchiocattivi, F.; Volpi, G. G. Velocity dependence of the cross section for Penning and associative ionization of argon atoms by metastable neon atoms. J. Chem. Phys. 82, 773 (1985)<br>Italy |
| 03322 E | D13:<br>NO + Pt | 150-450 K | King, D. S.; Mantell, D. A.; Cavanagh, R. R. NO thermally desorbed from a saturation coverage on Pt(111): internal state distributions. J. Chem. Phys. 82, 1046 (1985)<br>United States |
| 03323 E | A14:<br>O + $H_2$; O + $D_2$; O + HD | 297-473 K | Presser, N.; Gordon, R. J. The kinetic isotope effect in the reaction of O($^3$P) with $H_2$, $D_2$ and HD. J. Chem. Phys. 82, 1291 (1985)<br>United States |
| 03324 T | A14:<br>OH + $H_2$ | 200-2400 K | Isaacson, A. D.; Sund, M. T.; Rai, S. N.; Truhlar, D. G. Improved canonical and microcanonical variational transition state theory calculations for a polyatomic reaction: OH + $H_2$ going to $H_2O$ + H. J. Chem. Phys. 82, 1338 (1985)<br>United States |
| 03325 E | D09:<br>$CO_2$* + Ag; CO* + Ag | 300-440 K | Misewich, J.; Houston, P. L.; Merrill, R. P. Vibrational relaxation of carbon dioxide (100) and carbon monoxide (v = 2) during gas-surface collisions. J. Chem. Phys. 82, 1577 (1985)<br>United States |
| 03326 T | E03:<br>e + He<br>E17:<br>e + He | 10-300 eV | Srivastava, R.; Kumar, M.; Tripathi, A. N. $2^1$S excitation of helium: a precise distorted wave approach. J. Chem. Phys. 82, 1818 (1985)<br>India |
| 03327 T | A14:<br>H + $D_2$; HD + D<br>A17:<br>H + $D_2$; HD + D | 0.55-1.3 eV | Blais, N. C.; Truhlar, D. G.; Garrett, B. C. Effect of bending potential on calculated product-state distributions for the reaction H + $D_2$ going to HD + D. J. Chem. Phys. 82, 2300 (1985)<br>United States |
| 03328 E | E03:<br>e + $O_2$ | 200 eV | Ajello, J. M.; Franklin, B. A study of the extreme ultraviolet spectrum of $O_2$ by electron impact. J. Chem. Phys. 82, 2519 (1985)<br>United States |
| 03329 E-T | A02:<br>He* + $H_2$; He* + $D_2$<br>A07:<br>He* + $H_2$; He* + $D_2$<br>A11:<br>He* + $H_2$; He* + $D_2$<br>A17:<br>He* + He; He* + $D_2$<br>A18:<br>He* + $H_2$; He* + $D_2$ | 0.5-3.2 kcal/mol | Martin, D. W.; Siska, P. E. Differential nonreactive scattering of He*($2^1$S, $2^3$S) by $D_2$ and $H_2$: anisotropic optical potentials and comparison with ab initio theory. J. Chem. Phys. 82, 2630 (1985)<br>United States |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03330 T | A14:<br>$D + H_2$<br>A18:<br>$D + H_2$ | 0.28-1.28 eV | AbuSalbi, N.; Kouri, D. J.; Shima, T.; Baer, M. Quantum menchanical study of the $D + H_2$ going to $HD + H$ reaction. J. Chem. Phys. 82, 2650 (1985)<br>United States |
| 03331 T | A14:<br>$H + H_2$<br>A17:<br>$H + H_2$ | Undef | Barnett, R. N.; Reynolds, P. J.; Lester, W. A., Jr. $H + H_2$ reaction barrier: a fixed-node quantum Monte Carlo study. J. Chem. Phys. 82, 2700 (1985)<br>United States |
| 03332 E | D11:<br>$O_2$ + Pt | 27-300 °C | Derry, G. N.; Ross, P. N. A work function change study of oxygen adsorption on Pt(111) and Pt(100). J. Chem. Phys. 82, 2772 (1985)<br>United States |
| 03333 E | A14:<br>$F + H_2$<br>A18:<br>$F + H_2$ | 0.7-3.4 kcal/mol | Neumark, D. M.; Wodtke, A. M.; Robinson, G. N.; Hayden, C. C.; Lee, Y. T. Molecular beam studies of the $F + H_2$ reaction. J. Chem. Phys. 82, 3045 (1985)<br>United States |
| 03334 E | A14:<br>$F + D_2$; $F + HD$<br>A18:<br>$F + D_2$; $F + HD$ | 0.8-3.3 kcal/mol | Neumark, D. M.; Wodtke, A. M.; Robinson, G. N.; Hayden, C. C.; Shobatake, K.; Sparks, R. K.; Schafer, T. P.; Lee, Y. T. Molecular beam studies of the $F + D_2$ and $F + HD$ reactions. J. Chem. Phys. 82, 3067 (1985)<br>United States |
| 03335 E | A14:<br>$O^- + H_2$; $O^- + D_2$; $S^- + H_2$; $S^- + D_2$<br>A16:<br>$O^- + H_2$; $O^- + D_2$; $S^- + H_2$; $S^- + D_2$ | 0.5-25 eV | Hug, M. S.; Scott, D.; Champion, R. L.; Doverspike, L. D. Total cross sections for collisions of $O^-$ and $S^-$ with hydrogen. J. Chem. Phys. 82, 3118 (1985)<br>United States |
| 03336 E | A11:<br>$N_2^{+*} + N_2$; $N_2^{+*} + O_2$ | 300 K | Piper, L. G.; Green, B. D.; Blumberg, W.A.M.; Wolnik, S. J. $N_2^+$ Meinel band quenching. J. Chem. Phys. 82, 3139 (1985)<br>United States |
| 03337 T | A17:<br>$H_2$ | Undef | Wolniewicz, L.; Dressler, K. The EF, GK, and HH bar $^1\Sigma$(sub g)+ states of hydrogen. Improved ab initio calculation of vibrational states in the adiabatic approximation. J. Chem. Phys. 82, 3292 (1985)<br>Switzerland |
| 03338 T | J01:<br>Charge exchange | 1-3x10⁴ eV/u | Janev, R. K.; Gallagher, J. W. Evaluated theoretical cross-section data for charge exchange of multiply charged ions with atoms. III. Nonhydrogenic target atoms. J. Phys. Chem. Ref. Data 13, 1199 (1984)<br>United States |
| 03339 E | J01:<br>Chemical reactions | | Baulch, D. L.; Cox, R. A.; Hampson, R. F., Jr.; Kerr, J. A.; Troe, J.; Watson, R. T. Evaluated kinetic and photochemical data for atmospheric chemistry: Supplement II. CODATA Task Group on gas phase chemical kinetics. J. Phys. Chem. Ref. Data 13, 1259 (1984)<br>United States |
| 03340 E | E05:<br>$e + Ne^{2+}$; $e + Ar^{2+}$; $e + Kr^{2+}$;<br>$e + Xe^{2+}$ | 0-1000 eV | Danjo, A.; Matsumoto, A.; Ohtani, S.; Suzuki, H.; Tawara, H.; Wakiya, K. Electron impact single ionization of $Ne^{2+}$, $Ar^{2+}$, $Kr^{2+}$, and $Xe^{2+}$ ions. J. Phys. Soc. Jpn. 53, 4091 (1984)<br>Japan |
| 03341 T | H04:<br>$h\nu + N$ | 950-1200 A° | Hibbert, A.; Dufton, P. L.; Keenan, F. P. Oscillator strengths for transitions in N I and the interstellar abundance of nitrogen. Mon. Not. R. Astron. Soc. 213, 721 (1985)<br>United Kingdom |
| 03342 E-T | A03:<br>$He^+ + Cs$; $He^+ + Rb$<br>A06:<br>$He^+ + Cs$; $He^+ + Rb$ | Thermal | Tolmachev, Y. A.; Fogel, D. Excitation of alkali-metal ionic spectra due to nonresonant charge exchange of $He^+$ ions at thermal energies. Opt. Spectrosc. 56, 609 (1984)<br>Soviet Union |
| 03343 E-T | E02:<br>$e + Ne$<br>E19:<br>$e + Ne$ | 0-20 eV | McEachran, R. P.; Stauffer, A. D. Electron scattering from neon. Phys. Lett. A 107, 397 (1985)<br>Canada |
| 03344 T | E06:<br>$e + Ar^{16+}$ | 0.4-10 keV | Bhalla, C. P.; Tunnell, T. W. Theoretical partial dielectronic recombination rate coefficients for ground-state helium-like argon. Phys. Lett. A 108, 22 (1985)<br>United States |
| 03345 E | A03:<br>$N^{6+} + He$<br>A06:<br>$N^{6+} + He$ | 4.2 keV/amu | Druetta, M.; Mayo, M.; Cotte, P. H.; Martin, S.; Dousson, S.; Hitz, D.; Tran Cong, K. Absolute cross sections for electron capture into (n,l) subshells of N VI by VUV spectroscopic study of the $N^{6+}$ + He collision. Phys. Lett. A 108, 338 (1985)<br>France |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03346 T | K02:<br>Electron & Positrons;<br>Elastic scattering; Excitation;<br>Ionization | | Walters, H.R.J. Perturbative methods in electron- and positron-atom scattering (167 references). Phys. Rep. 116, 1 (1984)<br>United Kingdom |
| 03347 E-T | K01:<br>Electron capture into excited states | | Janev, R. K.; Winter, H. State-selective electron capture in atom-highly charged ion collisions (345 references). Phys. Rep. 117, 265 (1984)<br>Yugoslavia |
| 03348 T | K01:<br>Excitation; Ionization;<br>Electron capture<br>K02:<br>Excitation; Ionization;<br>Electron capture | | Moiseiwitsch, B. L. Scattering of atomic particles at relativistic energies (37 references). Phys. Rep. 118, 133 (1985)<br>United Kingdom |
| 03349 T | E03:<br>e + $Li^{+}$; e + $O^{6+}$; e + $C^{2+}$ | 10-2000 eV | Itikawa, Y.; Sakimoto, K. Distorted-wave-method calculation of electron-impact excitation of atomic ions: He- and Be-like ions. Phys. Rev. A 31, 1319 (1985)<br>Japan |
| 03350 E | E02:<br>e + Ne<br>E03:<br>e + Ne<br>E17:<br>e + Ne | 35 keV | McClelland, J. J.; Pink, M. Correlation effects in neon studied by elastic and inelastic high-energy electron scattering. Phys. Rev. A 31, 1328 (1985)<br>United States |
| 03351 T | A16:<br>$H^{-}$ + He<br>A18:<br>$H^{-}$ + He | 0.5 MeV | Park, C. H.; Starace, A. F.; Macek, J. Electron doubly differential cross section for 0.5-MeV $H^{-}$ + He detachment collisions. Phys. Rev. A 31, 1336 (1985)<br>United States |
| 03352 T | E02:<br>e + H<br>E03:<br>e + H<br>E17:<br>e + H<br>E19:<br>e + H | 54.4 eV | Staszewska, G.; Schwenke, D. W.; Truhlar, D. G. Collapsed close-coupling method: a systematic alternative to the multichannel optical potential for solutions of the Schrodinger equation in a truncated subspace. Phys. Rev. A 31, 1348 (1985)<br>United States |
| 03353 T | A06:<br>$Ni^{20+}$ + Ni | 54.4 MeV | Lapicki, G.; Lichten, W. Reconciliation of atomic- and molecular-orbital models in slow and symmetric collisions. Phys. Rev. A 31, 1354 (1985)<br>United States |
| 03354 E | A07:<br>Na* + Na*<br>A17:<br>Na* + Na* | 300 K | Rothe, E. W.; Theyunni, R.; Reck, G. P.; Tung, C. C. Effect of electronic alignment upon the reaction $2Na^{*}(^{2}P_{3/2})$ going to $Na_2^{+}$ + $e^{-}$. Phys. Rev. A 31, 1362 (1985)<br>United States |
| 03355 T | A03:<br>Xe* + He; Xe* + Ne; Xe* + Ar;<br>Xe* + Kr; Xe* + Xe; Na* + He;<br>Na* + Ne; Na* + Ar; Na* + Kr;<br>Na* + Xe; Rb* + He; Rb* + Ne;<br>Rb* + Ar; Rb* + Kr; Rb* + Xe<br>A11:<br>Xe* + He; Xe* + Ne; Xe* + Ar;<br>Xe* + Kr; Xe* + Xe; Na* + He;<br>Na* + Ne; Na* + Ar; Na* + Kr;<br>Na* + Xe; Rb* + He; Rb* + Ne;<br>Rb* + Ar; Rb* + Kr; Rb* + Xe | 300-430 K | Sato, Y.; Matsuzawa, M. Quasielastic state-changing collisions of high-Rydberg atoms with rare-gas atoms. II. Collisions with heavier rare-gs atoms. Phys. Rev. A 31, 1366 (1985)<br>Japan |
| 03356 E | A03:<br>Li* + Li; Li* + He; Li* + Ne;<br>Li* + Ar<br>A11:<br>Li* + Li; Li* + He; Li* + Ne;<br>Li* + Ar | 600-700 K | Harnafi, M.; Dubreuil, B. l-changing collisions in the intermediate Rydberg states of lithium. Phys. Rev. A 31, 1375 (1985)<br>France |
| 03357 T | A17:<br>He + Mg; $He^{+}$ + Mg; $He^{2+}$ + Mg | 2-15 eV | Barthelat, J. C.; Ortega-Blake, I.; Cruz, S. A.; Vargas-Aburto, C.; Chadderton, L. T. Ab initio Mg-($He^{0}$,$He^{+}$,$He^{2+}$) potentials and ion scattering by atomic strings and planes. Phys. Rev. A 31, 1382 (1985)<br>France |
| 03358 E | A06:<br>$C^{6+}$ + H; $C^{6+}$ + $H_2$; $C^{6+}$ + He; $O^{8+}$ + H;<br>$O^{8+}$ + $H_2$; $O^{8+}$ + He; $Ne^{10+}$ + H;<br>$Ne^{10+}$ + $H_2$; $Ne^{10+}$ + He; $Ar^{18+}$ + H;<br>$Ar^{18+}$ + $H_2$; $Ar^{18+}$ + He | 12-340 MeV | Berry, S. D.; Glass, G. A.; Sellin, I. A.; Groeneveld, K. O.; Hofmann, D.; Andersen, L. H.; Breinig, M.; Elston, S. B.; Engar, P.; Schauer, M. M.; Stolterfoht, N.; Schmidt-Bocking, H.; Wolte, G.; Schiwietz, G. Shape of the electron capture to the continuum cusps for H, $H_2$, and He targets in the velocity range 6.3-18.0 a.u. Phys. Rev. A 31, 1392 (1985)<br>United States |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03359 E | A03:<br>$H^+ + Ar$<br>A06:<br>$H^+ + Ar$<br>A18:<br>$H^+ + Ar$ | 1.5-3.0 keV | Hippler, R.; Faust, M.; Wolf, R.; Kleinpoppen, H.; Lutz, H. O. Polarization studies of H(2p) charge-exchange excitation: $H^+ + Ar$ collisions. Phys. Rev. A 31, 1399 (1985)<br>West Germany |
| 03360 T | E06:<br>Undef | Undef | LaGattuta, K.; Hahn, Y. Comparison of the isolated-resonance approximation and multichannel quantum-defect theory for dielectronic recombination. Phys. Rev. A 31, 1415 (1985)<br>United States |
| 03361 T | H02:<br>$h\nu + Pt$; $h\nu + Rh$ | 6.4-22.1 keV | Nageswara Rao, G.; Joga Rao, K.; Premchand, K.; Thirumala Rao, B. V.; Raju, M.L.N.; Parthasaradhi, K. Total photon cross sections in Pt-Rh alloys. Phys. Rev. A 31, 1423 (1985)<br>India |
| 03362 E | H06:<br>$h\nu + Ar$ | 40-70 eV | Adam, M. Y.; Morin, P.; Wendin, G. Photoelectron satellite spectrum in the region of the 3s Cooper minimum of argon. Phys. Rev. A 31, 1426 (1985)<br>France |
| 03363 T | H06:<br>$nh\nu + Na$ | 2.5 eV | Geltman, S.; Leuchs, G. Intensity-dependent electron angular distributions in resonant multiphoton ionization. Phys. Rev. A 31, 1463 (1985)<br>United States |
| 03364 E | H06:<br>$h\nu + O$ | 900-100 A° | Samson, J.A.R.; Pareek, P. N. Absolute photoionization cross sections of atomic oxygen. Phys. Rev. A 31, 1470 (1985)<br>United States |
| 03365 T | H06:<br>$2h\nu + H$ | 13.6 eV | Broad, J. T. Calculation of two-photon processes in hydrogen with an $L^2$ basis. Phys. Rev. A 31, 1494 (1985)<br>West Germany |
| 03366 E | H06:<br>$h\nu + Xe$ | 70-160 eV | Yates, B. W.; Tan, K. H.; Coatsworth, L. L.; Bancroft, G. M. High-resolution gas-phase photoelectron spectra using synchrotron radiation: Xe 4d linewidths and the $4d_{5/2}$:$4d_{3/2}$ branching ratio. Phys. Rev. A 31, 1529 (1985)<br>Canada |
| 03367 T | D05:<br>Undef | Undef | Shakeshaft, R.; Spruch, L. Photoexcitation and photoejection of an electron bound to a wall by the image potential. Phys. Rev. A 31, 1535 (1985)<br>United States |
| 03368 T | F06:<br>$e + Ar^{16+}$; $e + Ar^{15+}$; $e + V^{21+}$; $e + V^{20+}$; $e + V^{19+}$; $e + Fe^{24+}$; $e + Fe^{23+}$; $e + Si^{11+}$; $e + S^{13+}$ | 280-380 Ry | McLaughlin, D. J.; Nasser, I.; Hahn, Y. Dependence of dielectronic recombination cross sections on the charge states for the vanadium ion. Phys. Rev. A 31, 1926 (1985)<br>United States |
| 03369 T | H05:<br>Undef<br>H08:<br>Undef | Undef | Nienhuis, G. Interatomic interference in fluorescence excited by photodissociation. Phys. Rev. A 31, 1929 (1985)<br>The Netherlands |
| 03370 E | F03:<br>$e + Na$<br>E17:<br>$e + Na$ | 22.1 eV | Riley, J. L.; Teubner, P.J.O.; Brunger, M. J. "Perfect" electron-scattering experiment in sodium. Phys. Rev. A 31, 1959 (1985)<br>Australia |
| 03371 E | D07:<br>$NO + C$<br>D08:<br>$NO + C$ | 200 K | Hager, J.; Shen, Y. R.; Walther, H. State-selective velocity and angular distributions of NO molecules scattered from a graphite surface. Phys. Rev. A 31, 1962 (1985)<br>West Germany |
| 03372 T | H06:<br>$h\nu + N_2$ | 17-40 eV | Stephens, J. A.; Dill, D. Shape-resonance effects mediated by channel interaction: angular distributions of $N_2$ 2 sigma (sub u) photoelectrons. Phys. Rev. A 31, 1968 (1985)<br>United States |
| 03373 T | A16:<br>$H^- + Ar$ | 20-120 keV | Alton, G. D.; Compton, R. N.; Pegg, D. J. Electron-detachment spectroscopy of 20-100-keV $H^-$ projectiles interacting with thin Ar targets. Phys. Rev. A 31, 2129 (1985)<br>United States |
| 03374 T | A03:<br>$H + Na$; $H + Li$; $H + K$; $H + Rb$; $H + Cs$<br>A11:<br>$H + Na$; $H + Li$; $H + K$; $H + Rb$; $H + Cs$<br>A17:<br>$H + Na$; $H + Li$; $H + K$; $H + Rb$; $H + Cs$ | $3\times10^{-4}$-1 eV | Cole, H. R.; Olson, R. E. Spin-exchange cross sections for hydrogen-atom-alkali-metal-atom collisions. Phys. Rev. A 31, 2137 (1985)<br>United States |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03375 T | E03:<br>e + Li; e + Na; e + K | 0-50 eV | Hyman, H. A. Dipole Magnus approximation for electron-atom collisions: excitation of the resonance transitions of Li, Na, and K. Phys. Rev. A 31, 2142 (1985)<br>United States |
| 03376 E-T | A02:<br>He + $D_2$; He + $H_2$<br>A17:<br>He + $D_2$; He + $H_2$ | 1-2 keV | Jakacky, J., Jr.; Pollack, E.; Snyder, R.; Russek, A. $He^0$ on $D_2$ collisions at keV energies and the $HeH_2$ energy surface. Phys. Rev. A 31, 2149 (1985)<br>United States |
| 03377 T | A03:<br>$H^+$ + He<br>A06:<br>$H^+$ + He | 2-30 keV | Kimura, M. Molecular-state treatment of excitation and charge-transfer processes in $H^+$ + He($1s^2$) collisions. Phys. Rev. A 31, 2158 (1985)<br>United States |
| 03378 T | E11:<br>Undef | Undef | Rosenberg, L. Relativistic Coulomb bremsstrahlung in soft-photon approximation. Phys. Rev. A 31, 2180 (1985)<br>United States |
| 03379 T | E01:<br>Undef | Undef | Schneider, B. I. Application of projection methods to scattering calculations. Phys. Rev. A 31, 2188 (1985)<br>United States |
| 03380 T | A06:<br>$H^+$ + He; $He^{2+}$ + He; $Li^{3+}$ + He<br>A07:<br>$H^+$ + He; $He^{2+}$ + He; $Li^{3+}$ + He | 0.025-4 MeV/amu | Sidorovich, V. A.; Nikolaev, V. S.; McGuire, J. H. Calculation of charge-changing cross sections in collisions of $H^+$, $He^{2+}$, and $Li^{3+}$ with He atoms. Phys. Rev. A 31, 2193 (1985)<br>Soviet Union |
| 03381 E | A06:<br>$He^+$ + $CH_4$; $He^+$ + CO; $He^+$ + $CO_2$;<br>$He^+$ + $O_2$; $He^+$ + Ne; $H^+$ + $CH_4$;<br>$H^+$ + CO; $H^+$ + $CO_2$; $H^+$ + $O_2$; $H^+$ + Ne | 0.8-3.0 MeV | Varghese, S. L.; Bissinger, G.; Joyce, J. M.; Laubert, R. Atomic total electron-capture cross sections from C-, O-, F-, and S-bearing molecular gases for approximately Mev/u $H^+$ and $He^+$ projectiles. Phys. Rev. A 31, 2202 (1985)<br>United States |
| 03382 E-T | B07:<br>hν + $S^-$<br>H07:<br>hν + $S^-$ | 16750-16757 $cm^{-1}$ | Larson, D. J.; Stoneman, R. Photodetachment of atomic negative ions near threshold in a magnetic field. Phys. Rev. A 31, 2210 (1985)<br>United States |
| 03383 T | A03:<br>$He^{2+}$ + H<br>A06:<br>$He^{2+}$ + H<br>A17:<br>$He^{2+}$ + H | 0.02-10 keV | Van Hemert, M. C.; Van Dishoeck, E. F.; Van der Hart, J. A.; Koike, F. Quantum-mechanical and impact-parameter treatment of $He^{2+}$ + H collisions. Phys. Rev. A 31, 2227 (1985)<br>The Netherlands |
| 03384 T | C02:<br>Undef | Undef | Anderson, V. E.; Ritchie, R. H.; Sung, C. C.; Eby, P. B. Relativistic corrections to stopping powers. Phys. Rev. A 31, 2244 (1985)<br>United States |
| 03385 E | H06:<br>hν + Ba | Undef | Leuchs, G.; Smith, S. J. Excited electron correlations in resonant multiphoton ionization via barium Rydberg states. Phys. Rev. A 31, 2283 (1985)<br>United States |
| 03386 E-T | E03:<br>e + Ar<br>H06:<br>nhν + Ar; hν + Ar* | 3.5-22 eV | Weyl, G. M.; Rosen, D. Laser-induced breakdown in argon at 0.35 μm: theory and experiments. Phys. Rev. A 31, 2300 (1985)<br>United States |
| 03387 T | H06:<br>hν + Yb; hν + Ta; hν + W; hν + Re;<br>hν + Os; hν + Pt; hν + Au; hν + Hg;<br>hν + Tl; hν + Pb; hν + Bi; hν + Th;<br>hν + U; hν + Na | Undef | Ohno, M.; Wendin, G. Many-electron theory of x-ray photoelectron spectra: N-shell linewidths in the $_{46}$Pd to $_{92}$U range. Phys. Rev. A 31, 2318 (1985)<br>Sweden |
| 03388 E | A03:<br>Rb* + Rb; Rb* + $N_2$; Rb* + He;<br>Rb* + Ne; Rb* + Ar; Rb* + Kr;<br>Rb* + Xe<br>A11:<br>Rb* + Rb; Rb* + $N_2$; Rb* + He;<br>Rb* + Ne; Rb* + Ar; Rb* + Kr;<br>Rb* + Xe | 300 K | Supronowicz, J.; Atkinson, J. B.; Krause, L. $6^2D$ fine-structure mixing in rubidium induced in collisions with ground-state Rb and noble-gas atoms and with $N_2$ molecules. Phys. Rev. A 31, 2691 (1985)<br>Canada |
| 03389 T | A06:<br>$He^{2+}$ + H | 8 keV | Winter, T. G.; Lane, N. F. "R-matrix" approach to electron transfer in α-H collisions. Phys. Rev. A 31, 2698 (1985)<br>United States |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03390 I | A06:<br>$He^{2+}$ + H | 1-8 keV | Winter, T. G.; Dutta, C. M.; Lane, N. F. Evolution of electronic probability density in α-H collisions. Phys. Rev. A 31, 2702 (1985)<br>United States |
| 03391 I | E02:<br>e + He | 25-35 keV | Bonham, R. A. Electron-atom elastic shadow scattering. Phys. Rev. A 31, 2706 (1985)<br>United States |
| 03392 I | E02:<br>e + $N_2$<br>F17:<br>e + $N_2$ | 397-404 eV | Mathur, D.; Roy, A.; Kumar, R.A.K.; Rajgara, F. A. Angular distributions of electrons elastically scattered via K-shell resonances in $N_2$. Phys. Rev. A 31, 2709 (1985)<br>India |
| 03393 I | H06:<br>4hν + H | Undef | Kelleher, D. E.; Ligare, M.; Brewer, L. R. Resonant four-photon ionization of atomic hydrogen. Phys. Rev. A 31, 2747 (1985)<br>United States |
| 03394 I | H06:<br>hν + Ca | 11-28 eV | Cowan, R. D.; Hansen, J. E.; Smid, H. Photoelectron spectrum of Ca between 11 and 28 eV. Phys. Rev. A 31, 2750 (1985)<br>The Netherlands |
| 03395 E-I | E02:<br>e + H<br>E05:<br>e + H | 14.1-197 eV | Fletcher, G. D.; Alguard, M. J.; Gay, T. J.; Hughes, V. W.; Wainwright, P. F.; Lubell, M. S.; Raith, W. Experimental study of spin-exchange effects in elastic and ionizing collisions of polarized electrons with polarized hydrogen atoms. Phys. Rev. A 31, 2854 (1985)<br>United States |
| 03396 E | C06:<br>$Li^-$ + Mg; $Li^-$ + Sr; $Li^-$ + Cs;<br>Li + Mg; Li + Sr; Li + Cs; $Li^+$ + Mg;<br>$Li^+$ + Sr; $Li^+$ + Cs | 1-20 keV | Mowat, J. R.; Fisch, E. E.; Schlachter, A. S.; Stearns, J. W.; Bae, Y. K. Equilibrium charge-state fractions of $Li^-$, $Li^0$, and $Li^+$ in Mg, Sr, and Cs vapors. Phys. Rev. A 31, 2893 (1985)<br>United States |
| 03397 E | E17:<br>e + $H_2$ | 1-50 eV | Jones, R. K. Absolute total cross section for electron scattering from molecular hydrogen from 1 to 50 eV. Phys. Rev. A 31, 2898 (1985)<br>United States |
| 03398 E | E05:<br>e + $Ti^{2+}$; e + $Fe^{2+}$; e + $Ar^{2+}$;<br>e + $Cl^{2+}$; e + $F^{2+}$ | 15-1500 eV | Mueller, D. W.; Morgan, T. J.; Dunn, G. H.; Gregory, D. C.; Crandall, D. H. Absolute cross-section measurements for electron-impact ionization of doubly charged ions $Ti^{2+}$, $Fe^{2+}$, $Ar^{2+}$, $Cl^{2+}$, and $F^{2+}$. Phys. Rev. A 31, 2905 (1985)<br>United States |
| 03399 E-I | A06:<br>$Al^{2+}$ + H; $Al^{2+}$ + $H_2$; $Al^{3+}$ + H;<br>$Al^{3+}$ + $H_2$; $Al^{4+}$ + H; $Al^{4+}$ + $H_2$;<br>$Al^{5+}$ + H; $Al^{5+}$ + $H_2$; $Al^{6+}$ + H;<br>$Al^{6+}$ + $H_2$; $Al^{7+}$ + H; $Al^{7+}$ + $H_2$;<br>$Al^{8+}$ + H; $Al^{8+}$ + $H_2$; $Al^{9+}$ + H;<br>$Al^{9+}$ + $H_2$; $Al^{10+}$ + H; $Al^{10+}$ + $H_2$<br>A17:<br>$Al^{2+}$ + H; $Al^{3+}$ + H | 20-120 eV/amu | Phaneuf, R. A.; Kimura, M.; Sato, H.; Olson, R. E. Electron capture by slow Al(sup q)+ ions colliding with hydrogen. Phys. Rev. A 31, 2914 (1985)<br>United States |
| 03400 E | H06:<br>hν + Ta; hν + W; hν + Au; hν + Hg;<br>hν + Tl; hν + Pb; hν + Bi; hν + Th;<br>hν + U | 60 keV | Shatendra, K.; Allawadhi, K. L.; Sood, B. S. Measurement of Ll, Lα, Lβ, and L[gamma] x-ray-production cross sections in some high-Z elements by 60 keV photons. Phys. Rev. A 31, 2918 (1985)<br>India |
| 03401 E | A03:<br>H + Ne | 0.05-2.5 keV | Van Zyl, B.; Gealy, M. W.; Neumann, H. Excitation of low-energy H atoms in H + Ne collisions. Phys. Rev. A 31, 2922 (1985)<br>United States |
| 03402 I | E02:<br>e + $N_2$<br>E03:<br>e + $N_2$<br>E05:<br>e + $N_2$<br>E19:<br>e + $N_2$<br>J05:<br>e + $N_2$ | 0.003-10* eV | Phelps, A. V.; Pitchford, L. C. Anisotropic scattering of electrons by $N_2$ and its effect on electron transport. Phys. Rev. A 31, 2932 (1985)<br>United States |
| 03403 E | H04:<br>hν + Sr<br>H06:<br>hν + Sr | 460 nm | Brechignac, C.; Cahuzac, P.; Debarre, A. Ionization of laser-excited strontium vapor: the dynamics of superelastic collisions with metastable populations. Phys. Rev. A 31, 2950 (1985)<br>France |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03404 T | A17:<br>Li + Li; Na + Na; K + K; Rb + Rb;<br>Cs + Cs; K + Rb | Undef | Movre, M.; Beuc, R. Van der Waals interaction in excited alkali-metal dimers. Phys. Rev. A 31, 2957 (1985)<br>Yugoslavia |
| 03405 T | B07:<br>hν + H<br>H04:<br>hν + H | Undef | Harmin, D. A. Asymmetry of field-induced shape resonances in hydrogen. Phys. Rev. A 31, 2984 (1985)<br>United States |
| 03406 T | H06:<br>hν + Be; hν + Mg | 9-100 eV | Radojevic, V.; Johnson, W. R. Multiconfiguration Tamm-Dancoff approximation applied to photoionization of the outer shells of Be and Mg. Phys. Rev. A 31, 2991 (1985)<br>United States |
| 03407 T | E05:<br>e + $H_2$<br>E17:<br>e + $H_2$ | 300-1200 eV | Liu, J. W.; Smith, V. H., Jr. Effect of ground-state electron correlation on the (e,2e) reaction spectroscopy of $H_2$[ $^1\Sigma$(sub g)$^+$ ]. Phys. Rev. A 31, 3003 (1985)<br>Canada |
| 03408 E | A12:<br>Ba + Ar | 300 K | Alford, W. J.; Andersen, N.; Belsley, M.; Cooper, J.; Warrington, D. M.; Burnett, K. Collisional redistribution of circularly polarized light in barium perturbed by argon. Phys. Rev. A 31, 3012 (1985)<br>United States |
| 03409 E | H05:<br>hν + $CH_4$<br>H06:<br>hν + $CH_4$ | 35-52 eV | Dujardin, G.; Winkoun, D.; Leach, S. Double photoionization of methane. Phys. Rev. A 31, 3027 (1985)<br>France |
| 03410 E | H06:<br>2hν + Ba | 2-4 eV | Mullins, O. C.; Chien, R.; Hunter, J. E., III; Jordan, D. K.; Berry, R. S. Electron correlation effects in resonant multiphoton ionization of barium. Phys. Rev. A 31, 3059 (1985)<br>United States |
| 03411 E | E05:<br>e + $Ar^{7+}$; e + $Ar^{8+}$; e + $Ar^{9+}$;<br>e + $Ar^{10+}$; e + $Ar^{11+}$<br>E06:<br>e + $Ar^{7+}$; e + $Ar^{8+}$; e + $Ar^{9+}$;<br>e + $Ar^{10+}$; e + $Ar^{11+}$ | 130-230 eV | Meng, H. C.; Greve, P.; Kunze, H. J.; Schmidt, T. Experimental rate coefficients for dielectronic recombination and ionization of Ar VIII to Ar XII. Phys. Rev. A 31, 3276 (1985)<br>West Germany |
| 03412 T | A17:<br>Be + Be | 0-0.4 eV | Richardson, S. L.; Chou, M. Y.; Cohen, M. L. Ground-state properties of $Be_2$: A pseudopotential local-density approach. Phys. Rev. A 31, 3444 (1985)<br>United States |
| 03413 T | A06:<br>$C^{6+}$ + PERT; $Ne^{10+}$ + PERT;<br>$Ar^{18+}$ + PERT | 1050 MeV/amu | Anholt, R.; Eichler, J. Eikonal calculations of electron capture by relativistic projectiles. Phys. Rev. A 31, 3505 (1985)<br>United States |
| 03414 E | A03:<br>$Ca^{16+}$ + He; $Ca^{17+}$ + He; $Ca^{18+}$ + He;<br>$V^{20+}$ + He<br>A06:<br>$Ca^{16+}$ + He; $Ca^{17+}$ + He; $Ca^{18+}$ + He;<br>$V^{20+}$ + He | 100-460 MeV | Tanis, J. A.; Bernstein, E. M.; Graham, W. G.; Stockli, M. P.; Clark, M.; McFarland, R. H.; Morgan, T. J.; Berkner, K. H.; Schlachter, A. S.; Stearns, J. W. Resonant electron transfer and excitation in two-, three-, and four-electron $^{20}$Ca(sup q)$^+$ and $^{23}$V(sup q)$^+$ ions colliding with helium. Phys. Rev. Lett. 53, 2551 (1984)<br>United States |
| 03415 E | B01:<br>$H^*$ + 2hν | | Bayfield, J. E.; Pinnaduwage, L. A. Diffusion-like aspects of multiphoton absorption in electrically polarized highly excited hydrogen atoms. Phys. Rev. Lett. 54, 313 (1985)<br>United States |
| 03416 E | E05:<br>e + $Sb^+$; e + $Sb^{2+}$; e + $Bi^+$; e + $Bi^{2+}$;<br>e + $Bi^{3+}$ | 15-1000 eV | Muller, A.; Tinschert, K.; Achenbach, C.; Salzborn, E.; Becker, R.; Pindzola, M. S. Collision-strength shift in electron-impact single and double ionization of Sb and Bi ions. Phys. Rev. Lett. 54, 414 (1985)<br>West Germany |
| 03417 E | A03:<br>$Si^{11+}$ + He<br>A06:<br>$Si^{11+}$ + He | 15-94 MeV | Clark, M.; Brandt, D.; Swenson, J. K.; Shafroth, S. M. Nonresonant electron transfer and projectile K-electron excitation in ion-atom collisions. Phys. Rev. Lett. 54, 544 (1985)<br>United States |
| 03418 T | D11:<br>$H_2$ + Cu; HD + Cu | 0-50 meV | Stiles, M. D.; Wilkins, J. W. Sticking probability of $H_2$ and HD on noble-metal surfaces. Phys. Rev. Lett. 54, 595 (1985)<br>United States |
| 03419 E | A03:<br>$C^{6+}$ + H; $N^{7+}$ + H; $O^{8+}$ + H<br>A06:<br>$C^{6+}$ + H; $N^{7+}$ + H; $O^{8+}$ + H | 3-7.5 keV/u | Dijkkamp, D.; Ciric, D.; de Heer, F. J. Total capture and line-emission cross sections for $C^{6+}$, $N^{7+}$, $O^{8+}$ + H collisions in the energy range 3-7.5 keV/u. Phys. Rev. Lett. 54, 1004 (1985)<br>The Netherlands |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03420 T | A03:<br>$H^+ + H$; $Fe^{24+} + He$; $Fe^{24+} + N$;<br>$Fe^{24+} + Ar$<br>A18:<br>$H^+ + H$ | 50-105 keV; 400 MeV | Brendle, B.; Gayet, R.; Rozet, J. P.; Wohrer, K. Application of the Schwinger principle to direct excitation of atoms or ions by impact of bare nuclei at intermediate velocities. Phys. Rev. Lett. 54, 2007 (1985)<br>France |
| 03421 E | A03:<br>$He^+ + Hg$<br>A07:<br>$He^+ + Hg$ | 300 K | Latush, E. L.; Sem, M. F.; Chebotarev, G. D Population-modulation study of the filling of mercury ion levels in a He-Hg discharge. Sov. Phys. J. 27, 429 (1984)<br>Soviet Union |
| 03422 T | D07:<br>He + Pt | 16-160 meV | Poelsema, B.; Verheij, L. K.; Comsa, G. Does the surface temperature influence the cross section of random isolated adsorbates in thermal He scattering? Surf. Sci. 148, 117 (1984)<br>West Germany |
| 03423 T | D07:<br>He + Xe; He + CO | 16-160 meV | Jonsson, H.; Weare, J. H.; Levi, A. C. Light atom scattering from adsorbates at low coverage. Surf. Sci. 148, 126 (1984)<br>United States |
| 03424 T | D07:<br>He + Xe + Ar | Undef | Yinnon, A. T.; Kosloff, R.; Gerber, R. B. Atoms scattering from disordered surfaces: calculations for a model of a Xe + Ar mixed overlayer. Surf. Sci. 148, 148 (1984)<br>Israel |
| 03425 E | D02:<br>$Ar^+ + Ni$; $Ar^+ + Au$ | 5 keV | Morita, K.; Takami, M.; Ohno, H. A new technique of determining sputtering cross-section of impurity atoms on metal surfaces using self-sustaining segregation. Surf. Sci. 148, L677 (1984)<br>Japan |
| 03426 T | D07:<br>Undef | Undef | Gumhalter, B.; Liu, W. K. Scattering of helium atoms from adsorbates: Van der Waals potentials and scattering formalism. Surf. Sci. 148 371 (1984)<br>Canada |
| 03427 T | D02:<br>e + Ar | Undef | Garrison, B. J.; Johnson, R. E. Ejection of atoms from rare-gas solids by low energy cascades. Surf. Sci. 148, 388 (1984)<br>United States |
| 03428 T | D11:<br>He + W; He + Cu | 0-400 K | Boheim, J. Sticking and accommodation of He on metal surfaces at low temperatures. Surf. Sci. 148, 463 (1984)<br>West Germany |
| 03429 E | D02:<br>Ar + [Fe + Cr + Mo] | 4 keV | Hamilton, J. C.; Anderson, R. J. Sputter-induced photon spectroscopy of clean and sulfidized Fe-Cr-Mo single crystal surfaces. Surf. Sci. 149, 81 (1985)<br>United States |
| 03430 T | D11:<br>NO + Pt | 615-1390 K | Asscher, M.; Pollak, E.; Somorjai, G. A. A model for vibrational and translational energy accommodation of NO molecules during scattering from a Pt(111) crystal surface. Surf. Sci. 149, 146 (1985)<br>United States |
| 03431 T | D07:<br>$N_2^+ + Cu$ | 30 keV | Jakas, M. M.; Harrison, D. E., Jr. Computer studies of the reflection of 30 keV $N_2^+$ ions from a (010)Cu surface. Surf. Sci. 149, 500 (1985)<br>United States |
| 03432 E | D02:<br>$Ne^+ + [Ni + Cu]$<br>D17:<br>$Ne^+ + [Ni + Cu]$ | 3 keV | Lam, N. Q.; Hoff, H. A.; Wiedersich, H.; Rehn, L. E. Subsurface compositional modifications in Ni-Cu alloys during high-temperature ion sputtering. Surf. Sci. 149, 517 (1985)<br>United States |
| 03433 T | A07:<br>Li + Ni; O + Al<br>A18:<br>Li + Ni; O + Al | 1-50 MeV | Jakubassa-Amundsen, D. H. The nonadiabatic sliding model and its application to delta-electron emission. Z. Phys. A 320, 557 (1985)<br>West Germany |
| 03434 T | H06:<br>hν + Ar | 400-650 eV | Yudin, N. P.; Pavlitchenkov, A. V.; Neudatchin, V. G. Angular distributions of electrons in the (gamma, 2e) reaction and ee-correlations in the atom. Z. Phys. A 320, 565 (1985)<br>Soviet Union |
| 03435 T | E02:<br>e + He<br>E17:<br>e + He | 1.23-19 eV | Campeanu, R. I. Semiempirical model description of the low energy electron scattering from helium. Z. Phys. A 320, 579 (1985)<br>Romania |
| 03436 E-T | E03:<br>$e + H$; $e + H_2$<br>E04:<br>$e + H_2$<br>E05:<br>$e + H$; $e + H_2$<br>J02:<br>Hydrogen rate coefficients | 0.01-30 eV | Erwin, D. A.; Kunc, J. A. Rate coefficients for some collisional processes in high-current hydrogen discharges. IEEE Trans. Plasma Sci. PS-11, 266 (1983)<br>United States |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03437 T | E03:<br>$e + O^{2+}$ | $10^4$ K | Aggarwal, K. M. Line intensity ratios for transitions in O III. Astron. Astrophys. 146, 149 (1985)<br>United Kingdom |
| 03438 T | H04:<br>$h\nu + C^{2+}$ | Undef | Nasser, R. M.; Varshni, Y. P. Oscillator strengths for C III lines. Astron. Astrophys. Suppl. Ser. 60, 325 (1985)<br>Canada |
| 03439 E-T | J02:<br>Ionization; Recombination | Undef | Arnaud, M.; Rothenflug, R. An update evaluation of recombination and ionization rates. Astron. Astrophys. Suppl. Ser. 60, 425 (1985)<br>France |
| 03440 T | E03:<br>$e + C^{+}$ | $10^3$-$10^5$ K | Lennon, D. J.; Dufton, P. L.; Hibbert, A.; Kingston, A. E. C II emission lines formed in optically thin plasmas. Astrophys. J., Part 1 294, 200 (1985)<br>United Kingdom |
| 03441 T | E03:<br>$e + Ne^{4+}$; $e + Mg^{6+}$ | 2.2-65.0 Ry | Aggarwal, K. M. Collision strengths for optically allowed transitions in Ne V and Mg VII. Astrophys. J. Suppl. Ser. 58, 289 (1985)<br>United Kingdom |
| 03442 E | H05:<br>$2h\nu + H_2O$ | 248 nm | Hodgson, A.; Simons, J. P.; Ashfold, M.N.R.; Bayley, J. M.; Dixon, R. N. Rotational state dependence of the predissociation dynamics in $H_2O$, $D_2O$, ($C\ ^1B_1$ and $B^1A_1$). Ber. Bunsenges. Phys. Chem. 89, 251 (1985)<br>United Kingdom |
| 03443 E | A14:<br>$D + H_2$ | 235-365 K | Wellhausen, U.; Wolfrum, J. Temperature dependence of the reaction $D + H_2(v = 1)$ going to $HD(v = 0,1) + H$. Ber. Bunsenges. Phys. Chem. 89, 314 (1985)<br>West Germany |
| 03444 E | A14:<br>$H + O_2$; $H + CO_2$; $H + H_2O$ | 1.0-2.6 eV | Kleinermanns, K.; Wolfrum, J. Dynamics and absolute cross sections of some hot hydrogen atom reactions. Ber. Bunsenges. Phys. Chem. 89, 316 (1985)<br>West Germany |
| 03445 E | A14:<br>$OH + H_2$ | 295 K | Schmidt, V.; Zhu, G. Y.; Becker, K. H.; Fink, E. H. Study of OH reactions at high pressures by excimer laser photolysis - dye laser fluorescence. Ber. Bunsenges. Phys. Chem. 89, 321 (1985)<br>West Germany |
| 03446 T | D18:<br>H + Ti | 300 K | Mrowietz, M.; Weiss, A. Solubility of hydrogen in titanium alloys. II. Blocking models and hole size considerations. Ber. Bunsenges. Phys. Chem. 89, 362 (1985)<br>West Germany |
| 03447 T | E03:<br>$e + Si^{+}$ | 100-20000 K | Keenan, F. P.; Johnson, C. T.; Kingston, A. E.; Dufton, P. L. Population ratios for the fine structure of Si II applicable to the interstellar medium. Mon. Not. R. Astron. Soc. 214, 37p (1985)<br>United Kingdom |
| 03448 E-T | H06:<br>$h\nu + Al$ | 4 eV | Beterov, I. M.; Ishchenko, V. M.; Kochubei, S. A.; Kurochkin, V. L. Effective formation of aluminium photoions under the radiation from a tunable XeCl* laser. Opt. Commun. 54, 100 (1985)<br>Soviet Union |
| 03449 E | A07:<br>$He^* + Hg$<br>A11:<br>$He^* + Hg$ | 500 K | Kasyanenko, S. V.; Malyshev, G. M.; Tolmachev, Y. A. Quenching of $He(2^1S_0)$ metastable atoms by normal mercury atoms. Opt. Spectrosc. 57, 120 (1985)<br>Soviet Union |
| 03450 E | H02:<br>$h\nu + CO_2$ | 280-930 eV | Sivkov, V. M.; Akimov, V. M.; Vinogradov, A. S.; Zimkina, T. M. Study of the fine structure of K absorption spectra in the $CO_2$ molecule. Opt. Spectrosc. 57, 160 (1985)<br>Soviet Union |
| 03451 E | E03:<br>$e + Cd$ | 3 eV | Gordeev, S. V.; Chirtsov, A. S. Study of transitions between excited states of cadmium atoms in collisions with electrons. Opt. Spectrosc. 57, 246 (1985)<br>Soviet Union |
| 03452 T | H06:<br>$nh\nu + H$; $6h\nu + Kr$ | 0-13.8 eV | Baravian, G.; Sultan, G. Determination of multiphoton ionization cross sections in focused laser experiments. Physica B+C 128, 343 (1985)<br>France |
| 03453 T | A03:<br>$H^* + He$; $H^* + Ne$; $H^* + Ar$; $H^* + Kr$; $H^* + Xe$<br>A11:<br>$H^* + He$; $H^* + Ne$; $H^* + Ar$; $H^* + Kr$; $H^* + Xe$ | Thermal-5 keV | Grozdanov, T. P.; Janev, R. K.; Presnyakov, L. P.; Uskov, D. B. n-changing collisions of Rydberg atoms with ground-state atoms. Phys. Lett. A 109, 93 (1985)<br>Yugoslavia |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03454 E | C04:<br>$H^+$ + Si | 25-250 keV | Hautala, M.; Keinonen, J.; Whitlow, H. J.; Tikkanen, P.; Uhrmacher, M.; Lieb, K. P. Range profiles of 25-250 keV hydrogen in silicon. Phys. Lett. A 109, 344 (1985)<br>Finland |
| 03455 F | A06:<br>$C^{6+}$ + Al; $C^{6+}$ + Cu; $C^{6+}$ + Ta; $C^{6+}$ + Au; $Ne^{10+}$ + Al; $Ne^{10+}$ + Cu; $Ne^{10+}$ + Ta; $Ne^{10+}$ + Au; $Ar^{18+}$ + Al; $Ar^{18+}$ + Cu; $Ar^{18+}$ + Ta; $Ar^{18+}$ + Au<br>C06:<br>$Ne^+$ + PERT; $C^+$ + PERT; $Ar^+$ + PERT<br>C07:<br>$Ne^+$ + PERT; $C^+$ + PERT; $Ar^+$ + PERT | 140-2100 MeV/amu | Anholt, R. Atomic collisions with relativistic heavy ions. II. Light-ion charge states. Phys. Rev. A 31, 3579 (1985)<br>United States |
| 03456 F | A03:<br>Na* + He<br>A18:<br>Na* + He | Undef | de Prunele, E. Orientation effects in thermal collisions between "circular" - Rydberg-state atoms and ground-state helium. Phys. Rev. A 31, 3593 (1985)<br>France |
| 03457 E | A06:<br>$H^+$ + Li; $H^+$ + Na; $H^+$ + Mg; $He^{2+}$ + Li; $He^{2+}$ + Na; $He^{2+}$ + Mg | 2-100 keV | DuBois, R. D.; Toburen, L. H. Electron capture by protons and helium ions from lithium, sodium, and magnesium. Phys. Rev. A 31, 3603 (1985)<br>United States |
| 03458 E | A03:<br>$H^-$ + H; $H^-$ + $H_2$; $H^-$ + Ar; $D^-$ + H; $D^-$ + $H_2$; $D^-$ + Ar<br>A16:<br>$H^-$ + H; $H^-$ + $H_2$; $H^-$ + Ar; $D^-$ + H; $D^-$ + $H_2$; $D^-$ + Ar | 2.8-60 keV/amu | Stone, J. A.; Morgan, T. J. Excitation of highly excited states of atomic hydrogen in electron-detachment collisions of $H^-$ with H, $H_2$, and Ar. Phys. Rev. A 31, 3612 (1985)<br>United States |
| 03459 F | E02:<br>e + $N_2$ | 0-10 eV | Weatherford, C. A.; Onda, K.; Temkin, A. Inclusion of exact exchange in the noniterative partial-differential-equation method of electron-molecule scattering: application to e-$N_2$. Phys. Rev. A 31, 3620 (1985)<br>United States |
| 03460 E | A04:<br>$H_2^+$ + Cs; $H_3^+$ + Cs; $D_2^+$ + Cs; $D_3^+$ + Cs<br>A06:<br>$H^+$ + Cs; $H_2^+$ + Cs; $H_3^+$ + Cs; $D^+$ + Cs; $D_3^+$ + Cs; $N^+$ + Cs; $N_2^+$ + Cs | 50-4000 eV | Bae, Y. K.; Coggiola, M. J.; Peterson, J. R. Charge transfer of 50-eV - 4-keV $H^+$, $H_2^+$, $H_3^+$, $N^+$, and $N_2^+$ in Cs: absolute cross sections. Phys. Rev. A 31, 3627 (1985)<br>United States |
| 03461 F | A06:<br>$H^+$ + C; $H^+$ + N; $H^+$ + O; $H^+$ + Ne; $H^+$ + Ar | 0.1-20 MeV | Saha, G. C.; Datta, S.; Mukherjee, S. C. Electron capture from multielectron atoms by fast ions in the continuum intermediate-state approximation. Phys. Rev. A 31, 3633 (1985)<br>India |
| 03462 F | E03:<br>e + He | 60-300 eV | Srivastava, R.; Kumar, M. Double excitation of helium by electron impact: a distorted-wave polarized-orbital approach. Phys. Rev. A 31, 3639 (1985)<br>India |
| 03463 F | E03:<br>e + $Fe^{24+}$ | $1\times10^7$-$3\times10^7$ K | Faucher, P.; Dubau, J. Effect of resonances on the excitation rates of He-like Fe XXV ion. Phys. Rev. A 31, 3672 (1985)<br>France |
| 03464 E | B07:<br>hν + H*<br>H06:<br>hν + H* | H06: 243 nm | Glab, W. L.; Ng, K.; Yao, D.; Nayfeh, M. H. Spectroscopy between parabolic states in hydrogen: enhancement of the Stark-induced resonances in its photoionization. Phys. Rev. A 31, 3677 (1985)<br>United States |
| 03465 F | H06:<br>hν + PERT | Undef | Manson, S. T. Systematics of zeros in dipole matrix elements for photoionizing transitions: nonrelativistic calculations. Phys. Rev. A 31, 3698 (1985)<br>United States |
| 03466 F | H04:<br>hν + Ca<br>H06:<br>hν + Ca | 7-50 eV | Altun, Z.; Kelly, H. P. Photoionization cross sections with excitation to $Ca^+$ 3d and 4p levels. Phys. Rev. A 31, 3711 (1985)<br>United States |
| 03467 E | H04:<br>hν + Ne* | 1-10 eV | Kroon, J.P.C.; Senhorst, H.A.J.; Beijerinck, H.C.W.; Verhaar, B. J.; Verster, N. F. Rabi oscillations in the optical pumping of a metastable neon beam with a cw dye laser. Phys. Rev. A 31, 3724 (1985)<br>The Netherlands |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03468 E | A04:<br>$He^+ + H_2$<br>A07:<br>$He^+ + H_2$ | 0.025-0.875 MeV/amu | Edwards, A. K.; Wood, R. M.; Ezell, R. L. Double ionization of $H_2$ by fast $He^+$ projectiles. Phys. Rev. A 31, 3972 (1985)<br>United States |
| 03469 E | A16:<br>$Br^- + He$; $Br^- + Ne$; $Br^- + Ar$;<br>$Br^- + Kr$; $Br^- + Xe$ | 10-100 keV | Hird, B.; Abbas, I. A. Cross sections for fast neutral-atom and positive-ion production in collisions of $Br^-$ ions with rare-gas atoms. Phys. Rev. A 31, 3974 (1985)<br>Canada |
| 03470 E | H06:<br>$h\nu + Ti$; $h\nu + Fe$; $h\nu + Ni$; $h\nu + Zn$ | 9-18 keV | Allawadhi, K. L.; Mittal, R.; Sood, B. S. Measured energy dependence of K-shell photoelectric cross sections for Ti, Fe, Ni, and Zn in the energy region 9-18 keV. Phys. Rev. A 31, 3983 (1985)<br>India |
| 03471 T | A06:<br>Undef | Undef | Barrachina, R. O.; Garibotti, C. R.; Miraglia, J. E. Contributions from off-energy-shell states to inner-shell electron capture. Phys. Rev. A 31, 4026 (1985)<br>Argentina |
| 03472 T | A06:<br>Undef | Undef | Macek, J.; Freed, T. Response to "contributions from off-energy-shell states to inner-shell electron capture". Phys. Rev. A 31, 4028 (1985)<br>United States |
| 03473 E | A03:<br>$Si^{13+} + He$<br>A06:<br>$Si^{13+} + He$ | 15-200 MeV | Tanis, J. A.; Bernstein, E. M.; Clark, M. W.; Graham, W. G.; McFarland, R. H.; Morgan, T. J.; Johnson, B. M.; Jones, K. W.; Meron, M. Evidence for uncorrelated electron capture and K-shell excitation in $Si^{13+} + He$ collisions. Phys. Rev. A 31, 4040 (1985)<br>United States |
| 03474 T | E03:<br>$e + Fe^{14+}$ | 200-1400 eV | Christensen, R. B.; Norcross, D. W.; Pradhan, A. K. Electron-impact excitation of ions in the magnesium sequence: Fe XV. Phys. Rev. A 32, 93 (1985)<br>United States |
| 03475 E | C06:<br>$N_2^+ + C$ | 4.2 MeV | Maor, D.; Cooney, P. J.; Faibis, A.; Kanter, E. P.; Koenig, W.; Zabransky, B. J. Charge-state distributions of nitrogen ions resulting from the foil-induced dissociation of 4.2-MeV $N_2^+$ ions. Phys. Rev. A 32, 105 (1985)<br>United States |
| 03476 T | A06:<br>$Ne^{10+}$ + H Seq | 10-$10^5$ MeV/amu | Eichler, J. Relativistic eikonal theory of electron capture. Phys. Rev. A 32, 112 (1985)<br>United States |
| 03477 T | A03:<br>$Li^{3+} + H$<br>A06:<br>$Li^{3+} + H$<br>A17:<br>$Li^{3+} + H$<br>B07:<br>$Li^{3+} + H$ | $10^7$ cm/sec | Ho, T. S.; Laughlin, C.; Chu, S. I. Laser-assisted charge-transfer reactions ($Li^{3+} + H$): coupled dressed-quasimolecular-state approach. Phys. Rev. A 32, 122 (1985)<br>United States |
| 03478 E | A16:<br>$Na^- + He$; $Na^- + Ne$; $Na^- + Ar$;<br>$Na^- + Kr$; $Na^- + Xe$; $K^- + He$; $K^- + Ne$;<br>$K^- + Ar$; $K^- + Kr$; $K^- + Xe$ | 0-200 eV | Scott, D.; Huq, M. S.; Champion, R. L.; Doverspike, L. D. Electron detachment in $Na^-$, $K^-$ -rare-gas collisions. Phys. Rev. A 32, 144 (1985)<br>United States |
| 03479 T | E03:<br>e + Kr<br>E17:<br>e + Kr<br>E19:<br>e + Kr | 20-100 eV | Meneses, G. D.; da Paixao, F. J.; Padial, N. T. Electron-impact excitation of krypton. Phys. Rev. A 32, 156 (1985)<br>Brazil |
| 03480 T | E03:<br>e + H<br>E17:<br>e + H | 54-200 eV | Bransden, B. H.; McCarthy, I. E.; Mitroy, J. D.; Stelbovics, A. T. Extended coupled-channels calculations for electron-hydrogen scattering. Phys. Rev. A 32, 166 (1985)<br>United Kingdom |
| 03481 T | E05:<br>e + Au; e + Cu; e + Ag; e + Ni<br>E17:<br>e + Au; e + Cu; e + Ag; e + Ni | 50-2000 keV | Das, J. N.; Chakraborty, S. Atomic inner-shell ionization. Phys. Rev. A 32, 176 (1985)<br>India |
| 03482 T | E03:<br>$e + H_2$; $e + D_2$<br>E04:<br>$e + H_2$; $e + D_2$<br>E09:<br>$e + H_2$; $e + D_2$ | 1-6 eV | Mundel, C.; Berman, M.; Domcke, W. Nuclear dynamics in resonant electron-molecule scattering beyond the local approximation: vibrational excitation and dissociative attachment in $H_2$ and $D_2$. Phys. Rev. A 32, 181 (1985)<br>West Germany |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03483 E | H02:<br>hν + Yb; hν + Pb; hν + Au; hν + Pt; hν + Zr; hν + Cd; hν + Tm<br>H06:<br>hν + Yb; hν + Pb; hν + Au; hν + Pt; hν + Zr; hν + Cd; hν + Tm | 6.4-59.9 keV | Parthasaradhi, K. Atomic photoelectric effect near threshold edges. Phys. Rev. A 32, 194 (1985)<br>India |
| 03484 T | A07:<br>$H^+$ + He; $H^+$ + Ne | 0.01-10 MeV | Vegh, L. Mean-electric-field approximation to multiple ionization in distant collisions. Phys. Rev. A 32, 199 (1985)<br>Hungary |
| 03485 E | H06:<br>nhν + He; nhν + Ne; nhν + Ar; nhν + Kr; nhν + I; nhν + Xe; nhν + Eu; nhν + Yb; nhν + U; nhν + Hg | 193 nm | Luk, T. S.; Johann, U.; Egger, H.; Pummer, H.; Rhodes, C. K. Collision-free multiple photon ionization of atoms and molecules at 193 nm. Phys. Rev. A 32, 214 (1985)<br>United States |
| 03486 E | H06:<br>hν + Ba | 41000-58200 $cm^{-1}$ | Mullins, O. C.; Zhu, Y.; Gallagher, T. F. Determination of channel interaction in barium for five 5d7d perturbers: the $^1D_2$, $^3F_2$, $^1P_1$, $^3S_1$, and $^3P_0$ states. Phys. Rev. A 32, 243 (1985)<br>United States |
| 03487 T | A03:<br>$Ne^{10+}$ + He; $Ne^{10+}$ + Ne; $Ar^{17+}$ + He<br>A06:<br>$Ne^{10+}$ + He; $Ne^{10+}$ + Ne; $Ar^{17+}$ + He | 7 MeV/amu | Miraglia, J. E.; Garibotti, C. R.; Gonzalez, A. D. Photon spectrum associated with radiative electron-capture processes. Phys. Rev. A 32, 250 (1985)<br>Argentina |
| 03488 T | E03:<br>e + Li | 20-200 eV | Tiwary, S. N. Core excitation of Li by electron impact. Phys. Rev. A 32, 627 (1985)<br>United States |
| 03489 T | C02:<br>$H^+$ + $H_2O$ | 40-10000 keV | Xu, Y. J.; Khandelwal, G. S.; Wilson, J. W. Proton stopping cross sections of liquid water. Phys. Rev. A 32, 629 (1985)<br>United States |
| 03490 T | E02:<br>e + Ar<br>E17:<br>e + Ar | 0-20 eV | Datta, S. K.; Mandal, S. K.; Khan, P.; Ghosh, A. S. Elastic $e^{+-}$ + Ar scattering with the use of the model-potential method. Phys. Rev. A 32, 633 (1985)<br>India |
| 03491 T | A06:<br>$N^+$ + N | 1-200 eV | Stallcop, J. R.; Partridge, H. $N^+$-N long-range interaction energies and resonance charge exchange. Phys. Rev. A 32, 639 (1985)<br>United States |
| 03492 E | A07:<br>Na* + Na* | 0.08-0.29 eV | Wang, M. X.; de Vries, M. S.; Keller, J.; Weiner, J. Direct measurement of the velocity dependence of the associative-ionization cross section in Na(3p) + Na(3p) collisions. Phys. Rev. A 32, 681 (1985)<br>United States |
| 03493 T | H04:<br>hν + H* | Undef | Bardsley, J. N.; Sundaram, B. Microwave absorption by hydrogen atoms in high Rydberg states. Phys. Rev. A 32, 689 (1985)<br>United States |
| 03494 T | A06:<br>$Si^{++}$ + He<br>A07:<br>$Si^{++}$ + He | 1-$10^5$ K | Opradolce, L.; McCarroll, R.; Valiron, P. Charge transfer of $Si^{++}$ with helium. Astron. Astrophys. 148, 229 (1985)<br>Argentina |
| 03495 T | E03:<br>e + S | Undef | Ho, Y. K.; Henry, R.J.W. Oscillator strengths and collision strengths for neutral sulfur. Astrophys. J., Part 1 290, 424 (1985)<br>United States |
| 03496 T | E06:<br>e + $Na^+$; e + $Na^{2+}$; e + $Na^{3+}$; e + $Na^{4+}$; e + $Na^{5+}$; e + $Na^{6+}$; e + $Na^{7+}$; e + $Na^{8+}$; e + $Na^{9+}$; e + $Na^{10+}$ | $10^5$-$10^9$ K | Jacobs, V. L. Dielectronic recombination, ionization equilibrium, and radiative emission in high-temperature plasmas. Astrophys. J., Part 1 296, 121 (1985)<br>United States |
| 03497 T | E03:<br>e + $Mg^{6+}$ | $10^4$-$10^6$ K | Aggarwal, K. M. *Erratum: Collision strengths for optically allowed transitions in Ne V and Mg VII. Astrophys. J. Suppl. Ser. 59, 113 (1985)<br>United Kingdom |
| 03498 E | A11:<br>CO* + $N_2$; CO* + $O_2$; $N_2$* + $O_2$ | 70-300 K | Maricq, M. M.; Gregory, E. A.; Simpson, C.J.S.M. Non-resonant V-V energy transfer between diatomic molecules at low temperatures. Chem. Phys. 95, 43 (1985)<br>United States |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03499 T | A17:<br>$O^* + H_2$ | Undef | Durand, G.; Chapuisat, X. An ab initio description of the excited states of the reaction $O(^3P,^1D) + H_2 \rightarrow OH(^2\pi,^2\Sigma^+) + H$. An attempt to describe several potential energy surfaces with constant accuracy. Chem. Phys. 96, 381 (1985)<br>France |
| 03500 E-T | K03:<br>Dissociation | | Trakhtenberg, L. I.; Milikh, G. M. Dissocation of polyatomic molecules by IR laser radiation. High Energy Chem. 18, 303 (1984)<br>Soviet Union |
| 03501 T | A02:<br>$H^+ + He$; $He + He$<br>A18:<br>$H^+ + He$; $He + He$ | 3-10 meV | Azzam, A. A.; Fawzy, M. A. The polarization of elastic scattering at resonances. Indian J. Phys. A 56, 1 (1982)<br>Egypt |
| 03502 T | A02:<br>$H^+ + Al$<br>A18:<br>$H^+ + Al$<br>E02:<br>$e + He$<br>E17:<br>$e + He$ | 180 MeV; 500 eV | Upadhayaya, S. N. Study of particle scattering in a modified Coulomb field. Indian J. Phys. A 56, 65 (1982)<br>India |
| 03503 T | E03:<br>$e + H$<br>E17:<br>$e + H$ | 15-400 eV | Barmanray, B.; Sur, S. K.; Mukherjee, S. C. Glauber cross sections for arbitary 1s-nf excitation of atomic hydrogen by electron impact. Indian J. Phys. B 56, 75 (1982)<br>India |
| 03504 T | A03:<br>$H^+ + H$; $He^{2+} + H$ | 25-1000 keV | Roy, P. K.; Saha, B. C. Asymptotic cross section for heavy particle impact. Indian J. Phys. B 56, 84 (1982)<br>India |
| 03505 T | A06:<br>$Ar^+ + Ar$ | 1-19 keV | Kundu, S.; Chakrabarty, T.; Karmohapatro, S. B. Symmetric charge exchange cross-section in argon. Indian J. Phys. B 56, 119 (1982)<br>India |
| 03506 T | A06:<br>$H^+ + H$<br>A18:<br>$H^+ + H$ | 25-125 keV | Roy, P. K.; Saha, B. C.; Sil, N. C. Differential cross section for electron capture in p-H collision in small scattering angle region at intermediate energies. Indian J. Phys. B 56, 199 (1982)<br>India |
| 03507 T | A06:<br>PERT + H | 0.05-5 meV | Bhattacharya, S.; Roy, A.; Saha, B. C. Charge-exchange in highly charged ion-atom collisions. Indian J. Phys. B 56, 277 (1982)<br>India |
| 03508 T | A06:<br>$H^- + H$; $Cl^- + Cl$ | 1-20 keV | Kundu, S.; Karmohapatro, S. B. Symmetric charge exchange between negative ions and atoms. Indian J. Phys. B 56, 369 (1982)<br>India |
| 03509 T | E03:<br>$e + He$<br>F17:<br>$e + He$ | 29-200 eV | Bhattacharyya, S. A field-theoretic approach to the differential cross-section for excitation of helium from ground state to 2S singlet state. Indian J. Pure Appl. Phys. 22, 201 (1984)<br>India |
| 03510 T | E03:<br>$e + H_2$<br>E17:<br>$e + H_2$ | 100-400 eV | Joshipura, K. N.; Desai, H. S. Electronic excitation in inelastic $e-H_2$ scattering. Indian J. Pure Appl. Phys. 22, 236 (1984)<br>India |
| 03511 E | E03:<br>$e + Lu$ | 0-250 eV | Krasavin, A. V.; Smirnov, V. M. Cross sections for excitation of the Lutetium atom by electron impact. J. Appl. Spectrosc. 41, 1108 (1984)<br>Soviet Union |
| 03512 E | C02:<br>$e + C$<br>C04:<br>$e + C$ | 50-3000 eV | Martin, C.; Arakawa, E. T.; Callcott, T. A.; Ashley, J. C. Low energy electron attenuation length studies in thin amorphous carbon films. J. Electron. Spectrosc. Relat. Phenom. 35, 307 (1985)<br>United States |
| 03513 E | J02:<br>Ionization | | Leung, K. T.; Brion, C. E. A data summary and bibliography of binary (e-2e) spectroscopic studies. J. Electron. Spectrosc. Relat. Phenom. 35, 327 (1985)<br>Canada |
| 03514 T | H06:<br>$h\nu + H_2$; $h\nu + N_2$; $h\nu + HF$ | 0-100 eV | Kilcoyne, D.A.L.; McCarthy, C. M.; Nordholm, S.; Hush, N. S.; Hilton, P. R. An atomic diffraction theory of molecular photoionization cross sections. J. Electron. Spectrosc. Relat. Phenom. 36, 153 (1985)<br>Australia |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03515 T | H04:<br>hν + He<br>H06:<br>hν + He | 66-133 eV | Salomonson, S.; Carter, S. L.; Kelly, H. P. Calculation of helium photoionisation with excitation to 2s and 2p levels including resonance structure. J. Phys. B 18, L149 (1985)<br>United States |
| 03516 T | H06:<br>nhν + I; nhν + U; nhν + Xe; nhν + Kr; nhν + Ar | Undef | Crance, M. Multiphoton stripping of heavy atoms by UV light: a statistical interpretation. J. Phys. B 18, L155 (1985)<br>France |
| 03517 T | A03:<br>$Cl^{16+}$ + Ar | 2.5-20 MeV | Devdariani, A. Z.; Ostroskii, U. N.; Niehaus, A. Analytical formulae for spectral shapes arising from emission during atom-atom collisions. J. Phys. B 18, L161 (1985)<br>The Netherlands |
| 03518 T | A11:<br>Na* + He; Rb* + He; Rb* + Xe | Thermal | Kaulakys, B. Analytical expressions for cross sections of Rydberg-neutral inelastic collisions. J. Phys. B 18, L167 (1985)<br>Soviet Union |
| 03519 E | E03:<br>e + He | 59.1-60.5 eV | Van der Burgt, P.J.M.; Van Eck, J.; Heideman, H.G.M. A new He-resonance in the excitation of the $(2s2p)^3P$ autoionising state by electrons. J. Phys. B 18, L171 (1985)<br>The Netherlands |
| 03520 S | H04:<br>hν + He | 1.08 μm | Bloch, O.; Trenec, G.; Leduc, M. Isotope shift of the $2^3S_1$-$2^3P$ transition in helium. J. Phys. B 18, 1093 (1985)<br>France |
| 03521 E | H04:<br>hν + W; hν + Hg | 17.8-46.9 keV | Verma, H. R.; Pal, D.; Garg, M. L.; Trehan, P. N. Photon-induced L-shell x-ray intensity ratios for $_{74}$W and $_{80}$Hg in the energy range 17 less than or equal to E less than or equal to 47 keV. J. Phys. B 18, 1133 (1985)<br>India |
| 03522 E | H06:<br>hν + Au<br>H08:<br>hν + Au | 11.5-15.2 keV | Jitschin, W.; Materlik, G.; Werner, U.; Funke, P. Coster-Kronig and fluorescence yields of Au L subshells derived from photoionisation measurements. J. Phys. B 18, 1139 (1985)<br>West Germany |
| 03523 E | A06:<br>$H^+$ + He<br>A07:<br>$H^+$ + He<br>A18:<br>$H^+$ + He | 25-250 keV | Dahl, P. Continuum electron capture by 20-150 keV protons in helium. J. Phys. B 18, 1181 (1985)<br>Denmark |
| 03524 T | A06:<br>$H^+$ + He; $He^{2+}$ + He; $Li^{3+}$ + He | 5-40 keV/amu | Stich, W.; Ludde, H. J.; Dreizler, R. M. TDHF calculations for two-electron systems. J. Phys. B 18, 1195 (1985)<br>West Germany |
| 03525 T | A06:<br>Undef | Undef | Humphries, W. J.; Moiseiwitsch, B. L. Third Born approximation for electron capture at relativistic energies. J. Phys. B 18, 1209 (1985)<br>United Kingdom |
| 03526 T | E02:<br>e + Ar; e + Kr; e + Xe<br>E17:<br>e + Ar; e + Kr; e + Xe | 20-200 eV | Kemper, F.; Rosicky, F.; Feder, R. Relativistic two-channel calculations of the elastic scattering of slow electrons from Ar, Kr, and Xe atoms. J. Phys. B 18, 1223 (1985)<br>West Germany |
| 03527 T | E05:<br>e + He; e + Ne | 33.4 eV | Mizuno, J.; Ishihara, T.; Watanabe, T. Energy exchange between two outgoing electrons in the post-collision interaction process. J. Phys. B 18, 1241 (1985)<br>Japan |
| 03528 T | E03:<br>e + $Fe^{23+}$<br>E05:<br>e + $Fe^{23+}$ | 2.3-8.5 keV | Butler, K.; Moores, D. L. Electron impact ionisation of Fe XXIV ions. J. Phys. B 18, 1247 (1985)<br>United Kingdom |
| 03529 E | E02:<br>e + $C_2H_2$<br>E03:<br>e + $C_2H_2$<br>E17:<br>e + $C_2H_2$ | 0-3.6 eV | Kochem, K. H.; Sohn, W.; Jung, K.; Ehrhardt, H.; Chang, E. S. Direct and resonant vibrational excitation of $C_2H_2$ by electron impact from 0 to 3.6 eV. J. Phys. B 18, 1253 (1985)<br>West Germany |
| 03530 T | H06:<br>hν + Sn; hν + Pb | 40-45 eV | Wilson, M.; Forrest, L. F.; Ross, K. J. A comment on the 4d-shell photoelectron spectrum of Sn. J. Phys. B 18, L185 (1985)<br>United Kingdom |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03531 P | H06:<br>$h\nu$ + Hg | 10.4-14 eV | Bartschat, K.; Scott, P. Photoionisation of mercury. J. Phys. B 18, L191 (1985)<br>United Kingdom |
| 03532 P | A03:<br>$N^{5+*}$ + $H_2$; $N^{5+*}$ + He<br>A06:<br>$N^{5+*}$ + $H_2$; $N^{5+*}$ + He | 3.4 keV/amu | Bordenave-Montesquieu, A.; Benoit-Cattin, P.; Gleizes, A.; Dousson, S.; Hitz, D. One-electron capture into Li-like autoionising $N^{*+}(1s2ln'l')$ configurations by metastable $N^{5+}(1s2s^3S)$ multicharged ions in collision with He and $H_2$, observed by electron spectrometry at 3.4 keV $amu^{-1}$. J. Phys. B 18, L195 (1985)<br>France |
| 03533 E | A04:<br>$He_2^+$ + Ar<br>A06:<br>$He_2^+$ + Ar<br>A08:<br>$He_2^+$ + Ar | 400-800 keV | Haber, D.; Ben-Itzhak, I.; Gertner, I.; Mann, A.; Rosner, B. Formation of $He_2^0$ and $He_2^{2+}$ molecules by charge exchange collisons of $He_2^+$ ions in the subMeV region. J. Phys. B 18, L201 (1985)<br>Israel |
| 03534 P | E03:<br>e + $H_2$ | 25 eV | McConkey, J. W.; Trajmar, S.; Nickel, J. C.; McAdams, R. Rotationally resolved electron-photon coincidence study of $H_2[d^3\pi(sub\ u)]$ excitation. J. Phys. B 18, L207 (1985)<br>United States |
| 03535 P | A12:<br>$H^+$ + H<br>E08:<br>e + H | 1-1.7x10⁴ K | Stehle, C.; Feautrier, N. Stark broadening of the hydrogen Hsub α line at low densities: sine structure and spontaneous emission effects. J. Phys. B 18, 1297 (1985)<br>France |
| 03536 P | H06:<br>$h\nu$ + Ag*; $h\nu$ + Cu* | 0-1.2 Ry | Msezane, A. Z.; Lee, J. Photoionisation of Ag $4d^{10}5d\ ^2D_{1/2}$ and Cu $3d^{10}4d\ ^2D_{1/2}$ states. J. Phys. B 18, 1341 (1985)<br>United States |
| 03537 E | A17:<br>Xe* + Ar; Xe* + Kr; Kr* + Ar | Thermal | Nowak, G.; Fricke, J. The heteronuclear excimers ArKr*, ArXe*, and KrXe*. J. Phys. B 18, 1355 (1985)<br>East Germany |
| 03538 E | H06:<br>$h\nu$ + $N_2$ | 584 A° | Morioka, Y.; Hanada, Y.; Kihara, K.; Hara, S.; Nakamura, M. Rotational intensity distribution of the $N_2$ photoelectron spectrum. J. Phys. B 18, 1369 (1985)<br>Japan |
| 03539 P | H03:<br>$h\nu$ + $CH_4$<br>H06:<br>$h\nu$ + $CH_4$ | 7.25-715 eV | Cacelli, I.; Carravetta, V.; Moccia, R. Transition probability and photoionisation cross section calculation for $CH_4$ and HF by one-centre expansion and Stieltjes technique. J. Phys. B 18, 1375 (1985)<br>Italy |
| 03540 E | A03:<br>$He^+$ + $N_2$; $He^+$ + CO | 200-1000 eV | Dhuicq, D.; Brenot, J. C.; Sidis, V. Vibrational populations of $N_2[B\ ^3\pi(sub\ g)]$ and $CO(a\ ^3\pi)$ produced by $He^+$ impact on $N_2(X)$ and CO(X) in the 200-1000 eV energy range. J. Phys. B 18, 1395 (1985)<br>France |
| 03541 E | E03:<br>e + He<br>E05:<br>e + He | 30-300 eV | Forand, J. L.; Becker, K.; McConkey, J. W. Absolute electron impact emission cross section of the $He^+$ $2^2P-1^2S$ line at 304 A° produced by simultaneous ionisation-excitation. J. Phys. B 18, 1409 (1985)<br>Canada |
| 03542 E | E05:<br>e + $Ni^+$ | 15.5-780 eV | Montague, R. G.; Harrison, M.F.A. A measurement of the cross section for electron impact ionisation of $Ni^+$. J. Phys. B 18, 1419 (1985)<br>United Kingdom |
| 03543 P | F06:<br>e + $Mg^+$; e + $Ca^+$; e + $B^{2+}$; e + $C^{5+}$ | 0.8-12 eV | Geltman, S. Dielectronic recombination as a direct free-bound radiative process. J. Phys. B 18, 1425 (1985)<br>United States |
| 03544 P | A12:<br>$D^+$ + $Ar^{17+}$; $D^+$ + $Br^{34+}$; $D^+$ + $Kr^{35+}$;<br>$D^+$ + $I^{52+}$; $D^+$ + $Xe^{53+}$ | 1-10 keV | Gaisinsky, I. M.; Oks, E. A. A theory for the ion impact broadening of fine-structure sublevels. J. Phys. B 18, 1449 (1985)<br>Soviet Union |
| 03545 E | B07:<br>$h\nu$ + Xe<br>H06:<br>$h\nu$ + Xe | 9.55-10.55 A° | Chin, S. L.; Yergeau, F.; Lavigne, P. Tunnel ionisation of Xe in an ultra-intense $CO_2$ laser field ($10^{14}$ W $cm^{-2}$) with multiple charge creation. J. Phys. B 18, L213 (1985)<br>Canada |
| 03546 E | A07:<br>Na* + Na | Thermal | Zagrebin, S. B.; Samson, A. V. Collisional ionisation of selectively excited sodium in an atomic beam. J. Phys. B 18, L217 (1985)<br>Soviet Union |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03547 E | A11:<br>Cs* + Cs<br>H04:<br>2hν + Cs | 125-180 °C | Sirko, L.; Rosminski, K. Fine-structure mixing in Cs atoms excited to intermediate $nD_{5/2}$ states colliding with ground-state Cs atoms. J. Phys. B 18, L221 (1985)<br>Poland |
| 03548 E | E11:<br>e + Ar | 11.06 eV | Bader, H. Measurement of the free-free cross section of e⁻ + Ar scattering at $\lambda_0$ = 5.3 μm. J. Phys. B 18, L235 (1985)<br>West Germany |
| 03549 E | H04:<br>2hν + K | 631 nm | Glodz, M.; Krainska-Miszczak, M. Hyperfine interaction constants and lifetime of the $6^2D_{2/3}$ and $6^2D_{5/2}$ states of $^{39}$K measured by the quantum beat method. J. Phys. B 18, 1515 (1985)<br>Poland |
| 03550 E | H06:<br>hν + $CH_4$ | 247-293 eV | Asplund, L.; Gelius, U.; Hedman, S.; Helenelund, K.; Siegbahn, K.; Siegbahn, P.E.M. Vibrational structure and lifetime broadening in core-ionised methane. J. Phys. B 18, 1569 (1985)<br>Sweden |
| 03551 T | E06:<br>Undef | Undef | Bell, R. H.; Seaton, M. J. Dielectronic recombination: I. General theory. J. Phys. B 18, 1589 (1985)<br>United Kingdom |
| 03552 T | F06:<br>e + $O^{6+}$ | 0-5.3 eV | Pradhan, A. K.; Seaton, M. J. Dielectronic recombination: II. Effects on cross sections for inelastic collisions between electrons and atomic ions. J. Phys. B 18, 1631 (1985)<br>United States |
| 03553 T | E02:<br>e + H<br>E03:<br>e + H | 54.4-400 eV | Byron, F. W., Jr.; Joachain, C. J.; Potvliege, R. M. Elastic and inelastic scattering of electrons and positrons by atomic hydrogen at intermediate and high energies in the unitrarised eikonal-Born series method. J. Phys. B 18, 1637 (1985)<br>United States |
| 03554 E | H05:<br>hν + $O_2$<br>H06:<br>hν + $O_2$<br>H08:<br>hν + $O_2$ | 680-480 A° | Codling, K.; Frasinski, L. J.; Randall, K. J. Competition between autoionisation and predissociation in the Rydberg series approaching the c ⁴Σ(sub u)⁻ state of $O_2$. J. Phys. B 18, L251 (1985)<br>United Kingdom |
| 03555 E | E03:<br>e + Hg<br>H04:<br>hν + Hg* | 5.25-6.75 eV | Webb, C. J.; MacGillivray, W. R.; Standage, M. C. A stepwise electron and laser excitation study of the $6^3P_2$ metastable state of atomic mercury. J. Phys. B 18, L259 (1985)<br>Australia |
| 03556 E-T | E03:<br>e + Hg<br>H04:<br>hν + Hg* | 579 nm | Webb, C. J.; MacGillivray, W. R.; Standage, M. C. Spectroscopic applications of stepwise electron and laser excitation techniques to transitions of mercury. J. Phys. B 18, 1701 (1985)<br>Australia |
| 03557 E | H06:<br>hν + Mn | 20-110 eV | Malutzki, R.; Banna, M. S.; Braun, W.; Schmidt, V. 3p photoionisation in atomic manganese: 3p angular distribuiton. J. Phys. B 18, 1735 (1985)<br>West Germany |
| 03558 E | A07:<br>He* + Ar; He* + CO; He* + $O_2$;<br>He* + $H_2$; He* + Kr; He* + $CH_4$;<br>He* + $D_2$ | 0.093-2.53 eV | Jerram, P. A.; Smith, A.C.H. Absolute total chemi-ionisation cross sections for collisions of He($2^3S$) atoms with rare-gas atoms and simple molecules. J. Phys. B 18, 1747 (1985)<br>United Kingdom |
| 03559 T | A06:<br>$H^+$ + H<br>A07:<br>$H^+$ + H | 600 keV | Cohen, J. S. Classical phase-space distributions for atomic hydrogen collisions. J. Phys. B 18, 1759 (1985)<br>United States |
| 03560 E | A07:<br>$H^+$ + He; $H_2^+$ + He; $H_3^+$ + He; $D^+$ + He;<br>$D_2^+$ + He; $D_3^+$ + He | 5-30 keV | Tokoro, N.; Oda, N. Energy and angular distributions of ejected electrons for hydrogen-cluster-ion [H(sub n)⁺, D(sub n)⁺, n = 1-3] impacts on helium in the intermediate energy region. J. Phys. B 18, 1771 (1985)<br>Japan |
| 03561 T | A03:<br>$He^{2+}$ + H<br>A06:<br>$He^{2+}$ + H | 0.25-200 keV/amu | Newby, C. W. Charge transfer calculations using switching functions. J. Phys. B 18, 1781 (1985)<br>United Kingdom |
| 03562 E | A03:<br>$Ar^{6+}$ + Ne; $Ar^{6+}$ + Ar; $Ar^{6+}$ + Xe;<br>$Ar^{7+}$ + Ne; $Ar^{7+}$ + Ar; $Ar^{7+}$ + Xe;<br>$Ar^{8+}$ + Ne; $Ar^{8+}$ + Ar; $Ar^{8+}$ + Xe;<br>$Ar^{9+}$ + Ne; $Ar^{9+}$ + Ar; $Ar^{9+}$ + Xe;<br>$Ar^{10+}$ + Ne; $Ar^{10+}$ + Ar; $Ar^{10+}$ + Xe<br>A06:<br>$Ar^{6+}$ + Ne; $Ar^{6+}$ + Ar; $Ar^{6+}$ + Xe;<br>$Ar^{7+}$ + Ne; $Ar^{7+}$ + Ar; $Ar^{7+}$ + Xe;<br>$Ar^{8+}$ + Ne; $Ar^{8+}$ + Ar; $Ar^{8+}$ + Xe;<br>$Ar^{9+}$ + Ne; $Ar^{9+}$ + Ar; $Ar^{9+}$ + Xe;<br>$Ar^{10+}$ + Ne; $Ar^{10+}$ + Ar; $Ar^{10+}$ + Xe | 1 keV | Nielsen, E. H.; Andersen, L. H.; Barany, A.; Cederquist, H.; Heinemeier, J.; Hvelplund, P.; Knudsen, H.; MacAdam, K. B.; Sorensen, J. Energy-gain spectroscopy of state-selective electron capture for multiply charged Ar recoil ions. J. Phys. B 18, 1789 (1985)<br>Denmark |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03563 T | A06:<br>$Ne^{10+}$ + H* | Undef | Janev, R. K.; Nedeljkovic, N. N. Quasi-stationary spectrum of Rydberg atoms in the field of a highly charged ion. J. Phys. B 18, 1809 (1985)<br>United Kingdom |
| 03564 T | E02:<br>e + Ca | 10-500 eV | Khare, S. P.; Kumar, A.; Vijayshri Elastic scattering of electrons and positrons by the Ca atom. J. Phys. B 18, 1827 (1985)<br>India |
| 03565 T | E06:<br>e + He<br>E17:<br>e + He | 25-30 eV | Altick, P. L. Use of a long-range correlation factor in describing triply differential electron impact ionisation cross sections. J. Phys. B 18, 1841 (1985)<br>United States |
| 03566 T | E03:<br>e + Hg | 12-180 eV | Bartschat, K.; Madison, D. H.; Hanne, G. F. Spin polarisation and scattering asymmetry for electron impact excitation of the (6s6p) states of mercury: DWBA treatment. J. Phys. B 18, 1847 (1985)<br>West Germany |
| 03567 T | E04:<br>e + $H_2$; e + $D_2$<br>E09:<br>e + $H_2$; e + $D_2$ | 0.025-4.4 eV | Gauyacq, J. P. Dissociative attachment in $e^-$ + $H_2$ collisions. J. Phys. B 18, 1859 (1985)<br>France |
| 03568 T | B07:<br>hν + H<br>H06:<br>hν + H | 0-4 a.u. | Bhattacharya, S. K.; Chu, S. I. The resonant photoionisation of hydrogen atom in intense magnetic fields. J. Phys. B 18, L275 (1985)<br>United States |
| 03569 E | H06:<br>nhν + Sr | 567-559 nm | Agostini, P.; Petite, G. Double multiphoton ionisation via above-threshold ionisation in strontium atoms. J. Phys. B 18, L281 (1985)<br>France |
| 03570 T | A03:<br>$Fe^{12+}$ + H; $Fe^{13+}$ + H<br>A06:<br>$Fe^{12+}$ + H; $Fe^{13+}$ + H; $Fe^{14+}$ + H; $Fe^{18+}$ + H<br>A07:<br>$Fe^{12+}$ + H; $Fe^{13+}$ + H; $Fe^{14+}$ + H; $Fe^{18+}$ + H<br>A08:<br>$Fe^{12+}$ + H; $Fe^{13+}$ + H; $Fe^{14+}$ + H; $Fe^{18+}$ + H | 10-400 keV/amu | McDowell, M.R.C.; Janev, R. K. Charge exchange and ionisation in collisions of fast partially stripped ions of iron with hydrogen. J. Phys. B 18, L295 (1985)<br>United Kingdom |
| 03571 T | E02:<br>e + K* | 2.4 meV | Matsuzawa, M.; Koyama, N. Effects of ultra-low-energy resonances in the elastic scattering of electrons by alkali-metal atoms in collisions of high-Rydberg atoms with alkali-metal atoms. J. Phys. B 18, L303 (1985)<br>Canada |
| 03572 T | B07:<br>nhν + Xe<br>H06:<br>nhν + Xe | Undef | Edwards, M.; Pan, L.; Armstrong, L., Jr. Model study of above threshold multiphoton ionisation in strong fields. J. Phys. B 18, 1927 (1985)<br>United States |
| 03573 T | A11:<br>Mg* + He | 0.008-0.1 eV | Pouilly, B.; Orlikowski, T.; Alexander, M. H. Fully ab initio dynamics of fine-structure-changing transitions in collisions of Mg(3s3p $^3P$) with He. J. Phys. B 18, 1953 (1985)<br>France |
| 03574 T | A03:<br>$Ne^+$ + Ne | 5-500 keV | Toepfer, A.; Ludde, H. J.; Jacob, B.; Dreizler, R. M. Many-electron aspects in ion-atom collisions: 2p-2s vacancy transfer in the $Ne^+$ + Ne system. J. Phys. B 18, 1969 (1985)<br>West Germany |
| 03575 T | A03:<br>$Na^+$ + Li; $Li^+$ + Na; $Li^+$ + Li; Na + Na<br>A06:<br>$Na^+$ + Li; $Li^+$ + Na; $Li^+$ + Li; Na + Na | 0.06-3 keV/amu | Allan, R. J.; Hanssen, J. Quasimolecular treatment of Na-$Na^+$, Li-$Li^+$, Li-$Na^+$, and Na-$Li^+$ collisions with a common translation factor. J. Phys. B 18, 1981 (1985)<br>West Germany |
| 03576 T | A03:<br>$Na^+$ + $Na^+$<br>A17:<br>$Na^+$ + $Na^+$ | 37.3-460 eV | Allan, R. J.; Behring, A.; Hanssen, J. Alignment and orientation of atomic orbitals in Na(3p) + $Na^+$ interactions. J. Phys. B 18, 1999 (1985)<br>West Germany |
| 03577 E | E17:<br>e + Ar; e + Kr; e + Xe | 17.5-750 eV | Wagenaar, R. W.; de Heer, F. J. Total cross sections for electron scattering from Ar, Kr, and Xe. J. Phys. B 18, 2021 (1985)<br>The Netherlands |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03578 E | E03:<br>e + Hg<br>H06:<br>hν + Hg* | 4-8 eV; 435 A° | Hanne, G. F.; Nickich, V.; Sohn, M. Study of electron impact excitation of metastable mercury states using stepwise electron-photon excitation. J. Phys. B 18, 2037 (1985)<br>West Germany |
| 03579 E | E02:<br>e + CO<br>E03:<br>e + CO<br>E17:<br>e + CO | 0-1.5 eV | Sohn, W.; Kochem, K. H.; Jung, K.; Ehrhardt, H.; Chang, E. S. Electron scattering from CO below resonance energy. J. Phys. B 18, 2049 (1985)<br>West Germany |
| 03580 E | E05:<br>e + CO | 5.8-19.5 eV | Hammond, P.; King, G. C.; Jureta, J.; Read, F. H. The threshold electron spectrum of carbon monoxide. J. Phys. B 18, 2057 (1985)<br>United Kingdom |
| 03581 E | A09:<br>$H^-$ + $H^+$ | 0.8 eV | Jones, W. M. The possible role of $H^-$ ions in populating the n = 3 level in the afterglow of a Z-pinch discharge in hydrogen. J. Phys. B 18, 2105 (1985)<br>United Kingdom |
| 03582 T | E02:<br>e + He | Undef | Oza, D. H. Autoionisation widths of the $^3P^o$ and $^3D$(sup e) doubly excited states of He. J. Phys. B 18, L321 (1985)<br>United States |
| 03583 E | H04:<br>hν + Ba | 21.3-23 eV | Nunnemann, A.; Prescher, T.; Richter, M.; Schmidt, M.; Sonntag, B.; Wetzel, H. E.; Zimmermann, P. VUV photoelectron spectroscopy of laser-excited atomic Ba. J. Phys. B 18, L337 (1985)<br>West Germany |
| 03584 T | H06:<br>2hν + H* | 74000-40 A° | Karule, E. Two-photon ionisation of excited atomic hydrogen at the photoelectric threshold and above. J. Phys. B 18, 2207 (1985)<br>Soviet Union |
| 03585 E | H05:<br>hν + $O_2$ | 700-500 A° | Akahori, T.; Morioka, Y.; Watanabe, M.; Hayaishi, T.; Ito, K.; Nakamura, M. Dissociation processes of $O_2$ in the VUV region 500-700 A°. J. Phys. B 18, 2219 (1985)<br>Japan |
| 03586 T | A17:<br>$H_2^+$; $H_2$; $HHe^+$ | Undef | Miller, A. Upper bounds for the zeroth moment of the potential curve for some simple diatoms. J. Phys. B 18, 2231 (1985)<br>United States |
| 03587 E | A03:<br>$Li^+$ + He<br>A06:<br>$Li^+$ + He | 1-25 keV | Andersen, N.; Andersen, T.; Neitzke, H. P.; Pedersen, E. H. A coherence study of 2p sigma - 2p pi rotational coupling: Li($2^2P$) and He($2^1P$) orientation and alignment in 1-25 keV $Li^+$ + He collisions. J. Phys. B 18, 2247 (1985)<br>Denmark |
| 03588 T | A06:<br>$H^+$ + H | 0.5-200 MeV | Deco, G. R.; Rivarola, R. D. A second-order symmetric eikonal approximation for electron capture at high energies. J. Phys. B 18, 2283 (1985)<br>Argentina |
| 03589 T | A06:<br>$C^{6+}$ + Al; $C^{6+}$ + Cu; $C^{6+}$ + Ag;<br>$Ne^{10+}$ + Al; $Ne^{10+}$ + Cu; $Ne^{10+}$ + Ag;<br>$Ar^{18+}$ + Al; $Ar^{18+}$ + Cu; $Ar^{18+}$ + Ag | 140-1050 MeV/amu | Humphries, W. J.; Moiseiwitsch, B. L. Total cross sections for electron capture at relativistic energies. J. Phys. B 18, 2295 (1985)<br>United Kingdom |
| 03590 E | E02:<br>e + $CH_4$; e + $C_2H_6$<br>E03:<br>e + $CH_4$; e + $C_2H_6$<br>E17:<br>e + $CH_4$; e + $C_2H_6$ | 7.5-20 eV | Curry, P. J.; Newell, W. R.; Smith, A.C.H. Elastic and inelastic scattering of electrons by methane and ethane. J. Phys. B 18, 2303 (1985)<br>United Kingdom |
| 03591 T | H07:<br>hν + $H^-$ | 0.175-0.35 eV | Fink, M.G.J.; Zoller, P. One- and two-photon detachment of negative hydrogen ions: a hyperspherical adiabatic approach. J. Phys. B 18, L373 (1985)<br>Austria |
| 03592 T | A17:<br>Na + K; Na + K* | Undef | Bussery, B.; Aubert-Frecon, M. Calculated long-range coefficients C(sub n) (n = 6,8,10) for the interactions Na(3s) + K(4s) and Na(3s) + K(4p). J. Phys. B 18, L379 (1985)<br>France |
| 03593 T | E17:<br>e + H* | 54.4 eV | Ivanov, G. K.; Golubkov, G. V. A simple version of the multichannel quantum defect analysis of inelastic atomic processes involving molecular Rydberg states. J. Phys. B 18, L383 (1985)<br>Soviet Union |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03594 E | D12:<br>$Ag^{6+}$ + Yb; $Ag^{6+}$ + Ta; $Ag^{6+}$ + W;<br>$Ag^{6+}$ + Pt; $Ag^{6+}$ + Pb; $Ag^{6+}$ + Th | 1 MeV/amu | Uchai, W.; Lapicki, G.; Milner, W. T.; Raman, S.; Rao, P. V.; Vane, C. R. L x-ray emission from high-Z elements after ionisation by 1 MeV $u^{-1}$ Ag ions. J. Phys. B 18, L389 (1985)<br>United States |
| 03595 T | E03:<br>e + $C^{2+}$ | 0.48-3.0 Ry | Berrington, K. A. Electron impact excitation of C III in a twelve-state R-matrix calculation. Effective collision strengths between the n = 2 states. J. Phys. B 18, L395 (1985)<br>United Kingdom |
| 03596 T | H02:<br>hν + Ba | 6.18-6.3x10-4 $cm^{-1}$ | Lane, A. M. Variation in cross section fluctuations arising from a Rydberg series interacting with a broad level. J. Phys. B 18, 2339 (1985)<br>United Kingdom |
| 03597 E-T | H02:<br>hν + Ne<br>H08:<br>hν + Ne | 607 Å | McLean, R. J.; Ballagh, R. J.; Warrington, D. M. Population trapping in the neon $2p_3$-$1s_4$ transition. J. Phys. B 18, 2371 (1985)<br>New Zealand |
| 03598 E | B07:<br>hν + Yb<br>H06:<br>hν + Yb | 398.8 nm | Blondel, C.; Champeau, R. J.; Delsart, C. Photoionisation laser spectroscopy of ytterbium atoms in the presence of a DC electric field. J. Phys. B 18, 2403 (1985)<br>France |
| 03599 E | A03:<br>$H^+$ + Au; $D^+$ + Au; $He^{2+}$ + Au; $H^+$ + Pb; $D^+$ + Pb; $He^{2+}$ + Pb; $H^+$ + U; $D^+$ + U; $He^{2+}$ + U<br>A05:<br>$H^+$ + Au; $D^+$ + Au; $He^{2+}$ + Au; $H^+$ + Pb; $D^+$ + Pb; $He^{2+}$ + Pb; $H^+$ + U; $D^+$ + U; $He^{2+}$ + U | 0.2-0.9 MeV/amu | Jesus, A. P.; Lopes, J. S.; Ribeiro, J. P. L-shell x-ray production cross sections for Au, Pb, and U by proton, deuteron and alpha impact. J. Phys. B 18, 2453 (1985)<br>Portugal |
| 03600 T | A06:<br>Undef | Undef | Dube, L. J.; Eichler, J. Structural and asymptotic properties of the eikonal approximation for electron capture. J. Phys. B 18, 2467 (1985)<br>West Germany |
| 03601 T | A09:<br>$H^+$ + $H^-$ | 8-50 keV | Shingal, R.; Bransden, B. H.; Flower, D. R. Neutralisation in $H^+$ + $H^-$ collisions. J. Phys. B 18, 2485 (1985)<br>United Kingdom |
| 03602 E | A03:<br>$H^+$ + Li<br>A06:<br>$H^+$ + Li | 2-20 keV | Aumayr, F.; Lakits, G.; Husinsky, W.; Winter, H. Inelastic $H^+$ + Li(2s) collisions (2-20 keV): III. Electron capture into the H(2s) subshell. J. Phys. B 18, 2493 (1985)<br>Austria |
| 03603 E | A06:<br>$V^{18+}$ + He; $V^{19+}$ + He; $V^{20+}$ + He; $V^{21+}$ + He; $V^{22+}$ + He; $V^{23+}$ + He<br>A08:<br>$V^{18+}$ + He; $V^{19+}$ + He; $V^{20+}$ + He; $V^{21+}$ + He; $V^{22+}$ + He; $V^{23+}$ + He | 3.5-9.0 MeV/amu | Graham, W. G.; Berkner, K. H.; Bernstein, E. M.; Clark, M.; McFarland, R. H.; Morgan, T. J.; Schlachter, A. S.; Stearns, J. W.; Stockli, M. P.; Tanis, J. A. Charge-state dependence of single-electron-capture and -loss cross sections for highly stripped V ions in He at 8.55 MeV $amu^{-1}$. J. Phys. B 18, 2503 (1985)<br>United Kingdom |
| 03604 T | E02:<br>e + H; e + Na; e + K; e + Li<br>E03:<br>e + H; e + Na; e + K; e + Li<br>E17:<br>e + H; e + Na; e + K; e + Li | 54.4-60 eV | McCarthy, I. E.; Mitroy, J. D.; Stelbovics, A. T. Electron scattering from alkali atoms in the one-electron model. J. Phys. B 18, 2509 (1985)<br>Australia |
| 03605 T | E02:<br>e + Pb<br>E03:<br>e + Pb<br>E07:<br>e + Pb* | 0-7 eV | Bartschat, K. Low-energy scattering of electrons by lead atoms. J. Phys. B 18, 2519 (1985)<br>United Kingdom |
| 03606 E | A17:<br>$H_2$; $H_2^+$<br>E04:<br>e + $H_2$<br>E05:<br>e + $H_2$ | 17-160 eV | Khakoo, M. A.; Srivastava, S. K. The kinetics energy spectrum of protons produced by the dissociative ionisation of $H_2$ by electron impact. J. Phys. B 18, 2525 (1985)<br>United States |
| 03607 E | F05:<br>e + $CO_2$ | 3-20 eV | Cvejanovic, S.; Jureta, J.; Cvejanovic, D. Threshold spectrum of $CO_2$. J. Phys. B 18, 2541 (1985)<br>Yugoslavia |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03608 E | F05:<br>e + Kr; e + Xe<br>F17:<br>e + Kr; e + Xe | 1-3.5 keV | Hahn, U.; Semke, J.; Merz, H.; Kessler, J. Spin polarisation and angular distribution measurement of MNN Auger electrons from krypton and xenon. J. Phys. B 18, L417 (1985)<br>East Germany |
| 03609 T | B07:<br>Undef<br>H06:<br>Undef | Undef | Szoke, A. Interpretation of electron spectra obtained from multiphoton ionisation of atoms in strong fields. J. Phys. B 18, L427 (1985)<br>United States |
| 03610 T | A02:<br>$Ne^+$ + Ne<br>A17:<br>$Ne^+$ + Ne | 15-75 keV | Hartung, H.; Fricke, B.; Stepp, W. D.; Sengler, W.; Kolb, D. Theoretical evidence for quasi-molecular structure at small internuclear distances in elastic ion-atom scattering. J. Phys. B 18, L433 (1985)<br>West Germany |
| 03611 E | A09:<br>$H^+$ + $H^-$; $He^+$ + $H^-$ | 30-3000 keV | Peart, B.; Bennett, M. A.; Dolder, K. New measurements of the mutual neutralisation of $H^+/H^-$ and $He^+/H^-$ ions. J. Phys. B 18, L439 (1985)<br>United Kingdom |
| 03612 E | E02:<br>e + $CH_4$<br>E19:<br>e + $CH_4$ | 0.85-12 eV | Ferch, J.; Granitza, B.; Raith, W. The Ramsauer minimum of methane. J. Phys. B 18, L445 (1985)<br>East Germany |
| 03613 E | E03:<br>e + $H_2$ | 0.4-4.5 eV | Allan, M. Experimental observation of structures in the energy dependence of vibrational excitation in $H_2$ by electron impact in the $^2\Sigma$(sub u)$^+$ resonance region. J. Phys. B 18, L451 (1985)<br>Switzerland |
| 03614 E | F03:<br>e + Yb; e + $Yb^+$<br>F05:<br>e + Yb; e + $Yb^+$ | 8-500 eV | Forrest, L. F.; Pejcev, V.; James, G. K.; Daniell, G. J.; Ross, K. J. An experimental investigation of the ejected-electron spectra arising from autoionising and Auger transitions in Yb I and Yb II excited by electron impact for the range of incident electron energies 8-500 eV. J. Phys. B 18, 2601 (1985)<br>United Kingdom |
| 03615 F | H06:<br>nhν + Na; nhν + K | 308 nm | He, K. X.; Yergeau, F.; Chin, S. L. Observation of multiply charged ions of alkaline atoms by multiphoton ionisation. J. Phys. B 18, 2615 (1985)<br>Canada |
| 03616 E | A16:<br>$H^-$ + Ar; $D^-$ + Ar; $H^-$ + He; $D^-$ + He;<br>$H^-$ + Ne; $D^-$ + Ne; $H^-$ + Kr; $D^-$ + Kr;<br>$H^-$ + Xe; $D^-$ + Xe | 50-250 eV | Hege, U.; Itoh, Y.; Linder, F. Electron detachment in $H^-(D^-)$ collisions with rare-gas atoms: angular distributions of the neutral H(D) atoms. J. Phys. B 18, 2705 (1985)<br>West Germany |
| 03617 E | A03:<br>Li + He; Na + He; K + He; Rb + He;<br>Cs + He | 0.3-600 keV | Kimura, M.; Pascale, J. Excitation process in alakli-atom-He collisions in the keV energy range. J. Phys. B 18, 2719 (1985)<br>France |
| 03618 T | E03:<br>e + H | 54.4-100 eV | Madison, D. H.; Hughes, J. A.; McGinness, D. S. An exact second-order theory and its application to electron-hydrogen excitation. J. Phys. B 18, 2737 (1985)<br>United States |
| 03619 T | E05:<br>Undef | Undef | Peterkop, R.; Liepinsh, A. Plane-wave asymptotic form in the electron-atom ionisation problem. J. Phys. B 18, 2763 (1985)<br>Soviet Union |
| 03620 E | A11:<br>$Ne^*$ + He | 300-400 K | Akoshile, C. O.; Clark, J. D.; Cunningham, A. J. Reactions of excited neon atoms in neon-helium afterglows: I. Rate data. J. Phys. B 18, 2793 (1985)<br>United States |
| 03621 T | E05:<br>e + $B^{2+}$; e + $C^{3+}$ | Undef | LaGattuta, K. J. Multichannel decay and continuum-continuum transitions in above-threshold ionisation. J. Phys. B 18, L467 (1985)<br>United States |
| 03622 E | H06:<br>hν + O | 725-580 A° | Hussein, M.I.A.; Holland, D.M.P.; Codling, K.; Woodruff, P. R.; Ishiguro, E. Photoionisation of atomic oxygen in the wavelength range 725-580 A°. J. Phys. B 18, 2827 (1985)<br>United Kingdom |
| 03623 E | A05:<br>$H^+$ + Cu; $H^+$ + Mo; $H^+$ + Cd | 59.54 keV | Casnati, E.; Tartari, A.; Baraldi, C.; Napoli, G. Measurement of the K sub β/K sub α yield ratios of Cu, Mo and Cd stimulated by 59.54 keV protons. J. Phys. B 18, 2843 (1985)<br>Italy |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03624 E | A03:<br>$Xe^* + Xe$; $Kr^* + Kr$; $Ar^* + Ar$;<br>$He^{2*} + Xe$ | Thermal | Nowak, G.; Frey, L.; Fricke, J. $Ar_2^*$, $Kr_2^*$, and $Xe_2^*$ excimer formation from metastable and α-particle impact on solid rare-gas layers. J. Phys. B 18, 2851 (1985)<br>West Germany |
| 03625 T | A12:<br>Cs + He<br>A17:<br>Cs + He | Undef | Visticot, J. P.; Pascale, J.; Sayer, B. Far wings of the 6sZ-5dA and 6sZ-7sZ transitions in Cs-He: influence of non-adiabatic effects. J. Phys. B 18, 2861 (1985)<br>France |
| 03626 E | A05:<br>$H^+ + Dy$; $H^+ + Yb$; $H^+ + d$; $H^+ + Au$;<br>$H^+ + Pb$; $H^+ + Bi$; $H^+ + Th$; $H^+ + U$<br>A07:<br>$H^+ + Dy$; $H^+ + Yb$; $H^+ + d$; $H^+ + Au$;<br>$H^+ + Pb$; $H^+ + Bi$; $H^+ + Th$; $H^+ + U$<br>B12:<br>$H^+ + Dy$; $H^+ + Yb$; $H^+ + d$; $H^+ + Au$;<br>$H^+ + Pb$; $H^+ + Bi$; $H^+ + Th$; $H^+ + U$ | 1-3 MeV | Sokhi, R. S.; Crumpton, D. L-shell ionisation of medium and heavy elements by 1-3 MeV incident protons. J. Phys. B 18, 2871 (1985)<br>United Kingdom |
| 03627 T | A03:<br>Undef<br>A06:<br>Undef | 1.14 MeV | Crothers, D.S.F. First-order continuum-distorted-wave double-scattering nlm transitions. J. Phys. B 18, 2879 (1985)<br>United Kingdom |
| 03628 T | A03:<br>$H^+ + H$; $C^{6+} + H$; $Be^{++} + H$<br>A06:<br>$H^+ + H$; $C^{6+} + H$; $Be^{++} + H$ | Undef | Crothers, D.S.F. Second-order continuum-distorted-wave double-scattering nlm transitions. J. Phys. B 18, 2893 (1985)<br>A03; A06; United Kingdom |
| 03629 T | A06:<br>$H^+ + H$<br>A18:<br>$H^+ + H$ | 25-60 keV | Crothers, D.S.F.; McCann, J. F. Exact two-channel variational continuum-distorted-wave theory: results for symmetric resonant exchange. J. Phys. B 18, 2907 (1985)<br>United Kingdom |
| 03630 T | E02:<br>$e + He$; $e + H_2$ | 50-1000 eV | Khare, S. P.; Lata, K. Elastic scattering of electrons and positrons by the helium atom and the hydrogen molecule at intermediate energies. J. Phys. B 18, 2941 (1985)<br>India |
| 03631 E | E05:<br>e + He<br>E17:<br>e + He | 600 eV | Jung, K.; Muller-Fiedler, R.; Schlemmer, P.; Ehrhardt, H.; Klar, H. Absolute triple differential cross sections of electron impact ionisation of helium at 600 eV collision energy. J. Phys. B 18, 2955 (1985)<br>West Germany |
| 03632 T | E03:<br>e + Ne<br>E07:<br>$e + Ne^*$ | 38 eV | Taylor, K. T.; Clark, C. W.; Fon, W. C. Electron scattering by neon in resonance regions. J. Phys. B 18, 2967 (1985)<br>United Kingdom |
| 03633 T | E03:<br>$e + Mg^{10+}$ | $4x10^4$-$4x10^7$ K | Tayal, S. S.; Kingston, A. E. Electron collisional excitation of semi-forbidden transitions from the n = 1 and n = 2 states to the n = 3 states in Mg XI. J. Phys. B 18, 2983 (1985)<br>United Kingdom |
| 03634 E | F05:<br>$e + Ar^+$ | 17.4-120 eV | Muller, A.; Huber, K.; Tinschert, K.; Becker, R.; Salzborn, E. An improved crossed-beams technique for the measurement of absolute cross sections for electron impact ionisation of ions and its application to $Ar^+$ ions. J. Phys. B 18, 2993 (1985)<br>West Germany |
| 03635 E | F05:<br>$e + Ar^+$; $e + Ar^{++}$ | 57.5-325 eV | Muller, A.; Tinschert, K.; Achenbach, C.; Becker, R.; Salzborn, E. Electron impact double ionisation of $Ar^+$ and $Ar^{++}$ ions. J. Phys. B 18, 3011 (1985)<br>West Germany |
| 03636 E | H04:<br>$2h\nu + Ba$ | 470-283 nm | Camus, P.; Pillet, P.; Boulmer, J. Spectroscopic studies of 9dn'd doubly excited autoionising states of neutral barium. J. Phys. B 18, L481 (1985)<br>France |
| 03637 T | H06:<br>$h\nu + Ar$ | 159-100 eV | Tulkki, J.; Aberg, T. Near-threshold K-shell photoionisation in argon. J. Phys. B 18, L489 (1985)<br>Finland |
| 03638 T | H06:<br>$nh\nu + Ca$ | 564.6 nm | Cromer, C. L.; Clark, C. W. Resonant structure in multiphoton ionisation of calcium. J. Phys. B 18, L497 (1985)<br>United States |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03639 E | H06:<br>$5h\nu + H_2$ | 3860 A° | Cornaggia, C.; Morellec, J.; Normand, D. Resonant multiphoton ionisation-dissociation of $H_2$. J. Phys. B 18, L501 (1985)<br>France |
| 03640 E | A08:<br>$S^{10+} + C$; $S^{11+} + C$; $S^{12+} + C$;<br>$S^{13+} + C$; $S^{14+} + C$; $S^{15+} + C$;<br>$S^{16+} + C$<br>C06:<br>$S^{16+} + C$ | 125 MeV | Schramm, R.; Koschar, P.; Betz, H. D.; Burkhard, M.; Kemmler, J.; Heil, O.; Groemeveld, K. O. Charge state dependence of convoy-electron yields in fast ion-foil interaction. J. Phys. B 18, L507 (1985)<br>West Germany |
| 03641 E | A06:<br>Na + Cl | 1.52-10 eV | Wang, D. P.; Tang, S. Y.; Weynaber, R. H. Ion pair production in collisions of Na and Cl. J. Phys. B 18, L513 (1985)<br>United States |
| 03642 E-T | A02:<br>$He + N_2$; $He + O_2$<br>A18:<br>$He + N_2$; $He + O_2$ | 27 meV(c.m.) | Gianturco, F. A.; Palma, A. Angular distribution for $He-N_2$ and $He-O_2$ collisions at 27 meV: a comparison with experiments. J. Phys. B 18, L519 (1985)<br>Italy |
| 03643 T | A09:<br>Undef | Undef | Flannery, M. R. Ion-ion recombination at high ion density. J. Phys. B 18, L531 (1985)<br>United States |
| 03644 E | D12:<br>$H^+ + Co$; $H^+ + Ni$; $H^+ + Cu$; $H^+ + Zn$ | 0.06-2.4 MeV | Werner, U.; Jitschin, W.; Lutz, H. O. Polarisation of the proton-induced L x-radiation in 3d transition elements. J. Phys. B 18, 3111 (1985)<br>East Germany |
| 03645 E | E03:<br>e + Sn<br>E05:<br>e + Sn | 20-1000 eV | Forrest, L. F.; James, G. K.; Ross, K. J.; Wilson, M.; Pantinakis, A. An experimental and theoretical study of the ejected-electron spectrum of Sn I and Sn II autoionising levels between 0 and 20 eV resulting from 20-1000 eV electron impact excitation. J. Phys. B 18, 3123 (1985)<br>United Kingdom |
| 03646 T | B07:<br>$h\nu + Na$<br>H06:<br>$h\nu + Na$ | 409-414 nm | Lecomte, J. M.; Luc-Koenig, E. Continuum state mixing induced by the weak magnetic field of the earth in the photoionisation Stark spectra of sodium. J. Phys. B 18, 3139 (1985)<br>France |
| 03647 T | B07:<br>$e + h\nu + Ar$<br>E02:<br>e + Ar<br>E11:<br>e + Ar | Undef | Bivona, S.; Burlon, R.; Zangara, R.; Ferrante, G. Electron scattering in strong laser fields. Theoretical models versus recent experiments. J. Phys. B 18, 3149 (1985)<br>Italy |
| 03648 E | D05:<br>$h\nu + Y$; $h\nu + Ce$; $h\nu + Dy$; $h\nu + Yb$ | 279-661 keV | Manna, A. M.; Visweswara Rao, V. Photoelectric cross sections of 279 and 661 keV gamma rays in Y, Ce, Dy, and Yb. J. Phys. B 18, 3161 (1985)<br>India |
| 03649 T | A17:<br>H + Xe | Undef | Picart, J.; Avrillier, S.; Tran Minh, N. Low-energy shape resonances in Lennard-Jones potentials. J. Phys. B 18, 3167 (1985)<br>France |
| 03650 E | A11:<br>Rb* + K* | 500 K | Cheron, B.; Mosaddak, S. Collisions between excited potassium and rubidium atoms. J. Phys. B 18, 3197 (1985)<br>France |
| 03651 T | E05:<br>e + H<br>E17:<br>e + H | 250 eV | Byron, F. W., Jr.; Joachain, C. J.; Piraux, B. Eikonal-Born series theory of (e, 2e) reactions in atomic hydrogen. J. Phys. B 18, 3203 (1985)<br>United States |
| 03652 T | E06:<br>$e + Mg^+$ | 3.4-5 eV | Hickman, A. P. Dielectronic recombination on $Mg^+$. J. Phys. B 18, 3219 (1985)<br>United States |
| 03653 E-T | A03:<br>$Al^{7+} + H_2$<br>A06:<br>$Al^{7+} + H_2$ | 2.6 keV/amu | Mayo, M.; Hitz, D.; Dousson, S.; Desclaux, J. P.; Bliman, S.; Druetta, M. Charge-exchange-collision-based spectroscopy of Al VII. J. Phys. B 18, L539 (1985)<br>France |
| 03654 T | H06:<br>$h\nu + Ar$; $h\nu + Xe$ | 68.1-269 eV | Kuchiev, M. Y.; Sheinerman, S. A. The post collision interaction in the inner-shell photoionisation of Ar and Xe. J. Phys. B 18, L551 (1985)<br>Soviet Union |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03655 T | A05:<br>Undef | Undef | Amus'ya, M. Y.; Ivanov, V. K.; Kharchgenko, V. A. Electron spin co-orientation in adiabatic atomic collisions. J. Phys. B 18, L563 (1985)<br>Soviet Union |
| 03656 T | A06:<br>$H^+ + H$; $H^+ + B^{++}$ | 1-5 MeV | McCann, J. F. Continuum distorted-wave theory of relativistic electron capture. J. Phys. B 18, L569 (1985)<br>United Kingdom |
| 03657 T | A03:<br>Undef<br>A06:<br>Undef | Undef | Feagin, J. M. Vacancy production and decay in transfer-excitation collisons. J. Phys. B 18, L575 (1985)<br>United States |
| 03658 T | E02:<br>e + He | 0-163 eV | Kuchiev, M. Y. The power-type singularity in the electron-atom scattering amplitude. J. Phys. B 18, L579 (1985)<br>Soviet Union |
| 03659 T | E03:<br>e + H | 100-350 eV | Potvliege, R. M.; Joachain, C. J. Coherent electron impact excitation of the n = 2 states of atomic hydrogen at intermediate energies. J. Phys. B 18, L585 (1985)<br>Belgium |
| 03660 E | E03:<br>e + Kr | 60 eV | King, S. J.; Neill, P. A.; Crowe, A. Electron impact excitation of the lowest-lying excited states of krypton. J. Phys. B 18, L589 (1985)<br>United Kingdom |
| 03661 E | E03:<br>e + Kr | 40-80 eV | Danjo, A.; Koike, T.; Kani, K.; Sugahara, H.; Takahashi, A.; Nishimura, H. Electron-photon angular correlations for the excitation of krypton by electron impact. J. Phys. B 18, L595 (1985)<br>Japan |
| 03662 T | E03:<br>e + $Si^{13+}$; e + $Ca^{19+}$; e + $Fe^{25+}$; e + $Kr^{35+}$<br>E05:<br>e + $Si^{13+}$; e + $Ca^{19+}$; e + $Fe^{25+}$; e + $Kr^{35+}$<br>E06:<br>e + $Si^{13+}$; e + $Ca^{19+}$; e + $Fe^{25+}$; e + $Kr^{35+}$ | 0.0011-6.6x10 $^{8}$ K | Ljepojevic, N. N.; McWhirter, R. W. P.; Volonte, S. The spectral intensities from hydrogen-like ions II. J. Phys. B 18, 3285 (1985)<br>Yugoslavia |
| 03663 T | A03:<br>$H^+ + Mg^{11+}$; $H^+ + C^{5+}$; $H^+ + He^+$<br>A05:<br>$H^+ + Mg^{11+}$; $H^+ + C^{5+}$; $H^+ + He^+$<br>E03:<br>e + $Mg^{11+}$; e + $C^{5+}$; e + $He^+$<br>E05:<br>e + $Mg^{11+}$; e + $C^{5+}$; e + $He^+$ | 0.013-1.14x 10$^{7}$ K | Tallents, G. J. The relative intensities of hydrogen-like fine structure emitted from recombining and steady-state plasmas. J. Phys. B 18, 3299 (1985)<br>Australia |
| 03664 T | H04:<br>$2h\nu + H_2O$ | 0-0.2 a.u. | Moccia, R.; Rizzo, A. Two-photon transition probability calculations: electronic transition in the water molecule. J. Phys. B 18, 3319 (1985)<br>Italy |
| 03665 T | B07:<br>e + H + $h\nu$<br>E02:<br>e + H | 54.4-100 eV | Mandal, S. K.; Basu, M.; Majumdar, P. S.; Ghosh, A. S. Laser-asisted electron-atom collisions including the exchange effect. J. Phys. B 18, 3339 (1985)<br>India |
| 03666 E | E02:<br>e + $CH_4$<br>E17:<br>e + $CH_4$ | 5-400 eV | Floeder, K.; Fromme, D.; Raith, W.; Schwab, A.; Sinapius, G. Total cross section measurements for positron and electron scattering on hydrocarbons between 5 and 400 eV. J. Phys. B 18, 3347 (1985)<br>West Germany |
| 03667 T | B07:<br>$h\nu$ + e | | Varro, S.; Ehlotzky, F. Classical limit of Compton scattering and electron scattering in external fields. J. Phys. B 18, 3395 (1985)<br>Hungary |
| 03668 T | A03:<br>Li + Na | 3-40 keV(c.m.) | Kimura, M.; Olson, R. E. Li(2s → 2p) and Na(3s → 3p) excitation in Li-Na collisions. J. Phys. B 18, L617 (1985)<br>United States |
| 03669 E | D08:<br>$Ne^{6+}$ + W; $Ne^{9+}$ + W; $Ne^{+}$ + W; $Ne^{2+}$ + W; $Ne^{3+}$ + W; $Ne^{4+}$ + W; $Ne^{5+}$ + W; $Ne^{6+}$ + W; $Ne^{7+}$ + W; $Ar^{+}$ + W; $Ar^{2+}$ + W; $Ar^{3+}$ + W; $Ar^{4+}$ + W; $Ar^{5+}$ + W; $Ar^{6+}$ + W; $Ar^{7+}$ + W; $Ar^{8+}$ + W; $Ar^{9+}$ + W; $Ar^{10+}$ + W; $Ar^{11+}$ + W; $Kr^{6+}$ + W; $Kr^{7+}$ + W; $Kr^{8+}$ + W; $Kr^{9+}$ + W; $Kr^{10+}$ + W; $Kr^{11+}$ + W | 20 keV | de Zwart, S. T.; Fried, T.; Jellen, U.; Boers, A. L.; Drentje, A. G. Charge distribution of multiply charged ions scattered from tungsten. J. Phys. B 18, L623 (1985)<br>The Netherlands |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03670 T | F02:<br>e + $H_2$<br>F03:<br>e + $H_2$<br>F17:<br>e + $H_2$ | 20-81.6 eV | Mu-Tao, L.; Botelho, L.P.C.; Freitas, L.C.G. Vibrationally elastic and inelastic (0 → 1) scattering of electrons by $H_2$ - a coherent renormalised multicentre potential model approach. J. Phys. B 18, L633 (1985)<br>Brazil |
| 03671 E | H04:<br>hν + Tl | 1220-796 A° | Baig, M. A.; Connerade, J. P. New high-resolution study of the 6s subshell spectrum of Tl I. J. Phys. B 18, 3487 (1985)<br>West Germany |
| 03672 T | A12:<br>H + Na | 5000-9000 K | Monteiro, T. S.; Dickinson, A. S.; Lewis, E. L. The broadening and shift of the sodium D lines due to collsions with atomic hydrogen. J. Phys. B 18, 3499 (1985)<br>United Kingdom |
| 03673 T | H07:<br>2hν + $H^-$; hν + $H^-$ | 0.8-2.7 eV | Crance, M.; Aymar, M. Two-photon detachment of $H^-$. A model calculation. J. Phys. B 18, 3529 (1985)<br>France |
| 03674 T | H04:<br>hν + Be<br>H06:<br>hν + Be* | 1300-950 A° | Moccia, R.; Spizzo, P. One-photon transition probabilities and photoionisation cross section calculations of Be. J. Phys. B 18, 3537 (1985)<br>Italy |
| 03675 T | H02:<br>2hν + Be<br>H04:<br>2hν + Be | 0.0.234 a.u. | Moccia, R.; Spizzo, P. Two-photon transition probabilities and photoionisation cross section calculations of Be. J. Phys. B 18, 3555 (1985)<br>Italy |
| 03676 T | H06:<br>hν + Na | 38-140 eV | Craig, B. I.; Larkins, F. P. Photoionisation calculations for the 2p subshell of atomic sodium. J. Phys. B 18, 3569 (1985)<br>Australia |
| 03677 T | H06:<br>hν + Hg | 18-70 eV | Keller, P.; Combet Farnoux, F. Characteristic features of spin polarisation for outer subshells of mercury. J. Phys. B 18, 3581 (1985)<br>France |
| 03678 T | A03:<br>$H^+$ + PERT; $He^+$ + PERT<br>A05:<br>$H^+$ + PERT; $He^+$ + PERT<br>A07:<br>$H^+$ + PERT; $He^+$ + PERT | 0.2-10 MeV | Cohen, D. D. Theoretical calculations of the Datz technique for the $2s_{1/2}$ subshell ionisation cross sections from the L (sub gamma 1), L(sub gamma 236), and L(sub gamma 44) x-ray lines. J. Phys. B 18, 3607 (1985)<br>Australia |
| 03679 E | A03:<br>$He^+$ + Cd; $He^{+*}$ + Cd<br>A06:<br>$He^+$ + Cd; $He^{+*}$ + Cd<br>A07:<br>$He^{+*}$ + Cd; $He^{+*}$ + $N_2$ | Thermal | Baltayan, P.; Pebay-Peyroula, J. C.; Sadeghi, N. Determination of the rate constants for populations of the individual $Cd^{+*}$ levels in thermal Penning and charge transfer reactions of $He^*(2^3S_1)$ and $He^+$ with cadmium. J. Phys. B 18, 3615 (1985)<br>France |
| 03680 E | A03:<br>$C^{3+}$ + H; $C^{3+}$ + $H_2$<br>A06:<br>$C^{3+}$ + H; $C^{3+}$ + $H_2$ | 0.7-4.6 keV/amu | Ciric, D.; Brazuk, A.; Dijkkamp, D.; de Heer, F. J.; Winter, H. State-selective electron capture in $C^{3+}$-H, $H_2$ collisions (0.7-4.6 keV $amu^{-1}$) studied by photon spectroscopy. J. Phys. B 18, 3639 (1985)<br>The Netherlands |
| 03681 E | F03:<br>e + Ne | 17-500 eV | Teubner, P.J.O.; Riley, J. L.; Tonkin, M. C.; Furst, J. E.; Buckman, S. J. Total cross sections for the production of metastable neon atoms by electron impact. J. Phys. B 18, 3641 (1985)<br>Australia |
| 03682 T | C04:<br>$As^+$ + Si; $As^+$ + Ge; $As^+$ + SiN;<br>$Sb^+$ + Si; $Sb^+$ + Ge; $Sb^+$ + SiN;<br>$Bi^+$ + Si; $Bi^+$ + Ge; $Bi^+$ + SiN;<br>$P^+$ + Si; $P^+$ + Ge; $P^+$ + SiN | Undef | Moulavi-Kakhki, M.; Ashworth, D. G. Calculation of projected range distributions of implanted ions in multilayer multi-element substrates. J. Phys. C 18, 1135 (1985)<br>United Kingdom |
| 03683 T | A14:<br>H + $D_2$ | 0.55-1.3 eV | Blais, N. C.; Berstein, R. B.; Levine, R. D. Orientation dependence of the H + $D_2$ reaction cross section: steric model vs. trajectory calculations. J. Phys. Chem. 89, 10 (1985)<br>United States |
| 03684 T | A17:<br>He + $H_2$ | Undef | Seaff, U. E.; Burton, P. G. An ab-initio study of the isotropic and anisotropic potential energy surfaces of the He-$H_2$ interaction. J. Phys. Chem. 89, 797 (1985)<br>Australia |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03685 T | A14:<br>$H + H_2$; $D + H_2$ | 297-356 K | Garrett, B. C.; Truhlar, D. G. Generalized transition states theory and least-action tunneling calculations for the reaction rates of $H(D) + H_2(n = 1) \rightarrow H_2(HD) + H$. J. Phys. Chem. 89, 2204 (1985)<br>United States |
| 03686 T | A14:<br>$H_2^+ + H_2$ | 0.11-0.93 eV | Baker, C. W.; Schatz, G. C. A quasiclassical trajectory study of the $H_2^+ + H_2 \rightarrow H_3^+ + H$ reaction. J. Phys. Chem. 89, 2612 (1985)<br>United States |
| 03687 T | A17:<br>$Mg + H_2$ | Undef | Chaquin, P.; Sevin, A.; Yu, H. Triplet vs. singlet reactivity of $3s^13p^1$ states of Mg on $H_2$: a theoretical ab initio SCF-CL investigation. J. Phys. Chem. 89, 2813 (1985)<br>France |
| 03688 E | A07:<br>$He^* + N_2$<br>A11:<br>$He^* + N_2$<br>A17:<br>$He^* + N_2$ | 25 meV | Tuffin, F.; LeNadan, A.; Peresse, J. Angular distribution of ejected electrons in Penning ionization of molecular nitrogen by helium metastable states $2^1S$ and $2^3S$. J. Phys. (Paris) 46, 181 (1985)<br>France |
| 03689 E-T | A06:<br>$H^+ + Kr$ | 2-3 MeV | Andriamonje, S.; Chemin, J. F.; Roturier, J.; Saboya, B.; Scheurer, J. N.; Belkic, D.; Gayet, R.; Salin, A.; Laurent, H.; Schapira, J. P. Electron capture from the krypton M-shell by MeV protons. J. Phys. (Paris) 46, 349 (1985)<br>France |
| 03690 E-T | A03:<br>$C^{4+} + H$; $N^{5+} + H$; $O^{6+} + H$<br>A06:<br>$N^{5+} + H$; $N^{6+} + H$; $N^{7+} + H$; $O^{5+} + H$; $O^{6+} + H$; $O^{7+} + H$; $O^{8+} + H$; $Ne^{6+} + H$; $Ne^{7+} + H$; $Ne^{8+} + H$; $Ne^{9+} + H$; $Ne^{10+} + H$; $B^{5+} + H$; $C^{6+} + H$; $C^{4+} + H$; $F^{9+} + H$ | 0.25-50 keV/amu | Bendahman, M.; Bliman, S.; Dousson, S.; Hitz, D.; Gayet, R.; Hanssen, J.; Harel, C.; Salin, A. Electron capture from atomic hydrogen by multiply charged ions in low energy collisions. J. Phys. (Paris) 46, 561 (1985)<br>France |
| 03691 T | A17:<br>$Li^{2+} + H$ | Undef | Errea, L. F.; Mendez, L.; Riera, A.; Yanez, M.; Hanssen, J.; Harel, C.; Salin, A. The $LiH^{2+}$ quasimolecule. A comparison between the configuration interaction and the OEDM approaches. J. Phys. (Paris) 46, 709 (1985)<br>Spain |
| 03692 E-T | A06:<br>$Li^{2+} + H$ | 0.5-25 keV/amu | Ferrea, L. F.; Mendez, L.; Riera, A.; Yanez, M.; Hanssen, J.; Harel, C.; Salin, A. Charge exchange in $Li^{2+}(1s) + H(1s)$ collisions. A molecular approach including two-electron translation factors. J. Phys. (Paris) 46, 719 (1985)<br>Spain |
| 03693 E | D13:<br>$H^+ + Ti$ | 667 eV | Bastasz, R. Determination of hydrogen concentration profiles in titanium using SIMS. J. Vac. Sci. Technol. A 3, 1363 (1985)<br>United States |
| 03694 T | E03:<br>$e + Ne^+$ | Threshold | Bayes, F. A.; Saraph, H. E.; Seaton, M. J. Collision strength for the [Ne II] line at 12.8μm. Mon. Not. R. Astron. Soc. 215, 95p (1985)<br>United Kingdom |
| 03695 T | C02:<br>$e + Si$; $e + H_2O$<br>C05:<br>$e + Si$; $e + H_2O$ | $10^{-2}$-20 MeV | Rogers, D.W.O. Low energy electron transport with EGS. Nucl. Instrum. Methods Phys. Res. A 227, 535 (1984)<br>Canada |
| 03696 E | C04:<br>$B^+ + Si$; $Au^+ + Si$ | 10-390 keV | Behar, M.; Fichtner, P. F.; Olivieri, C. A.; de Souza, J. P.; Zawislak, F. C.; Biersack, J. P. Range profiles of implanted Bi and Au in amorphous silicon. Nucl. Instrum. Methods Phys. Res. B 6, 453 (1985)<br>West Germany |
| 03697 E | D02:<br>$Ar^+ + Cu$; $Ar^+ + Pt$; $Ar^+ + Ge$ | 1.25-320 keV | Andersen, H. H.; Stenum, B.; Sorensen, T.; Whitlow, H. J. Angular distribution of particles sputtered from Cu, Pt, and Ge targets by keV $Ar^+$ ion bombardment. Nucl. Instrum. Methods Phys. Res. B 6, 459 (1985)<br>Denmark |
| 03698 T | D02:<br>$Ar^+ + Ge$ | 1.25-320 keV | Hautala, M.; Whitlow, H. J. Momentum and recoil-flux anisotropies in collision cascades: influence on sputtered particle angular distributions. Nucl. Instrum. Methods Phys. Res. B 6, 466 (1985)<br>Finland |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03699 E-T | D02:<br>$Ar^+ + Au$ | 10-20 keV | Karpuzov, D. S.; Colligon, J. S.; Kheyrandish, H.; Hill, A. E. Computer simulation of transmission sputtering of thin films and experimental measurements of recoil implantation of gold into silicon. Nucl. Instrum. Methods Phys. Res. B 6, 474 (1985)<br>Bulgaria |
| 03700 T | D07:<br>$Ar^+ + Au$ | 5 keV | Latta, B. M. Monte Carlo study of 5 keV argon scattering off an amorphous gold surface. Nucl. Instrum. Methods Phys. Res. B 6, 479 (1985)<br>Canada |
| 03701 T | C02:<br>Undef | Undef | Sigmund, P.; Johannessen, K. Higher moments of the energy loss spectrum of swift charged particles penetrating a thin layer of material. Nucl. Instrum. Methods Phys. Res. B 6, 486 (1985)<br>Denmark |
| 03702 T | C02:<br>e + Al | 10-30 keV | Akkerman, A. F.; Gibrekhterman, A. L. Comparison of various Monte Carlo schemes for simulation of low-energy electron transport in matter. Nucl. Instrum. Methods Phys. Res. B 6, 496 (1985)<br>Soviet Union |
| 03703 T | D18:<br>$He^+ + W$ | Undef | Van der Kol, G. J.; Van Veen, A.; de Hosson, J.T.M.; Fastenau, R.H.J. Effects of vacancies near substitutional implants on trapping and desorption of helium - a simulation. Nucl. Instrum. Methods Phys. Res. B 6, 525 (1985)<br>The Netherlands |
| 03704 T | D06:<br>e + Al; e + Au | 3-100 keV | Pregenzer, A. L. Monte Carlo calculations of low energy electron backscatter coefficients. Nucl. Instrum. Methods Phys. Res. B 6, 562 (1985)<br>United States |
| 03705 E | A11:<br>$Cd^* + He$; $Cd^* + Ar$ | 445-775 K | Penkin, N. P.; Redko, T. P. Quenching of metastable cadmium atoms by helium and argon. Opt. Spectrosc. 57, 598 (1984)<br>Soviet Union |
| 03706 E | E03:<br>e + Ho | 2-250 eV | Bodylev, A. Y.; Krasavin, A. Y.; Smirnov, Y. M. Measurement of the cross sections for electron-impact excitation of the holmium atom. Opt. Spectrosc. 57, 601 (1984)<br>Soviet Union |
| 03707 E | A06:<br>H + Mg<br>A18:<br>H + Mg | 1-5 keV | Alvarez, I.; Cisneros, C.; Morales, A.; Morgan, T. J. $H^-$ formation in $H^0$ + Mg collisions. Phys. Lett. A 109, 268 (1985)<br>Mexico |
| 03708 T | E02:<br>e + H<br>E03:<br>e + H<br>E17:<br>e + H | 12-54 eV | Callaway, J. Scattering of electrons by atomic hydrogen at intermediate energies: elastic scattering and n = 2 excitation from 12 to 54 eV. Phys. Rev. A 32, 775 (1985)<br>United States |
| 03709 E | A06:<br>$Li^+ + Mg$; $Li^+ + Ca$; $Li^+ + Sr$;<br>$Li^+ + Ba$ | 1-10 keV | Coggiola, M. J.; Bae, Y. K.; Peterson, J. R. Single-electron-capture cross sections for 1-10-keV $Li^+$ ions in alkaline-earth vapors. Phys. Rev. A 32, 784 (1985)<br>United States |
| 03710 E | H03:<br>hν + Al; hν + Cu; hν + Zn; hν + Cd;<br>hν + Pb | 59.5 keV | Eichler, J.; de Barros, S. Coherent scattering of 59.54-keV Γ rays by Al, Cu, Zn, Cd, and Pb. Phys. Rev. A 32, 789 (1985)<br>Brazil |
| 03711 T | A11:<br>$Na^* + Ne$; $Rb^* + Ne$; $H^* + He$ | 293 K | Gounand, F.; Petitjean, L. Possible influence of core effects in Rydberg-atom-neutral collisions at thermal energies, within the framework of the impulse approximation. Phys. Rev. A 32, 793 (1985)<br>France |
| 03712 T | A06:<br>$H^+ + H_2$<br>A17:<br>$H_2^+ + H$; $H^+ + H_2$<br>A18:<br>$H^+ + H_2$ | 0.2-20 keV | Kimura, M. Charge transfer in ion-molecule collisions at keV energy regime: study of $H^+ + H_2$ collisions by the electron-translation-factor-modified molecular-orbital-expansion method. Phys. Rev. A 32, 802 (1985)<br>United States |
| 03713 E | A06:<br>$Ar^{z+} + Ar$<br>A18:<br>$Ar^{z+} + Ar$ | 260 eV | McAfee, K. B., Jr.; Hozack, R. S. Charge and energy transfer in symmetric doubly charged $Ar^{z+} + Ar$ collisions. Phys. Rev. A 32, 810 (1985)<br>United States |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03714 I | A06:<br>$H^+ + H$; $H^+ + He$; $H^+ + C$; $H^+ + Ne$;<br>$H^+ + Ar$; $H^+ + Xe$; $H^+ + H$ Seq | 0.2-50 MeV | McGuire, J. H.; Kletke, R. E.; Sil, N. C. Strong-potential Born calculations for 1s-1s electron capture from atoms by protons. Phys. Rev. A 32, 815 (1985)<br>United States |
| 03715 I | E03:<br>$e + O^{5+}$; $e + Ti^{12+}$<br>E05:<br>$e + O^{4+}$; $e + Ti^{12+}$ | 70-500 eV | Pindzola, M. S.; Griffin, D. C.; Bottcher, C. Resonance contributions to the electron-impact excitation of ions in the distorted-wave approximation. Phys. Rev. A 32, 822 (1985)<br>United States |
| 03716 E | A06:<br>$He^+ + He$; $He^+ + Ne$; $He^+ + Ar$;<br>$He^+ + Kr$; $He^+ + H_2$; $He^+ + N_2$;<br>$He^+ + CO$; $He^+ + O_2$; $He^+ + CH_4$;<br>$He^+ + CO_2$<br>A07:<br>$He^+ + He$; $He^+ + Ne$; $He^+ + Ar$;<br>$He^+ + Kr$; $He^+ + H_2$; $He^+ + N_2$;<br>$He^+ + CO$; $He^+ + O_2$; $He^+ + CH_4$;<br>$He^+ + CO_2$<br>A08:<br>$He^+ + He$; $He^+ + Ne$; $He^+ + Ar$;<br>$He^+ + Kr$; $He^+ + H_2$; $He^+ + N_2$;<br>$He^+ + CO$; $He^+ + O_2$; $He^+ + CH_4$;<br>$He^+ + CO_2$ | 5-2000 keV | Rudd, M. E.; Goffe, T. V.; Itoh, A.; DuBois, R. D. Cross sections for ionizaion of gases by 10-2000-keV $He^+$ ions and for electron capture and loss by 5-350-keV $He^+$ ions. Phys. Rev. A 32, 829 (1985)<br>United States |
| 03717 E | A03:<br>$H_3^+ + He$<br>A04:<br>$H_3^+ + He$ | 4.83 keV | Yenen, O.; Jaecks, D. H. Collisions-induced dissociation mechanisms in 4.83-keV $H_3^+$-He collisions. Phys. Rev. A 32, 836 (1985)<br>United States |
| 03718 E | A11:<br>$Yb^* + He$; $Yb^* + Ar$ | 300 K | Yodh, A. G.; Golub, J.; Mossberg, T. W. Collisional relaxation of excited-state Zeeman coherences in atomic ytterbium vapor. Phys. Rev. A 32, 844 (1985)<br>United States |
| 03719 I | E02:<br>$e + H_2$<br>E17:<br>$e + H_2$<br>E19:<br>$e + H_2$ | 20-400 eV | Bhattacharyya, P. K.; Syamal, D. K.; Saha, B. C. Glauber-eikonal study of electron-molecule scattering at intermediate energies with the use of the free-electron-gas model: $H_2$. Phys. Rev. A 32, 854 (1985)<br>India |
| 03720 E | A06:<br>$H^- + Na$<br>A16:<br>$H^- + Na$<br>A17:<br>$H^- + Na$ | 100-500 eV | Ngoc Tuan, V.; Esaulov, V. A. Relative role of charge-exchange and electron-detachment processes in $H^- + Na$ collisions. Phys. Rev. A 32, 883 (1985)<br>France |
| 03721 E | H02:<br>$2h\nu + Na$ | Undef | Elliott, D. S.; Hamilton, M. W.; Arnett, K.; Smith, S. J. Correlation effects of a phase-diffusing field on two-photon absorption. Phys. Rev. A 32, 887 (1985)<br>United States |
| 03722 I | E06:<br>Undef<br>H06:<br>Undef | Undef | Lami, A.; Rahman, N. K. Stimulated recombination: a stochastic approach. Phys. Rev. A 32, 901 (1985)<br>Italy |
| 03723 E | D12:<br>$e + Be$; $e + C$; $e + Al$ | 17-54 MeV | Piestrup, M. A.; Kephart, J. O.; Park, H.; Klein, R. K.; Pantell, R. H.; Ebert, P. J.; Moran, M. J.; Dahling, B. A.; Berman, B. L. Measurement of transition radiation from medium-energy electrons. Phys. Rev. A 32, 917 (1985)<br>United States |
| 03724 E | H06:<br>$h\nu + La$; $h\nu + Ce$; $h\nu + Pr$; $h\nu + Nd$;<br>$h\nu + Sm$; $h\nu + Gd$; $h\nu + Dy$; $h\nu + Ho$;<br>$h\nu + Er$ | 145 keV | Umesh, T. K.; Ranganathaiah, C.; Sanjeevaiah, B. Photoeffect cross sections of some rare-earth elements at 145.4 keV. Phys. Rev. A 32, 959 (1985)<br>India |
| 03725 I | A16:<br>$H^- + H$; $H^- + H_2$; $H^- + Ne$<br>A18:<br>$H^- + H$; $H^- + H_2$; $H^- + Ne$ | 2 MeV | Wright, L. A.; Franz, M. R.; Geaoni, T. C. Differential cross sections for collisional electron detachment from $H^-$. Phys. Rev. A 32, 1215 (1985)<br>United States |
| 03726 I | A02:<br>Undef<br>E02:<br>Undef<br>H03:<br>Undef | 20-50 keV | Bell, F.; Bockl, H. Inner-shell alignment by Compton scattering. Phys. Rev. A 32, 1217 (1985)<br>West Germany |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03727 E | H06:<br>$h\nu$ + Xe | 100-96 nm | Heckenkamp, C.; Schafers, F.; Schonhense, G.; Heinzmann, U. Resonances of the photoelectron spin-polarization parameters in the 5p autoionization range of xenon. Phys. Rev. A 32, 1252 (1985)<br>West Germany |
| 03728 E | A03:<br>$Ne^{9+}$ + $H_2$<br>A06:<br>$Ne^{9+}$ + $H_2$ | 4 keV/amu | Vernhet, D.; Chetioui, A.; Wohrer, K.; Rozet, J. P.; Piquemal, P.; Hitz, D.; Dousson, S.; Salin, A.; Stephan, C. Alignment of $Ne^{8+}$ $n^1P$ states produced by collisions of $Ne^{9+}$ with $H_2$ at 4 keV/amu. Phys. Rev. A 32, 1256 (1985)<br>France |
| 03729 E | C06:<br>$H^+$ + C; $He^+$ + C<br>C07:<br>$H^+$ + C; $He^+$ + C | 0.1-0.6 MeV/amu | Yamazaki, Y.; Oda, N. Structures observed in electron spectra produced by field ionization of swift H and He Rydberg projectiles traversing carbon foils. Phys. Rev. A 32, 1260 (1985)<br>Japan |
| 03730 E-T | H06:<br>$h\nu$ + Na* | 4083-2500 A° | Preses, J. M.; Burkhardt, C. E.; Corey, R. L.; Earsom, D. L.; Daulton, T. L.; Garver, W. P.; Leventhal, J. J.; Msezane, A. Z.; Manson, S. T. Photoionization of the excited 3p state of sodium: experiment and theory. Phys. Rev. A 32, 1264 (1985)<br>United States |
| 03731 T | H06:<br>$nh\nu$ + NO | Undef | Dixit, S. N.; Lynch, D. L.; McKoy, V.; Huo, W. M. Rotational branching ratios in (1 + 1) resonant-enhanced multiphoton ionization of NO via the A $^2\Sigma^+$ state. Phys. Rev. A 32, 1267 (1985)<br>United States |
| 03732 E | A07:<br>$He^+$ + He | 25-625 keV/amu | Edwards, A. K.; Wood, R. M.; Ezell, R. L. Double ionization of helium by $He^+$ projectiles. Phys. Rev. A 32, 1346 (1985)<br>United States |
| 03733 E | A07:<br>He* + K; He* + Rb; He* + Cs; He* + $O_2$ | 300 K | Gray, L. G.; Keiffer, R. S.; Ratliff, J. M.; Dunning, F. B.; Walters, G. K. Use of polarization techniques to investigate the dynamics of Penning ionization reactions. Phys. Rev. A 32, 1348 (1985)<br>United States |
| 03734 T | H07:<br>$h\nu$ + $H^-$ | 0-40 meV | Greene, C. H.; Rau, A.R.P. Dipole threshold laws for single and double detachment from negative ions. Phys. Rev. A 32, 1352 (1985)<br>United States |
| 03735 T | A03:<br>$C^{6+}$ + H; $H^+$ + H<br>A06:<br>$C^{6+}$ + H; $H^+$ + H | 1-120 keV | Kimura, M.; Lin, C. D. Unified treatment of slow-atom and ion-atom collisions. II. Applications to $H^+$ + H and $C^{6+}$ + H collisions. Phys. Rev. A 32, 1357 (1985)<br>United States |
| 03736 T | A06:<br>$H^+$ + He<br>A18:<br>$H^+$ + He | 100-10000 keV | Kobayashi, K.; Toshima, N.; Ishihara, T. Eikonal approximation for proton-helium electron-capture processes. Phys. Rev. A 32, 1363 (1985)<br>Japan |
| 03737 E-T | A03:<br>$H^+$ + He<br>A18:<br>$H^+$ + He | 25-100 keV | Kvale, T. J.; Seely, D. G.; Blankenship, D. M.; Redd, E.; Gay, T. J.; Kimura, M.; Rille, E.; Peacher, J. L.; Park, J. T. Angular differential cross sections for the excitation of $1^1S$ helium to the $2^1S$ and $2^1P$ states by 25- to 100-keV-proton impact. Phys. Rev. A 32, 1369 (1985)<br>United States |
| 03738 T | E02:<br>e + $H_2$; e + $N_2$<br>E17:<br>e + $H_2$; e + $N_2$ | 0.5-37 keV | Liu, J. W. Elastic scattering of fast electrons by $H_2[^1\Sigma(\text{sub g})^+]$ and $N_2[X^1\Sigma(\text{sub g})^+]$. Phys. Rev. A 32, 1384 (1985)<br>Canada |
| 03739 T | A17:<br>He + $H_2$; Ne + $H_2$; Ar + $H_2$ | Undef | Rosenkrantz, M. E.; Krauss, M. Damped dispersion interaction energies for He-$H_2$, Ne-$H_2$, and Ar-$H_2$. Phys. Rev. A 32, 1402 (1985)<br>United States |
| 03740 E | A07:<br>He* + He<br>A17:<br>He* + He | 20-200 meV | Runge, S.; Pesnelle, A.; Perdrix, M.; Watel, G.; Cohen, J. S. Associative ionization mechanisms in collisions between He ($5^3P$) and He ($1^1S$) atoms at thermal energies. Phys. Rev. A 32, 1412 (1985)<br>France |
| 03741 T | A06:<br>Undef | Undef | Weaver, O. L.; McGuire, J. H. Analysis of the Thomas peak as a resonance in momentum transfer. Phys. Rev. A 32, 1435 (1985)<br>United States |
| 03742 T | A12:<br>Undef | Undef | Dattagupta, S.; Turski, L. A. Boltzmann-Lorentz model of collisional broadening of spectra. Phys. Rev. A 32, 1439 (1985)<br>West Germany |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03743 P | H05:<br>Undef | Undef | Diebold, G. J. Interference in atomic fluorescence excited by molecular photodissociation. Phys. Rev. A 32, 1458 (1985)<br>United States |
| 03744 T | H06:<br>hν + Na | 5.14-250 eV | Isenberg, E. M.; Carter, S. L.; Kelly, H. P.; Salomonson, S. Photoionization cross section and resonance structure of atomic sodium. Phys. Rev. A 32, 1472 (1985)<br>United States |
| 03745 E | B01:<br>Na* | | Van Linden van den Heuvell, H.; Gallagher, T. F. Ionization of Na atoms by 8-GHz electric fields. Phys. Rev. A 32, 1495 (1985)<br>United States |
| 03746 P | B01:<br>Undef | | Li, X.; Peng, Y. Quantum properties of a three-level atom interacting with two radiation fields. Phys. Rev. A 32, 1501 (1985)<br>Republic of China |
| 03747 P | B01:<br>Undef | | Thomas, G. F. Dipole interaction of a multilevel system with a continuous-wave or Gaussian-pulsed laser. Phys. Rev. A 32, 1515 (1985)<br>Canada |
| 03748 P | H02:<br>Undef | Undef | Garcia-Golding, F.; Marcano O., A. High-order effects in Rayleigh-type optical mixing. Phys. Rev. A 32, 1526 (1985)<br>Venezuela |
| 03749 E-T | A02:<br>Yb* + He; Yb* + Ne; Yb* + Xe<br>A11:<br>Yb* + He; Yb* + Ne; Yb* + Xe | 300 K | Keller, J. C.; Le Gouet, J. L. Stimulated photon echo for angular analysis of elastic and depolarizing Yb*-noble-gas collisions. Phys. Rev. A 32, 1624 (1985)<br>France |
| 03750 P | A07:<br>Undef<br>B07:<br>Undef | Undef | Lam, K. S.; George, T. F. Multiple resonances in non-Franck-Condon transitions due to nonlocal effects in laser-induced associative ionization. Phys. Rev. A 32, 1650 (1985)<br>United States |
| 03751 P | E03:<br>e + $Ne^{4+}$; e + $Ne^{7+}$<br>E05:<br>e + $Ne^{4+}$; e + $Ne^{7+}$<br>E07:<br>e + $Ne^{4+*}$; e + $Ne^{7+*}$ | $5\times10^5$-$2\times10^7$ K | Fujimoto, T.; Kato, T. Enhancement of the excitation and deexcitation rate coefficients of ions in dense plasmas: the role of autoionizing states. Phys. Rev. A 32, 1663 (1985)<br>Japan |
| 03752 P | A17:<br>H + H | Undef | Fabbri, M.; Ferreira de Silva, A. Variational calculation of the two-dimensional $H_2$ molecule. Phys. Rev. A 32, 1870 (1985)<br>Brazil |
| 03753 E-T | A07:<br>$H^+ + H_2$; $H^+$ + He; $D^+ + H_2$; $D^+$ + He | 0.1-3.5 MeV | Edwards, A. K.; Wood, R. M.; Ezell, R. L. Double ionization of $H_2$ caused by two sequential projectile-electron collisions. Phys. Rev. A 32, 1873 (1985)<br>United States |
| 03754 E | H02:<br>hν + Ba | 237-120 nm | Saloman, E. B.; Cooper, J. W.; Mehlman, G. Photoabsorption cross section of barium from 237.9 to 120 nm. Phys. Rev. A 32, 1878 (1985)<br>United States |
| 03755 P | H06:<br>hν + Cs | 2-7 eV | Pindzola, M. S. Photoelectron angular distributions for excited ns subshells of cesium. Phys. Rev. A 32, 1883 (1985)<br>United States |
| 03756 E | A03:<br>Rb* + Rb<br>A11:<br>Rb* + Rb | 420 K | Kano, S. S.; Taira, T.; Takuma, H.; Nishizawa, K.; Sakurai, K. Collisional energy transfer between Rydberg and ground-state atoms. Phys. Rev. A 32, 1914 (1985)<br>Japan |
| 03757 E | H07:<br>hν + $Li^-$ | 2.4-2.5 eV | Bae, Y. K.; Peterson, J. R. Effect of a virtual state near an s-wave threshold: absolute $Li^-$ photodetachment cross sections near the Li($2^2P$) threshold. Phys. Rev. A 32, 1917 (1985)<br>United States |
| 03758 E | H07:<br>hν + $H^-$ | 10.9-11.1 eV | MacArthur, D. W.; Butterfield, K. B.; Clark, D. A.; Donahue, J. B.; Gram, P.A.M.; Bryant, H. C.; Harvey, C. J.; Smith, W. W.; Comtet, G. Energy measurement of the lowest $^1P^o$ Feshbach resonance in $H^-$. Phys. Rev. A 32, 1921 (1985)<br>United States |
| 03759 P | H06:<br>Undef | Undef | Johnson, B. R.; Reinhardt, W. P.; McCurdy, C. W.; Rescigno, T. N. Extension of time-independent wave-operator methods to the calculation of the two-body Coulomb photoionization amplitude. Phys. Rev. A 32, 1998 (1985)<br>United States |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03760 E | A03:<br>Na* + Na*<br>A11:<br>Na* + Na* | 260-320 K | Allegrini, M.; Gabbanini, C.; Moi, L.; Colle, R. Cross-section measurement and theoretical evaluation for the energy-transfer collision. Phys. Rev. A 32, 2068 (1985)<br>Italy |
| 03761 E | A07:<br>$H^+$ + Ba<br>A18:<br>$H^+$ + Ba | 9.9-10.1 MeV | Dost, M.; Lorek, R.; Rohl, S.; Seidel, J.; Koenig, W. K-shell ionization probability in elastic proton scattering on $^{138}$Ba through an $f_{1/2}$ isobaric-analog resonance. Phys. Rev. A 32, 2077 (1985)<br>West Germany |
| 03762 E | A03:<br>$H^+$ + Ni; $H^+$ + Cu; $H^+$ + Ge; $H^+$ + As; $H^+$ + Rb; $H^+$ + Sr; $H^+$ + Y; $H^+$ + Zr; $H^+$ + Pd<br>A05:<br>$H^+$ + Ni; $H^+$ + Cu; $H^+$ + Ge; $H^+$ + As; $H^+$ + Rb; $H^+$ + Sr; $H^+$ + Y; $H^+$ + Zr; $H^+$ + Pd<br>A07:<br>$H^+$ + Ni; $H^+$ + Cu; $H^+$ + Ge; $H^+$ + As; $H^+$ + Rb; $H^+$ + Sr; $H^+$ + Y; $H^+$ + Zr; $H^+$ + Pd | 0.25-2.5 MeV | Duggan, J. L.; Kocur, P. M.; Price, J. L.; McDaniel, F. D.; Mehta, R.; Lapicki, G. L-shell x-ray production cross sections of Ni, Cu, Ge, As, Rb, Sr, Y, Zr, and Pd by (0.25-2.5)-MeV protons. Phys. Rev. A 32, 2088 (1985)<br>United States |
| 03763 E | E03:<br>e + $O_2$<br>E04:<br>e + $O_2$ | 0-500 eV | Schulman, M. B.; Sharpton, F. A.; Chung, S.; Lin, C. C.; Anderson, L. W. Emission from oxygen atoms produced by electron-impact dissociative excitation of oxygen molecules. Phys. Rev. A 32, 2100 (1985)<br>United States |
| 03764 E | E03:<br>e + Ne | 0-300 eV | Phillips, M. H.; Anderson, L. W.; Lin, C. C. Electron excitation cross sections for the metastable and resonant levels of Ne(2p$^5$3s). Phys. Rev. A 32, 2117 (1985)<br>United States |
| 03765 E | A06:<br>$He^{2+}$ + He; $He^{2+}$ + Ne; $He^{2+}$ + Ar; $He^{2+}$ + Kr; $He^{2+}$ + $H_2$; $He^{2+}$ + $N_2$; $He^{2+}$ + CO; $He^{2+}$ + $O_2$; $He^{2+}$ + $CH_4$; $He^{2+}$ + $CO_2$; $He^{2+}$ + $H_2O$<br>A07:<br>$He^{2+}$ + He; $He^{2+}$ + Ne; $He^{2+}$ + Ar; $He^{2+}$ + Kr; $He^{2+}$ + $H_2$; $He^{2+}$ + $N_2$; $He^{2+}$ + CO; $He^{2+}$ + $O_2$; $He^{2+}$ + $CH_4$; $He^{2+}$ + $CO_2$; $He^{2+}$ + $H_2O$ | 10-300 keV/amu | Rudd, M. E.; Goffe, T. V.; Itoh, A. Ionization cross sections for 10-300-keV/u and electron-capture cross sections for 5-150-keV/u $^4He^{2+}$ ions in gases. Phys. Rev. A 32, 2128 (1985)<br>United States |
| 03766 T | H06:<br>hν + $N_2$ | 0-1.0 a.u. | Yu, C.; Pitzer, R. M.; McCurdy, C. W. Molecular photoionization cross sections by the complex-basis-function method. Phys. Rev. A 32, 2134 (1985)<br>United States |
| 03767 E | A07:<br>$O^{5+}$ + Sc; $O^{5+}$ + Ti; $O^{5+}$ + Cr; $O^{5+}$ + Fe; $O^{5+}$ + Ni; $O^{5+}$ + Cu; $O^{5+}$ + Zn; $O^{5+}$ + Se; $O^{5+}$ + Sr; $O^{5+}$ + Zr; $O^{5+}$ + Mo; $O^{5+}$ + Ru; $O^{5+}$ + Ag; $O^{5+}$ + Cd; $O^{5+}$ + Sn; $O^{5+}$ + Te; $O^{5+}$ + Ba; $O^{5+}$ + Ce; $O^{5+}$ + Sm; $O^{5+}$ + Ho; $O^{5+}$ + Tm; $O^{5+}$ + Ta; $O^{5+}$ + Pt; $O^{5+}$ + Au; $O^{5+}$ + Pb; $O^{5+}$ + Bi; $S^{9+}$ + Sc; $S^{9+}$ + Ti; $S^{9+}$ + Cr; $S^{9+}$ + Fe; $S^{9+}$ + Ni; $S^{9+}$ + Cu; $S^{9+}$ + Zn; $S^{9+}$ + Se; $S^{9+}$ + Sr; $S^{9+}$ + Zr; $S^{9+}$ + Mo; $S^{9+}$ + Ru; $S^{9+}$ + Ag; $S^{9+}$ + Cd; $S^{9+}$ + Sn; $S^{9+}$ + Te; $S^{9+}$ + Ba; $S^{9+}$ + Ce; $S^{9+}$ + Sm; $S^{9+}$ + Ho; $S^{9+}$ + Tm; $S^{9+}$ + Ta; $S^{9+}$ + Pt; $S^{9+}$ + Au; $S^{9+}$ + Pb; $S^{9+}$ + Bi | 35-70 MeV | Seidel, J.; Rohl, S.; Lorek, R.; Huchler, S.; Dost, M. K-shell ionization by $^{16}$O and $^{32}$S ions: reduced-velocity dependence of the binding effect. Phys. Rev. A 32, 2142 (1985)<br>West Germany |
| 03768 E | A06:<br>$H^+$ + Hg<br>A16:<br>$H^-$ + Hg<br>A18:<br>$H^+$ + Hg; H + Hg; $H^-$ + Hg | 7-135 keV | Van Wijngaarden, A.; Patel, J.; Becker, K.; Drake, G.W.F. Charge-exchange processes of hydrogen ions with Hg atoms at keV energies. Phys. Rev. A 32, 2150 (1985)<br>Canada |
| 03769 T | A03:<br>$He^{2+}$ + H<br>A06:<br>$He^{2+}$ + H | 1-100 keV | Errea, L. F.; Gomez-Llorente, J. M.; Mendez, L.; Riera, A. Practical criterion for the determination of translation factors. II. Application to $He^{2+}$ + H(1s) collisions. Phys. Rev. A 32, 2158 (1985)<br>Spain |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03770 T | A03:<br>O + C; S + Ne<br>A06:<br>O + C; S + Ne | Undef | Jakubassa-Amundsen, D. H. Nonadiabatic sliding model for rearrangement collsions. Phys. Rev. A 32, 2166 (1985)<br>West Germany |
| 03771 T | A03:<br>$He^+$ + Ar; $He^+$ + PERT<br>A08:<br>$He^+$ + He; $He^+$ + Ar; $He^+$ + $N_2$;<br>$He^+$ + Kr; $He^+$ + PERT | 104-107 eV | Kaneko, T. Electron-loss and excitation cross sections for a $He^+$ ion colliding with various atoms. Phys. Rev. A 32, 2175 (1985)<br>Japan |
| 03772 T | B07:<br>Undef | Undef | Alber, G.; Cooper, J. Intensity effects in two-photon collisional redistribution of radiation. Phys. Rev. A 32, 2186 (1985)<br>United States |
| 03773 E | H02:<br>hν + Ce; hν + Pr; hν + Ho; hν + Er | 876-1408 eV | Sugar, J.; Brewer, W. D.; Kalkowski, G.; Kaindl, G.; Paparazzo, E. Photoabsorption by the 3d shell in Ce, Pr, Ho, and Er: observations and calculations. Phys. Rev. A 32, 2242 (1985)<br>United States |
| 03774 T | A07:<br>$H^+$ + H; $H^+$ + He | 25-100 keV | Mukoyama, T.; Lin, C. D.; Fritsch, W. Calculations of the energy distribution of electrons ejected in ion-atom collisions using pseudostates. Phys. Rev. A 32, 2490 (1985)<br>United States |
| 03775 T | A08:<br>Undef | Undef | Sellin, I. A. Projectile K-Auger-electron production by bare, one-electron, and two-electron ions through zero-degree Auger spectroscopy. Phys. Rev. A 32, 2494 (1985)<br>United States |
| 03776 T | A01:<br>Undef | Undef | Hahn, Y. Quasiminimum principle for single-channel scattering. Phys. Rev. A 32, 2496 (1985)<br>United States |
| 03777 E | A06:<br>$He^+$ + $H_2O$<br>A07:<br>$He^+$ + $H_2O$<br>A08:<br>$He^+$ + $H_2O$ | 5-450 keV | Rudd, M. E.; Itoh, A.; Goffe, T. V. Cross sections for ionization, capture, and loss for 5-450-keV $He^+$ on water vapor. Phys. Rev. A 32, 2499 (1985)<br>United States |
| 03778 T | H06:<br>Undef | Undef | Ritchie, B. Propagation of an ionizing light pulse through a gaseous medium. Phys. Rev. A 32, 2504 (1985)<br>United States |
| 03779 T | E02:<br>e + H | 11-35 eV | Oza, D. H.; Callaway, J. Spin asymmetry in elastic scattering of electrons by hydrogen atoms. Phys. Rev. A 32, 2534 (1985)<br>United States |
| 03780 T | E03:<br>e + Li<br>E17:<br>e + Li | 60-200 eV | Tiwary, S. N.; Macek, J.; Madison, D. H. Electron excitation of Auger transitions in atoms. Phys. Rev. A 32, 2541 (1985)<br>United States |
| 03781 E | D05:<br>hν + Si | 97-109 eV | Riedel, R. A.; Turowski, M.; Margaritondo, G.; Perfetti, P. Experimental test of the existence of photoemission resonances. Phys. Rev. B 30, 6815 (1984)<br>United States |
| 03782 T | D09:<br>$H_2$ + Ti + Cu | Undef | Fischer, C. R.; Whitten, J. L. Dissociation of hydrogen on a Ti-Cu alloy surface. Phys. Rev. B 30, 6821 (1984)<br>United States |
| 03783 T | D07:<br>Undef | Undef | Celli, V.; Maradudin, A. A. Temperature effects in diffractive atom-surface scattering. Phys. Rev. B 31, 825 (1985)<br>United States |
| 03784 T | D01:<br>Undef | Undef | Eriksson, H. G.; Karlsson, B. R.; Wijewardena, K.A.I.L. Oscillatory polarization potential induced at a surface by a penetrating charge. Phys. Rev. B 31, 843 (1985)<br>Sweden |
| 03785 E | D13:<br>e + Cu | 20-9000 eV | Katrich, N. P.; Kanishchev, V. N. Ion- and electron-stimulated low-temperature desorption of gases dissolved in metals. Sov. At. Energy 57, 527 (1985)<br>Soviet Union |
| 03786 E | D18:<br>$D_2^+$ + Mo; $D_3^+$ + Mo | 6-33 keV | Pisarev, A. A.; Tsyplakov, V. N. Absorption parameters of deuterium ions in molybdenum. Sov. At. Energy 57, 534 (1985)<br>Soviet Union |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03787 T | D12:<br>e + W | 10-100 MeV | Isaev, V. I.; Kovalev, V. P. Energy and angular distributions of electron bremsstrahlung from thick targets. Sov. At. Energy 57, 643 (1985)<br>Soviet Union |
| 03788 T | C02:<br>$H^+$ + Be; $H^+$ + Al; $H^+$ + Fe; $H^+$ + Ag; $H^+$ + U; $U^+$ + Ag; $Ag^+$ + Ag; $Ti^+$ + Ag; $Al^+$ + Ag; $C^+$ + Ag; $Be^+$ + Ag<br>C04:<br>$Bi^+$ + Pb | 0.01-10 MeV/amu | Basko, M. M. Stopping of fast ions in a dense plasma. Sov. J. Plasma Phys. 10, 689 (1984)<br>Soviet Union |
| 03789 E-T | E11:<br>e + Kr; e + Xe; e + Hg | 6-6.5 keV | Kogan, V. I.; Kukushkin, A. B. Radiation emission by quasiclassical electrons in an atomic potential. Sov. Phys.-JETP 60, 665 (1984)<br>Soviet Union |
| 03790 E-T | D12:<br>e + Li | 200-300 eV | Kulyupin, Y. A.; Felosenko, A. F.; Shatalov, V. M.; Shchurenko, A. I. Detection of gaps in the energy spectrum of lithium. Sov. Phys.-JETP Lett. 40, 1086 (1984)<br>Soviet Union |
| 03791 E | E03:<br>e + Li<br>E16:<br>e + Li | 0-300 eV | Akelsakhin, I. S.; Bojachev, G. G.; Zapesochnyi, I. P.; Ugrin, S. Y. Observation of radiative transitions between lithium-atom autoionization states excited by an electron beam. Sov. Phys.-JETP Lett. 40, 1287 (1984)<br>Soviet Union |
| 03792 E | A03:<br>$H^+$ + Zn; $H^+$ + Cd; $H^+$ + Hg<br>A05:<br>$H^+$ + Zn; $H^+$ + Cd; $H^+$ + Hg | 0.1-2 keV | Tsiple, M. Y.; Ovchinnikov, V. L.; Shpenik, O. B. Formation of excited states of zinc, cadmium, and mercury atoms and ions in collisions with low-energy protons. Sov. Phys.-JETP Lett. 40, 1296 (1984)<br>Soviet Union |
| 03793 T | A06:<br>$H^+$ + H | 10-105 eV | Bogdanov, A. V.; Gevorkyan, A. S. Resonant charge exchange mechanisms at high and moderate energies. Sov. Phys.-Tech. Phys. 29, 276 (1984)<br>Soviet Union |
| 03794 T | E03:<br>e + He<br>E17:<br>e + He | 30-250 eV | Amus'ya, M. Y.; Chernysheva, L. V.; Sheinerman, S. A. Excitation of the helium $2^3S$ triplet level by low- and moderate-energy electrons. Sov. Phys.-Tech. Phys. 29, 849 (1984)<br>Soviet Union |
| 03795 T | A07:<br>$H^+$ + Au | 0.5-4 MeV | Komarov, F. F. Ionization cross sections for inner-shell electrons in the relativistic binary collision model. Sov. Phys.-Tech. Phys. 29, 855 (1984)<br>Soviet Union |
| 03796 T | A02:<br>$B^+$ + Ne<br>A17:<br>$B^+$ + Ne | 5.05 MeV | Dedkov, G. V. Decrease in the elastic scattering cross sections for atoms and ions in high-energy binary collisions. Sov. Phys.-Tech. Phys. 29, 1197 (1984)<br>Soviet Union |
| 03797 T | C04:<br>$H^+$ + PERT | Undef | Gerasimov, S. A. Transformation of Thomas-Fermi coordinates and the range of fast charged particles in matter. Sov. Phys.-Tech. Phys. 29, 1401 (1984)<br>Soviet Union |
| 03798 T | A07:<br>$H^+$ + Xe | 0.3-2 MeV | Volkov, V. P.; Gerasimov, S. A. Deducing the atomic potential from the experimental electron energy distribution function. Sov. Phys.-Tech. Phys. 30, 1 (1985)<br>Soviet Union |
| 03799 T | A07:<br>He + Ar; He + Kr; He + Xe | 300-600 K | Devdariani, A. Z.; Zagrebin, A. L.; Kasyanenko, S. V.; Sebyakin, Y. N.; Tolmachev, Y. A. Influence of the structure of the quasimolecular terms of ionization during collisions with resonantly excited atoms. Sov. Phys.-Tech. Phys. 30, 214 (1985)<br>Soviet Union |
| 03800 E | D12:<br>$Ho^+$ + Al; $Ho^+$ + Yb; $Ho^+$ + Au; $Ho^+$ + Pb; $Ho^+$ + Mo; $Ho^+$ + Ho; $Ho^+$ + Re; $Cs^+$ + Al; $Cs^+$ + Yb; $Cs^+$ + Au; $Cs^+$ + Pb; $Cs^+$ + Mo; $Cs^+$ + Ho; $Cs^+$ + Re | 0.06-8 keV | Belykh, S. F.; Evtukhov, R. N.; Morozov, S. N. Identification of the particles responsible for the continuum emission during ion bombardment of metals. Sov. Tech. Phys. Lett. 10, 337 (1984)<br>Soviet Union |
| 03801 T | D08:<br>$N_2^+$ + Cu | 30 keV | Bitenskii, I. S.; Parilis, E. S. Excitation of high-lying rotational and vibrational states of fast diatomic molecules scattered by a solid surface. Sov. Tech. Phys. Lett. 10, 605 (1984)<br>Soviet Union |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03802 E | B01:<br>$h\nu$ + He* | | Oppen, G.; Schilling, W.; Kriesscher, Y. Transitions between Zeeman substates of excited He I levels induced by electric radiofrequency fields. Z. Phys. A 321, 91 (1985)<br>West Germany |
| 03803 T | H03:<br>$h\nu$ + H* | 0-30 eV | Florescu, V.; Cionga, A. Rayleigh scattering from n = 3 states of hydrogen-like atoms. Z. Phys. A 321, 187 (1985)<br>Romania |
| 03804 T | C02:<br>$H^+$ + Au | 6-18 keV | Nagy, I.; Laszlo, J.; Giber, J. Dynamic local field correction in the calculation of electronic stopping power. Z. Phys. A 321, 221 (1985)<br>Hungary |
| 03805 T | E05:<br>e + $O^{5+}$; e + $N^{4+}$; e + $C^{3+}$; e + $B^{2+}$ | 0-275 eV | Campeanu, R. I.; Nagy, L. Distorted wave cross sections for electron-impact ionization of the lithium-like ions. Z. Phys. A 321, 371 (1985)<br>Romania |
| 03806 E | A03:<br>$Sm^{44+}$ + Xe; $Sm^{45+}$ + Xe; $Sm^{46+}$ + Xe; $Sm^{47+}$ + Xe; $Sm^{48+}$ + Xe; $Sm^{49+}$ + Xe; $Sm^{50+}$ + Xe; $Sm^{51+}$ + Xe; $Sm^{52+}$ + Xe<br>A06:<br>$Sm^{44+}$ + Xe; $Sm^{45+}$ + Xe; $Sm^{46+}$ + Xe; $Sm^{47+}$ + Xe; $Sm^{48+}$ + Xe; $Sm^{49+}$ + Xe; $Sm^{50+}$ + Xe; $Sm^{51+}$ + Xe; $Sm^{52+}$ + Xe | 3.6 MeV/amu | Schonfeldt, W. A.; Mokler, P. H.; Hofmann, D.H.H.; Warczek, A. Resonant electron transfer and L-shell excitation at 3.6 MeV/u Sm(sup q)+ + Xe collisions. Z. Phys. A 321, 693 (1985)<br>West Germany |
| 03807 E | D09:<br>$H_3^+$ + Ni | 230-1065 eV | Willerding, B.; Snowdon, K.; Heiland, W. The interaction of fast $H_3^+$ ions with a clean Ni-surface. Z. Phys. B 59, 435 (1985)<br>West Germany |
| 03808 T | A14:<br>H + $H_2$ | 100-600 K | Gochev, A. D.; Christov, S. G.; Parlapanski, M. Collision theory treatment of the H + $H_2$ exchange reaction. Chem. Phys. Lett. 117, 49 (1985)<br>Bulgaria |
| 03809 E | A14:<br>$N^+$ + $H_2$; $N^+$ + HD; $H^+$ + $D_2$ | 0.04-0.5 eV | Adams, N. G.; Smith, D. A study of the nearly thermoneutral reactions of $N^+$ with $H_2$, HD, and $D_2$. Chem. Phys. Lett. 117, 67 (1985)<br>United Kingdom |
| 03810 T | A14:<br>F + $H_2$; F + $D_2$ | 0-10 kcal/mol | Pollak, E. Ab initio sudden transition theory for the F + $H_2$ and F + $D_2$ reactions. Chem. Phys. Lett. 119, 98 (1985)<br>Israel |
| 03811 T | A04:<br>$H_2^+$ + $D_2$; $D_2^+$ + $H_2$<br>A14:<br>$H_2^+$ + $D_2$; $D_2^+$ + $H_2$ | 0-6 eV | Baker, C. W.; Muzyka, J. L. A quasiclassical trajectory study of the $(H_2 + D_2)^+$ system. Chem. Phys. Lett. 119, 169 (1985)<br>United States |
| 03812 E-T | L01:<br>Review<br>L02:<br>Review<br>L03:<br>Review<br>L04:<br>Review<br>L05:<br>Review | Undef | McDaniel, E. W.; Flannery, M. R.; Thomas, E. W.; Manson, S. T. Selected bibliography on atomic collisions: data collection, bibliographies, review articles, books, and papers of particular tutorial value. At. Data Nucl. Data Tables 33, 1 (1985)<br>United States |
| 03813 T | J02:<br>Electron impact; Excitation | | Itikawa, Y.; Hara, S.; Kato, T.; Nakazaki, S.; Pindzola, M. S.; Crandall, D. H. Electron-impact cross sections and rate coefficients for excitations of carbon and oxygen ions. At. Data Nucl. Data Tables 33, 149 (1985)<br>Japan |
| 03814 E-T | H06:<br>$h\nu$ + Ar; $h\nu$ + Xe | 0-10 Ry | Amusia, M. Y. Spectroscopic factor and the renormalization of interelectron interaction. Comments At. Mol. Phys. 16, 143 (1985)<br>Soviet Union |
| 03815 E | H05:<br>$h\nu$ + $H_2O$; $h\nu$ + $CO_2$<br>H06:<br>$h\nu$ + $H_2O$; $h\nu$ + $CO_2$ | 10-60 eV | Brion, C. E. Absolute oscillator strengths for photoabsorption and photoionization processes by fast electron impact. Comments At. Mol. Phys. 16, 249 (1985)<br>Canada |
| 03816 T | E03:<br>e + $C^{4+}$; e + $N^{5+}$; e + $O^{6+}$; e + $Ne^{8+}$ | 0-400 eV | Kumar, M.; Singh, S. N.; Tripatai, A. N.; Srivastava, M. K. Electron impact excitation of helium-like ions in Coulomb Glauber approximation-II. Indian J. Phys. B 57, 1 (1983)<br>India |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03817 T | A06:<br>$H^+ + Na$ | 50-500 keV | Basu, C. K.; Sural, D. P. Electron capture process in proton-alkali atom collisions. Indian J. Phys. B 57, 20 (1983)<br>India |
| 03818 E | E03:<br>$e + N_2$ | 402 eV | Rajgara, F. A.; Roy, A.; Mathur, D. Inner-shell resonance in differential elastic scattering of electrons from $N_2$. Indian J. Phys. B 57, 32 (1983)<br>India |
| 03819 E | A20:<br>$Ne^+ + He$ | 1.5-10 keV | Kundu, S.; Chakraborty, T.; Karmohapatro, S. B. Multiple scattering of neon ions in helium in the presence of magnetic focussing. Indian J. Phys. B 57, 51 (1983)<br>India |
| 03820 T | E03:<br>$e + H$<br>E17:<br>$e + H$ | 54.4 eV | Dewangan, D. P. A higher order model for inelastic electron-atom scattering. Indian J. Phys. B 57, 57 (1983)<br>India |
| 03821 T | E05:<br>$e + Cu$; $e + Ag$ | 140-300 keV | Das, J. N.; Chakraborty, S. K-shell doubly differential cross sections for ionization of atoms. Indian J. Phys. B 57, 63 (1983)<br>India |
| 03822 T | F02:<br>$e + d_2$ | 0.5-3.5 eV | Sur, S.; Ghosh, A. S. Local model exchange potentials. Indian J. Phys. B 57, 67 (1983)<br>India |
| 03823 T | F05:<br>$e + H$<br>F17:<br>$e + H$ | 100-250 eV | Mazumdar, P. S.; Basu, M.; Ghosh, A. S. Ionization of the hydrogen atom by electron impact with the use of the polarized-orbital method. Indian J. Phys. B 57, 95 (1983)<br>India |
| 03824 T | E03:<br>$e + Li^+$ | 140-350 eV | Padhy, B.; Srivastava, R.; Rai, D. K. Electron impact double excitation in helium-like ions. Indian J. Phys. B 57, 109 (1983)<br>India |
| 03825 T | A06:<br>$H^+ + Ar$ | 3-12 MeV | Sharma, A. K.; Srivastava, M. K. Proton-argon charge transfer cross sections with a realistic electron-target interaction. Indian J. Phys. B 57, 119 (1983)<br>India |
| 03826 T | E02:<br>$e + H$<br>E17:<br>$e + H$ | 75-500 eV | Sarkar, S.; Chakrabarti, M. K. Determination of spin exchange scattering amplitude for 2S-2S transition. Indian J. Phys. B 57, 149 (1983)<br>India |
| 03827 T | A03:<br>$H^+ + He$<br>A18:<br>$H^+ + He$ | 100-500 keV | Gupta, J. P.; Saxena, S.; Mathur, K. C. Excitation of helium ($1^1S \rightarrow 2^1S$) by proton impact at intermediate and high energies. Indian J. Phys. B 57, 154 (1983)<br>India |
| 03828 T | E02:<br>$e + H_2$<br>E17:<br>$e + H_2$<br>E19:<br>$e + H_2$ | 100-1000 eV | Joshipura, K. N.; Desai, H. S. Elastic scattering of electrons by hydrogen molecules. Indian J. Phys. B 57, 161 (1983)<br>India |
| 03829 T | F04:<br>$e + H_2$; $e + D_2$<br>F09:<br>$e + H_2$; $e + D_2$ | 6-21 eV | Bhattacharyya, S.; Chatterjee, L.; Roy, T. Negative ion formation in collision of electron with $H_2$ and isotopes. Indian J. Phys. B 57, 184 (1983)<br>India |
| 03830 T | E02:<br>$e + H$<br>F17:<br>$e + H$ | 200 eV | Chandra Prabha, C. N.; Desai, H. S. Two-potential formulation in HHOB. Indian J. Phys. B 57, 190 (1983)<br>India |
| 03831 T | A03:<br>$H^+ + H$<br>A06:<br>$H^+ + H$ | 10-400 keV | Rao, B. K.; Satapathy, U. C.; Tripathy, D. N. 1s → 2s capture in proton-hydrogen charge transfer scattering. Indian J. Phys. B 57, 195 (1983)<br>India |
| 03832 T | A09:<br>$H^+ + H^-$ | 50-1000 keV | Ghosh, M. Charge transfer in $H^+ + H^-$ collisions. Indian J. Phys. B 57, 202 (1983)<br>India |
| 03833 T | E05:<br>$e + H$<br>E17:<br>$e + H$ | 100-250 eV | Mazumdar, P. S.; Basu, M.; Ghosh, A. S. Ionization of the hydrogen atom by electron impact using adiabatic method. Indian J. Phys. B 57, 215 (1983)<br>India |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03834 T | A17:<br>H + H; H + Li; He + He; He + Li; Li + H; Li + Li | Under | Easa, S. I.; Shukla, G. C. Relativistic long-range interactions between H, He, and Li atoms. Indian J. Phys. B 57, 225 (1983)<br>Iraq |
| 03835 T | F05:<br>e + $Li^{2+}$<br>F17:<br>e + $Li^{2+}$ | 300-2000 eV | Roy, A.; Roy, K.; Sil, N. C. Evaluation of the amplitude for electron impact ionization of $Li^{+2}$. Indian J. Phys. B 57, 323 (1983)<br>India |
| 03836 T | A06:<br>$H^+$ + Li | 200-5000 keV | Somani, B. K.; Sil, N. C. Formation of hydrogen atom in an arbitrary excited state in $H^+$ + Li collisions. Indian J. Phys. B 57, 349 (1983)<br>India |
| 03837 T | F02:<br>e + H; e + He; e + $H^+$ | 100-200 eV | Chandra Prabha, C. N.; Desai, H. S. Elastic scattering of electrons by H(1s), H(2s) & He in the modified GES approximation. Indian J. Pure Appl. Phys. 23, 12 (1985)<br>India |
| 03838 E | D07:<br>RbI + NaCl | Thermal | Baker, S.; Schoonmaker, R. C. Dynamics of the gas-surface interaction and the mechanism of condensation of RbI molecules incident on NaCl(100) surfaces. J. Appl. Phys. 58, 2091 (1985)<br>United States |
| 03839 E | D08:<br>$Cs^+$ + Cs + W | 0.5-2.0 keV | Van Amersfoort, P. W.; Geerlings, J.J.C.; Kwakman, L.F.T.; Granneman, E.H.A.; Los, J. Charge and energy transfer in collisions of $Cs^+$ ions with a cesiated W(110) surface. J. Appl. Phys. 58, 2312 (1985)<br>The Netherlands |
| 03840 T | D02:<br>$Cs^+$ + W + Cs; $H^+$ + W + Cs; $H_2^+$ + W + Cs; $H_3^+$ + W + Cs | 16-600 eV | Van Amersfoort, P. W.; Tong, Y. C.; Granneman, E.H.A. A model for the stationary cesium coverage on a converter surface in a cesium seeded hydrogen discharge. J. Appl. Phys. 58, 2317 (1985)<br>The Netherlands |
| 03841 E | E03:<br>e + He; e + Ne; e + Ar | 10-500 eV | Zavilopulo, A. N.; Smegurskii, A. V.; Shpenik, O. B. Total excitation cross sections of metastable levels of inert-gas atoms in electron impact. J. Appl. Spectrosc. 42, 125 (1985)<br>Soviet Union |
| 03842 T | D09:<br>$H^+$ + CaO; $Ne^+$ + Au | Undef | Battaglia, F.; George, T. F. A diagrammatic approach to ion neutralization at surfaces: on the validity of first-order perturbation calculations. J. Chem. Phys. 82, 3847 (1985)<br>United States |
| 03843 E | A11:<br>OH* + $CO_2$; OH* + CO; OH* + $H_2$; OH* + $D_2$; OH* + $O_2$; OH* + $N_2$; OH* + $H_2O$; OH* + $D_2O$; OD* + $CO_2$; OD* + $D_2O$ | 300 K | Copeland, R. A.; Dyer, M. J.; Crosley, D. R. Rotational-level-dependent quenching of A $^2\Sigma^+$ OH and OD. J. Chem. Phys. 82, 4022 (1985)<br>United States |
| 03844 T | A14:<br>Cl + $H_2$; Cl + HD; Cl + $D_2$; Cl + $T_2$ | 200-1500 K | Tucker, S. C.; Truhlar, D. G.; Garrett, B. C.; Isaacson, A. D. Variational transition state theory with least-action tunneling calculations for the kinetic isotope effects in the Cl + $H_2$ reaction: tests of extended-LEPS, information-theoretic, and diatomics-in-molecules potential energy surfaces. J. Chem. Phys. 82, 4102 (1985)<br>United States |
| 03845 T | B07:<br>F + $H_2$ + hν | 0-1.8 eV | Last, I.; Baer, M. Quantal and semiclassical studies of reactions in strong laser fields: F($^2P_{3/2}$, $^2P_{1/2}$) + $H_2$ + h bar omega (0.117, 0.469, 1.17 eV). J. Chem. Phys. 82, 4954 (1985)<br>Israel |
| 03846 T | E03:<br>e + $D_2$ | 0.45-4.5 eV | Buckman, S. J.; Phelps, A. V. Vibrational excitation of $D_2$ by low energy electrons. J. Chem. Phys. 82, 4999 (1985)<br>United States |
| 03847 T | A14:<br>F + $H_2$; F + $D_2$; F + HD | 159-765 K | Steckler, R.; Truhlar, D. G.; Garrett, B. C. Variational transition state theory calculations of the reaction rates of F with $H_2$, $D_2$, and HD and the intermolecular and intramolecular kinetic isotope effects. J. Chem. Phys. 82, 5499 (1985)<br>United States |
| 03848 T | A14:<br>$H_2$ + OH | 1200-2000 K | Rashed, O.; Brown, N. J. A molecular dynamics study of the reaction $H_2$ + OH → $H_2O$ + H. J. Chem. Phys. 82, 5506 (1985)<br>United States |
| 03849 E | A14:<br>$Ar^+$ + $H_2$; $Ar^+$ + $D_2$; $Ar^+$ + HD | 0.05-30 eV | Ervin, K. M.; Armentrout, P. B. Translational energy dependence of $Ar^+$ + XY → $ArX^+$ + Y(XY = $H_2$, $D_2$, HD) from thermal to 30 eV c.m. J. Chem. Phys. 83, 166 (1985)<br>United States |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03850 E | A11:<br>$H_2O^{+*} + H_2O$<br>H05:<br>$h\nu + H_2O$<br>H08:<br>$h\nu + H_2O$ | 9-35 eV | Dutuit, O.; Tabche-Fouhaile, A.; Nenner, I.; Frohlich, H.; Guyon, P. M. Photodissociation processes of water vapor below and above the ionization potential. J. Chem. Phys. 83, 584 (1985)<br>France |
| 03851 E | H04:<br>$h\nu + H_2$ | 850-845 A° | Glass-Maujean, M.; Breton, J.; Guyon, P. M. Photoabsorption probabilities of $H_2$ levels lying near the H(1S) + H(n = 2) dissociation limit. J. Chem. Phys. 83, 1468 (1985)<br>France |
| 03852 T | A03:<br>$H + D_2$<br>A14:<br>$H + D_2$ | 0.55-1.1 eV | Blais, N. C.; Truhlar, D. G. Product state distributions for inelastic and reactive $H + D_2$ collisions as functions of collision energy. J. Chem. Phys. 83, 2201 (1985)<br>United States |
| 03853 T | D11:<br>NO + Pt; NO + Ag | 100-2000 K | Muhlhausen, C. W.; Williams, L. R.; Tully, J. C. Dynamics of gas-surface interactions: scattering and desorption of NO from Ag(111) and Pt(111). J. Chem. Phys. 83, 2594 (1985)<br>United States |
| 03854 T | E03:<br>e + V; e + Mn | 50 eV | Peterkop, R. K. Calculation of excitation cross sections and oscillator strengths for vanadium and manganese atoms. Opt. Spectrosc. 58, 7 (1985)<br>Soviet Union |
| 03855 E | H04:<br>$h\nu$ + Ga | 1.44-1.48 eV | Tursunov, A. T.; Eshkabilov, N. B. Study of the Rydberg states of atomic gallium by the stepwise laser photoionization method. Opt. Spectrosc. 58, 16 (1985)<br>Soviet Union |
| 03856 T | E03:<br>e + Si; e + Ge | 50-200 eV | Peterkop, R. K. Calculation of excitation cross sections and oscillator strengths of Si and Ge atoms. Opt. Spectrosc. 58, 121 (1985)<br>Soviet Union |
| 03857 T | A17:<br>NaAr; NaKr; NaXe; KNe; KAr; KKr; KXe | Undef | Singh, D.; Varshni, Y. P. Bound state properties of the Lennard-Jones 8-6 potential. Physica B+C 132, 235 (1985)<br>Canada |
| 03858 E | A03:<br>$S^{14+} + C$<br>A06:<br>$S^{14+} + C$ | 32-105 MeV | Palinkas, J.; Watson, R. L. Projectile velocity dependence of the alignment of He-like 2P states of foil excited S projectiles. Phys. Lett. A 110, 298 (1985)<br>United States |
| 03859 T | A17:<br>$He^* + Ne$ | Undef | Ossicini, S. The He* (1s,2s) + Ne interaction potential. Phys. Lett. A 110, 451 (1985)<br>Italy |
| 03860 E | A06:<br>$C^{6+} + H$; $C^{6+} + H_2$; $O^{8+} + H$; $O^{8+} + H_2$; $N^{7+} + H$; $N^{7+} + H_2$; $F^{9+} + H$; $F^{9+} + H_2$; $Ne^{10+} + H$; $Ne^{10+} + H_2$ | 0.3-8.0 keV/amu | Meyer, F. W.; Howald, A. M.; Havener, C. C.; Phaneuf, R. A. Observation of low-energy Z oscillations in total electron-capture cross sections for bare projectiles colliding with H and $H_2$. Phys. Rev. Lett. 54, 2663 (1985)<br>United States |
| 03861 E | D13:<br>$H_5^+ + CsI$; $H_6^+ + CsI$; $H_7^+ + CsI$; $H_8^+ + CsI$; $H_9^+ + CsI$; $H_{10}^+ + CsI$; $H_{11}^+ + CsI$; $H_{12}^+ + CsI$; $H_{13}^+ + CsI$; $H_{14}^+ + CsI$; $H_{15}^+ + CsI$; $H_{16}^+ + CsI$; $H_{17}^+ + CsI$; $H_{18}^+ + CsI$; $H_{19}^+ + CsI$; $H_{20}^+ + CsI$; $H_{21}^+ + CsI$; $H_{22}^+ + CsI$; $H_{23}^+ + CsI$ | 600 keV | Thomas, J. P.; Filpus-Luyckx, P. E.; Fallavier, M.; Schweikert, E. A. Ion-induced desorption by high-energy (600 keV) hydrogen clusters. Phys. Rev. Lett. 55, 103 (1985)<br>France |
| 03862 E | E02:<br>e + K<br>E17:<br>e + K | 6-103 eV | Stein, T. S.; Gomez, R. D.; Hsieh, Y. F.; Kauppila, W. E.; Kwan, C. K.; Wan, Y. J. Total-cross-section measurements for positrons and electrons colliding with potassium. Phys. Rev. Lett. 55, 488 (1985)<br>United States |
| 03863 E | D09:<br>He* + Cs + Cu | 60 meV | Woratschek, B.; Sesselmann, W.; Kuppers, J.; Ertl, G.; Haberland, H. Singlet to triplet conversion of metastable He atoms during deexcitation at a Cs-covered surface. Phys. Rev. Lett. 55, 611 (1985)<br>West Germany |
| 03864 E | H07:<br>$h\nu + He^-$ | 1.2-1.4 eV | Peterson, J. R.; Bae, Y. K.; Huestis, D. L. Threshold behavior near an electronic shape resonance: analysis of the He($^3$P) threshold in $He^-$ photodetachment and determination of He(2$^3$S) electron affinity. Phys. Rev. Lett. 55, 692 (1985)<br>United States |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03865 T | D02:<br>$Ar^+$ + PERT | 600 eV | Steinbruchel, C. A simple formula for low-energy sputtering yields. Appl. Phys. [Germany] A 36, 37 (1985)<br>Switzerland |
| 03866 E | H06:<br>$3h\nu$ + Pu | 595 nm | Kronert, U.; Bonn, J.; Kluge, H. J.; Ruster, W.; Wallmeroth, K.; Peuser, P.; Trautmann, N. Laser resonant ionization of plutonium. Appl. Phys. [Germany] B 38, 65 (1985)<br>East Germany |
| 03867 T | D18:<br>H + C | Undef | Aronowitz, S.; Chang, S. Adsorption and recombination of hydrogen atoms on a model graphite surface. Astrophys. J., Part 1 293, 243 (1985)<br>United States |
| 03868 E | E03:<br>e + $H_2$<br>E04:<br>e + $H_2$ | 100-200 eV | Shemansky, D. E.; Ajello, J. M.; Hall, D. T. Electron impact excitation of $H_2$: Rydberg band systems and the benchmark dissociative cross section for H Lyman-alpha. Astrophys. J., Part 1 296, 765 (1985)<br>United States |
| 03869 E | E03:<br>e + He<br>E05:<br>e + He | 200 eV | Shemansky, D. E.; Ajello, J. M.; Hall, D. T.; Franklin, B. Vacuum ultraviolet studies of electron impact of helium: excitation of He n $^1P^o$ Rydberg series and ionization-excitation of $He^+$ nl Rydberg series. Astrophys. J., Part 1 296, 774 (1985)<br>United States |
| 03870 T | F03:<br>e + $Ca^{18+}$; e + $Fe^{24+}$ | 6.3-8.7 K | Pradhan, A. K. Improved excitation rate coefficients for the n = 2 and n = 3 levels of Ca XIX and Fe XXV including fine structure. Astrophys. J. Suppl. Ser. 59, 183 (1985)<br>United States |
| 03871 T | D11:<br>$H_2$ + GaAs | Thermal | Jiang, P.; Yang, Z.; Chen, F. Hydrogen adsorption on the GaAs (110) surface. Chin. Phys. 4, 985 (1984)<br>Republic of China |
| 03872 E | H03:<br>$h\nu$ + $H_2$; $h\nu$ + HD; $h\nu$ + $D_2$ | 100-1600 $cm^{-1}$ | Best, S. P.; Bloodworth, A. J.; Clark, R.J.H.; Eggelte, H. J. Detection of $H_2$, HD, and $D_2$ by Raman spectroscopy. A powerful aid for the elucidation of reaction mechanisms. J. Am. Chem. Soc. 107, 2626 (1985)<br>United Kingdom |
| 03873 E | A14:<br>$HO_2$ + $HO_2$; OH + $H_2$; OH + $H_2O_2$ | 713-773 K | Baldwin, R. R.; Dean, C. E.; Honeyman, M. R.; Walker, R. W. The mutual reaction of $HO_2$ radicals and the rate constants of the hydrogen + oxygen reaction. J. Chem. Soc. Faraday Trans. I 80, 3187 (1984)<br>United Kingdom |
| 03874 E | D11:<br>CO + Ni | 393-533 K | Gijzeman, O.L.J.; Van Zandvoort, M.M.J.; Labohm, F.; Vliegenthart, J. A.; Jongert, G. Carbon monoxide on Ni(111). Adsorption isotherms and intermolecular interactions. J. Chem. Soc. Faraday Trans. II 80, 771 (1984)<br>The Netherlands |
| 03875 | J01:<br>Diatomic potentials | Undef | Huxley, P.; Knowles, D. B.; Murrell, J. N.; Watts, J. D. Ground-state diatomic potentials. part 2. Van der Waals molecules. J. Chem. Soc. Faraday Trans. II 80, 1349 (1984)<br>United Kingdom |
| 03876 E | H05:<br>$h\nu$ + $H_2O$; $h\nu$ + $D_2O$ | 130-122 nm | Simons, J. P.; Smith, A. J.; Dixon, R. N. Rotationally resolved photofragment alignment and dissociation dynamics in $H_2O$ and $D_2O$. J. Chem. Soc. Faraday Trans. II 80, 1489 (1984)<br>United Kingdom |
| 03877 E | A11:<br>Ca* + $N_2$; Sr* + $N_2$; Ca* + Sr;<br>Ca* + CO; Ca* + $H_2$; Ca* + $D_2$ | 950 K | Husain, D.; Roberts, G. Time-resolved emission studies of the collisional quenching of Ca[4 $^3P$(sub j)] and Sr[5 $^3P$(sub j)] by various gases in an equilibrium-coupled system following pulsed dye-laser excitation at lambda = 657.3 nm [Ca(4 $^3P_1$) coming from Ca(4 $^1S_0$)]. J. Chem. Soc. Faraday Trans. II 81, 101 (1985)<br>United Kingdom |
| 03878 E | A11:<br>$C_2D_2$* + He; $C_2D_2$* + Ne; $C_2D_2$* + Ar;<br>$C_2D_2$* + Kr; $C_2D_2$* + Xe; $C_2D_2$* + $H_2$;<br>$C_2D_2$* + $D_2$; $C_2D_2$* + $N_2$; $C_2D_2$* + CO | 300 K | Smith, N.J.G.; Davis, C. C.; Smith, I.W.M. Relaxation of $C_2D_2$($v_4$, $v_5$) by vibration-rotation, translation energy transfer. J. Chem. Soc. Faraday Trans. II 81, 417 (1985)<br>United Kingdom |
| 03879 E | A11:<br>Ca* + $H_2$; Ca* + $D_2$ | 850-1075 K | Husain, D.; Roberts, G. Collisional quenching of Ca[4 $^3P$(sub j)] by $H_2$ and $D_2$ studied over the temperature range 850-1075 K by time-resolved atomic resonance emission at lambda = 657.3 nm [Ca(4 $^3P_1$) → Ca(4 $^1S_0$) + $h\nu$] following pulsed dye-laser excitation. J. Chem. Soc. Faraday Trans. II 81, 527 (1985)<br>United Kingdom |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03880 E | A14:<br>Rb + OH + He; Na + OH + He;<br>K + OH + He | 490 K | Husain, D.; Plane, J.M.C.; Xiang, C. C. Absolute third-order rate constant for the reaction between Rb + OH + He determined by time-resolved molecular resonance-fluorescence spectroscopy, OH(A $^2\Sigma^+$ - X $^2\pi$), coupled with steady atomic resonance-fluorescence measurements, Rb[6 $^2$P(sub j) - 5 $^2S_{1/2}$]. J. Chem. Soc. Faraday Trans. II 81, 561 (1985)<br>United Kingdom |
| 03881 E | A11:<br>Cs + OH + He | 481 K | Husain, D.; Plane, J.M.C.; Xiang, C. C. Measurement of the absolute third-order rate constant for the reaction between Cs + OH + He determined by time-resolved molecular resonance-fluorescence spectroscopy, OH(A $^2\Sigma^+$ - X $^2\pi$), coupled with steady atomic resonance fluorescence, Cs[2 $^2$P(sub j) - $^2S_{1/2}$] J. Chem. Soc. Faraday Trans. II 81, 769 (1985)<br>United Kingdom |
| 03882 E | A11:<br>Sr* + $H_2$; Sr* + $D_2$ | 725-1100 K | Husain, D.; Roberts, G. A kinetic investigation of the collisional behaviour of Sr[5 $^3$P(sub j)] with $H_2$ and $D_2$ over the temperature range 725-1100 K, studied by time-resolved atomic emission at lambda = 689.3 nm [Sr(5 $^3P_1$ → Sr(5 $^1S_0$) + hν] following pulsed bye-laser excitation. J. Chem. Soc. Faraday Trans. II 81, 1385 (1985)<br>United Kingdom |
| 03883 E | A03:<br>$N_2$* + O*<br>A11:<br>$N_2$* + O* | Thermal | de Souza, A. R.; Gousset, G.; Touzeau, M.; Khiet, T. Note on the determination of the efficiency of the reaction $N_2$(A $^2\Sigma$) + O($^3$P) → $N_2$ + O($^1$S). J. Phys. B 18, L661 (1985)<br>France |
| 03884 E | B07:<br>hν + H*<br>H04:<br>hν + H* | 3 keV | Claeys, W.; Cornet, A.; Lorent, V.; Fussen, D. H(3s) beam production by laser excitation of metastable hydrogen atoms in an electric field: I. Experiment. J. Phys. B 18, 3667 (1985)<br>Belgium |
| 03885 T | B07:<br>hν + H*<br>H04:<br>hν + H* | Undef | Fussen, D.; Claeys, W.; Cornet, A.; Lorent, V. H(3s) beam production by laser excitation of metastable hydrogen atoms in an electric field: II. Theoretical approach. J. Phys. B 18, 3673 (1985)<br>Belgium |
| 03886 T | H06:<br>hν + Na | 10-160 eV | Craig, B. I.; Larkins, F. P. Photoionisation calculations for the s subshells of atomic sodium. J. Phys. B 18, 3713 (1985)<br>Australia |
| 03887 T | H06:<br>hν + Hg | 10.4-14.8 eV | Bartschat, K.; Scott, P. Photoelectron polarisation in the photoionisation of Hg[6s$^2$ $^1S_0$(sup e)]. J. Phys. B 18, 3725 (1985)<br>United Kingdom |
| 03888 T | H06:<br>hν + $H_2$ | 739-744 A° | Hara, S. Theoretical study of the photoionisation of $H_2$. J. Phys. B 18, 3759 (1985)<br>Japan |
| 03889 E | A03:<br>$Na^+$ + $N_2$; $Na^+$ + CO<br>A18:<br>$Na^+$ + $N_2$; $Na^+$ + CO | 27-192<br>eV(c.m.) | Hasegawa, T.; Kita, S.; Izawa, M.; Inouye, H. Rainbow effects of momentum transfer mechanisms in collision of $Na^+$ ions with $N_2$ and CO molecules. J. Phys. B 18, 3775 (1985)<br>Japan |
| 03890 E | A06:<br>$H^+$ + $He^+$ | 8-100<br>keV(c.m.) | Rinn, K.; Melchert, F.; Salzborn, E. Measurements of charge transfer in $H^+$ + $He^+$ collisions. J. Phys. B 18, 3783 (1985)<br>West Germany |
| 03891 T | A03:<br>$He^{2+}$ + Li<br>A06:<br>$He^{2+}$ + Li | 0.8-2.0 MeV | Ghosh, M.; Mandal, C. R.; Mukherjee, S. C. Single and double electron capture from lithium by fast α particles. J. Phys. B 18, 3797 (1985)<br>India |
| 03892 T | C04:<br>$B^+$ + Si; $As^+$ + Si; $Zn^+$ + GaAs<br>C05:<br>$B^+$ + Si; $As^+$ + Si; $Zn^+$ + GaAs | 20-180 keV | Ashworth, D. G.; Moulavi-Kakhki, M.; Oven, R. Simulation of three-dimensional ion implantation distributions. J. Phys. C 18, 5043 (1985)<br>United Kingdom |
| 03893 E | H02:<br>hν + Si | 25-50 keV | Mika, J. F.; Martin, L. J.; Barnea, Z. X-ray attenuation of silicon in the energy range 25-50 keV. J. Phys. C 18, 5215 (1985)<br>Australia |
| 03894 T | C01:<br>e + MgO | 80-1000 keV | Garcia-Molina, R.; Gras-Marti, A.; Howie, A.; Ritchie, R. H. Retardation effects in the interaction of charged particle beams with bounded condensed media. J. Phys. C 18, 5335 (1985)<br>Spain |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03895 E | E04:<br>$e + H_3^+$<br>E06:<br>$e + H_3^+$ | Undef | Forand, J. L.; Mitchell, J.B.A.; McGowan, J. W. Triatomic molecular dissociation: a method for measuring individual decay channel cross sections. J. Phys. E 18, 623 (1985)<br>Canada |
| 03896 T | D18:<br>H + N + Nb | 1473 K | Metzger, T. H.; Schubert, U.; Peisl, J. The trapping of hydrogen at nitrogen in niobium investigated by diffuse x-ray scattering. J. Phys. F 15, 779 (1985)<br>East Germany |
| 03897 T | D02:<br>$Cl_2^+ + Au$; $Cl_2^+ + Si$; $Ga^+ + Au$; $Ga^+ + Si$; $Cl^+ + Au$; $Cl^+$ Si; $Ga_2^+ + Au$; $Ga_2^+ + Si$; $Xe^+ + Au$; $Xe^+ + Si$; $S^+ + Au$; $S^+ + Si$; $O_2^+ + Au$; $O_2^+ + Si$; $O^+ + Au$; $O^+ + Si$ | 0-1 keV | Steinbruchel, C. On the sputtering yield of molecular ions. J. Vac. Sci. Technol. A 3, 1913 (1985)<br>Switzerland |
| 03898 E | D02:<br>$He^+ + SiO_2$; $Ne^+ + SiO_2$; $Ar^+ + SiO_2$; $Xe^+ + SiO_2$<br>D17:<br>$He^+ + SiO_2$; $Ne^+ + SiO_2$; $Ar^+ + SiO_2$; $Xe^+ + SiO_2$ | 0.5-2.0 keV | Thomas, J. H., III; Hofmann, S. Ion bombardment induced changes in silicon dioxide surface composition studied by x-ray photoelectron spectroscopy. J. Vac. Sci. Technol. A 3, 1921 (1985)<br>United States |
| 03899 E | D03:<br>$Ar^+ + Si$; $Ar^+ + SiO_2$ | 1.5-5.0 keV | Sander, P.; Kaiser, U.; Jede, R.; Lipinsky, D.; Ganschow, O.; Benninghoven, A. Secondary ion and sputtered neutral formation from oxygen loaded Si(100). J. Vac. Sci. Technol. A 3, 1946 (1985)<br>West Germany |
| 03900 T | A17:<br>$He + H_2$ | Undef | Varandas, A.J.C. A double many-body expansion of molecular potential energy functions. I. Hartree-Fock-approximate correlation energy (HFACE) potential for the $HeH_2$ Van der Waals molecule. Mol. Phys. 53, 1303 (1984)<br>East Germany |
| 03901 E | D11:<br>CO + C | Thermal | Piper, J.; Morrison, J. A.; Peters, C. The adsorption of carbon monoxide on graphite. Mol. Phys. 53, 1463 (1984)<br>Canada |
| 03902 T | A11:<br>$H_2 + F^* + h\nu$<br>B07:<br>$F^* + H_2$ | Undef | Last, I.; Baer, M. Examination of the Landau-Zener approximation in reactive atom-diatom collisions. Mol. Phys. 54, 265 (1985)<br>United States |
| 03903 E | H05:<br>$2h\nu + H_2O$; $2h\nu + D_2O$ | 248 nm | Hodgson, A.; Simons, J. P.; Ashfold, M.N.R.; Bayley, J. M.; Dixon, R. N. Quantum state-selected photodissociation dynamics in $H_2O$ and $D_2O$. Mol. Phys. 54, 351 (1985)<br>United Kingdom |
| 03904 T | A11:<br>$He + H_2^*$; $He + HD^*$ | Thermal | Farantos, S. C. A quasiclassical study of collisons of He with HD[B 1Σ(sub u)+]. Mol. Phys. 54, 835 (1985)<br>Greece |
| 03905 E | D09:<br>$SO_2 + Pd$<br>D11:<br>$SO_2 + Pd$<br>D13:<br>$SO_2 + Pd$ | 160-1200 K | Kolzer, J. G.; Wassmuth, H. W. Adsorption, desorption, dissociation and recombination of $SO_2$ on a palladium (111) surface. Ann. Phys. (Germany) 42, 265 (1985)<br>East Germany |
| 03906 T | E05:<br>e + Ar<br>H06:<br>$h\nu + Ar$ | Undef | Amusia, M. Y.; Kheifets, A. S. On our ability to measure the singly ionised rare-gas spectroscopic factors using the (gamma, e) and (e, 2e) reactions. J. Phys. B 18, L679 (1985)<br>Soviet Union |
| 03907 E | A07:<br>$Ar^+ + Ar$; $Ar^{2+} + Ar$; $Ar^{3+} + Ar$ | 15 keV | Ogurtsov, G. N.; Nikulin, V. K.; Mikoushkin, V. M.; Guschina, N. A.; Flaks, I. P. Quenching of autoionisation state excitation due to the collapse of the quasimolecular orbital in the Ar(sup q)+ + Ar system. J. Phys. B 18, L685 (1985)<br>Soviet Union |
| 03908 T | E03:<br>e + H | 54.4-350 eV | Van Wyngaarden, W. L.; Walters, H.R.J. State multipoles for the n = 1 → n = 2 excitation of atomic hydrogen by electron impact. J. Phys. B 18, L689 (1985)<br>United Kingdom |
| 03909 E | E05:<br>e + Ar<br>E19:<br>e + Ar | 8399 eV | Grum-Grzhimailo, A. N. On the theory of the (e, 2e) process for the 2p subshell of argon. J. Phys. B 18, L695 (1985)<br>Soviet Union |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03910 T | H06:<br>$h\nu$ + Xe; $h\nu$ + $Ba^{2+}$; $h\nu$ + $La^{3+}$;<br>$h\nu$ + $Cs^{+}$<br>H07:<br>$h\nu$ + $I^{-}$ | 0-980 eV | Amusia, M. Y.; Ivanov, V. K.; Kupchenko, V. A. The effect of atomic rearrangement on the photoionisation cross section for 3d subshells of the isoelectronic Xe series. J. Phys. B 18, 3871 (1985)<br>Soviet Union |
| 03911 T | E06:<br>e + $Rb^{+}$; e + $H^{+}$<br>H06:<br>$h\nu$ + $Rb^{+}$ | 500-600 K | Wane, S. Radiative recombination in rubidium. J. Phys. B 18, 3881 (1985)<br>France |
| 03912 E | A07:<br>$He^{2+}$ + Yb; $He^{2+}$ + W; $He^{2+}$+ Au;<br>$He^{2+}$ + Pb | 1.2-3.0 MeV | Sokhi, R. S.; Crumpton, D. L-shell ionisation of medium and heavy elements by 1.2-3.0 MeV incident alpha particles. J. Phys. B 18, 3939 (1985)<br>United Kingdom |
| 03913 T | A06:<br>Undef<br>A07:<br>Undef | Undef | Peach, G.; Willis, S. L.; McDowell, M.R.C. The classical theory of charge transfer and ionisation processes in collisions between complex atomic ions. J. Phys. B 18, 3921 (1985)<br>United Kingdom |
| 03914 T | A06:<br>$He^{+}$ + H; $He^{+}$ + $He^{+}$; $H^{+}$ + He;<br>$He^{2+}$ + He<br>A07:<br>$He^{+}$ + H; $He^{+}$ + $He^{+}$; $H^{+}$ + He;<br>$He^{2+}$ + He | 25-1200 keV | Willis, S. L.; Peach, G.; McDowell, M.R.C.; Banerji, J. Charge transfer and ionisation processes in collisions involving atoms and ions of hydrogen and helium. J. Phys. B 18, 3939 (1985)<br>United Kingdom |
| 03915 E | A03:<br>$C^{4+}$ + He; $C^{4+}$ + Ne; $C^{4+}$ + Xe;<br>$C^{4+}$ + Ar<br>A06:<br>$C^{4+}$ + He; $C^{4+}$ + Ne; $C^{4+}$ + Xe;<br>$C^{4+}$ + Ar | 400-500 eV | Cederquist, H.; Andersen, L. H.; Barany, A.; Hvelplund, P.; Knudsen, H.; Nielsen, E. H.; Pedersen, J.O.K.; Sorensen, J. State-selective single- and double-electron capture processes in slow $C^{4+}$ + He, Ne, Ar, and Xe collisions. J. Phys. B 18, 3951 (1985)<br>Sweden |
| 03916 E | E02:<br>e + $CH_4$<br>E03:<br>e + $CH_4$<br>E17:<br>e + $CH_4$ | 0.5-10 eV | Muller, R.; Jung, K.; Kochem, K. H.; Sohn, W.; Ehrhardt, H. Rotational excitation of $CH_4$ by low-energy-electron collisions. J. Phys. B 18, 3971 (1985)<br>West Germany |
| 03917 T | A11:<br>Ar + $N_2$ | 77.3-300 K | Dickinson, A. S.; Lee, M. S. Classical trajectory calculations of transport properties for a model Ar-$N_2$ potential surface. J. Phys. B 18, 3987 (1985)<br>United Kingdom |
| 03918 T | A07:<br>He* + He* | 300 K | Inaba, S.; Goto, T.; Hattori, S. Energy distributions of electrons ejected in collisions of He metastable atoms with He metastable atoms. J. Phys. B 18, L721 (1985)<br>Japan |
| 03919 E | H06:<br>$h\nu$ + Ag | 14-140 eV | Krause, M. O.; Swensson, W. A.; Carlson, T. A.; Leroi, G.; Ederer, D. E.; Holland, D.M.P.; Parr, A. C. Photoeffect in the 4d subshell of atomic silver between 14 and 140 eV. J. Phys. B 18, 4069 (1985)<br>United States |
| 03920 T | A03:<br>Li + Na | 5-1000 keV(c.m.) | Nielsen, S. E.; Larsen, M.; Dahler, J. S. Two-electron model of Li(2s-2p) and Na(3s-3p) excitation in Li-Na high-energy collisions. J. Phys. B 18, 4095 (1985)<br>Denmark |
| 03921 E | C06:<br>$C^{4+}$ + C<br>C07:<br>$C^{4+}$ + C | 24-43 MeV | Woods, C. J.; Cowern, N.E.B.; Bridwell, L. B.; Sofield, C. J. Absolute excited-state populations of fast carbon ions in solids. J. Phys. B 18, 4113 (1985)<br>United Kingdom |
| 03922 T | E03:<br>e + H<br>E17:<br>e + H | 35-100 eV | Kapoor, M.; Saxena, S.; Mathur, K. C. Study of asymmetry in the 1s-2s excitation of the spin-polarised hydrogen atom by a spin-polarised electron. J. Phys. B 18, 4129 (1985)<br>India |
| 03923 T | E03:<br>e + He; e + He* | 18-30 eV | Berrington, K. A.; Burke, P. G.; Freitas, L.C.G.; Kingston, A. E. Electron excitation from the $1^1S$, $2^3S$ and $2^1S$ states of helium. An eleven-state R-matrix calculation. J. Phys. B 18, 4135 (1985)<br>United Kingdom |
| 03924 T | E03:<br>e + He<br>E05:<br>e + He | 1.2-20 keV | Mitroy, J. D.; McCarthy, I. E.; Weigold, E. A natural orbital analysis of the helium (e, 2e) spectrum. J. Phys. B 18, 4149 (1985)<br>Australia |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03925 T | E02:<br>e + Ne; e + Ar; e + Hg; e + Al<br>E17:<br>e + Ne; e + Ar; e + Hg; e + Al | 0.5-500 keV | Salvat, F.; Mayol, R.; Molins, E.; Parellada, J. A simple model for electron scattering: elastic cross-sections. J. Phys. D 18, 1401 (1985)<br>Spain |
| 03926 E-T | K08:<br>Impurities | | Isler, R. C. Impurities in tokamaks. Nucl. Fusion 24, 1599 (1984)<br>United States |
| 03927 T | E02:<br>e + H<br>E17:<br>e + H | 11-35 eV | Callaway, J.; Oza, D. H. Optical-potential model for electron-atom scattering. Phys. Rev. A 32, 2628 (1985)<br>United States |
| 03928 E | H02:<br>hν + Be | 1.5-8.0 keV | Gowda, R.; Powers, D. Photon-attenuation cross sections for beryllium from 1.5 to 8.0 keV. Phys. Rev. A 32, 2637 (1985)<br>United States |
| 03929 E | A03:<br>$H^+$ + He<br>A06:<br>$H^+$ + He<br>A18:<br>$H^+$ + He | 4-8 keV | Mueller, D. W.; Jaecks, D. H. Polarized-photon-scattered-particle correlation measurements in $H^+$ + He collisions. Phys. Rev. A 32, 2650 (1985)<br>United States |
| 03930 T | A17:<br>$Li^+ + H_2$; $Li + H_2$; $Na + H_2$; $K + H_2$; $Rb + H_2$; $Cs + H_2$<br>E02:<br>$e + H_2$<br>E17:<br>$e + H_2$ | 1-10 eV | Rossi, F.; Pascale, J. Pseudopotential molecular-structure calculations for alkali-metal-atom-$H_2$ systems. Phys. Rev. A 32, 2657 (1985)<br>France |
| 03931 T | A01:<br>Undef | Undef | Suck Salk S. H. Analysis of perturbation methods for rearrangement collisions: comparison of distorted-wave and coupled-channel-wave transition amplitudes. Phys. Rev. A 32, 2670 (1985)<br>United States |
| 03932 E | C07:<br>$Ne^{2+}$ + C | 40 MeV | Palinkas, J.; Maurer, R. J.; Watson, R. L. Delayed emission of 2p-1s and 3p-1s x rays from 40-MeV neon ions following beam-foil excitation. Phys. Rev. A 32, 2674 (1985)<br>United States |
| 03933 T | B07:<br>Sr + Ca | | Yagisawa, H. Transition process under intense laser field: Sr(5s5p $^1P_1$) + Ca(4s$^2$ $^1S_0$) + h bar omega → Sr(5s$^2$ $^1S_0$) + Ca(3d4p $^1P_1$). Phys. Rev. A 32, 2682 (1985)<br>Japan |
| 03934 T | E17:<br>e + H | 20-500 eV | Khare, S. P.; Prakash, S. Comparison of integral-equation approximations for $e^{+-}$ + H scattering at intermediate energies. Phys. Rev. A 32, 2689 (1985)<br>India |
| 03935 T | E02:<br>e + $CH_4$<br>E17:<br>e + $CH_4$ | 3-20 eV | Lima, M.A.P.; Gibson, T. L.; Huo, W. M.; McKoy, V. Studies of electron-polyatomic-molecule collisions: applications to e-$CH_4$. Phys. Rev. A 32, 2696 (1985)<br>United States |
| 03936 T | A06:<br>$H^+$ + H<br>A18:<br>$H^+$ + H | $10^{-3}$-$10^1$ MeV | Miraglia, J. E. Radiative electron capture in proton-hydrogen collision. Phys. Rev. A 32, 2702 (1985)<br>Argentina |
| 03937 T | A06:<br>$H^+$ + Na<br>A17:<br>$Na^+$ + H<br>B07:<br>$H^+$ + Na | Undef | Hsu, Y. P.; Olson, R. E. Satellite structure in laser-assisted charge-transfer cross sections. Phys. Rev. A 32, 2707 (1985)<br>United States |
| 03938 T | H04:<br>Undef | Undef | Diebold, G. J. Quantum-mechanical interference in two-photon absorption: a nonlinear analogue of the Hanle effect. Phys. Rev. A 32, 2739 (1985)<br>United States |
| 03939 T | H04:<br>hν + Cs + He | 6100-5400 Å | O'Callaghan, M. J.; Gallagher, A.; Holstein, T. Absorption and emission of radiation in the region of an avoided level crossing. Phys. Rev. A 32, 2754 (1985)<br>United States |
| 03940 T | H06:<br>nhν + H | 0.2-0.5 a.u. | Chu, S. I.; Cooper, J. Threshold shift and above-threshold multiphoton ionization of atomic hydrogen in intense laser fields. Phys. Rev. A 32, 2769 (1985)<br>United States |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03941 T | E05:<br>e + He<br>E17:<br>e + He | 200-2800 eV | Roy, A. C.; Watanabe, T. Doubly differential cross sections for electron-impact ionization of helium. Phys. Rev. A 32, 3090 (1985)<br>West Germany |
| 03942 T | A06:<br>H + Na; $H^-$ + $Na^+$<br>A09:<br>$H^-$ + $Na^+$ | 0.4-4.0 keV | Olson, R. E.; Kimura, M. Molecular-state cross-section calculations for H + Na going to or coming from $H^-$ + $Na^+$. Phys. Rev. A 32, 3092 (1985)<br>United States |
| 03943 T | E05:<br>e + H | 250 eV | Baliyan, K. S.; Srivastava, M. K. Triple-differential cross sections for the fast-electron-impact ionization of atomic hydrogen. Phys. Rev. A 32, 3098 (1985)<br>India |
| 03944 T | A06:<br>Undef | Undef | Jakubassa-Amundsen, D. H.; Amundsen, Per A. Exact relativistic second Born approximation for electron capture. Phys. Rev. A 32, 3106 (1985)<br>West Germany |
| 03945 T | H06:<br>hν + Xe | Undef | Deshmukh, P. C.; Manson, S. T. Application of the relativistic random-phase approximation to Xe 5s photoionization. Phys. Rev. A 32, 3109 (1985)<br>India |
| 03946 T | C02:<br>$H^+$ + Cu | 7 MeV | Sakamoto, N.; Shiomi, N.; Ishiwari, R. *Erratum: Geometrical effect on the measurement of stopping power: angle-dependent energy loss of 7-MeV protons in Cu foils and computer simulation [Phys. Rev. A 27, 810(1983)]. Phys. Rev. A 32, 3147 (1985)<br>Japan |
| 03947 E-T | A12:<br>Rb* + Xe | 706 K | Bieniek, R. J. Normalized line shapes for far-wing continuum spectra: the Rb-Xe satellite band. Phys. Rev. A 32, 3150 (1985)<br>United States |
| 03948 E | D13:<br>hν + $N_2$; hν + CO; hν + NO; hν + $O_2$; hν + $N_2O$ | 280-580 eV | Rosenberg, R. A.; Love, P. J.; LaRoe, P. R.; Rehn, V.; Parks, C. C. K-shell photoexcitation of solid $N_2$, CO, NO, $O_2$, and $N_2O$. Phys. Rev. B 31, 2634 (1985)<br>United States |
| 03949 E | D07:<br>He + Cu; Ne + Cu; Ar + Cu; $H_2$ + Cu; $N_2$ + Cu | 63 meV | Rieder, K. H.; Stocker, W. Scattering of He, Ne, Ar, $H_2$, and $N_2$ from Cu(110). Phys. Rev. B 31, 3392 (1985)<br>Switzerland |
| 03950 E | C02:<br>$He^+$ + C | 0.6-8.0 MeV | de Pinho, A. G. Effect of target thickness on the $He^+$ stopping power. Phys. Rev. B 31, 4650 (1985)<br>Brazil |
| 03951 E | D13:<br>hν + $O_2$ + Cr | 40-75 eV | Bertel, E.; Stockbauer, R.; Kurtz, R. L.; Ramaker, D. E.; Madey, T. E. Resonant photoemission and the mechanism of photon-stimulated ion desorption in a transition-metal oxide. Phys. Rev. B 31, 5580 (1985)<br>United States |
| 03952 T | D13:<br>e + H + W; e + H + Ni; e + F + W; e + C + W; e + O + Nb; e + O + W; e + O + Ti; e + O + Pt; e + O + Mo; e + H + Nb; hν + H + W; hν + H + Ni; hν + F + W; hν + C + W; hν + O + Nb; hν + O + W; hν + O + Ti; hν + O + Pt; hν + O + Mo; hν + H + Nb | 0-10 eV | Clinton, W. L.; Jutila, R. E. Ion energy distributions from photon- and electron-stimulated desorption: reflection approximation. Phys. Rev. B 31, 6441 (1985)<br>United States |
| 03953 T | D13:<br>hν + OH + Ti; hν + OH + Cr; hν + $H_2O$ | 30-100 eV | Bertel, E.; Ramaker, D. E.; Kurtz, R. L.; Stockbauer, R.; Madey, T. E. Photon-stimulated desorption of $H^+$ ions from OH on Ti and Cr: comparison with bulk solid $H_2O$. Phys. Rev. B 31, 6840 (1985)<br>United States |
| 03954 T | D03:<br>Undef | Undef | Gagliano, E. R.; Goldberg, E. C.; Passeggi, M.C.G.; Ferron, J. Tight-binding model for secondary-ion emission. Phys. Rev. B 31, 6988 (1985)<br>Argentina |
| 03955 T | D13:<br>Undef | Undef | Clinton, W. L.; Esrick, M. A.; Sacks, W. S. Angular distributions of ions desorbing from a stepped surface. Phys. Rev. B 31, 7550 (1985)<br>United States |
| 03956 T | D09:<br>Undef | Undef | Kawai, N. Resonant neutralization of ions scattered from surfaces in the intermediate-velocity regime. Phys. Rev. D 32, 1013 (1985)<br>Japan |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03957 | K03:<br>Lasers | | George, T. F.; Lin, J.; Beri, A. C.; Murphy, W. C. Theory of laser-stimulated surface processes. Prog. Surf. Sci. 16, 139 (1984)<br>United States |
| 03958 | K04:<br>Photoelectron spectroscopy | | Fadley, C. S. Angle-resolved x-ray photoelectron spectroscopy. Prog. Surf. Sci. 16, 275 (1984)<br>United States |
| 03959 E-T | K01:<br>Ion-ion collisions | | Dolder, K.; Peart, B. Experimental aspects of two-body ion-ion collisions. Rep. Prog. Phys. 48, 1283 (1985)<br>United Kingdom |
| 03960 E-T | D04:<br>$Ar^+$ + Al | 10-50 keV | Benazeth, C.; Benazeth, N.; Hou, M. Absolute Auger yields in $Ar^+$ + Al collisions: experiments and computer simulations. Surf. Sci. 151, L137 (1985)<br>France |
| 03961 T | D06:<br>e + C; e + Al; e + Ag; e + Cu;<br>e + Ge; e + Si; e + V; e + Fe; e + Mo | 2.2-3.1 keV | Jablonski, A. Elastic backscattering of electrons from surfaces. Surf. Sci. 151, 166 (1985)<br>West Germany |
| 03962 E | D17:<br>$Ar^+$ + CuO; $Ar^+$ + $Cu_2O$ | 3-5 keV | Panzner, G.; Egert, B.; Schmidt, H. P. The stability of CuO and $Cu_2O$ surfaces during argon sputtering studied by XPS and AES. Surf. Sci. 151, 400 (1985)<br>West Germany |
| 03963 T | D07:<br>Undef | Undef | Kara, A.; Armand, G. Elastic scattering of neutral particles from a surface with isolated defects using a soft potential. Surf. Sci. 152-153, 77 (1985)<br>France |
| 03964 T | D07:<br>Undef | Undef | Schlup, W. A. Matrix inversion for the GR method in surface scattering. Surf. Sci. 152-153, 88 (1985)<br>Switzerland |
| 03965 E | D07:<br>$Na^+$ + Pt | 2000 eV | Niehus, H.; Comsa, G. Alkali ion impact collision scattering at Pt(111). Surf. Sci. 152-153, 93 (1985)<br>West Germany |
| 03966 E-T | D08:<br>NO + Ag | 0.44 eV | Kleyn, A. W.; Luntz, A. C.; Auerbach, D. J. Rotational polarization in NO scattering from Ag(111). Surf. Sci. 152-153, 99 (1985)<br>The Netherlands |
| 03967 E | D08:<br>$Ne^+$ + Cu<br>D09:<br>$Ne^+$ + Cu | 4 keV | Van Zoest, J. M.; Van der Mey, C. E.; Fluit, J. M.; Niehaus, A. Directional dependence of ion neutralization at a surface. Surf. Sci. 152-153, 106 (1985)<br>The Netherlands |
| 03968 T | D01:<br>Undef | Undef | Landuyt, J. P.; De Gryse, R.; Van der Elstraeten, L.; Vennik, J. A neval algorithm to determine the collision in ion scattering simulations. Surf. Sci. 152-153, 114 (1985)<br>Belgium |
| 03969 E | D03:<br>$Ar^+$ + Si; $Ar^+$ + Ga; $Ar^+$ + Ni | 1.5 keV | List, W.; Rohrer, L.; Hoinkes, H.; Wilsch, H. Investigation of secondary ion yields from In and Ga at the solid-liquid phase transition. Surf. Sci. 152-153, 121 (1985)<br>West Germany |
| 03970 T | D03:<br>Undef | Undef | Plog, C.; Gerhard, W. Secondary ion production by latent energy of neutrally emitted particles. Surf. Sci. 152-153, 127 (1985)<br>West Germany |
| 03971 E | D04:<br>$H^+$ + Cu; $H^+$ + Zn; $H_2^+$ + Cu; $H_2^+$ + Zn;<br>$He^+$ + Cu; $He^+$ + Zn; $Ne^+$ + Cu;<br>$Ne^+$ + Zn; $Ar^+$ + Cu; $Ar^+$ + Zn;<br>$Kr^+$ + Cu; $Kr^+$ + Zn; $Xe^+$ + Cu;<br>$Xe^+$ + Zn | 5-20 keV | Zalm, P. C.; Beckers, L. J. Ion-induced secondary electron emission from copper and zinc. Surf. Sci. 152-153, 135 (1985)<br>The Netherlands |
| 03972 E | D11:<br>$H_2$ + Pt; CO + Pt | 300 K | Poelsema, B.; Verheij, L. K.; Comsa, G. Temperature dependency of the initial sticking probability of $H_2$ and CO on Pt(111). Surf. Sci. 152-153, 496 (1985)<br>West Germany |
| 03973 E | D13:<br>Undef | Undef | Bertel, E.; Stockbauer, R.; Kurtz, R. L.; Madey, T. E.; Ramaker, D. E. The decay channels of the 3p resonance in the 3d transition metals and their relevance to the mechanism of electron and photon stimulated ion desorption. Surf. Sci. 152-153, 776 (1985)<br>Austria |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03974 T | D07:<br>Undef<br>D08:<br>Undef | Undef | Holloway, S.; Gadzuk, J. W. Energy redistribution and dissociation in molecule-surface collisions involving charge transfer/surface hopping. Surf. Sci. 152-153, 838 (1985)<br>Sweden |
| 03975 E | D02:<br>$Ar^+$ + Cr + Mo<br>D17:<br>$Ar^+$ + Cr + Mo | 2 keV | Dawson, P. T.; Petrone, S. A. Surface segregation and preferential sputtering in Cr-Mo alloys. Surf. Sci. 152-153, 925 (1985)<br>Canada |
| 03976 T | D07:<br>$Ne^+$ + Ti | 5 keV | Takeuchi, W.; Yamamura, Y. Kinetic energy versus total scattering angle diagrams for large-angle surface ion scattering. Surf. Sci. 154, 1 (1985)<br>Japan |
| 03977 T | D11:<br>$H_2$ + Ni | 300 K | Steinruck, H. P.; Bendulic, K. D.; Winkler, A. The sticking coefficient of $H_2$ on Ni(111) as a function of particle energy and angle of incidence: a test of detailed balancing. Surf. Sci. 154, 99 (1985)<br>Austria |
| 03978 T | D07:<br>Undef | Undef | Marvin, A. M.; Celli, V.; Toigo, F. Debye-Waller factor in atom-surface scattering: elastic and inelastic channels. Surf. Sci. 154, 121 (1985)<br>Italy |
| 03979 T | D07:<br>Undef | Undef | Newns, D. M. On improving the trajectory approximation in atom-surface scattering. I. Formalism. Surf. Sci. 154, 658 (1985)<br>United States |
| 03980 E-T | D08:<br>$He^+$ + W<br>D09:<br>$He^+$ + W | 0.3-2.6 keV | Orvek, K. J.; Helbig, H. F.; Czanderna, A. W.; Thygesen, K. H. Neutralization of helium ions backscattered from tungsten. Surf. Sci. 159, 35 (1985)<br>United States |
| 03981 T | D08:<br>$He^+$ + Mo<br>D09:<br>$He^+$ + Mo | 1 keV | Lee, H. W.; George, T. F. Neutralization and excitation in low-energy ion-surface collisions. Surf. Sci. 159, 214 (1985)<br>United States |
| 03982 T | E03:<br>e + He | 41-60 eV | Semenyuk, Y. N. An electron-impact study of structure of the resonance excitation cross section in helium ions. Ukr. Phys. J. 29, 1252 (1984)<br>Soviet Union |
| 03983 E | H04:<br>hν + Xe | 33.94-34.54 keV | Czerwinski, H.; Smend, F.; Schaupp, D.; Schumacher, M.; Millhouse, A. H.; Schenk-Strauss, H. Resonant Raman scattering of synchrotron x rays by xenon: test of angular and polarization dependence of RRS. Z. Phys. A 322, 183 (1985)<br>West Germany |
| 03984 T | A06:<br>$O^{8+}$ + He; $N^{10+}$ + He | 17-20 MeV | Jakubassa-Amundsen, D. H. Radiative electron capture accompanying resonant nuclear scattering. Z. Phys. A 322, 191 (1985)<br>West Germany |
| 03985 E | H06:<br>hν + Xe | 100-96 nm | Heckenkamp, C.; Schafers, F.; Schonhense, G.; Heinzmann, U. The photoelectron spin-polarization parameters in the 5p-autoionization range of xenon. XIV ICPEAC, Palo Alto, Abstracts, p. 3, Stanford University (1985)<br>West Germany |
| 03986 E | H06:<br>hν + Hg | 10-32 eV | Schafers, F.; Heckenkamp, C.; Heinzmann, U. Photoelectron spin-polarization in the Cooper minimum of Hg 6s. XIV ICPEAC, Palo Alto, Abstracts, p. 5, Stanford University (1985)<br>West Germany |
| 03987 E | H06:<br>hν + Cl | 780-200 A° | Samson, J.A.R.; Shafer, Y.; Angel, G. C. Photoionization of atomic and molecular chlorine. XIV ICPEAC, Palo Alto, Abstracts, p. 6, Stanford University (1985)<br>United States |
| 03988 E | H06:<br>hν + Ba* | 12-140 eV | Bizau, J. M.; Cubaynes, D.; Gerard, P.; Wuilleumier, F.; Keller, J. C.; LeGouet, J. L.; Picque, J. L.; Carre, B.; Eberer, D.; Wendin, G. Measurement of the 5d photoionization cross section in laser excited barium atoms between 15 eV and 150 eV photon energy. XIV ICPEAC, Palo Alto, Abstracts, p. 7, Stanford University (1985)<br>France |
| 03989 E | H06:<br>hν + Ba | 100-140 eV | Becker, U.; Holzel, B.; Kerkhoff, H. G.; Langer, B.; Szostak, D.; Wehlitz, R. Evidence for shape resonance dependent satellite behavior in atomic barium. XIV ICPEAC, Palo Alto, Abstracts, p. 12, Stanford University (1985)<br>West Germany |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 03990 T | H06: $h\nu$ + Cs* | 600-300 nm | Theodosiou, C. E. Photoionization of excited Cs I states. XIV ICPEAC, Palo Alto, Abstracts, p. 18, Stanford University (1985) United States |
| 03991 T | H06: $h\nu$ + B | 1.2-6.0 Ry | Bhattacharya, S. K.; Manson, S. T. Threshold effects in inner-shell photoionization of open-shell atoms: Hartree-Fock calculations of boron. XIV ICPEAC, Palo Alto, Abstracts, p. 20, Stanford University (1985) United States |
| 03992 T | H06: $h\nu$ + Na* | 0-1.0 Ry | Msezane, A. Z.; Manson, S. T. Photoionization of the excited Na 4d state. XIV ICPEAC, Palo Alto, Abstracts, p. 21, Stanford University (1985) United States |
| 03993 T | H06: $h\nu$ + Hg | 10.5-14.0 eV | Bartschat, K.; Scott, N. S. Photoionization of mercury. XIV ICPEAC, Palo Alto, Abstracts, p. 23, Stanford University (1985) United Kingdom |
| 03994 T | H06: $h\nu$ + $N_2$ | 0-1 a.u. | McCurdy, C. W.; Yu, C. H.; Pitzer, R. M. Molecular photoionization cross sections by the complex basis function method. XIV ICPEAC, Palo Alto, Abstracts, p. 44, Stanford University (1985) United States |
| 03995 T | H06: $h\nu$ + $H_2$ | 736 A° | Hara, S. The rotationally and vibrationally resolved photoionization of $H_2$ by 736 A° line. XIV ICPEAC, Palo Alto, Abstracts, p. 46, Stanford University (1985) Japan |
| 03996 E | H07: $h\nu$ + $He^-$ | 1.22-2.50 eV | Bae, Y. K.; Peterson, J. R. Modified photodetachment threshold behavior near resonances. XIV ICPEAC, Palo Alto, Abstracts, p. 48, Stanford University (1985) United States |
| 03997 E | H07: $h\nu$ + $He^-$ | 1.22-1.39 eV | Peterson, J. R.; Bae, Y. K.; Coggiola, M. J.; Huestis, D. L. Details of the $He^-$ $^4P$ (sup e) shape resonance and the He ($2^3S$) electron affinity. XIV ICPEAC, Palo Alto, Abstracts, p. 49, Stanford University (1985) United States |
| 03998 T | H05: $2h\nu$ + $HD^+$ | 1.6-1.7x10⁴ A° | Chakrabarti, M. K.; Bhattacharyya, S. S.; Datta, K. K.; Saha, S. Two-photon dissociation of $HD^+$ by the 1s sigma(sub g) → 1s sigma(sub g) vibrational transition. XIV ICPEAC, Palo Alto, Abstracts, p. 90, Stanford University (1985) India |
| 03999 T | E17: e + H | 30-400 eV | Khare, S. P.; Prakash, S. Relationship between Fredholm integral equation and Schwinger variational principle and its application to atomic scattering. XIV ICPEAC, Palo Alto, Abstracts, p. 93, Stanford University (1985) India |
| 04000 T | E02: e + He | 0-20 eV | Campeanu, R. I. Semiempirical model description of the low energy electron scattering from helium. XIV ICPEAC, Palo Alto, Abstracts, p. 99, Stanford University (1985) Romania |
| 04001 E | E02: e + Ar | 300-800 eV | Iga, I.; Mu-Tao, L.; Nogueira, J. C.; Barbieri, R. S. Elastic cross sections for electron-argon scattering in the intermediate energy (300-1000 eV) range. XIV ICPEAC, Palo Alto, Abstracts, p. 105, Stanford University (1985) Brazil |
| 04002 E | E02: e + Xe | 5-200 eV | Nishimura, H.; Danjo, A.; Matsuda, T. Differential scattering cross sections of electrons from Xe. XIV ICPEAC, Palo Alto, Abstracts, p. 108, Stanford University (1985) Japan |
| 04003 T | E03: e + He E17: e + He | 80 eV | Csanak, G.; Cartwright, D. C. Cross sections and coincidence parameters for excitation of the $n^1L$ (n = 2,3,4) states of helium. XIV ICPEAC, Palo Alto, Abstracts, p. 110, Stanford University (1985) United States |
| 04004 E | E03: e + He | 18-40 eV | Williams, J. F.; Humphrey, I. Electron impact excitation of the $3^3P$ state of helium. XIV ICPEAC, Palo Alto, Abstracts, p. 112, Stanford University (1985) Australia |
| 04005 T | E03: e + H E17: e + H | 100 eV | Saxena, S.; Gupta, G. P.; Mathur, K. C. Electron impact excitations of 3s and 4s states of hydrogen. XIV ICPEAC, Palo Alto, Abstracts, p. 123, Stanford University (1985) India |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 04006 E | D12:<br>e + Au; e + U | 75 keV | Altman, J. C.; Quarles, C. Double atomic-field bremsstrahlung. XIV ICPEAC, Palo Alto, Abstracts, p. 139, Stanford University (1985)<br>United States |
| 04007 E | E05:<br>e + He<br>E17:<br>e + He | 33.5 eV | Van der Burgt, P.J.M.; Van Eck, J.; Heideman, H.G.M.; Nienhuis, G. An optical potential model for post-collision interaction in ejected electron spectra. XIV ICPEAC, Palo Alto, Abstracts, p. 156, Stanford University (1985)<br>The Netherlands |
| 04008 E | E05:<br>e + He<br>E17:<br>e + He | 500 eV | Avaldi, L.; Camilloni, R.; Fainelli, E.; Stefani, G. Absolute double differential ionization cross-section for electron impact: He. XIV ICPEAC, Palo Alto, Abstracts, p. 157, Stanford University (1985)<br>Italy |
| 04009 E | E05:<br>e + Cl; e + Br; e + I | 10-200 eV | Hayes, T. R.; Wetzel, R. C.; Freund, R. S. Electron impact ionization cross section measurements of the chlorine, bromine, and iodine atoms. XIV ICPEAC, Palo Alto, Abstracts, p. 161, Stanford University (1985)<br>United States |
| 04010 E | A03:<br>He+ + Ar; H+ + Ar<br>A07:<br>H+ + Ar; He+ + Ar<br>E03:<br>e + Ar<br>E05:<br>e + Ar | 20-4x10⁴ keV/amu | Schartner, K. H.; Kraus, B.; Flaig, H. J.; Reymann, K. Production of excited Ar II- and Ar III-ions by proton-and electron-impact. XIV ICPEAC, Palo Alto, Abstracts, p. 165, Stanford University (1985)<br>West Germany |
| 04011 E | E05:<br>e + Xe | 16-160 eV | Mathur, D.; Bodrinatham, C. Partial cross sections for single and multiple ionization of Xe using crossed electron-neutral beams. XIV ICPEAC, Palo Alto, Abstracts, p. 167, Stanford University (1985)<br>India |
| 04012 E | E05:<br>e + Ar | 42-100 eV | Huber, B. A.; Puerta, J.; Wiesemann, K. Single electron impact ionization cross sections for ground state and metastable $Ar^{2+}$ ions. XIV ICPEAC, Palo Alto, Abstracts, p. 168, Stanford University (1985)<br>West Germany |
| 04013 I | E05:<br>e + H | 500 eV | Baliyan, K. S.; Srivastava, M. K. Importance of higher-order effects in large-angle coplanar symmetric (e,2e) processes. XIV ICPEAC, Palo Alto, Abstracts, p. 170, Stanford University (1985)<br>India |
| 04014 I | E05:<br>e + H<br>E17:<br>e + H | 250 eV | Roy, A. C. Triply differential cross sections for the H(e,2e)H+ process. XIV ICPEAC, Palo Alto, Abstracts, p. 171, Stanford University (1985)<br>Australia |
| 04015 E | E05:<br>e + Xe<br>E17:<br>e + Xe | 1000 eV | Cook, J.P.D.; McCarthy, I. E.; Mitroy, J. D.; Weigold, E. The noncoplanar symmetric (e,2e) reaction on the valence orbitals of xenon. XIV ICPEAC, Palo Alto, Abstracts, p. 173, Stanford University (1985)<br>Australia |
| 04016 I | E03:<br>e + H<br>E17:<br>e + H | 54.4 eV | Dewangan, D. P.; Khadkikar, S. B. A new approach to scattering by multi-central interactions. XIV ICPEAC, Palo Alto, Abstracts, p. 198, Stanford University (1985)<br>India |
| 04017 I | E03:<br>e + He* | 30-100 eV | Cartwright, D. C.; Csanak, G. Electron-impact excitation from the $2^3S$ metastable state of helium to higher electronic states. XIV ICPEAC, Palo Alto, Abstracts, p. 199, Stanford University (1985)<br>United States |
| 04018 I | E03:<br>e + Na; e + K<br>E17:<br>e + Na; e + K | 60-100 eV | Bielschowsky, C. E.; Lins de Barros, H.G.P. Electron impact excitation of alkali atoms. XIV ICPEAC, Palo Alto, Abstracts, p. 201, Stanford University (1985)<br>Brazil |
| 04019 I | E02:<br>e + $H_2$<br>E03:<br>e + $H_2$<br>E17:<br>e + $H_2$ | 0.06-10 eV | Feldt, A. N.; Gibson, T. L.; Morrison, M. A.; Saha, B. C. Theoretical cross sections for low-energy e-$H_2$ scattering. XIV ICPEAC, Palo Alto, Abstracts, p. 219, Stanford University (1985)<br>United States |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 04020 T | E02:<br>$e + H_2$ | 100-800 eV | Rao, N. S.; Desai, H. S. Scattering of electrons by hydrogen molecule in independent united atom model. XIV ICPEAC, Palo Alto, Abstracts, p. 220, Standford University (1985)<br>India |
| 04021 E | E02:<br>$e + O_2$ | 400-800 eV | Iga, I.; Mu-Tao, L.; Nogueira, J. C.; Barbieri, R. S.; Lopes, M.C.A. Electron elastic cross sections measurements for $O_2$ at intermediate energy (300-1000 eV) range. XIV ICPEAC, Palo Alto, Abstracts, p. 224, Stanford University (1985)<br>Brazil |
| 04022 E | E17:<br>$e + CH_4$ | 0.03-30 eV | Ferch, J.; Granitza, B.; Raith, W. Low-energy electron scattering on methane. XIV ICPEAC, Palo Alto, Abstracts, p. 233, Stanford University (1985)<br>West Germany |
| 04023 E | E03:<br>$e + CH_4$<br>E17:<br>$e + CH_4$ | 0.5-10 eV | Muller, R.; Jung, K.; Ehrhardt, H. Rotational and rovibrational excitation of $CH_4$ by electron impact between 0.5 eV and 10 eV. XIV ICPEAC, Palo Alto, Abstracts, p. 234, Stanford University (1985)<br>West Germany |
| 04024 T | E02:<br>$e + CH_4$<br>E03:<br>$e + H_2$ | 7.5-12 eV | Lima, M.A.P.; Gibson, T. L.; Huo, W. M.; McKoy, V. Multichannel Schwinger variational calculations of low-energy electron-molecule collisions. XIV ICPEAC, Palo Alto, Abstracts, p. 235, Stanford Univesity (1985)<br>United States |
| 04025 T | E03:<br>$e + H_2$ | 12-20 eV | Schneider, B. I.; Collins, L. A. A linear algebraic approach to electronic excitation of atoms and molecules by electron impact. XIV ICPEAC, Palo Alto, Abstracts, p. 241, Stanford University (1985)<br>United States |
| 04026 T | E17:<br>$e + H_2$ | 200-400 eV | Rao, N. S. Inelastic scattering of electrons by hydrogen molecule. XIV ICPEAC, Palo Alto, Abstracts, p. 243, Stanford University (1985)<br>India |
| 04027 E | E04:<br>$e + CO$; $e + CO_2$; $e + CH_4$<br>E05:<br>$e + CO$; $e + CO_2$; $e + CH_4$ | 10-500 eV | Orient, O. J.; Srivastava, S. K. Ionization and dissociative ionization of CO, $CO_2$, and $CH_4$ by electron impact. XIV ICPEAC, Palo Alto, Abstracts, p. 273, Stanford University (1985)<br>United States |
| 04028 T | E04:<br>$e + H_2$<br>E09:<br>$e + H_2$ | 6-14 eV | Bhattacharyya, S.; Chatterjee, L.; Basuchoudhury, K. An ab-initio study of the dissociative attachment of $H_2$ of electrons at energies 6 eV to 12 eV. XIV ICPEAC, Palo Alto, Abstracts, p. 280, Stanford University (1985)<br>India |
| 04029 T | E03:<br>$e + O^{2+}$; $e + Ne^{4+}$; $e + Mg^{6+}$; $e + Si^{8+}$ | 2-90 Ry | Ajgarwal, K. M. Electron impact excitation of optically allowed transitions in C-like ions. XIV ICPEAC, Palo Alto, Abstracts, p. 287, Stanford University (1985)<br>United Kingdom |
| 04030 E-T | E03:<br>$e + Mg^+$<br>E17:<br>$e + Mg^+$ | 35-50 eV | Williams, I. D.; Chutjian, A.; Msezane, A. Z.; Henry, R.J.W. Differential electron scattering cross sections for the 3s $^2S_{1/2}$ → 3p $^2P_{1/2,3/2}$ transitions in Mg II: Comparison of experiment and theory. XIV ICPEAC, Palo Alto, Abstracts, p. 289, Stanford University (1985)<br>United States |
| 04031 T | E03:<br>$e + Li^+$ | 148-500 eV | Srivastava, R.; Katiyar, A. K. Excitation of doubly excited autoionization states in ions. XIV ICPEAC, Palo Alto, Abstracts, p. 293, Stanford University (1985)<br>India |
| 04032 E | E05:<br>$e + Ne^{7+}$ | 2.5-20 keV | Chantrenne, S.; Defrance, P.; Rachafi, S.; Belic, D.; Brouillard, F. Electron impact ionization of $Ne^{7+}$. XIV ICPEAC, Palo Alto, Abstracts, p. 299, Stanford University (1985)<br>Belgium |
| 04033 E | E05:<br>$e + Ti^+$; $e + Ti^{2+}$ | 12-2000 eV | Diserens, M. J.; Harrison, M.F.A.; Smith, A.C.H. Ionization of $Ti^+$, $Ti^{2+}$, and $Ar^{2+}$ by electron impact. XIV ICPEAC, Palo Alto, Abstracts, p. 300, Stanford University (1985)<br>United Kingdom |
| 04034 E | E05:<br>$e + Bi^+$; $e + Bi^{2+}$; $e + Bi^{3+}$ | 11-1000 eV | Muller, A.; Tinschert, K.; Achenbach, C.; Salzborn, E.; Becker, R.; Pindzola, M. S. Single and multiple ionization of multiply charged ions by electron impact. XIV ICPEAC, Palo Alto, Abstracts, p. 301, Stanford University (1985)<br>West Germany |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 04035 T | E03:<br>$e + Kr^{28+}$ | 10 keV | Msezane, A. Z.; Lee, J.; Henry, R.J.W.; Reed, K. J. Electron impact excitation of $Kr^{28+}$. XIV ICPEAC, Palo Alto, Abstracts, p. 302, Stanford University (1985)<br>United States |
| 04036 E | E05:<br>$e + Na^+$; $e + K^+$ | 0.030-3 keV | Hirayama, T.; Oda, K.; Morikawa, Y.; Ono, T.; Ikezaki, Y.; Kobayashi, S.; Takayanagi, T.; Wakiya, K.; Suzuki, H. Measurements of cross section for single and double ionization for $Na^+$, $K^+$, and $Ba^+$. XIV ICPEAC, Palo Alto, Abstracts, p. 303, Stanford University (1985)<br>Japan |
| 04037 T | E05:<br>$e + B^{2+}$; $e + C^{3+}$; $e + N^{4+}$; $e + O^{5+}$ | 6.3-22.9 Ry | Campeanu, R. I.; Nagy, L. Distorted wave cross sections for electron-impact ionization of the lithium-like ions. XIV ICPEAC, Palo Alto, Abstracts, p. 304, Stanford University (1985)<br>Romania |
| 04038 E | E06:<br>$e + S^{5+}$ | 0-22 eV | Dittner, P. F.; Datz, S.; Miller, P. D.; Pepmiller, P. L. Dielectronic recombination measurements of $P^{4+}$, $S^{5+}$, and $Cl^{6+}$. XIV ICPEAC, Palo Alto, Abstracts, p. 306, Stanford University (1985)<br>United States |
| 04039 T | E06:<br>$e + Mg^+$ | 3.9-4.7 eV | Hickman, A. P. Dielectronic recombination of $Mg^+$. XIV ICPEAC, Palo Alto, Abstracts, p. 309, Stanford University (1985)<br>United States |
| 04040 T | E04:<br>$e + H_2^+$<br>E06:<br>$e + H_2^+$ | 0.06-0.5 eV | Takagi, H.; Nakamura, H. Dissociative recombination of $H_2^+$ by collisions with slow electrons. XIV ICPEAC, Palo Alto, Abstracts, p. 316, Stanford University (1985)<br>Japan |
| 04041 E | E17:<br>$e + Na$ | 0-78 eV | Stein, T. S.; Kwan, C. K.; Gomez, R. D.; Hsieh, Y. F.; Kauppila, W. E.; Wan, Y. J. Positron-and electron-alkali (sodium and potassium) total cross section measurements. XIV ICPEAC, Palo Alto, Abstracts, p. 322, Stanford University (19859<br>United States |
| 04042 E | E17:<br>$e + O_2$ | 1-500 eV | Kwan, C. K.; Hsieh, Y. F.; Kauppila, W. E.; Smith, S. J.; Stein, T. S. Positron and electron total cross-section measurements for molecular oxygen. XIV ICPEAC, Palo Alto, Abstracts, p. 332, Stanford University (1985)<br>United States |
| 04043 T | A03:<br>$Li + Na$ | 4-1000 keV(c.m.) | Nielsen, S. E.; Larsen, M.; Dahler, J. S. Two electron model calculations of Li(2s-2p) and Na(3s-3p) excitation in Li-Na high energy collisions. XIV ICPEAC, Palo Alto, Abstracts, p. 358, Stanford University (1985)<br>Denmark |
| 04044 E | A07:<br>$He^* + Ar$ | 0.03-8 eV | Jerram, P. A.; Smith, A.C.H. Velocity dependence of chemi-ionization of rare gas atoms and simple molecules. XIV ICPEAC, Palo Alto, Abstracts, p. 375, Stanford University (1985)<br>United Kingdom |
| 04045 T | A03:<br>$H^+ + He$; $H + He$<br>A17:<br>$H^+ + He$; $H + He$ | 100 eV | Khurana, I.; Srivastava, R.; Tripathi, A. N. Excitation of helium by $H^+$ and H impact: a distorted wave approach. XIV ICPEAC, Palo Alto, Abstracts, p. 380, Stanford University (1985)<br>India |
| 04046 T | A03:<br>$H^+ + H$ | 10-200 keV | Reinhold, C. O.; Miraglia, J. E. Proton-hydrogen excitation at high and intermediate energies. XIV ICPEAC, Palo Alto, Abstracts, p. 381, Stanford University (1985)<br>Argentina |
| 04047 E | A03:<br>$Li^+ + H$<br>A18:<br>$Li^+ + H$ | 43.8 keV | Peacher, J. L.; Bhattacharay, G. Differential cross sections for the excitation of atomic hydrogen by lithium ions at intermediate energy. XIV ICPEAC, Palo Alto, Abstracts, p. 382, Stanford University (1985)<br>United States |
| 04048 T | A03:<br>$H^+ + Na$ | 0.1-10 a.u. | Scholler, O.; Briggs, J. S. The excitation of sodium atoms by proton impact. XIV ICPEAC, Palo Alto, Abstracts, p. 384, Stanford University (1985)<br>West Germany |
| 04049 E | A03:<br>$H^+ + Na$; $H^- + Na$; $H_2^+ + Na$; $H_3^+ + Na$ | 1-25 keV | Anderson, L. W.; Allen, J. S.; Lin, C. C.; Miers, R. E. Excitation of the Na(3d) level by $H^-$, $H^+$, $H_2^+$, or $H_3^+$ ions. XIV ICPEAC, Palo Alto, Abstracts, p. 385, Stanford University (1985)<br>United States |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 04050 E | A03:<br>$Mg^{+}$ + He<br>A18:<br>$Mg^{+}$ + He | 66.7 keV | Redd, E.; Blankenship, D. M.; Seely, D. G.; Gay, T. J.; Peacher, J. L.; Park, J. T. Inelastic differential scattering cross sections for exciting 30, 66.7, and 150 keV $Mg^{+}$ in collisons with He: $Mg^{+}(3s)$ + He → $Mg^{+}(3p)$ + He and $Mg^{+}$ (3d or 4s) + He. XIV ICPEAC, Palo Alto, Abstracts, p. 386, Stanford University (1985)<br>United States |
| 04051 T | A02:<br>$H^{+}$ + H | 25 keV | Potvlieje, R. M.; Joachain, C. J.; Furtado, F. Optical model theory of elastic $H^{+}$ + H and $H^{+}$ + He scattering at intermediate velocities. XIV ICPEAC, Palo Alto, Abstracts, p. 388, Stanford University (1985)<br>Belgium |
| 04052 T | A03:<br>$La^{40+}$ + $H_2$<br>A06:<br>$La^{40+}$ + $H_2$ | 450-700 MeV | Clark, M. W.; Bernstein, E. M.; Tanis, J. A.; Berkner, K. H.; Gohil, P.; Graham, W. G.; McFarland, R. H.; Morgan, T. J.; Muller, A.; Schlachter, A. S.; Stearns, J. W.; Stockli, M. P. L-shell resonant-transfer-and-excitation for $La^{40+}$ + $H_2$ collisions. XIV ICPEAC, Palo Alto, Abstracts, p. 393, Stanford University (1985)<br>United States |
| 04053 E | A03:<br>$S^{13+}$ + He<br>A06:<br>$S^{13+}$ + He | 20-200 MeV | Tanis, J. A.; Bernstein, E. M.; Clark, M. W.; Graham, W. G.; McFarland, R. H.; Morgan, T. J.; Johnson, B. M.; Jones, K. W.; Meron, M. Correlated and uncorrelated electron capture and K-shell excitation in $S^{13+}$ + He collisions. XIV ICPEAC, Palo Alto, Abstracts, p. 394, Stanford University (1985)<br>United States |
| 04054 E | A03:<br>$Ca^{17+}$ + $H_2$<br>A06:<br>$Ca^{17+}$ + $H_2$<br>A08:<br>$Ca^{17+}$ + $H_2$ | 180-300 MeV | Bernstein, E. M.; Tanis, J. A.; Berkner, K. H.; Clark, M. W.; Graham, W. G.; McFarland, R. H.; Morgan, T. J.; Muller, A.; Schlachter, A. S.; Stearns, J. W. Correlations between charge changing events and K x-ray emission in Ca(sup 2+) + $H_2$ collisions. XIV ICPEAC, Palo Alto, Abstracts, p. 395, Stanford University (1985)<br>United States |
| 04055 E | A06:<br>$Ca^{16+}$ + $H_2$; $Ca^{17+}$ + $H_2$ | 180-305 MeV | Graham, W. G.; Tanis, J. A.; Bernstein, E. M.; Clark, M. W.; McFarland, R. H.; Morgan, T. J.; Berkner, K. H.; Schlachter, A. S.; Stearns, J. W.; Muller, A. Structure in high energy, multiply-charged ion-atom electron-capture cross sections. XIV ICPEAC, Palo Alto, Abstracts, p. 396, Stanford University (1985)<br>United Kingdom |
| 04056 E | A03:<br>$Si^{11+}$ + He<br>A08:<br>$Si^{11+}$ + He | 15-95 MeV | Clark, M. W.; Anthony, J.; Swenson, J. K.; Shafroth, S. M. Excitation and ionization in $Si^{11+}$ + He collisions. XIV ICPEAC, Palo Alto, Abstracts, p. 398, Stanford University (1985)<br>United States |
| 04057 E | A03:<br>$S^{9+}$ + Au | 80 MeV | Berinde, A.; Ciortea, C.; Enulescu, A.; Pluerasu, D.; Piticu, I.; Zoran, V. Target-thickness dependence of the Au L x-ray yields produced by 2.5 MeV/amu sulphur ions. XIV ICPEAC, Palo Alto, Abstracts, p. 399, Stanford University (1985)<br>Romania |
| 04058 E | A07:<br>$C^{+}$ + Ne<br>A16:<br>$C^{-}$ + Ne<br>A17:<br>$C^{-}$ + Ne | 0.05-2.4 MeV | Toburen, L. H. Electron emission in collisions of $C^{+}$ ions with atomic and molecular targets XIV ICPEAC, Palo Alto, Abstracts, p. 404, Stanford University (1985)<br>United States |
| 04059 E | A07:<br>$H^{+}$ + Li; $He^{2+}$ + Li | 20-2000 keV/amu | Shah, M. B.; Elliott, D. S.; Gilbody, H. B. Ionization and charge transfer in collisions of $H^{+}$ and $He^{2+}$ ions with Li atoms. XIV ICPEAC, Palo Alto, Abstracts, p. 405, Stanford University (1985)<br>United Kingdom |
| 04060 E | A06:<br>$He^{2+}$ + Ne<br>A07:<br>$He^{2+}$ + $H_2$; $He^{2+}$ + He; $He^{2+}$ + Ne; $He^{2+}$ + Ar | 5-300 keV/amu | Itoh, A.; Rudd, M. E.; Goffe, T. V. Cross sections for ionization and electron transfer for 5-300 keV/u $He^{2+}$ ions in gases. XIV ICPEAC, Palo Alto, Abstracts, p. 406, Stanford University (1985)<br>United States |
| 04061 E | A07:<br>$He^{2+}$ + He; $He^{2+}$ + Ne; $He^{2+}$ + Ar; $C^{6+}$ + He; $C^{6+}$ + Ne; $C^{6+}$ + Ar; $O^{8+}$ + He; $O^{8+}$ + Ne; $O^{8+}$ + Ar; $Ne^{10+}$ + He; $Ne^{10+}$ + Ne; $Ne^{10+}$ + Ar | 1.05 MeV/amu | Shibata, H.; Be, S. H.; Tonuma, T.; Kumagai, H.; Kase, M.; Kambara, T.; Kohno, I.; Tawara, H. Ionization of rare gas atoms in 1.05 MeV/amu fully stripped ion impact. XIV ICPEAC, Palo Alto, Abstracts, p. 407, Stanford University (1985)<br>Japan |
| 04062 T | A07:<br>$H^{+}$ + He | 30 keV | Mukoyama, T.; Lin, C. D.; Fritsch, W. Calculations of electron energy distribution ejected in ion-atom collisions by pseudostate method. XIV ICPEAC, Palo Alto, Abstracts, p. 411, Stanford University (1985)<br>Japan |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 04063 E | A07:<br>$Li^+ + Ne$ | 0.4-8 keV | Ikezaki, Y.; Katano, M.; Ono, H.; Takayanagi, T.; Wakiya, K.; Suzuki, H. Cross sections for electron autoionization in low energy $Li^+ + Ne$ collisions. XIV ICPEAC, Palo Alto, Abstracts, p. 417, Stanford University (1985)<br>Japan |
| 04064 E | A16:<br>$K^- + Ne$; $K^- + Ar$ | 50-150 eV(rel) | Scott, D.; Huq, M. S.; Champion, R. L.; Doverspike, L. D. Collisional electron detachment of alkali anions. XIV ICPEAC, Palo Alto, Abstracts, p. 420, Stanford University (1985)<br>United States |
| 04065 E | A03:<br>$H^+ + Na$ | 10-30 keV | Hintermayer, R.; Kessler, G.; Passarge, T.; Mehlhorn, W. The Na $2p^53s^22P_{1/2,3/2}$ states excited by proton impact: absolute cross sections and alignment. XIV ICPEAC, Palo Alto, Abstracts, p. 435, Stanford University (1985)<br>East Germany |
| 04066 E | A03:<br>$H^+ + He$; $H + He$<br>A06:<br>$H^+ + He$; $H + He$ | 1-300 keV | Hippler, R.; Harbich, W.; Faust, M.; Kleinpoppen, H.; Lutz, H. O. Alignment and orientation of H(2p) excitation in $H^+$-and H-rare gas collisions. XIV ICPEAC, Palo Alto, Abstracts, p. 440, Stanford University (1985)<br>East Germany |
| 04067 T | A08:<br>$C^+ + H$; $C^{2+} + H$; $C^{3+} + H$; $C^{4+} + H$; $C^{5+} + H$ | $10^4$-$10^7$ eV/amu | Karashima, S.; Watanabe, T.; Liu, Y. Electron stripping cross section from multi-charged ions by H and He. XIV ICPEAC, Palo Alto, Abstracts, p. 450, Stanford University (1985)<br>Japan |
| 04068 T | A03:<br>$C^{4+} + He$; $F^{7+} + He$; $Si^{12+} + He$; $Fe^{24+} + He$ | 1-25 vel(a.u.) | Thumm, U.; Briggs, J. S.; Scholler, O. Theory of the excitation of highly-stripped projectile ions. XIV ICPEAC, Palo Alto, Abstracts, p. 461, Stanford University (1985)<br>West Germany |
| 04069 T | A03:<br>$C^{6+} + H$ | 3-12 vel(a.u.) | Salop, A.; Eichler, J. Hydrogen excitation in energetic stripped-ion hydrogen atom collisions. XIV ICPEAC, Palo Alto, Abstracts, p. 462, Stanford University (1985)<br>United States |
| 04070 E | A06:<br>$N^{5+} + H_2$ | 51 keV | Gleizes, A.; Benoit-Cattin, P.; Bordenave-Montesquieu, A.; Dousson, S.; Hitz, D. Autoionizatin of $N^{3+}(1s^2\,3ln'l')$ formed by two-electron capture in $N^{5+}(1s^2) + H_2$ collision, at 3.4 keV/amu. XIV ICPEAC, Palo Alto, Abstracts, p. 464, Stanford University (1985)<br>France |
| 04071 E | A06:<br>$N^{6+} + He$; $N^{7+} + He$<br>A18:<br>$N^{6+} + He$; $N^{7+} + He$ | 60-70 keV | Bordenave-Montesquieu, A.; Benoit-Cattin, P.; Gleizes, A.; Dousson, S.; Hitz, D. Electron angular distributions and total cross sections for two-electron capture processes observed in $N^{6,7+} + He$ collisions by electron spectroscopy at 10.2 qkeV. XIV ICPEAC, Palo Alto, Abstracts, p. 465, Stanford University (1985)<br>France |
| 04072 E | A06:<br>$O^{6+} + Ar$; $Ar^{9+} + Ar$<br>A07:<br>$O^{6+} + Ar$; $Ar^{9+} + Ar$ | 36-108 keV | Mack, M.; Drentje, A. G.; Niehaus, A. Triple coincidence studies of slow collisions of highly charged ions with atoms: electron spectra. XIV ICPEAC, Palo Alto, Abstracts, p. 466, Stanford University (1985)<br>The Netherlands |
| 04073 E | A07:<br>$Ar^{2+} + Kr$; $Ar^{3+} + Kr$; $Ar^{4+} + Kr$; $Ar^{5+} + Kr$; $Ar^{6+} + Kr$; $Ar^{7+} + Kr$; $Ar^{8+} + Kr$; $Ar^{9+} + Kr$ | 3.6-16.2 keV | Liljeby, L.; Astner, G.; Barany, A.; Cederquist, H.; Danared, H.; Huldt, S.; Hvelplund, P.; Johnson, A.; Knudsen, H.; Rensfelt, K. G. Multi-electron processes in slow collisions of Ar(sup q)+ with Ne, Ar, Kr. XIV ICPEAC, Palo Alto, Abstracts, p. 470, Stanford University (1985)<br>Sweden |
| 04074 E | A06:<br>$Ne^{4+} + He$<br>A18:<br>$Ne^{4+} + He$ | 300-744 eV | Tunnell, L. N.; Cocke, C. L.; Waggoner, W. T.; Giese, J. P. Differential cross sections for electron transfer in $Ne^{4+} + He$ collisions. XIV ICPEAC, Palo Alto, Abstracts, p. 472, Stanford University (1985)<br>United States |
| 04075 E | A06:<br>$I^{5+} + H_2$; $I^{6+} + H_2$; $I^{7+} + H_2$; $I^{8+} + H_2$; $I^{9+} + H_2$; $I^{10+} + H_2$; $I^{11+} + H_2$; $I^{12+} + H_2$; $I^{13+} + H_2$; $I^{14+} + H_2$; $I^{15+} + H_2$; $I^{16+} + H_2$; $I^{17+} + H_2$; $I^{18+} + H_2$; $I^{19+} + H_2$; $I^{20+} + H_2$; $I^{21+} + H_2$; $I^{22+} + H_2$; $I^{23+} + H_2$; $I^{24+} + H_2$; $I^{25+} + H_2$; $I^{26+} + H_2$; $I^{5+} + He$; $I^{6+} + He$; $I^{7+} + He$; $I^{8+} + He$; $I^{9+} + He$; $I^{10+} + He$; $I^{11+} + He$; $I^{12+} + He$; $I^{13+} + He$; $I^{14+} + He$; $I^{15+} + He$; $I^{16+} + He$; $I^{17+} + He$; $I^{18+} + He$; $I^{19+} + He$; $I^{20+} + He$; $I^{21+} + He$; $I^{22+} + He$; $I^{23+} + He$; $I^{24+} + He$; $I^{25+} + He$; $I^{26+} + He$ | 990-5148 | Mann, R.; Cocke, C. L. Electron capture cross sections and n,l-level populations for highly charged slow recoil ions. XIV ICPEAC, Palo Alto, Abstracts, p. 475, Stanford University (1985)<br>United States |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 04076 E | D04:<br>$N^{3+}$ + W; $N^{4+}$ + W; $N^{5+}$ + W; $N^{6+}$ + W;<br>$Ne^{2+}$ + W; $Ne^{3+}$ + W; $Ne^{4+}$ + W;<br>$Ne^{5+}$ + W; $Ne^{6+}$ + W; $Ne^{7+}$ + W;<br>$Ne^{8+}$ + W; $Ar^{2+}$ + W; $Ar^{3+}$ + W;<br>$Ar^{4+}$ + W; $Ar^{5+}$ + W; $Ar^{6+}$ + W;<br>$Ar^{7+}$ + W; $Ar^{8+}$ + W; $Ar^{9+}$ + W;<br>$Ar^{10+}$ + W; $Kr^{5+}$ + W; $Kr^{6+}$ + W;<br>$Kr^{7+}$ + W; $Kr^{8+}$ + W; $Kr^{9+}$ + W;<br>$Kr^{10+}$ + W | 300 eV | Delaunay, M.; Dousson, S.; Geller, R.; Varga, P.; Fehringer, M.; Winter, H. On neutralization of highly charged ions near metal surfaces. XIV ICPEAC, Palo Alto, Abstracts, p. 477, Stanford University (1985)<br>France |
| 04077 T | A03:<br>$He^{2+}$ + H<br>A06:<br>$He^{2+}$ + H | 1-100 keV | Llorente, J.M.G.; Errea, L. F.; Mendez, L.; Riera, A. A practical criterion to determine translation factors. Application to $He^{2+}$ + H collisions. XIV ICPEAC, Palo Alto, Abstracts, p. 478, Stanford University (1985)<br>Spain |
| 04078 E | A06:<br>$Xe^{+}$ + Xe | 0.4-4.5 eV | Larsen, P.; Elford, M. T. The charge tranfer cross section for $Xe^{+}(^{2}P_{3/2})$ ions in Xe over the energy range 0.4 to 4.5 eV (LAB). XIV ICPEAC, Palo Alto, Abstracts, p. 485, Stanford University (1985)<br>Norway |
| 04079 E | A06:<br>$C^{+}$ + Li; $N^{+}$ + Li; $O^{+}$ + Li | 2-20 keV | Aumayr, F.; Lakits, G.; Winter, H. Electron capture from Li(2s) by 2-20 keV $C^{+}$, $N^{+}$, and $O^{+}$. XIV ICPEAC, Palo Alto, Abstracts, p. 487, Stanford University (1985)<br>Austria |
| 04080 E | A03:<br>$H^{+}$ + Li<br>A06:<br>$H^{+}$ + Li | 2-20 keV | Aumayr, F.; Winter, H. State selective and total electron capture in $H^{+}$ + Li(2s) collisions (2-20 keV). XIV ICPEAC, Palo Alto, Abstracts, p. 488, Stanford University (1985)<br>Austria |
| 04081 E | A06:<br>$Mg^{+}$ + He<br>A18:<br>$Mg^{+}$ + He | 66.7 keV | Redd, E.; Blankenship, D. M.; Seely, D. G.; Gay, T. J.; Peacher, J. L.; Park, J. T. Differential cross sections for 30, 66.7, and 150 keV $Mg^{+}$ electron captaure from He. XIV ICPEAC, Palo Alto, Abstracts, p. 489, Stanford University (1985)<br>United States |
| 04082 E | A06:<br>$H^{+}$ + Ne; $H^{+}$ + Na; $H^{+}$ + Mg<br>A07:<br>$H^{+}$ + Ne; $H^{+}$ + Na; $H^{+}$ + Mg | 15-100 keV/amu | DuBois, R. D. Double target ionization resulting from single charge transfer in $H^{+}$, $He^{++}$ - neon, sodium and magnesium collisions. XIV ICPEAC, Palo Alto, Abstracts, p. 490, Stanford University (1985)<br>United States |
| 04083 E | A06:<br>$N^{7+}$ + H; $N^{7+}$ + $H_2$; $O^{8+}$ + H; $O^{8+}$ + $H_2$;<br>$F^{9+}$ + H; $F^{9+}$ + $H_2$; $Ne^{10+}$ + H;<br>$Ne^{10+}$ + $H_2$ | 0.2-10 keV/amu | Meyer, F. W.; Howald, A. M.; Havener, C. C.; Phaneuf, R. A. Low energy electron capture by fully stripped light ions from H and $H_2$. XIV ICPEAC, Palo Alto, Abstracts, p. 491, Stanford University (1985)<br>United States |
| 04084 T | A06:<br>$H^{+}$ + Na | 4-20 keV | Shingal, R.; Newby, C. W.; Noble, C. J.; Flower, D. R.; Bransden, B. H. Charge transfer in $H^{+}$ + Na collisions. XIV ICPEAC, Palo Alto, Abstracts, p. 494, Stanford University (1985)<br>United Kingdom |
| 04085 T | A06:<br>$H^{+}$ + He<br>A07:<br>$He^{2+}$ + He; $H^{+}$ + Ne | 25-300 keV | Zaifman, D.; Maor, D. "Heisenberg Core" in classical trajectory Monte-Carlo calculations of ionization and charge exchange. XIV ICPEAC, Palo Alto, Abstracts, p. 495, Stanford University (1985)<br>Israel |
| 04086 T | A06:<br>$Li^{3+}$ + He | 0.01-1.0x10⁸ cm/s | Opradolce, L.; Falcon, C.; Casaubon, I. Single electron capture in $Li^{3+}$ + He collisions. XIV ICPEAC, Palo Alto, Abstracts, p. 496, Stanford University (1985)<br>Argentina |
| 04087 T | A06:<br>$H^{+}$ + He<br>A18:<br>$H^{+}$ + He | 293 keV | Kobayashi, K.; Toshima, N.; Ishihara, T. Eikonal cross section in proton-helium electron capture processes. XIV ICPEAC, Palo Alto, Abstracts, p. 497, Stanford University (1985)<br>Japan |
| 04088 T | A03:<br>$Ne^{+}$ + Ne | 5-500 keV | Toepfer, A.; Ludde, H. J.; Jacob, B.; Dreizler, R. M. 2p-2s vacancy transfer in $Ne^{+}$ + Ne collisions in the energy range of 5-500 keV. XIV ICPEAC, Palo Alto, Abstracts, p. 498, Stanford University (1985)<br>West Germany |
| 04089 T | A06:<br>$H^{+}$ + He; $Li^{3+}$ + He | 10-40 keV | Stich, W.; Ludde, H. J.; Dreizler, R. M. Charge transfer in two electron systems in the time dependent Hartree Fock picture. XIV ICPEAC, Palo Alto, Abstracts, p. 500, Stanford University (1985)<br>West Germany |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 04090 T | A03:<br>$O^{6+}$ + He<br>A06:<br>$O^{6+}$ + He | 2.5-40 keV/amu | Fritsch, W.; Lin, C. D. Atomic-orbital expansion representation of electron transfer in two-electron systems. XIV ICPEAC, Palo Alto, Abstracts, p. 502, Stanford University (1985)<br>West Germany |
| 04091 T | A06:<br>$Fe^{26+}$ + H; $Si^{14+}$ + H | 0.1-280 keV/amu | Koike, F. Continuous energy state model for charge transfer in collisions of fully stripped ions with hydrogen atoms. XIV ICPEAC, Palo Alto, Abstracts, p. 503, Stanford University (1985)<br>Japan |
| 04092 T | A02:<br>H + H; H + C<br>A07:<br>H + H; $H^+$ + H; H + C; $H^+$ + C | 300 keV | Kaminsky, A. K.; Popova, M. I. Angular distributions of ions after fast ion-atom collisions. XIV ICPEAC, Palo Alto, Abstracts, p. 504, Stanford University (1985)<br>Soviet Union |
| 04093 E | A06:<br>$O^{8+}$ + He | 10-40 MeV | Hippler, R.; Datz, S.; Miller, P. D.; Pepmiller, P. L. Double and single electron capture in 1-2 MeV/u $O^{8+}$ + He collisions. XIV ICPEAC, Palo Alto, Abstracts, p. 505, Stanford University (1985)<br>United States |
| 04094 E | A03:<br>$S^{16+}$ + $N_2$<br>A06:<br>$S^{16+}$ + $N_2$ | 125 MeV | Betz, H. D.; Hoppler, R. Electron capture cross sections in fast ion-atom collisions. XIV ICPEAC, Palo Alto, Abstracts, p. 508, Stanford University (1985)<br>West Germany |
| 04095 E | A06:<br>$S^{13+}$ + He; $S^{13+}$ + Ar; $Ar^{15+}$ + Ne; $Ca^{17+}$ + He; $V^{20+}$ + He | 2.2-9.0 MeV/amu | Graham, W. G.; Tanis, J. A.; Bernstein, E. M.; Clark, M. W.; McFarland, R. H.; Morgan, T. J.; Stockli, M. P.; Berkner, K. H.; Pyle, R. V.; Schlachter, A. S.; Stearns, J. W.; Johnson, B. M.; Jones, K. W.; Meron, M. The energy dependence of electron-capture and-loss cross sections in MeV/amu, highly-stripped, heavy ion collisions. XIV ICPEAC, Palo Alto, Abstracts, p. 509, Stanford University (1985)<br>United Kingdom |
| 04096 T | A03:<br>$Kr^{36+}$ + C; $Kr^{36+}$ + Al; $Kr^{36+}$ + Ar; $Kr^{36+}$ + V<br>A06:<br>$Kr^{36+}$ + C; $Kr^{36+}$ + Al; $Kr^{36+}$ + Ar; $Kr^{36+}$ + V | 35 MeV/amu | Rozet, J. P.; Chetioui, A.; Bouisset, P.; Stephan, C. Comparison of electron capture process in gas and solid targets for 35 MeV/u $Kr^{36+}$ ions. XIV ICPEAC, Palo Alto, Abstracts, p. 510, Stanford University (1985)<br>France |
| 04097 T | A06:<br>$He^{2+}$ + Li | 800-2600 keV | Mukherjee, S. C.; Ghosh, M.; Mandal, C. R. Single and double electron capture from lithium by fast alpha particle. XIV ICPEAC, Palo Alto, Abstracts, p. 512, Stanford University (1985)<br>India |
| 04098 T | A06:<br>$H^+$ + N; $H^+$ + O | 1.0-15 MeV | Mukherjee, S. C.; Saha, G. C.; Datta, S. Calcualtion of cross sections for electron capture from multi-electron atoms by fast ions. XIV ICPEAC, Palo Alto, Abstracts, p. 513, Stanford University (1985)<br>India |
| 04099 T | A06:<br>$H^+$ + He<br>A18:<br>$H^+$ + He | 0.1-7.4 MeV | Godunov, A. L.; Kunikeev, S. D.; Semashenko, V. S. Calculation of differential charge-transfer cross section in the intermediate and high energy range based on the Faddeev-Merkuriev equations. XIV ICPEAC, Palo Alto, Abstracts, p. 515, Stanford University (1985)<br>Soviet Union |
| 04100 T | A06:<br>$H^+$ + He<br>A18:<br>$H^+$ + He | 7.4 MeV | Alston, S. Theory of electron capture at high energies. XIV ICPEAC, Palo Alto, Abstracts, p. 516, Stanford University (1985)<br>West Germany |
| 04101 T | A06:<br>$H^+$ + H<br>A18:<br>$H^+$ + H | 10 MeV | Alston, S. Understanding the exact second-Born capture cross section. XIV ICPEAC, Palo Alto, Abstracts, p. 517, Stanford University (1985)<br>West Germany |
| 04102 T | A06:<br>$H^+$ + H | 0.01-10 MeV | Miraglia, J. E. Radiative electron capture in proton-hydrogen collision. XIV ICPEAC, Palo Alto, Abstracts, p. 531, Stanford University (1985)<br>Argentina |
| 04103 E | C06:<br>$Au^{77+}$ + Au; $Au^{79+}$ + Au | 200-800 MeV/amu | Meyerhof, W. E.; Anholt, R.; Thieberger, P.; Wegner, H. E.; Gould, H.; Alonso, J.; Munger, C. Analysis of charge distributions of relativistic heavy ions penetrating through solid targets. XIV ICPEAC, Palo Alto, Abstracts, p. 537, Stanford University (1985)<br>United States |
| 04104 E | A03:<br>$Ar^{**}$ + $H_2$<br>A11:<br>$Ar^{**}$ + $H_2$ | 66-1306 eV | Nakamura, T.; Kobayashi, N.; Kaneko, Y. Ion energy-loss spectroscopy in the collisions of $Ar^*[^2P$ (sub j)] with $H_2$. XIV ICPEAC, Palo Alto, Abstracts, p. 563, Stanford University (1985)<br>Japan |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 04105 E | A11:<br>$Rb^* + H_2$; $Rb^* + D_2$; $Rb^* + He$ | 0.04-0.31 eV | Cuvellier, J.; Petitjean, L.; Mestdagh, J. M.; Paillard, D.; de Pujo, P. Quasi-resonant collisional electronic to rotational energy transfer at thermal energies. XIV ICPEAC, Palo Alto, Abstracts, p. 568, Stanford University (1985)<br>France |
| 04106 T | A17:<br>$Na + H_2$ | Undef | Rossi, F.; Pascale, J. Psuedopotential molecular-structure calculations of alkali-$H_2$ systems. XIV ICPEAC, Palo Alto, Abstracts, p. 569, Stanford University (1985)<br>France |
| 04107 E | A04:<br>$H_2^+ + Ar$; $H_2^+ + Mg$<br>A06:<br>$H_2^+ + Ar$; $H_2^+ + Mg$<br>A18:<br>$H_2^+ + Ar$; $H_2^+ + Mg$ | 1-5 keV | Alvarez, I.; Cisneros, C.; de Urquijo, J.; Morales, A.; Martinez, H. Dissociative electron capture of $H_2^+$. XIV ICPEAC, Palo Alto, Abstracts, p. 572, Stanford University (1985)<br>Mexico |
| 04108 E | A04:<br>$H_3^+ + He$; $HD_2^+ + He$; $D_3^+ + He$<br>A18:<br>$H_3^+ + He$; $HD_2^+ + He$; $D_3^+ + He$ | 3 keV | Cisneros, C.; Alvarez, I.; de Urquijo, J.; Martinez, H.; Morgan, T. J. Negative ion formation in polar dissociation of $H_3^+$, $HD_2^+$, and $D_3^+$. XIV ICPEAC, Palo Alto, Abstracts, p. 573, Stanford University (1985)<br>Mexico |
| 04109 E | A04:<br>$He_2^+ + Ar$<br>A06:<br>$He_2^+ + Ar$<br>C06:<br>$He_2^+ + Ar$ | 400-800 keV | Haber, D.; Ben Itzhak, I.; Gertner, I.; Mann, A.; Rosner, B. Formation of $He_2^0$ and $He_2^{2+}$ molecules by charge exchange collsions of $He_2^+$ ions in the sub-MeV region. XIV ICPEAC, Palo Alto, Abstracts, p. 575, Stanford University (1985)<br>Israel |
| 04110 E | A06:<br>$Ar^{2+} + D_2$<br>A18:<br>$Ar^{2+} + D_2$ | 2 keV | Martin, S. J.; Heckman, V.; Stevens, J.; Pollack, E. Double electron capture in $Ar^{2+} + D_2$. XIV ICPEAC, Palo Alto, Abstracts, p. 581, Stanford University (1985)<br>United Kingdom |
| 04111 T | A06:<br>$Ar^+ + H_2$ | 0.5-10 keV | Kimura, M.; Chapman, S.; Lane, N. F. Electron capture in $Li^+ + H_2$ and $Ar^+ + H_2$ collisions in the keV energy region and study of orientation effect of the target molecule. XIV ICPEAC, Palo Alto, Abstracts, p. 582, Stanford University (1985)<br>United States |
| 04112 T | A06:<br>$H^+ + H_2$ | 0.2-15 keV | Kimura, M. Charge transfer in ion-molecular collisions at the keV energy region: study of $H^+ + H_2$ collisions. XIV ICPEAC, Palo Alto, Abstracts, p. 583, Stanford University (1985)<br>United States |
| 04113 E | A20:<br>$D_2^+ + Cs$; $H_2^+ + Cs$; $D_3^+ + Cs$;<br>$H_3^+ + Cs$ | 0.015-4.0 keV/amu | Coggiola, M. J.; Bae, Y. K.; Peterson, J. R. Absolute charge transfer cross sections of 50 eV-4 keV $H^+$, $H_2^+$, $H_3^+$, $N^+$, and $N_2^+$ in Cs. XIV ICPEAC, Palo Alto, Abstracts, p. 584, Stanford University (1985)<br>United States |
| 04114 E | A16:<br>$Cl^- + N_2$; $Cl^- + O_2$ | 20-100 keV | Hird, B.; Rahman, F. Single and double electron detachment from $Cl^-$ by molecular oxygen and nitrogen. XIV ICPEAC, Palo Alto, Abstracts, p. 595, Stanford University (1985)<br>Canada |
| 04115 T | A03:<br>$H^+ + Ar^{17+}$; $He^{2+} + Ar^{17+}$;<br>$Ar^{18+} + Ar^{17+}$ | $10^2$-$10^4$ eV | Walling, R. S.; Weisheit, J. C. Fine-structure excitation in ion-ion collisions. XIV ICPEAC, Palo Alto, Abstracts, p. 611, Stanford University (1985)<br>United States |
| 04116 E | A06:<br>$H^+ + Al^+$; $H^+ + Ga^+$; $H^+ + In^+$;<br>$H^+ + Tl^+$<br>A07:<br>$H^+ + Al^+$; $H^+ + Ga^+$; $H^+ + In^+$;<br>$H^+ + Tl^+$ | 60-580 keV | Dunn, K. F.; Watts, M. F.; Angel, G. C.; Gilbody, H. B. Charge transfer and ionization in collisions of protons with $Al^+$, $Ga^+$, $In^+$, and $Tl^+$ ions. XIV ICPEAC, Palo Alto, Abstracts, p. 613, Stanford University (1985)<br>United Kingdom |
| 04117 T | A06:<br>$H^+ + Li^+$<br>A07:<br>$H^+ + Li^+$ | 75-350 keV | Reinhold, C. O.; Falcon, C. A. Ionization and charge transfer total cross sections for $H^+ + Li^+$ collisions. XIV ICPEAC, Palo Alto, Abstracts, p. 614, Stanford University (1985)<br>Argentina |
| 04118 T | A09:<br>$H^+ + H^-$ | 0.4-50 keV(cm) | Ermolaev, A. M. Theoretical studies of mutual neutralization in p + $H^-$ collisions using model potentials. XIV ICPEAC, Palo Alto, Abstracts, p. 617, Stanford University (1985)<br>United Kingdom |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 04119 E | A06:<br>$He^{2+} + H^-$ | 0.8-2000 eV | Terao, M.; Cherkani, M.; Szucs, S.; Brouillard, F. One electron transfer in $He^{++} + H^-$ collisions into excited states of $He^+$. XIV ICPEAC, Palo Alto, Abstracts, p. 620, Stanford University (1985)<br>Belgium |
| 04120 T | A11:<br>$Na^* + Ar$; $Na^* + Ne$; $Na^* + Xe$;<br>$Rb^* + Ne$ | 293 K | Gounand, F.; Petitjean, L. The possible influence of core effects in Rydberg atom-neutral collisions at thermal energies. XIV ICPEAC, Palo Alto, Abstracts, p. 625, Stanford University (1985)<br>France |
| 04121 T | E03:<br>$e + h\nu + H$<br>H04:<br>$h\nu + e + H$ | 100 eV | Pundir, R. S.; Mathur, K. C. Simultaneous electron photon excitation of hydrogen atom. XIV ICPEAC, Palo Alto, Abstracts, p. 646, Stanford University (1985)<br>India |
| 04122 T | E02:<br>$e + He^+$ | 100-1000 eV | Rao, N. S. Electron-ion ($He^+$) scattering at intermediate and high incident electron energy regions. (E greater than or equal to 100 eV). XIV ICPEAC, Palo Alto, Abstracts, p. 687, Stanford University (1985)<br>India |
| 04123 T | A06:<br>$H^+ + H$; $He^{2+} + H$ | $10-2\times10^5$ eV/amu | Ashurov, A. R.; Avakov, G. V.; Blokhintsev, L. D.; Mukhamedzhanov, A. M. Charge transfer in ion-atom collisions as the three-body problem. XIV ICPEAC, Palo Alto, Abstracts, p. 695, Stanford University (1985)<br>Soviet Union |
| 04124 E | A20:<br>$H^* + Ar$ | 2.5-40 keV | King, M.; Wang, L.; Morgan, T. J. Evidence for independent particle behavior in fast Rydberg hydrogen atom collisions with neutral atoms and molecules. XIV ICPEAC, Palo Alto, Abstracts, p. 706, Stanford University (1985)<br>United States |
| 04125 E | E05:<br>$e + Yb$ | 5-300 eV | Ali, M. M.; Volovich, P. N.; Ovchinnikov, V. L.; Shimon, L. L. Ionization cross section of ytterbium atoms by electron impact. XIV ICPEAC, Palo Alto, Abstracts, p. 707, Stanford University (1985)<br>Soviet Union |
| 04126 E | E03:<br>$e + K$ | 0.5-50 keV | Zapesochny, I. P.; Vukstich, V. S.; Solomon, A. M. K-emission investigation by electron bombardment of free potassium atoms. XIV ICPEAC, Palo Alto, Abstracts, p. 708, Stanford University (1985)<br>Soviet Union |
| 04127 T | K06:<br>Structure multiply charged ions | | Janev, R. K.; Presnyakov, L. P.; Shevelko, V. P. Structure and spectra of highly charged ions. p. 7 in Physics of Highly Charged Ions, G. Ecker, Ed. P. Springer-Verlag, New York, (1985)<br>Yugoslavia |
| 04128 T | K02:<br>Dielectronic recombination | | Janev, R. K.; Presnyakov, L. P.; Shevelko, V. P. Dielectronic recombination p. 46 in Physics of Highly Charged Ions, G. Ecker, Ed. Springer-Verlag, New York (1985)<br>Yugoslavia |
| 04129 T | K02:<br>Excitation | | Janev, R. K.; Presnyakov, L. P.; Shevelko, V. P. Electron collisions with highly charged ions: general theory and excitation processes. p. 55 in Physics of Highly Charged Ions, G. Ecker, Ed. Springer-Verlag, New York, (1985)<br>Yugoslavia |
| 04130 T | K02:<br>Ionization | | Janev, R. K.; Presnyakov, L. P.; Shevelko, V. P. Electron-impact ionization of highly charged ions. p. 78 in Physics of Highly Charged Ions, G. Ecker, Ed. Springer-Verlag, New York, (1985)<br>Yugoslavia |
| 04131 T | K01:<br>Charge exchange | | Janev, R. K.; Presnyakov, L. P.; Shevelko, V. P. Collisions of atoms (ions, molecules) with highly charged ions: charge-transfer processes. p. 150 in Physics of Highly Charged Ions, G. Ecker, Ed. Springer-Verlag, New York, (1985)<br>Yugoslavia |
| 04132 T | K01:<br>Excitation | | Janev, R. K.; Presnyakov, L. P.; Shevelko, V. P. Collisions of atoms (ions) with highly charged ions: excitation and ionization. p. 220 in Physics of Highly Charged Ions, G. Ecker, Ed. Springer-Verlag, New York, (1985)<br>Yugoslavia |
| 04133 T | K01:<br>Ionization | | Janev, R. K.; Presnyakov, L. P.; Shevelko, V. P. Single-electron ionization. p. 231 in Physics of Highly Charged Ions, G. Ecker, Ed. Springer-Verlag, New York, (1985)<br>Yugoslavia |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 04134 T | K01:<br>Electron loss; Stripping | | Janev, R. K.; Presnyakov, L. P.; Shevelko, V. P. Electron loss and stripping processes. p. 246 in Physics of Highly Charged Ions, G. Ecker, Ed. Springer-Verlag, New York, (1985)<br>Yugosalvia |
| 04135 | K01:<br>Inner shell processes | | Janev, R. K.; Presnyakov, L. P.; Shevelko, V. P. Auger, inner-shell and related processes. p. 253 in Physics of Highly Charged Ions, G. Ecker, Ed. Springer-Verlag, New York (1985)<br>Yugoslavia |
| 04136 E-T | J02:<br>Rate coefficients | | Janev, R. K.; Presnyakov, L. P.; Shevelko, V. P. Electron-impact excitation p. 288 in Physics of Highly Charged Ions, G. Ecker, Ed. Springer-Verlag, New York, (1985)<br>Yugoslavia |
| 04137 | J02:<br>Ionization | | Janev, R. K.; Presnyakov, L. P.; Shevelko, V. P. Electron-impact ionization. p. 293 in Physics of Highly Charged Ions, G. Ecker, Ed. Springer-Verlag, New York (1985)<br>Yugoslavia |
| 04138 | J02:<br>Dielectronic recombination | | Janev, R. K.; Presnyakov, L. P.; Shevelko, V. P. Dielectronic recombination. p. 301 in Physics of Highly Charged Ions, G. Ecker, Ed. Springer-Verlag, New York (1985)<br>Yugoslavia |
| 04139 E-T | J01:<br>Rate coefficients | | Janev, R. K.; Presnyakov, L. P.; Shevelko, V. P. Charge transfer p. 305 in Physics of Highly Charged Ions, G. Ecker, Ed. Springer-Verlag, New York, (1985)<br>Yugoslavia |
| 04140 T | A06:<br>$CH_2^+ + NH_3$; $C_2H^+ + CH_3$; $H_3^+ + NH_3$; $O_2H^+ + NH_3$; $H_2O_2^+ + NH_3$; $H_3O^+ + NH_3$; $NH_3^+ + NH_3$; $CH_5^+ + NH_3$ | 0.02 eV | Kadomtsev, M. B.; Smirnov, B. M. Collisions of ions with dipole molecules. High Temp. 23, 15 (1985)<br>Soviet Union |
| 04141 | K04:<br>Surface excitation by electrons | | Avouris, P.; Demuth, J. Electron energy loss spectroscopy in the study of surfaces. Ann. Rev. Phys. Chem. 35, 49 (1984)<br>United States |
| 04142 | A14:<br>Review<br>K01:<br>Excited state ion-molecule | | Leone, S. R. State-resolved molecular reaction dynamics. Ann. Rev. Phys. Chem. 35, 109 (1984)<br>United States |
| 04143 | D13:<br>Review<br>K04:<br>Electron and photon desorption | | Madey, T. E.; Ramaker, D. E.; Stockbauer, R. Characterization of surfaces through electron and photon stimulated desorption. Ann. Rev. Phys. Chem. 35, 215 (1984)<br>United States |
| 04144 T | E05:<br>e + Ar<br>E06:<br>e + $Ar^+$ | 2500-12500 K | Vlcek, J.; Ferdinand, J. Collisional-radiative recombination in argon plasma. Beitr. Plasmaphys.<br>Czechoslovakia |
| 04145 T | E05:<br>e + $Ar^+$; e + $CH_4$; e + $C_2H_2$ | 10-1000 eV | Deutsch, H.; Schmidt, M. On the quantitative determination of cross sections of ionization of molecules by electronic collisions. Beitr. Plasmaphys. 24, 475 (1984)<br>West Germany |
| 04146 E | A14:<br>H + $O_2$; OH + $H_2$ | 1700-2500 K | Frank, P.; Just, T. High temperature reaction rate for H + $O_2$ = OH + O and OH + $H_2$ = $H_2O$ + H. Ber. Bunsen. Ges. Phys. Chem. 89, 181 (1985)<br>West Germany |
| 04147 E | H02:<br>hν + Sb; hν + Sm; hν + Cs; hν + K; hν + V | 59-136 keV | Samuel, S.D.R.; Premchand, K.; Rao, B. M.; Parthasaradhi, K. Total photon cross sections in elements. Indian J. Phys. A 58, 67 (1984)<br>India |
| 04148 T | C04:<br>$As^+$ + Si; $In^+$ + Si; $Sb^+$ + Si; $Xe^+$ + Si; $Cs^+$ + Si; $Au^+$ + Si; $Bi^+$ + Si; $Pb^+$ + Si; $Tl^+$ + Si; $Pt^+$ + Si; $W^+$ + Si | 0.6-90 keV | Gupta, S. K.; Bhattacharya, P. K. Empirical description of shell-effects in low energy heavy-ion ranges in semiconductors. Indian J. Phys. A 58, 227 (1984)<br>India |
| 04149 E | D12:<br>e + Cu; e + Cd; e + Ta; e + Pb | 40-500 keV | Shivaramu External bremsstrahlung generated by the complete absorption of beta particles in thick targets. Indian J. Phys. A 58, 265 (1984)<br>India |
| 04150 E | D12:<br>e + Cu; e + Mo; e + Ag; e + Cd; e + I; e + Pb | 0.3-2.27 MeV | Rudraswamy B.; Gopala, K.; Sanjeevaiah, H. Yield constants of external bremsstrahlung (EB) excited by beta particles of $^{90}Sr$, $^{90}Y$ and $^{99}Tc$ in thick targets of different Z materials. Indian J. Phys. A 58, 276 (1984)<br>India |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 04151 T | C04:<br>e + Li; e + Ti; e + Sn; e + Pt;<br>e + U; e + Si; e + Ge; e + Ag;<br>e + Gd; e + Pb | 0.05-100<br>MeV | Pal, P. B.; Gupta, S. K.; Varshneya, V. P.; Gupta, D. K. Continuous-slowing-down-approximation range of electrons for the energy range 0.05-100 MeV. Indian J. Pure Appl. Phys. 23, 244 (1985)<br>India |
| 04152 | K01:<br>Dissociation; Excitation<br>K02:<br>Excitation | | Levsen, K.; Schwarz, H. Gas-phase chemistry of collisionally active ions. Mass Spectrom. Rev. 2, 77 (1983)<br>West Germany |
| 04153 T | A14:<br>CH + $O_2$; O + OH<br>K01:<br>Chemical reaction rate constants | 25-450 K | Clary, D. C. Rates of chemical reactions dominated by long range intermolecular forces. Mol. Phys. 53, 3 (1984)<br>United Kingdom |
| 04154 T | H02:<br>hν + $N_2$ | 0-220 $cm^{-1}$ | Joslin, C. G.; Gray, C. G.; Gburski, Z. Far-infrared absorption in nitrogen gas. A theoretical study. Mol. Phys. 53, 203 (1984)<br>Canada |
| 04155 T | A17:<br>He + He; $Li^+$ + He | Undef | Tatewaki, H.; Tanaka, K.; Ohno, Y.; Nakamura, T. The interaction potential for He-He and He + $Li^+$. Mol. Phys. 53, 233 (1984)<br>Japan |
| 04156 T | E05:<br>e + He; e + $Li^+$ | Undef | Mohanty, J. P.; Singh, C. S.; Rai, D. K. The effect of exchange in autoionization processes. Pramana 25, 175 (1985)<br>India |
| 04157 T | E06:<br>e + $Si^{4+}$; e + $Si^{5+}$; e + $Si^{6+}$;<br>e + $Si^{7+}$; e + $Si^{8+}$; e + $Si^{9+}$;<br>e + $Si^{10+}$; e + $Si^{11+}$; e + $Si^{12+}$;<br>e + $Fe^{7+}$; e + $Fe^{8+}$; e + $Fe^{9+}$;<br>e + $Fe^{10+}$; e + $Fe^{11+}$; e + $Fe^{12+}$;<br>e + $Fe^{13+}$; e + $Fe^{14+}$; e + $Fe^{15+}$;<br>e + $Fe^{16+}$; e + $Fe^{17+}$; e + $Fe^{18+}$;<br>e + $Fe^{19+}$; e + $Fe^{20+}$; e + $Fe^{21+}$;<br>e + $Fe^{22+}$; e + $Fe^{23+}$ | $10^6$ K | Alam, B.; Ausari, S.M.R. Role of the Gaunt factor in the derivation of dielectronic recombination coefficient. Solar Phys. 96, 219 (1985)<br>India |
| 04158 T | E01:<br>Undef | Undef | Berk, A.; Temkin, A. Sum rules and other properties involving resonance projection operators. Phys. Rev. A 32, 3196 (1985)<br>United States |
| 04159 T | E02:<br>e + He | 0.1-0.7 a.u. | Feagin, J. M.; Macek, J.; Starace, A. F. Use of the Fock expansion for $^1S$-state wave functions of two-electron atoms and ions. Phys. Rev. A 32, 3219 (1985)<br>United States |
| 04160 T | F01:<br>Undef | Undef | Friedrich, H.; Wintgen, D. Interfering resonances and bound states in the continuum. Phys. Rev. A 32, 3231 (1985)<br>West Germany |
| 04161 E | A06:<br>$Xe^{54+}$ + Be; $Xe^{54+}$ + Al; $Xe^{54+}$ + Cu;<br>$Xe^{54+}$ + Ag; $Xe^{54+}$ + Au; $Xe^{54+}$ + U;<br>$Xe^{53+}$ + Be; $Xe^{53+}$ + Al; $Xe^{53+}$ + Cu;<br>$Xe^{53+}$ + Ag; $Xe^{53+}$ + Au; $Xe^{53+}$ + U;<br>$Xe^{52+}$ + Be; $Xe^{52+}$ + Al; $Xe^{52+}$ + Cu;<br>$Xe^{52+}$ + Ag; $Xe^{52+}$ + Au; $Xe^{52+}$ + U | 82-200<br>MeV/amu | Meyerhof, W. E.; Anholt, R.; Eichler, J.; Gould, H.; Munger, C.; Alonso, J.; Thieberger, P.; Wegner, H. E. Atomic collisions with relativistic heavy ions. III. Electron capture. Phys. Rev. A 32, 3291 (1985)<br>United States |
| 04162 E | A08:<br>$Xe^{53+}$ + Be; $Xe^{53+}$ + Al; $Xe^{53+}$ + Cu;<br>$Xe^{53+}$ + Ag; $Xe^{53+}$ + Au; $Xe^{53+}$ + U;<br>$Xe^{52+}$ + Be; $Xe^{52+}$ + Al; $Xe^{52+}$ + Cu;<br>$Xe^{52+}$ + Ag; $Xe^{52+}$ + Au; $Xe^{52+}$ + U | 82-200<br>MeV/amu | Anholt, R.; Meyerhof, W. E.; Gould, H.; Munger, C.; Alonso, J.; Thieberger, P.; Wegner, H. E. Atomic collisions with relativistic heavy ions. IV. Projectile K-shell ionization. Phys. Rev. A 32, 3302 (1985)<br>United States |
| 04163 E | A06:<br>$C^{5+}$ + H; $C^{5+}$ + $H_2$; $C^{6+}$ + H; $C^{6+}$ + $H_2$;<br>$N^{6+}$ + H; $N^{6+}$ + $H_2$; $N^{7+}$ + H; $N^{7+}$ + $H_2$;<br>$O^{7+}$ + H; $O^{7+}$ + $H_2$; $O^{8+}$ + H; $O^{8+}$ + $H_2$;<br>$F^{8+}$ + H; $F^{8+}$ + $H_2$; $F^{9+}$ + H; $F^{9+}$ + $H_2$;<br>$Ne^{9+}$ + H; $Ne^{9+}$ + $H_2$ | 0.18-8.5<br>keV/amu | Meyer, F. W.; Howald, A. M.; Havener, C. C.; Phaneuf, R. A. Low-energy total-electron-capture cross sections for fully stripped and H-like projectiles incident on H and $H_2$. Phys. Rev. A 32, 3310 (1985)<br>United States |
| 04164 E | A06:<br>$H^+$ + Li; $He^{2+}$ + Li; $He^+$ + Li<br>A07:<br>$H^+$ + Li; $He^{2+}$ + Li; $He^+$ + Li | 15-200 keV | DuBois, R. D. Charge transfer and ionization of lithium by protons and helium ions. Phys. Rev. A 32, 3319 (1985)<br>United States |
| 04165 T | B07:<br>Undef | | Nayfeh, M. H.; Hillard, G. B.; Glab, W. L. Electric field enhancement of depolarization of excited states. Phys. Rev. A 32, 3324 (1985)<br>United States |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 04166 T | E02:<br>e + Ar<br>E17:<br>e + Ar<br>E19:<br>e + Ar | 3-20 eV | Dasgupta, A.; Bhatia, A. K. Scattering of electrons from argon atoms. Phys. Rev. A 32, 3335 (1985)<br>United States |
| 04167 E | E03:<br>e + Na; e + Na* | 1-1000 eV | Stumpf, B.; Gallagher, A. Electron excitation of Na(3S) and Na(3P) atoms to the Na(3D) state. Phys. Rev. A 32, 3344 (1985)<br>United States |
| 04168 T | E03:<br>e + $H_2$<br>E04:<br>e + $H_2$ | 15-300 eV | Redmon, M. J.; Garrett, B. C.; Redmon, L. T.; McCurdy, C. W. Improved impact-parameter method for electronic excitation and dissociation of diatomic molecules by electron impact. Phys. Rev. A 32, 3354 (1985)<br>United States |
| 04169 T | E03:<br>e + $O_2$<br>E04:<br>e + $O_2$ | 4-25 eV | Garrett, B. C.; Redmon, L. T.; McCurdy, C. W.; Redmon, M. J. Electronic excitation and dissociation of $O_2$ and $S_2$ by electron impact. Phys. Rev. A 32, 3366 (1985)<br>United States |
| 04170 T | E03:<br>e + $Ar^{17+}$; e + $Ar^{16+}$; e + $Ar^{15+}$<br>E06:<br>e + $Ar^{17+}$; e + $Ar^{16+}$; e + $Ar^{15+}$ | 0.5-7.0 keV | Jacobs, V. L.; Rogerson, J. E.; Chen, M. H.; Cowan, R. D. Effects of angular-momentum-changing electron collisions and radiative corrections on dielectronic satellite spectra. Phys. Rev. A 32, 3382 (1985)<br>United States |
| 04171 E | H04:<br>nhν + Xe<br>H06:<br>nhν + Xe | 455-435 nm | Damany, N.; Laporte, P.; Subtil, J. L.; Damany, H. Multiphoton excitation and decay processes in xenon: off-breakdown and breakdown emission at densities up to $1.4 \times 10^{21}$ atoms $cm^{-3}$. Phys. Rev. A 32, 3418 (1985)<br>France |
| 04172 T | B01:<br>e | | Fajans, J.; Kirkpatrick, D. A.; Bekefi, G. Off-axis electron orbits in realistic helical wigglers for free-electron-laser applications. Phys. Rev. A 32, 3448 (1985)<br>United States |
| 04173 T | H01:<br>hν + $D_2$; hν + $H_2$; hν + He | 700-458 nm | Mizrahi, V.; Shelton, D. P. Nonlinear susceptibility of $H_2$ and $D_2$ accurately measured over a wide range of wavelengths. Phys. Rev. A 32, 3454 (1985)<br>Canada |
| 04174 T | H08:<br>Undef | Undef | Benda, J. A.; Gauthier, D. J.; Boyd, R. W. Transient sum-frequency generation in resonant three-level media. Phys. Rev. A 32, 3461 (1985)<br>United States |
| 04175 E-T | H08:<br>hν + Na | 5893 Å | Beach, R.; DeBeer, D.; Hartmann, S. R. Time-delayed four-wave mixing using intense incoherent light. Phys. Rev. A 32, 3467 (1985)<br>United States |
| 04176 T | B01:<br>Undef<br>H04:<br>Undef | Undef | Hazak, G.; Strauss, M.; Oreg, J. Strong laser-atom interaction in the presence of jump-process type noise: the Bourret approach. Phys. Rev. A 32, 3475 (1985)<br>Israel |
| 04177 T | H06:<br>hν + $Al^{12+}$ | 0.1-10 keV | Salzmann, D.; Yin, R. Y.; Pratt, R. H. Comparison between average-atom and detailed-configuration-type calculations of the photoionization cross section of hot and dense aluminum plasmas. Phys. Rev. A 32, 3627 (1985)<br>United States |
| 04178 E | A03:<br>$H^+$ + Pb<br>A07:<br>$H^+$ + Pb | 240-440 keV | Moheb, H.; Bigaouette, R.; Inman, F. W. L-shell x-ray-production cross sections in lead by proton bombardment (240-440 keV). Phys. Rev. A 32, 3739 (1985)<br>United States |
| 04179 E | B01:<br>2hν + Na; 2hν + K<br>H06:<br>2hν + Na; 2hν + K | H06:<br>577-483 nm | Teraoka, Y.; Sato, Y.; Murakami, J. Multiphoton ionization of Na and K in a modest electric field. Phys. Rev. A 32, 3742 (1985)<br>Japan |
| 04180 E | E03:<br>e + $Mg^+$ | 15-100 eV | Msezane, A. Z.; Henry, R.J.W. Generalized oscillator strengths for the 3s $^2S$ → 3p $^2P$ transition in Mg II. Phys. Rev. A 32, 3778 (1985)<br>United States |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 04181 T | E02:<br>Undef | Undef | Manson, J. R.; Ritchie, R. H. Recoil in electron-atom scattering. Phys. Rev. A 32, 3782 (1985)<br>United States |
| 04182 T | E05:<br>e + $H_2$ | Undef | Liu, J. W. Discrepancy between theory and experiment for noncoplanar symmetric (e,2e) momentum profiles of $H_2[^2\Sigma(\text{sub g})^+]$. Phys. Rev. A 32, 3784 (1985)<br>Canada |
| 04183 E | H06:<br>$h\nu$ + Xe | 1.17 eV | Humpert, H. J.; Schwier, H.; Hippler, R.; Lutz, H. O. Angualr distribution of photoelectrons from above-threshold ionization of Xe. Phys. Rev. A 32, 3787 (1985)<br>West Germany |
| 04184 E | H06:<br>$h\nu$ + NO | 453.4-453.2 nm | Garrett, W. R.; Ferrell, W. R.; Miller, J. C.; Payne, M. G. ac Stark shifts in resonant multiphoton ionization of nitric oxide. Phys. Rev. A 32, 3790 (1985)<br>United States |
| 04185 E | H04:<br>$h\nu$ + Ba | 455 nm | Sandner, W.; Ruff, G. A.; Lange, V.; Eichmann, U. Laser-spectroscopic investigation and detection of Rydberg atoms by off-resonant core excitation. Phys. Rev. A 32, 3794 (1985)<br>West Germany |
| 04186 E | H06:<br>$h\nu$ + Sr | 576-562 nm | Agostini, P.; Petite, G. Electron spectroscopy at thresholds in single and double multiphoton ionization of strontium. Phys. Rev. A 32, 3800 (1985)<br>France |
| 04187 T | D05:<br>$h\nu$ + Al; $h\nu$ + Cu; $h\nu$ + Ta | 0.04-0.66 MeV | Gol'din, M. L.; Tkachenko, V. D. Evaluation of the characteristics of the emission of secondary electrons from a metal bombarded by photons with energies in the range 0.05-1.0 MeV. Sov. At. Energy 58, 141 (1985)<br>Soviet Union |
| 04188 E-T | A03:<br>$H^+$ + Ar | 0-55 eV | Ogurtsov, G. N.; Mikoushkin, V. M.; Flaks, I. P.; Sargsyan, M. G. Molecular-orbital mechanism for the formation of autoionization states by proton impact. Sov. Tech. Phys. Lett. 11, 270 (1985)<br>Soviet Union |
| 04189 E | A07:<br>$Li^*$ + Li | 0.02 eV | Zagrebin, S. B.; Samson, A. V. Impact ionization in a beam of lithium atoms. Sov. Tech. Phys. Lett. 11, 283 (1985)<br>Soviet Union |
| 04190 E | E03:<br>e + Bi; e + $Bi^+$; e + $Bi^{2+}$ | 0-250 eV | Smirnov, Y. M. Electron-impact excitation of forbidden transitions of bismuth. Sov. Tech. Phys. Lett. 11, 287 (1985)<br>Soviet Union |
| 04191 | K01:<br>Review<br>K02:<br>Review | | Silver, J. D.; Peacock, N. J. Editors of The Physics of Highly Ionised Atoms (Proceedings of the International Conference on the Physics of Highly Ionized Atoms, Oxford, England, July 2-5, 1984) North-Holland, Amsterdam, Nucl. Instrum. Methods Phys Res. B vol. 9 No. 4 (1985)<br>United Kingdom |
| 04192 T | E05:<br>e + Be Seq; e + $Fe^{22+}$<br>E06:<br>e + Be Seq; e + $Fe^{22+}$ | Undef | Safronova, U. I.; Vainshtein, L. A. Intensities of dielectronic satellites of Be-like ions. Nucl. Instrum. Methods Phys. Res. B 9, 359 (1985)<br>Soviet Union |
| 04193 T | A03:<br>Undef<br>A06:<br>Undef | Undef | Barat, M. Electron capture by low energy multicharged ions. Nucl. Instrum. Methods Phys. Res. B 9, 364 (1985)<br>France |
| 04194 T | A03:<br>$Ne^{9+}$ + $H_2$; $F^{9+}$ + H<br>A06:<br>$Ne^{9+}$ + $H_2$; $F^{9+}$ + H | Undef | Chetioui, A.; Vernhet, D.; Wohrer, K.; Rozet, J. P.; Salin, A.; Stephan, C. Charge exchange collisions involving highly stripped ions: distribution and anisotropy of final state angular momenta. Nucl. Instrum. Methods Phys. Res. B 9, 368 (1985)<br>France |
| 04195 E | A03:<br>$Ne^{8+}$ + $H_2$; $Ne^{8+}$ + He; $Al^{8+}$ + $H_2$<br>A06:<br>$Ne^{8+}$ + $H_2$; $Ne^{8+}$ + He; $Al^{8+}$ + $H_2$ | 0.2-0.4 a.u. | Bliman, S.; Bonnet, J. J.; Bordenave-Montesquieu, A.; Dousson, S.; Druetta, M.; Hitz, D.; Mayo, M. Radiative decay following low energy charge exchange collisions at the Agrippa facility. Nucl. Instrum. Methods Phys. Res. B 9, 371 (1985)<br>France |
| 04196 E | A03:<br>$He^{2+}$ + Li<br>A06:<br>$He^{2+}$ + Li | 0.55-10 keV/amu | Dijkkamp, D.; Boellaard, A.; de Heer, F. J. Single electron capture in slow $He^{2+}$ + Li collisions. Nucl. Instrum. Methods Phys. Res. B 9, 377 (1985)<br>The Netherlands |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 04197 E | A03:<br>Ni + Fe<br>A07:<br>Ni + Fe | 230 MeV | Chemin, J. F.; Andriamonje, S.; Guezet, D.; Thibaud, J. P.; Aguer, P.; Hannachi, F.; Bruandet, J. F. Measurement of the ionization probability of the 1s sigma molecular orbital in half a collision at zero impact parameter. Nucl. Instrum. Methods Phys. Res. B 9, 382 (1985)<br>France |
| 04198 E | E05:<br>e + $Ar^{+}$ | 20-950 eV | Becker, R.; Muller, A.; Achenbach, C.; Tinschert, K.; Salzborn, E. A dense electron target for the study of electron-ion collisions. Nucl. Instrum. Methods Phys. Res. B 9, 385 (1985)<br>West Germany |
| 04199 E | A03:<br>$N^{7+}$ + He; $N^{7+}$ + $H_2$; $N^{6+}$ + He;<br>$N^{6+}$ + $H_2$<br>A06:<br>$N^{7+}$ + He; $N^{7+}$ + $H_2$; $N^{6+}$ + He;<br>$N^{6+}$ + $H_2$ | 63-73.5 keV | Bordenave-Montesquieu, A.; Benoit-Cattin, P.; Gleizes, A.; Marrakchi, A. I.; Dousson, S.; Hitz, D. Experimental cross sections for two-electron capture into nitrogen autoionising states in N(sup q)+ (q = 6,7) on He and $H_2$ collisions at 10.5q keV. Nucl. Instrum. Methods Phys. Res. B 9, 389 (1985)<br>France |
| 04200 T | A03:<br>$C^{6+}$ + H<br>A06:<br>$C^{6+}$ + H | 86 keV | Dube, L. J.; Burgdorfer, J. Electron capture into Rydberg states in collisions between multiply charged ions and hydrogen. Nucl. Instrum. Methods Phys. Res. B 9, 392 (1985)<br>West Germany |
| 04201 E | A03:<br>$Ar^{4+}$ + Ar; $Ar^{5+}$ + Ar; $Ar^{6+}$ + Ar;<br>$Ar^{7+}$ + Ar; $Ar^{8+}$ + Ar<br>A06:<br>$Ar^{4+}$ + Ar; $Ar^{5+}$ + Ar; $Ar^{6+}$ + Ar;<br>$Ar^{7+}$ + Ar; $Ar^{8+}$ + Ar<br>A07:<br>$Ar^{4+}$ + Ar; $Ar^{5+}$ + Ar; $Ar^{6+}$ + Ar;<br>$Ar^{7+}$ + Ar; $Ar^{8+}$ + Ar | 7.2-14.4 keV | Barany, A.; Astner, G.; Cederquist, H.; Danared, H.; Huldt, S.; Hvelplund, P.; Johnson, A.; Knudsen, H.; Liljeby, L.; Rensfelt, K. G. Absolute cross sections for multi-electron processes in low energy Ar(sup q)+ + Ar collisions: comparison with theory. Nucl. Instrum. Methods Phys. Res. B 9, 397 (1985)<br>Sweden |
| 04202 E | E05:<br>e + $N^{4+}$; e + $N^{5+}$ | 90-2500 eV | Defrance, P.; Chantrenne, S.; Brouillard, F.; Rachafi, S.; Belic, D. S.; Jureta, J.; Gregory, D. Electron impact ionization of $N^{4+}$ and $N^{5+}$. Nucl. Instrum. Methods Phys. Res. B 9, 400 (1985)<br>Belgium |
| 04203 E | A03:<br>$C^{4+}$ + H; $O^{6+}$ + H; $N^{5+}$ + H<br>A06:<br>$C^{4+}$ + H; $O^{6+}$ + H; $N^{5+}$ + H | 8.6-50 keV | Dijkkamp, D.; Ciric, D.; de Heer, F. J.; Vlieg, E. (n,l)-subshell electron capture cross sections in collisions of $C^{4+}$, $N^{5+}$, and $O^{6+}$ with atomic hydrogen. Nucl. Instrum. Methods Phys. Res. B 9, 403 (1985)<br>The Netherlands |
| 04204 E-T | A03:<br>$C^{4+}$ + $H_2$; $C^{4+}$ + He<br>A06:<br>$C^{4+}$ + $H_2$; $C^{4+}$ + He | 2-5 MeV | Dube, L. J.; Will, U.; Bruch, R.; Trabert, E.; Heckmann, P. H. Theory and experiment of electron capture in collisions of multiply charged projectiles with light targets. Nucl. Instrum. Methods Phys. Res. B 9, 408 (1985)<br>West Germany |
| 04205 T | A03:<br>$C^{6+}$ + H; $N^{5+}$ + H; $O^{6+}$ + H<br>A06:<br>$C^{6+}$ + H; $N^{5+}$ + H; $O^{6+}$ + H | 0.2-10 keV/amu | Gayet, R.; Hanssen, J.; Harel, C.; Salin, A. Electron capture from atomic hydrogen in the keV/amu energy range. Nucl. Instrum. Methods Phys. Res. B 9, 413 (1985)<br>Italy |
| 04206 E | A03:<br>$Ar^{4+}$ + He; $Ar^{4+}$ + Ar; $Ar^{3+}$ + Ar;<br>$Ar^{3+}$ + He; $Ar^{3+}$ + Kr; $Ar^{3+}$ + Ne<br>A06:<br>$Ar^{4+}$ + He; $Ar^{4+}$ + Ar; $Ar^{3+}$ + Ar;<br>$Ar^{3+}$ + He; $Ar^{3+}$ + Kr; $Ar^{3+}$ + Ne | 800-600 eV | Puerta, J.; Kahlert, H. J.; Koslowski, H. R.; Huber, B. A. Single electron capture by state-selected multiply charged Ar(sup q)+ ions (q = 3,4). Nucl. Instrum. Methods Phys. Res. B 9, 415 (1985)<br>West Germany |
| 04207 E | A03:<br>$Ar^{6+}$ + Ne; $Ar^{6+}$ + Ar; $Ar^{6+}$ + Xe;<br>$Ar^{7+}$ + Ne; $Ar^{7+}$ + Ar; $Ar^{7+}$ + Xe;<br>$Ar^{8+}$ + Ne; $Ar^{8+}$ + Ar; $Ar^{8+}$ + Xe;<br>$Ar^{9+}$ + Ne; $Ar^{9+}$ + Ar; $Ar^{9+}$ + Xe;<br>$Ar^{10+}$ + Ne; $Ar^{10+}$ + Ar; $Ar^{10+}$ + Xe<br>A06:<br>$Ar^{6+}$ + Ne; $Ar^{6+}$ + Ar; $Ar^{6+}$ + Xe;<br>$Ar^{7+}$ + Ne; $Ar^{7+}$ + Ar; $Ar^{7+}$ + Xe;<br>$Ar^{8+}$ + Ne; $Ar^{8+}$ + Ar; $Ar^{8+}$ + Xe;<br>$Ar^{9+}$ + Ne; $Ar^{9+}$ + Ar; $Ar^{9+}$ + Xe;<br>$Ar^{10+}$ + Ne; $Ar^{10+}$ + Ar; $Ar^{10+}$ + Xe | 1 keV | Hvelplund, P.; Andersen, L. H.; Barany, A.; Cederquist, H.; Heinemeier, H.; Knudsen, H.; MacAdam, K. B.; Nielsen, E. H.; Sorensen, J. Energy-gain spectroscopy studies of state-selective electron capture for multiply charged Ar recoil ions: comparison with the extended classical barrier model. Nucl. Instrum. Methods Phys. Res. B 9, 421 (1985)<br>Denmark |
| 04208 E | A06:<br>$Ne^{10+}$ + Xe<br>A07:<br>$Ne^{10+}$ + Xe | 100 keV | Schuch, B.; Muller, A.; Salzborn, E.; Dousson, S.; Hitz, D.; Geller, R. Transfer ionization with bare 100 keV $Ne^{10+}$ ions colliding with noble gas atoms. Nucl. Instrum. Methods Phys. Res. B 9, 426 (1985)<br>West Germany |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 04209 E | A07:<br>$C^{2+}$ + Ar; $C^{2+}$ + Ne; $C^{2+}$ + He;<br>$C^{3+}$ + Ar; $C^{3+}$ + Ne; $C^{3+}$ + He;<br>$C^{4+}$ + Ar; $C^{4+}$ + Ne; $C^{4+}$ + He;<br>$C^{5+}$ + Ar; $C^{5+}$ + Ne; $C^{5+}$ + He;<br>$C^{6+}$ + Ar; $C^{6+}$ + Ne; $C^{6+}$ + He;<br>$Ar^{4+}$ + Ar; $Ar^{6+}$ + Ar; $Ar^{10+}$ + Ar;<br>$Ar^{11+}$ + Ar; $Ar^{12+}$ + Ar; $Ar^{13+}$ + Ar;<br>$Ar^{14+}$ + Ar | 1.05 MeV/amu | Tonuma, T.; Be, S. H.; Kumagai, H.; Shibata, H.; Kase, M.; Kambara, T.; Kohno, I.; Tawara, H. Ionization of He, Ne, and Ar atoms by 1.05 MeV/amu C(sup q)+ (q = 2-6) and Ar(sup q)+ (q = 4-14) ion impact. Nucl. Instrum. Methods Phys. Res. B 9, 429 (1985)<br>Japan |
| 04210 E | A06:<br>$I^{10+}$ + He; $I^{13+}$ + He; $I^{14+}$ + He;<br>$I^{15+}$ + He; $I^{17+}$ + He; $I^{19+}$ + He;<br>$I^{20+}$ + He; $I^{22+}$ + He; $I^{23+}$ + He;<br>$I^{24+}$ + He; $I^{25+}$ + He; $I^{28+}$ + He;<br>$I^{29+}$ + He; $I^{30+}$ + He; $I^{31+}$ + He;<br>$I^{32+}$ + He; $I^{33+}$ + He; $I^{34+}$ + He;<br>$I^{35+}$ + He; $I^{36+}$ + He; $I^{37+}$ + He;<br>$I^{38+}$ + He; $I^{40+}$ + He; $I^{41+}$ + He;<br>$Kr^{3+}$ + He; $Kr^{4+}$ + He; $Kr^{5+}$ + He;<br>$Kr^{6+}$ + He; $Kr^{7+}$ + He; $Kr^{8+}$ + He;<br>$Kr^{9+}$ + He; $Kr^{10+}$ + He; $Kr^{11+}$ + He;<br>$Kr^{12+}$ + He; $Kr^{13+}$ + He; $Kr^{14+}$ + He | 7.5-100 keV | Tawara, H.; Iwai, T.; Kaneko, Y.; Kimura, M.; Kobayashi, N.; Matsumoto, A.; Ohtani, S.; Okuno, K.; Takagi, S.; Tsurubuchi, S. Electron capture in I(sup q)+ (q = 10-41) + He collisions at low energies. Nucl. Instrum. Methods Phys. Res. B 9, 432 (1985)<br>Japan |
| 04211 T | A03:<br>$N^{3+}$ + H<br>A06:<br>$N^{3+}$ + H | 0.006-0.25 eV | Thylwe, K. W.; Barany, A. A semiclassical analysis of orbiting resonances in slow charge transfer processes. Nucl. Instrum. Methods Phys. Res. B 9, 435 (1985)<br>Sweden |
| 04212 E | A03:<br>$C^{4+}$ + He<br>A07:<br>$C^{4+}$ + He | 2-5 MeV | Bruch, R.; Kocbach, L.; Trabert, E.; Heckmann, P. H.; Raith, B.; Will, U. $He^{+}$ (np) cross sections for 2,3,4, and 5 MeV $C^{4+}$ ions colliding with He atoms. Nucl. Instrum. Methods Phys. Res. B 9, 438 (1985)<br>United States |
| 04213 E | A03:<br>$C^{4+}$ + Li; $C^{4+}$ + H; $C^{3+}$ + Li;<br>$C^{5+}$ + Li; $C^{6+}$ + Li; $O^{4+}$ + Li;<br>$O^{5+}$ + Li; $O^{6+}$ + Li<br>A06:<br>$C^{4+}$ + Li; $C^{4+}$ + H | 20-120 keV | Brazuk, A.; Winter, H.; Dijkkamp, D.; de Heer, F. J.; Drentje, A. G. Subshell-selective electron capture from lithium by slow multiply charged ions. Nucl. Instrum. Methods Phys. Res. B 9, 442 (1985)<br>Austria |
| 04214 T | A06:<br>Undef | Undef | Heil, T. G.; Bottrell, G. J.; Böttcher, C. Molecular theory of atomic collisions: a generalized perturbed stationary states approach. Nucl. Instrum. Methods Phys. Res. B 9, 448 (1985)<br>United States |
| 04215 T | A07:<br>$Ne^{3+}$ + Ne; $Ne^{10+}$ + Ne; $Ar^{6+}$ + Ne;<br>$Ar^{17+}$ + Ne | 5.5 MeV/amu | Kadar, I.; Ricz, S.; Shchegolev, V. A.; Sulik, B.; Varga, D.; Vegh, J.; Berenyi, D.; Hock, G. Auger electron spectra in 5.5 MeV/amu Ne(sup q)+ and Ar(sup q)+ ion impact on Ne. Nucl. Instrum. Methods Phys. Res. B 9, 451 (1985)<br>Soviet Union |
| 04216 T | A03:<br>$He^{2+}$ + Li<br>A06:<br>$He^{2+}$ + Li<br>A07:<br>$He^{2+}$ + Li | 0.2-1000 keV | Ermolaev, A. M.; Hewitt, R. N. An $L^2$ representation of the continuum in collisions between alpha particles and lithium atoms. Nucl. Instrum. Methods Phys. Res. B 9, 487 (1985)<br>United Kingdom |
| 04217 T | H06:<br>hν + Li<br>H07:<br>hν + $H^{-}$ | 0-12 Ry | Fairley, N. A.; Laughlin, C. Calculations on quartet levels of 3-electron ions. Nucl. Instrum. Methods Phys. Res. B 9, 509 (1985)<br>United Kingdom |
| 04218 E | A03:<br>$O^{8+}$ + H; $N^{7+}$ + H; $C^{6+}$ + H<br>A06:<br>$O^{8+}$ + H; $N^{7+}$ + H; $C^{6+}$ + H | 5.6-120 keV | Donets, E. D. Electron beam ion sources and associated physics at JINR. Nucl. Instrum. Methods Phys. Res. B 9, 522 (1985)<br>Soviet Union |
| 04219 E | A06:<br>$C^{6+}$ + H; $C^{6+}$ + $H_2$ | 0.22-8 keV/amu | Meyer, F. W. The ORNL ECR multicharged ion source. Nucl. Instrum. Methods Phys. Res. B 9, 532 (1985)<br>United States |
| 04220 E | D08:<br>Li + Cu; Li + C; $Rb^{+}$ + Ni; $N^{+}$ + Ni | 50-350 keV | Andra, H. J.; Zimny, R.; Winter, H.; Hagedorn, H. Electronic interaction of fast ions with surfaces. Nucl. Instrum. Methods Phys. Res. B 9, 572 (1985)<br>West Germany |
| 04221 E | D08:<br>$D^{+}$ + C; $D_2^{+}$ + C; $D_3^{+}$ + C | 20-500 keV/amu | Baudinet-Robinet, Y.; Dumont, P. D. Populations of np terms in deuterium atoms emergent from carbon foils bombarded with $D^{+}$, $D_2^{+}$, and $D_3^{+}$ ions. Nucl. Instrum. Methods Phys. Res. B 9, 598 (1985)<br>Belgium |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 04222 E | D08:<br>$Ar^+$ + SS | 60 keV | Lee, C. S.; Lenoir, J.; Pedrazzini, G. J.; Church, D. A. Measurements of the polarization of radiation emitted by fast argon ions scattered by adsorbates on surfaces. Nucl. Instrum. Methods Phys. Res. B 9, 604 (1985)<br>United States |
| 04223 E | D08:<br>$N^{5+}$ + W | 20 keV | de Zwart, S. T.; Drentje, A. G.; Boers, A. L. Surface physics with multiply charged ions. Nucl. Instrum. Methods Phys. Res. B 9, 608 (1985)<br>The Netherlands |
| 04224 E | D08:<br>$Cl^{10+}$ + C | 150 MeV | Ozawa, K.; Yamaguchi, H.; Kawatsura, K.; Sataka, M.; Kitahara, T.; Kikuchi, A.; Komaki, K.; Ootuka, A.; Fujimoto, F. Beam-foil interaction of highly ionised chlorine ions in the high energy region. Nucl. Instrum. Methods Phys. Res. B 9, 621 (1985)<br>Japan |
| 04225 T | A06:<br>$O^{3+}$ + H; $N^{2+}$ + He; $H^+$ + $Fe^+$;<br>$H^+$ + $Si^+$; $He^+$ + $Si^{2+}$ | Undef | Dalgarno, A. Charge transfer processes is astrophysical plasmas. Nucl. Instrum. Methods Phys. Res. B 9, 655 (1985)<br>United States |
| 04226 E | A03:<br>$N^{5+}$ + He<br>A06:<br>$N^{5+}$ + He | 0.7-3.6 keV/amu | Cotte, P. H.; Druetta, M.; Martin, S.; Denis, A.; Desesquelles, J.; Hitz, D.; Dousson, S. UV spectroscopy of charge exchange collisions between $N^{5+}$ ions and $H_2$, He. Nucl. Instrum. Methods Phys. Res. B 9, 743 (1985)<br>France |
| 04227 | K01:<br>Ion-ion recombination | | Bates, D. R. Ion-ion recombination in an ambient gas. p. 1 in Advances in Atomic and Molecular Physics, Sir D. Bates and B. Bederson, Eds., Vol. 20, Academic Press, Inc., New York, (1985)<br>United Kingdom |
| 04228 | K06:<br>Molecules | | Hall, G. G. Atomic charges within molecules. p. 41 in Advances in Atomic and Molecular Physics, Sir D. Bates and B. Bederson, Eds., Vol. 20, Academic Press, Inc., New York (1985)<br>United Kingdom |
| 04229 | K01:<br>Clusters | | Mark, T. D.; Castleman, A. W., Jr. Experimental studies on cluster ions. p. 65 in Advances in Atomic and Molecular Physics, Sir D. Bates and B. Bederson, Eds., Vol. 20, Academic Press, Inc., New York (1985)<br>United States |
| 04230 | K01:<br>Ionization | | Meyerhof, W. E.; Chemin, J. F. Nuclear reaction effects on atomic inner-shell ionization. p. 173 in Advances in Atomic and Molecular Physics, Sir D. Bates and B. Bederson, Eds., Vol. 20, Academic Press, Inc., New York (1985)<br>United States |
| 04231 | K02:<br>Ionization | | Bottcher, C. Numerical calculations on electron-impact ionization. p. 241 in Advances in Atomic and Molecular Physics, Sir D. Bates and B. Bederson, Eds., Vol. 20, Academic Press, Inc., New York (1985)<br>United States |
| 04232 | K05:<br>Mobilities | | Freeman, G. R.; Armstrong, D. A. Electron and ion mobilities. p. 267 in Advances in Atomic and Molecular Physics, Sir D. Bates and B. Bederson, Eds., Vol. 20, Academic Press, Inc., New York (1985)<br>Canada |
| 04233 | K08:<br>X-ray lasers | | Sobel'man, I. I.; Vinogradov, A. V. On the problem of extreme UV and x-ray lasers. p. 327 in Advances in Atomic and Molecular Physics, Sir D. Bates and B. Bederson, Eds., Vol. 20, Academic Press, Inc., New York (1985)<br>Soviet Union |
| 04234 | K02:<br>Dissociative recombination<br>K03:<br>Photoionization; Absorption | | Greene, C. H.; Jungen, C. Molecular applications of quantum defect theory. p. 51 in Advances in Atomic and Molecular Physics, Sir D. Bates and B. Bederson, Eds., Vol. 21, Academic Press, Inc., New York (1985)<br>United States |
| 04235 | K02:<br>Dielectronic recombination | | Hahn, Y. Theory of dielectronic recombination. p. 123 in Advances in Atomic and Molecular Physics, Sir D. Bates and B. Bederson, Eds., Vol. 21, Academic Press, Inc., New York (1985)<br>United States |
| 04236 | K03:<br>Multiphoton processes | | Chu, S. Recent development in semiclassical Floquet theories for intense-field multiphoton processes. p. 197 in Advances in Atomic and Molecular Physics, Sir D. Bates and B. Bederson, Eds., Vol. 21, Academic Press, New York (1985)<br>United States |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 04237 | K01:<br>Electron capture<br>K03:<br>Photoionization; Photodetachment | | McDowell, M. R.C.; Zarcone, M. Scattering in strong magnetic fields. p. 255 in Advances in Atomic and Molecular Physics, Sir D. Bates and B. Bederson, Eds., Vol. 21, Academic Press, Inc., New York (1985)<br>United Kingdom |
| 04238 | K01:<br>Ionization<br>K06:<br>High density | | More, R. M. Pressure ionization, resonances, and the continuity of bound and free states. p. 305 in Advances in Atomic and Molecular Physics, Sir D. Bates and B. Bederson, Eds., Vol. 21, Academic Press, Inc., New York (1985)<br>United States |
| 04239 E | A06:<br>$O^{2+}$ + H; $O^{3+}$ + H | 0.9-3x10⁴ K | Jones, S. E. Some surprises in muon-catalyzed fusion. p. 93 in Atomic Physics 9, R. S. Van Dyck, Jr. and E. N. Fortson, Eds. World Scientific Publishing Co., Singapore (1984)<br>United States |
| 04240 | K08:<br>X-ray lasers | | Hagelstein, P. L. Review of short wavelength lasers. p. 332 in Atomic Physics 9, R. S. Van Dyck, Jr. and E. N. Fortson, Eds. World Scientific Publishing Co., Singapore (1984)<br>United States |
| 04241 | K08:<br>XUV lasers | | Harris, S. E.; Caro, R. G.; Falcone, R. W.; Holmgren, D. E.; Rothenberg, J. E.; Walker, D. J.; Wang, J. C.; Willison, J. R.; Young, J. F. Metastability in the XUV: lasers and spectroscopy. p. 462 in Atomic Physics 9, R. S. Van Dyck, Jr. and E. N. Fortson, Eds. World Scientific Publishing Co., Singapore (1984)<br>United States |
| 04242 | K01:<br>Excitation | | Rau, A.R.P. High excitation of two electrons. p. 491 in Atomic Physics 9, R. S. Van Dyck, Jr. and E. N. Fortson, Eds. World Scientific Publishing Co., Singapore (1984)<br>United States |
| 04243 | K02:<br>Dielectronic recombination | | Dunn, G. H.; Belic, D. S.; Djuric, N.; Mueller, D. W. Dielectronic recombination. p. 505 in Atomic Physics 9, R. S. Van Dyck, Jr. and E. N. Fortson, Eds. World Scientific Publishing Co., Singapore (1984)<br>United States |
| 04244 | K03:<br>Multiphoton processes | | Gavrila, M. Multiphoton processes at high laser intensities. p. 523 in Atomic Physics 9, R. S. Van Dyck, Jr. and E. N. Fortson, Eds. World Scientific Publishing Co., Singapore (1984)<br>The Netherlands |
| 04245 | K08:<br>Plasmas | | Hinnov, E. Highly ionized atoms in tokamak discharges. p. 49 in Atomic Physics of Highly Ionized Atoms, R. Marrus, Ed. Vol. B96, Plenum Press, New York (1983)<br>United States |
| 04246 | K01:<br>Electron capture; Scattering | | Cocke, C. L. Inner shell capture in the intermediate velocity range. p. 323 in Atomic Physics of Highly Ionized Atoms, R. Marrus, Ed. Vol. B96, Plenum Press, New York (1983)<br>United States |
| 04247 | K01:<br>Electron capture | | Barat, M. Charge exchange processes involving multicharged ions: the quasimolecular approach. p. 365 in Atomic Physics of Highly Ionized Atoms, R. Marrus, Ed. Vol. B96, Plenum Press, New York (1983)<br>France |
| 04248 | K02:<br>Excitation; Ionization | | Crandall, D. H. Electron-ion collisions. p. 399 in Atomic Physics of Highly Ionized Atoms, R. Marrus, Ed. Vol. B96, Plenum Press, New York (1983)<br>United States |
| 04249 | K04:<br>Channeling; Radiation | | Andersen, J. U. Channeling of ions and electrons in crystals and radiation from channeled electrons. p. 517 in Atomic Physics of Highly Ionized Atoms, R. Marrus, Ed. Vol. B96, Plenum Press, New York (1983)<br>Denmark |
| 04250 I | A17:<br>$N_2$ + $N_2$ | Undef | Bohm, H. J.; Ahlrichs, R. The $N_2$ + $N_2$ interaction. A theoretical investigation. Mol. Phys. 55, 1159 (1985)<br>West Germany |
| 04251 E | A17:<br>Ne + $CH_4$<br>A18:<br>Ne + $CH_4$ | 88.8 meV | Buck, U.; Kohlhase, A.; Secrest, D.; Phillips, T.; Scoles, G.; Grein, F. Rotationally inelastic scattering and potential calculations for Ne + $CH_4$. Mol. Phys. 55, 1233 (1985)<br>West Germany |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 04252 E | A03:<br>He + $CH_4$<br>A17:<br>He + $CH_4$<br>A18:<br>He + $CH_4$ | 31.1-75.5 meV | Buck, U.; Kohl, K. H.; Kohlhase, A.; Paubel, M.; Staemmler, V. Rotationally inelastic scattering and potential calculations for He + $CH_4$. Mol. Phys. 55, 1255 (1985)<br>West Germany |
| 04253 F | H04:<br>hν + F | Undef | Vujnovic, V.; Burshtein, M. L. Absolute scale of transition probabilities in neutral fluorine. Astron. Astrophys. 151, 442 (1985)<br>Soviet Union |
| 04254 E-T | E03:<br>e + $Mg^+$ | 35-50 eV | Williams, I. D.; Chutjian, A.; Msezane, A. Z.; Henry, R.J.W. Differential electron scattering cross sections for the 3 $^2S$ → 3 $^2P^o$ h,k transitions in Mg II; comparison of experiment and theory. Astrophys. J., Part 1 299, 1063 (1985)<br>United States |
| 04255 F | H04:<br>hν + Cr | 0-6 eV | Tozzi, J. P.; Brunner, A. J.; Huber, M.C.E. Transition probabilities in Cr I. Mon. Not. R. Astron. Soc. 217, 423 (1985)<br>United Kingdom |
| 04256 E | D07:<br>$N_2^+$ + Cu | 30 keV | Balashova, L. L.; Garin, S. N.; Molchanov, V. A. Orientation dependence of the survival fraction of molecular ions reflected from a single crystal. Appl. Phys. [Germany] A 37, 171 (1985)<br>Soviet Union |
| 04257 T | E03:<br>e + $C^{2+}$; e + $O^{4+}$; e + $Ne^{6+}$; e + $Si^{10+}$<br>J02:<br>Excitation | 2.6-34.0 Ry | Berrington, K. A.; Burke, P. G.; Dufton, P. L.; Kingston, A. E. Electron-impact-excitation collision strengths for Be-like ions. II. Intermediate-energy region and collision rates. At. Data Nucl. Data Tables 33, 195 (1985)<br>United Kingdom |
| 04258 T | J01:<br>Ionization | 0.1-3.0 MeV | Chen, M. H.; Crasemann, B. Relativistic cross sections for atomic K- and L-shell ionization by protons, calculated from a Dirac-Hartree-Slater model. At. Data Nucl. Data Tables 33, 217 (1985)<br>United States |
| 04259 T | J01:<br>Ionization | 0.1-10 MeV | Cohen, D. D.; Harrigan, M. K- and L-shell ionization cross sections for protons and helium ions calculated in the ECPSSR theory. At. Data Nucl. Data Tables 33, 255 (1985)<br>Australia |
| 04260 T | D02:<br>$Hg^+$ + Ag; $Hg^+$ + Au; $Hg^+$ + Co;<br>$Hg^+$ + Cu; $Hg^+$ + Fe; $Hg^+$ + Mo;<br>$Hg^+$ + Nb; $Hg^+$ + Pt; $Hg^+$ + Ta;<br>$Hg^+$ + Ti; $Hg^+$ + W; $Hg^+$ + Zr | 0-100 eV | Wilhelm, H. E. Quantum-statistical analysis of low energy sputtering. Aust. J. Phys. 38, 125 (1985)<br>United States |
| 04261 E-T | A06:<br>K + $O_2$; K + NO; Cs + $O_2$<br>A07:<br>K + $O_2$; K + NO; Cs + $O_2$ | 60-180 eV | Spalburg, M. R.; Vervaat, M.G.M.; Kleyn, A. W.; Los, J. Partial state-to-state differential cross sections for ion-pair formation in atom-molecule collisions. Chem. Phys. 99, 1 (1985)<br>The Netherlands |
| 04262 E | H06:<br>hν + $H_2O$ | 12-34 eV | Brion, C. E.; Carnovale, F. The absolute partial photoionization cross section for the production of the X $^2B_1$ state of $H_2O^+$. Chem. Phys. 100, 291 (1985)<br>Canada |
| 04263 T | A14:<br>H + $D_2$; D + $H_2$ | 300 K | Schechter, I.; Kosloff, R.; Levine, R. D. Vibrational enhancement of the reaction rate and steric requirements in the H + $D_2(v)$ and D + $H_2(v)$ reactions. Chem. Phys. Lett. 121, 297 (1985)<br>Israel |
| 04264 E | A11:<br>$N_2^*$ + $O_2$ | 80-560 K | De Sousa, A. R.; Touzeau, M.; Petitdidier, M. Quenching reactions of metastable $N_2$ (A $^3\Sigma$, v = 0,1,2) molecules by $O_2$. Chem. Phys. Lett. 121, 423 (1985)<br>France |
| 04265 E | A14:<br>$Ar_2^+$ + $H_2$ | 300 K | Raksit, A. B. Reactions of $Ar_2^+$ ions with neutral molecules. Int. J. Mass Spectrom. Ion Processes 66, 109 (1985)<br>United States |
| 04266 T | A14:<br>F + $H_2$<br>A17:<br>F + $H_2$ | 0-3 kcal/mol | Steckler, R.; Truhlar, D. G.; Garrett, B. C. A high-barrier potential energy surface for F + $H_2$ → HF + H. J. Chem. Phys. 83, 2870 (1985)<br>United States |
| 04267 T | A14:<br>$He^+$ + He + He | 80-320 K | Russell, J. E. Analysis of the reaction $He^+$ + He + He → $He_2^+$ + He. J. Chem. Phys. 83, 3363 (1985)<br>United States |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 04268 E | H06:<br>$h\nu + H_2$ | 266 nm | Meier, W.; Rottke, H.; Zacharias, H.; Welge, K. H. Rotational state selective photoionization of the $H_2$ molecule from B $^1\Sigma$(sub u)+ (v' = 0,3) states. J. Chem. Phys. 83, 4360 (1985)<br>West Germany |
| 04269 T | A11:<br>CO* + He | 5-300 meV | Schinke, R.; Diercksen, G. H. F. Vibrational relaxation of CO(n = 1) in collisions with He. J. Chem. Phys. 83, 4516 (1985)<br>West Germany |
| 04270 E | D08:<br>NO + Ge | 140-920 K | Modl, A.; Robota, H.; Segner, J.; Vielhaber, W.; Lin, M. C.; Ertl, G. Rotational state distributions of NO molecules after interaction with germanium surfaces. J. Chem. Phys. 83, 4800 (1985)<br>West Germany |
| 04271 E | A02:<br>D + He; D + Ne; D + Ar; D + Kr;<br>He + He; He + Ar; He + Kr<br>A17:<br>He + He; D + Ne | 30-1800 eV | Ruzic, D. N.; Cohen, S. A. Total scattering cross sections and interatomic potentials for neutral hydrogen and helium on some noble gases. J. Chem. Phys. 83, 5527 (1985)<br>United States |
| 04272 E | H05:<br>$h\nu$ + NO<br>H06:<br>$h\nu$ + NO | 614-120 A° | Samson, J.A.R.; Masuoka, T.; Pareek, P. N. Dissociative and double photoionization cross sections of NO from threshold to 120 A°. J. Chem. Phys. 83, 5531 (1985)<br>United States |
| 04273 T | A14:<br>O + $H_2$; O + $D_2$; O + HD | 0.1-0.8 eV | Schatz, G. C. A coupled states distorted wave study of the O($^3$P) + $H_2$ ($D_2$, HD, DH) reaction. J. Chem. Phys. 83, 5677 (1985)<br>United States |
| 04274 E-T | E09:<br>e + $H_2$; e + $D_2$ | 300-2000 K | Christophorou, L. G. Temperature dependence of the isotope effect in dissociative attachment. J. Chem. Phys. 83, 6219 (1985)<br>United States |
| 04275 E | D07:<br>Ne+ + Mg; Ne+ + Y; Ne+ + MgO;<br>Ar+ + Mg; Ar+ + Y; Ar+ + MgO;<br>Ne+ + Mg(OH)$_2$; Ar+ + Mg(OH)$_2$;<br>Ne+ + $Y_2O_3$; Ar+ + $Y_2O_3$; Ne+ + Y(OH)$_2$;<br>Ar+ + Y(OH)$_3$<br>D08:<br>Ne+ + Mg; Ne+ + Y; Ne+ + MgO;<br>Ar+ + Mg; Ar+ + Y; Ar+ + MgO;<br>Ne+ + Mg(OH)$_2$; Ar+ + Mg(OH)$_2$;<br>Ne+ + $Y_2O_3$; Ar+ + $Y_2O_3$; Ne+ + Y(OH)$_2$;<br>Ar+ + Y(OH)$_3$<br>D12:<br>Ne+ + Mg; Ne+ + Y; Ne+ + MgO;<br>Ar+ + Mg; Ar+ + Y; Ar+ + MgO;<br>Ne+ + Mg(OH)$_2$; Ar+ + Mg(OH)$_2$;<br>Ne+ + $Y_2O_3$; Ar+ + $Y_2O_3$; Ne+ + Y(OH)$_2$;<br>Ar+ + Y(OH)$_3$ | 1-10 keV | Rabalais, J. W.; Chen, J. N.; Auerbach, R.; Narayana, M. Inelastic processes in ion/surface collisions: scattered ion fractions and VUV photon emission for Ne+ and Ar+ collisions with Mg and Y surfaces. J. Chem. Phys. 83, [illegible] (1985)<br>United States |
| 04276 E | H06:<br>$h\nu$ + Ba | 670-550 nm | Dexter, J. L.; Jaffe, S. M.; Gallagher, T. F. Double ionisation of Ba from 550 to 670 nm. J. Phys. B 18, L735 (1985)<br>United States |
| 04277 E | A03:<br>He+ + Li | 2-20 keV | Aumayr, F.; Winter, H. Excitation by impact of He+ (2-20 keV) on Li(2s). J. Phys. B 18, L741 (1985)<br>Austria |
| 04278 T | E03:<br>e + H | Undef | Dewangan, D. P.; Khadkikar, S. B. A multiple scattering theory for electron-atom collisions. J. Phys. B 18, L751 (1985)<br>India |
| 04279 E | E03:<br>e + He | 56-66 eV | Van der Burgt, P.J.M.; Heideman, H.G.M. A new type of He- resonance states in the autoionisation region. J. Phys. B 18, L755 (1985)<br>The Netherlands |
| 04280 T | E08:<br>e + $B^{3+}$ | 170 eV | Banon, J. M.; Koenig, M.; Nguyen, H. Broadening of dielectronic satellite lines in dense plasmas. J. Phys. B 18, 4195 (1985)<br>France |
| 04281 E | A03:<br>Na + Hg | 2500-4500 K | Woerdman, J. P.; Schlejen, J.; Korving, J.; Van Hemert, M. C.; de Groot, J. J.; Van Hal, R.P.M. Analysis of satellite and undulation structure in the spectrum of Na + Hg continuum emission. J. Phys. B 18, 4205 (1985)<br>The Netherlands |

| [illegible] | N | Reactants | Energy range | Reference |
|---|---|---|---|---|
| 04[illegible] | F | [illegible]: $H^+$ + Li, $He^{2+}$ + Li; A07: $H^+$ + Li, $He^{2+}$ [illegible] | 2 [illegible] 30 [illegible] | Shah, M. B.; Elliott, D. S.; Gilbody, H. B. Ionisation and charge transfer in collisions of $H^+$ and $He^{2+}$ with lithium. J. Phys. B 18, 4245 (1985) United Kingdom |
| 042[illegible] | F | A0[illegible]: [illegible] + I | [illegible] 5 keV/amu | Wada, K.; Murai, T. Charge transfer in $Be^{4+}$ + H(1s) collisions: convergence and oscillatory structure of the total cross sections. J. Phys. B 18, 4259 (1985) Japan |
| [illegible] | F | [illegible]: [illegible] + I; [illegible] | [illegible] 0.03-0.12 keV/amu | Errea, L. F.; Mendez, L.; Riera, A. G. Laser-induced charge transfer in the $OH^{8+}$ quasimolecule. J. Phys. B 18, 4271 (1985) Spain |
| [illegible] | F | [illegible]: $He^{2+}$ + [illegible] H [illegible] + [illegible]; He + [illegible] Kr | [illegible] 100 keV | Chatterjee, S. N.; Roy, B. N. Modified BEA calculations of $He^{2+}$ impact double electron capture cross sections of atoms. J. Phys. B 18, 4283 (1985) India |
| 266 | F | [illegible]17: [illegible] A03: [illegible] | 1.[illegible] eV | Nestmann, B. M.; Peyerimhoff, S. D. CI method for determining the location and width of resonances in electron-molecule collision processes. J. Phys. B 18, 4309 (1985) West Germany |
| [illegible] | F | E0[illegible] e + [illegible] | [illegible] $10^4$ | Tayal, S. S.; Burke, P. G.; Kingston, A. E. Electron impact excitation of forbidden and allowed transitions in Al II. J. Phys. B 18, 4321 (1985) United Kingdom |
| 0428[illegible] | F | A0[illegible]: H + [illegible] | 9 keV | McLaughlin, B. M.; Bell, K. L. H(2s) formation in non-adiabatic ground-state hydrogen atom collisions. J. Phys. B 18, L771 (1985) United Kingdom |
| 04279 | | [illegible]: Ar + [illegible] H, [illegible] + N[illegible] Ar; $Xe^{2+}$ [illegible] | [illegible] keV | Jellen-Wutte, U.; Schweinzer, J.; Vanek, W.; Winter, H. Scattering-angle-dependent translational energy spectroscopy for electron capture by doubly charged ions. J. Phys. B 18, L779 (1985) Austria |
| 04[illegible] | F | E05: e + Au; | [illegible] 1000 keV | Chakraborty, S. On the K-shell ionisation of atoms by electrons. J. Phys. B 18, L787 (1985) India |
| 0[illegible]251 | F | E11: e + Lu; e + Xe | [illegible] 1000 Ry | Amusia, M. Y.; Avdonina, N. B.; Chernysheva, L. V.; Kuchiev, M. Y. 'Stripping' of the atom in bremsstrahlung. J. Phys. B 18, L791 (1985) Soviet Union |
| 04292 | F | B07: Unde[illegible] | | Fiordilino, E.; Mittleman, M. H. Kinematics of multiphoton ionisation in a laser pulse. J. Phys. B 18, 4425 (1985) United States |
| 04293 | F | A01: H + H; H + Na; [illegible] + Rb, [illegible] + [illegible]; H + Cs | 0.01-10 keV | Swenson, D. R.; Tupa, D.; Anderson, L. W. Spin exchange collision cross sections for fast hydrogen atoms incident on hydrogen or alkali atoms. J. Phys. B 18, 4433 (1985) United States |
| 04294 | E | A06: $Ar^{2+*}$ + Ar | 400-607 eV | Puerta, J.; Huber, B. A. Single electron capture by state-prepared $Ar^{2+}$ projectiles in Ar. J. Phys. B 18, 4445 (1985) West Germany |
| 04295 | E | E02: e + $CO_2$ E03: e + $CO_2$ | 0.15-1.05 eV | Kochem, K. H.; Sohn, W.; Hebel, N.; Jung, K.; Ehrhardt, H. Elastic electron scattering and vibrational excitation of $CO_2$ in the threshold energy region. J. Phys. B 18, 4455 (1985) West Germany |
| 04296 | F | E03: e + $CO_2$ | 0.1-0.9 eV | Estrada, H.; Domcke, W. On the virtual-state effect in low-energy electron-$CO_2$ scattering. J. Phys. B 18, 4469 (1985) West Germany |
| 04297 | F | E03: e + $H_2O$ | Undef | Natanson, G. A. Selection rules for rotational excitation of polyatomic molecules by slow electron impact. J. Phys. B 18, 4481 (1985) United States |
| 04298 | F | F03: e + $N_2$ | 0.3-4.8 eV | Allan, M. Excitation of vibrational levels up to v = 17 in $N_2$ by electron impact in the 0-5 eV region. J. Phys. B 18, 4511 (1985) Switzerland |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 04299 E | E05:<br>e + Ar | 6 keV | Graf, D.; Hink, W. Measurements on PCI and threshold law in K-shell ionisation of Ar by electron impact. J. Phys. B 18, L803 (1985)<br>West Germany |
| 04300 E | H02:<br>hν + $H_2$ | 1001-1085 A° | Baig, M. A.; Connerade, J. P. New high-resolution photoabsorption study of the Lyman bands of $H_2$. J. Phys. B 18, L809 (1985)<br>West Germany |
| 04301 E | A07:<br>Rb* + K | Thermal | Djerad, M. T.; Harima, H.; Cheret, M. Associative ionisation in Rb(nL)-K(4S) collisions. J. Phys. B 18, L815 (1985)<br>France |
| 04302 E | E03:<br>e + Hg<br>E05:<br>e + Hg | 20-500 eV | Forrest, L. F.; Sokhi, R.; Pejcev, V.; Ross, K. J.; Wilson, M. The autoionising spectrum of atomic mercury excited by electron impact. J. Phys. B 18, 4519 (1985)<br>United Kingdom |
| 04303 E | H08:<br>hν + Ta; hν + W; hν + Au; hν + Tl; hν + Bi | 15-60 keV | Garg, M. L.; Kumar, S.; Mehta, D.; Verma, H. R.; Mangal, P. C.; Trehan, P. N. Measurement of photon-induced L x-ray fluorescence cross sections for Ta, W, Au, Tl, and Bi in the 15-60 keV energy range. J. Phys. B 18, 4529 (1985)<br>India |
| 04304 T | A04:<br>Undef | Undef | Coveney, P. V.; Child, M. S.; Barany, A. The two-state S matrix for the Landau-Zener potential curve crossing model: predissociation and resonant scattering. J. Phys. B 18, 4557 (1985)<br>United Kingdom |
| 04305 E | A03:<br>$He^+$ + He<br>A06:<br>$He^+$ + He<br>A07:<br>$He^+$ + He | 50-500 keV | Itoh, A.; Zouros, T.J.M.; Schneider, D.; Stettner, U.; Zeitz, W.; Stolterfoht, N. Transfer excitation in $He^+$ + He collisions studied by 0° electron spectroscopy. J. Phys. B 18, 4581 (1985)<br>West Germany |
| 04306 T | A07:<br>$Ne^{10+}$ + Gd; $Ne^{10+}$ + Ta; $Ne^{10+}$ + Pt; $Ne^{10+}$ + Au; $Ne^{10+}$ + Pb; $H^+$ + Gd; $H^+$ + Ta; $H^+$ + Pt; $H^+$ + Au; $H^+$ + Pb; $H^+$ + U | 0.67-4.88 GeV/amu | Becker, U.; Grun, N.; Scheid, W. Cross sections for K-shell ionisation in relativistic heavy-ion collisions. J. Phys. B 18, 4589 (1985)<br>West Germany |
| 04307 E | E03:<br>e + He*<br>E07:<br>e + He* | 7-10 eV | Dubreuil, B.; Prigent, P. Collisional processes induced in the n = 3 helium sublevels by electrons in a low-pressure plasma. Application to the electron density measurement. J. Phys. B 18, 4597 (1985)<br>France |
| 04308 E | H06:<br>2hν + $Ne^+$ | Undef | Harth, K.; Ganz, J.; Raab, M.; Lu, K. T.; Geiger, J.; Hoptop, H. On the s-d interaction in neon. J. Phys. B 18, L825 (1985)<br>East Germany |
| 04309 T | E02:<br>e + $H_2$<br>E03:<br>e + $H_2$ | 0.78-2.0 Ry | Baluja, K. L.; Noble, C. J.; Tennyson, J. Electronic excitation of the b $^3\Sigma$(sub u)$^+$ state of $H_2$ using the R-matrix method. J. Phys. B 18, L851 (1985)<br>United Kingdom |
| 04310 T | E03:<br>e + $H_2$ | 12-30 eV | Schneider, B. I.; Collins, L. A. Electronic excitation of the b $^3\Sigma$(sub u)$^+$ state of $H_2$ by electron impact in the linear algebraic approach. J. Phys. B 18, L857 (1985)<br>United States |
| 04311 T | E03:<br>e + $H_2$<br>E17:<br>e + $H_2$ | 10-30 eV | Lima, M.A.P.; Gibson, T. L.; Huo, W. M.; McKoy, V. Cross sections for electron impact excitation of the b $^3\Sigma$(sub u)$^+$ state of $H_2$: an application of the Schwinger multichannel variational method. J. Phys. B 18, L865 (1985)<br>United States |
| 04312 E | E03:<br>e + $H_2$<br>E17:<br>e + $H_2$ | 11.6-40 eV | Pasquerault, D.; Defrance, A.; Hagene, M. Differential (0,180°) excitation function of the C $^3\Pi$(sub u) state of $H_2$ by electron impact. J. Phys. B 18, L871 (1985)<br>France |
| 04313 E | E03:<br>e + H<br>E17:<br>e + H | 54.4-100 eV | Chwirot, S.; Slevin, J. Angular correlation measurements for the $3^2D$(sub j) states of atomic hydrogen. J. Phys. B 18, L881 (1985)<br>United Kingdom |
| 04314 E | A03:<br>He + He | 0.5-3.5 keV | Moorman, L.; Van Eck, J.; Heideman, H.G.M.; Nienhuis, G. Energy dependence of atomic substate correlation in simultaneous double-atom excitations in He + He collisions. J. Phys. B 18, 4707 (1985)<br>The Netherlands |

| Ref. No. | Reactants | Energy Range | Reference |
|---|---|---|---|
| 04315 E | A03:<br>$He^{2+}$ + H; $He^{2+}$ + $H_2$<br>A06:<br>$He^{2+}$ + H; $He^{2+}$ + $H_2$ | 1.25-10 keV/amu | Ciric, D.; Dijkkamp, D.; Vlieg, E.; de Heer, F. J. Selective electron capture into He II (n, l) subshells in collision of $He^{2+}$ with atomic and molecular hydrogen. J. Phys. B 18, 4745 (1985)<br>The Netherlands |
| 04316 E | A03:<br>$C^{4+}$ + H; $C^{4+}$ + $H_2$; $N^{5+}$ + H; $N^{5+}$ + $H_2$; $O^{6+}$ + H; $O^{6+}$ + $H_2$<br>A06:<br>$C^{4+}$ + H; $C^{4+}$ + $H_2$; $N^{5+}$ + H; $N^{5+}$ + $H_2$; $O^{6+}$ + H; $O^{6+}$ + $H_2$ | 2-20 keV | Dijkkamp, D.; Ciric, D.; Vlieg, E.; de Boer, A.; de Heer, F. J. Subshell selective electron capture in collisions of $C^{4+}$, $N^{5+}$, $O^{6+}$ with H, $H_2$ and He. J. Phys. B 18, 4763 (1985)<br>The Netherlands |
| 04317 E | A06:<br>$Kr^{2+}$ + $H_2$ | 1-6 keV | Mathur, D.; Badrinathan, C.; Rajgara, F. A.; Raheja, U. T. Electron capture collisions of $Kr^{2+}(^3P)$ in $H_2$. J. Phys. B 18, 4795 (1985)<br>India |
| 04318 E-T | E02:<br>e + He; e + Ne; e + Ar | 35 keV | Coffman, J. D.; Fink, M.; Wellenstein, H. Elastic small-angle electron scattering by He, Ne, and Ar at 35 keV. Phys. Rev. Lett. 55, 1392 (1985)<br>United States |
| 04319 E-T | E02:<br>e + He | 25 keV | Ketkar, S. N.; Bonham, R. A. Small-angle elastic differential scattering cross section for 25-keV electrons scattering from helium. Phys. Rev. Lett. 55, 1395 (1985)<br>United States |
| 04320 E | D08:<br>NO + Ag | 9-102 kJ/mol | Rettner, C. T.; Fabre, F.; Kimman, J.; Auerbach, D. J. Observation of direct vibrational excitation in gas-surface collisions: NO on Ag (111). Phys. Rev. Lett. 55, 1904 (1985)<br>United States |
| 04321 E | D11:<br>$H_2$ + Cu; $D_2$ + Cu | 20-75 meV | Andersson, S.; Wilzen, L.; Harris, J. Sticking of molecular hydrogen on a cold Cu(100) surface. Phys. Rev. Lett. 55, 2591 (1985)<br>Sweden |

CATEGORIZATION INDEX

**A01**

**HEAVY PARTICLE - HEAVY PARTICLE INTERACTIONS**

**General**

H + Cs
04293 T

H + H
04293 T

H + K
04293 T

H + Li
04293 T

H + Na
04293 T

H + Rb
04293 T

Undef
03776 T 03931 T

**A02**

**HEAVY PARTICLE - HEAVY PARTICLE INTERACTIONS**

**Elastic Scattering Collisions**

$B^+$ + He
03796 T

D + Ar
04271 E

D + He
04271 E

D + Kr
04271 E

D + Ne
04271 E

H + C
04092 T

H + H
04092 T

$H^+$ + Al
03502 T

$H^+$ + H
04051 T

$H^+$ + He
03501 T

$H_2^+$ + $H_2$
03310 E-T

He + Ar
04271 E

He + $D_2$
03376 E-T

He + $H_2$
03376 E-T

He + He
03501 T 04271 E

He + Kr
04271 E

He + $N_2$
03301 E-T 03642 E-T

He + $O_2$
03642 E-T

He* + $D_2$
03329 E-T

He* + $H_2$
03329 E-T

He* + Na
03195 T

Ne* + Ne
03610 T

Ne* + $H_2$
03283 E

Yb* + He
03749 E-T

Yb* + Ne
03749 E-T

Yb* + Xe
03749 E-T

Undef
03726 T

A03

**HEAVY PARTICLE - HEAVY PARTICLE INTERACTIONS**

**Excitation**

$Al^{7+} + H_2$
03653 E-T

$Al^{8+} + H_2$
04195 E

Ar + H
03264 E

Ar + $Li_2$
03175 T

Ar + LiH
03175 T

Ar + $H_2$
03175 T

$Ar^{+}$ + H
03258 E

$Ar^{+}$ + Na*
03128 E

$Ar^{+*} + H_2$
04104 E

Ar* + Ar
03624 E

$Ar^{3+}$ + Ar
04206 E

$Ar^{3+}$ + He
04206 E

$Ar^{3+}$ + Kr
04206 E

$Ar^{3+}$ + Ne
04206 E

$Ar^{4+}$ + Ar
04201 E  04206 E

$Ar^{4+}$ + He
04206 E

$Ar^{5+}$ + Ar
04201 E

$Ar^{6+}$ + Ar
03562 E  04201 E  04207 E

$Ar^{6+}$ + He
03118 E  03562 E  04207 E

$Ar^{6+}$ + Xe
03562 E  04207 E

$Ar^{7+}$ + Ar
03562 E  04201 E  04207 E

$Ar^{7+}$ + He
03562 E  04207 E

$Ar^{7+}$ + Xe
03562 E  04207 E

$Ar^{8+}$ + Ar
03562 E  04201 E  04207 E

$Ar^{8+}$ + He
03210 T

$Ar^{8+}$ + Ne
03562 E  04207 E

$Ar^{8+}$ + Xe
03562 E  04207 E

$Ar^{9+}$ + Ar
03562 E  04207 E

$Ar^{9+}$ + He
03562 E  04207 E

$Ar^{9+}$ + Ne
03562 E  04207 E

$Ar^{9+}$ + Xe
03562 E  04207 E

$Ar^{10+}$ + Ar
03562 E  04207 E

$Ar^{10+}$ + He
03562 E  04207 E

$Ar^{10+}$ + Xe
03562 E  04207 E

$Ar^{17+}$ + He
03487 T

$Ar^{17+}$ + Ne
03118 E

$Ar^{18+} + Ar^{17+}$
04115 T

$Be^{4+}$ + H
03628 T

$C^{3+}$ + H
03680 E

$C^{3+} + H_2$
03680 E

$C^{3+}$ + Li
04213 E

$C^{4+}$ + Ar
03915 E

$C^{4+}$ + H
03112 E  03130 T  03690 E-T
04203 E  04205 T  04213 E
04316 E

$C^{4+} + H_2$
03130 T  04204 E-T 04316 E

$C^{4+}$ + He
03915 E  04068 T  04204 E-T
04212 E

$C^{4+}$ + Li
04213 E

$C^{4+}$ + Ne
03915 E

$C^{4+}$ + Xe
03915 E

$C^{5+}$ + Li
04213 E

$C^{6+}$ + Ar
03143 E

$C^{6+}$ + H
03419 E  03628 T  03735 T
04069 T  04200 T  04218 E

$C^{6+} + H_2$
03143 E

$C^{6+}$ + He
03143 E

$C^{6+}$ + Li
04213 E

Ca* + He
03192 E

Ca* + Ne
03192 E

Ca* + Xe
03192 E

$Ca^{16+}$ + He
03414 E

$Ca^{17+} + H_2$
04054 E

$Ca^{17+}$ + He
03414 E

$Ca^{18+}$ + He
03414 E

$Cl^{16+}$ + Ar
03265 E  03517 T

$CO^{+} + H_2$
03100 E

Cs + He
03617 E

Cs* + Xe
03204 E

$D^{+}$ + Au
03120 E  03599 E

$D^{+}$ + Pb
03599 E

$D^{+}$ + U
03599 E

$D^{+}$ + W
03120 E

$D^{-}$ + Ar
03458 E

$D^{-}$ + H
03458 E

$D^{-} + H_2$
03458 E

$F^{7+}$ + He
04068 T

$F^{8+}$ + Ar
03228 E

$F^{8+}$ + He
03228 E

$F^{8+}$ + Ne
03228 E

$F^{9+}$ + H
04194 T

$Fe^{12+}$ + H
03570 T

$Fe^{13+}$ + H
03570 T

$Fe^{24+}$ + Ar
03420 T

$Fe^{24+}$ + He
03420 T  04068 T

$Fe^{24+}$ + H
03420 T

H + CO
03306 T

H + Cs
03374 T

H + $D_2$
03852 T

H + H
04288 T

H + He
04045 T 04066 E

H + K
03374 T

H + Li
03374 T

H + Na
03374 T

H + Ne
03401 E

H + Rb
03374 T

$H^+$ + Ar
03359 E 04010 E 04188 E-T

$H^+$ + $Ar^{17+}$
04115 T

$H^+$ + As
03762 E

$H^+$ + Au
03599 E

$H^+$ + $C^{5+}$
03663 T

$H^+$ + Cd
03792 E

$H^+$ + Cu
03762 E

$H^+$ + $D_2$
03182 E

$H^+$ + Gd
03299 E

$H^+$ + Ge
03762 E

$H^+$ + H
03222 T 03420 T 03504 T
03628 T 03735 T 03831 T
04046 T

$H^+$ + $He^+$
03218 T 03663 T

$H^+$ + $H_2$
03182 E

$H^+$ + He
03377 T 03737 E-T 03827 T
03929 E 04045 T 04066 E

$H^+$ + Hg
03792 E

$H^+$ + Li
03602 E 04080 E

$H^+$ + $Mg^{11+}$
03663 T

$H^+$ + Na
04048 T 04049 E 04065 E

$H^+$ + Ni
03762 E

$H^+$ + Pb
03599 E 04178 E

$H^+$ + Pd
03762 E

$H^+$ + PERT
03678 T

$H^+$ + Rb
03762 E

$H^+$ + Sr
03762 E

$H^+$ + U
03599 E

$H^+$ + Y
03762 E

$H^+$ + Zn
03792 E

$H^+$ + Zr
03762 E

$H^*$ + Ar
03453 T

$H^*$ + He
03453 T

$H^*$ + Kr
03453 T

$H^*$ + Ne
03453 T

$H^*$ + Xe
03453 T

$H^-$ + Ar
03458 E

$H^-$ + $CO_2$
03261 E

$H^-$ + H
03458 E

$H^-$ + $H_2$
03261 E 03458 E

$H^-$ + $N_2$
03261 E

$H^-$ + Na
04049 E

$H^-$ + $O_2$
03261 E

$H_2$ + CO
03378 T

$H_2^+$ + Na
04049 E

$H_3^+$ + He
03717 E

$H_3^+$ + Na
04049 E

HD + HD
03238 T

HD + He
03238 T

He + $CH_4$
04252 E

He + CO
03078 T

He + He
04314 E

He + $N_2$
03312 T

$He^+$ + Ar
03771 T 04010 E

$He^+$ + Au
03299 E

$He^+$ + Cd
03679 E

$He^+$ + CO
03540 E

$He^+$ + Cs
03342 E-T

$He^+$ + He
04305 E

$He^+$ + Hg
03421 E

$He^+$ + Ir
03193 E

$He^+$ + Li
04277 E

$He^+$ + $N_2$
03540 E

$He^+$ + Pb
03193 E

$He^+$ + PERT
03678 T 03771 T

$He^+$ + Pt
03193 E

$He^+$ + Rb
03342 E-T

$He^+$ + W
03299 E

$He^{+*}$ + Cd
03679 E

$He^{2+}$ + $Ar^{17+}$
04115 T

$He^{2+}$ + Au
03120 E 03599 E

$He^{2+}$ + H
03112 E 03383 T 03504 T
03561 T 03769 T 04077 T
04315 E

$He^{2+}$ + $H_2$
04315 E

$He^{2+}$ + Li
03891 T 04196 E 04216 T

$He^{2+}$ + Pb
03599 E

$He^{2+}$ + U
03599 E

$He^{2+}$ + N
03120 E

$He^{2+}$ + Xe
03624 E

$I^{10+}$ + He
03122 E

$I^{11+}$ + He
03122 E

$I^{12+}$ + He
03122 E

$I^{13+}$ + He
03122 E

$I^{14+}$ + He
03122 E

$I^{15+}$ + He
03122 E

$I^{16+}$ + He
03122 E

$I^{17+}$ + He
03122 E

$I^{18+}$ + He
03122 E

$I^{19+}$ + He
03122 E

$I^{20+}$ + He
03122 E

$I^{21+}$ + He
03122 E

$I^{22+}$ + He
03122 E

$I^{23+}$ + He
03122 E

$I^{24+}$ + He
03122 E

$I^{25+}$ + He
03122 E

$I^{26+}$ + He
03122 E

$I^{27+}$ + He
03122 E

$I^{28+}$ + He
03122 E

$I^{29+}$ + He
03122 E

$I^{30+}$ + He
03122 E

$I^{31+}$ + He
03122 E

$I^{32+}$ + He
03122 E

$I^{33+}$ + He
03122 E

$I^{34+}$ + He
03122 E

$I^{35+}$ + He
03122 E

$I^{36+}$ + He
03122 E

$I^{37+}$ + He
03122 E

$I^{38+}$ + He
03122 E

$I^{39+}$ + He
03122 E

$I^{40+}$ + He
03122 E

$I^{41+}$ + He
03122 E

K + He
03617 E

K* + Xe
03204 E

Kr* + Kr
03624 E

$Kr^{36+}$ + Al
04096 T

$Kr^{36+}$ + Ar
04096 T

$Kr^{36+}$ + C
04096 T

$Kr^{36+}$ + V
04096 T

$La^{40+}$ + $H_2$
04052 T

Li + He
03617 E

Li + Na
03668 T  03920 T  04043 T

Li+ + H
04047 E

Li+ + He
03259 E  03587 E

Li+ + Li
03575 T

Li+ + Na
03575 T

Li* + Ar
03356 E

Li* + He
03356 E

Li* + Li
03356 E

Li* + Ne
03356 E

$Li^{3+}$ + H
03477 T

Mg+ + He
04050 E

$N^{2+}$ + H
03131 E

$N^{2+}$ + $H_2$
03131 E

$N_2^+$ + O*
03883 E

$N^{3+}$ + H
03130 T  04211 T

$N^{3+}$ + $H_2$
03130 T

$N^{5+}$ + H
03130 T  03690 E-T 04203 E
04205 T  04316 E

$N^{5+}$ + $H_2$
03130 T  04316 E

$N^{5+}$ + He
04226 E

$N^{5+*}$ + $H_2$
03532 E

$N^{5+*}$ + He
03532 E

$N^{6+}$ + Ar
03143 E

$N^{6+}$ + $H_2$
03143 E  04199 E

$N^{6+}$ + He
03143 E  03345 E  04199 E

$N^{7+}$ + H
03419 E  04218 E

$N^{7+}$ + $H_2$
04199 E

$N^{7+}$ + He
04199 E

Na + He
03140 T  03617 E

Na + Hg
04281 E

Na + Na
03575 T

Na+ + CO
03889 E

Na+ + Li
03575 T

Na+ + $N_2$
03889 E

Na+ + Na
03086 T  03266 T

Na* + Ar
03355 T

Na* + He
03355 T  03456 T

Na* + Kr
03355 T

Na* + Na+
03263 E-T 03576 T

Na* + Na*
03760 E

Na* + Ne
03355 T

Na* + Xe
03355 T

Ne + He
03279 T

$Ne^{+}$ + He
03574 T 04088 T

$Ne^{+}$ + $H_2$
03283 E

$Ne^{3+}$ + He
03118 E

$Ne^{4+}$ + Ar
03226 E

$Ne^{4+}$ + $CH_4$
03226 E

$Ne^{4+}$ + He
03226 E

$Ne^{5+}$ + Ar
03226 E

$Ne^{5+}$ + $CH_4$
03226 E

$Ne^{3+}$ + He
03226 E

$Ne^{4+}$ + Ar
03143 E 03226 E

$Ne^{4+}$ + $CH_4$
03226 E

$Ne^{4+}$ + $H_2$
03143 E

$Ne^{4+}$ + He
03143 E 03226 E

$Ne^{6+}$ + $H_2$
03113 E 04195 E

$Ne^{6+}$ + He
03113 E 04195 E

$Ne^{9+}$ + $H_2$
03728 E 04194 T

$Ne^{10+}$ + He
03487 T

$Ne^{10+}$ + He
03118 E 03487 T

Ni + Fe
04197 E

O + C
03770 T

$O^{+}$ + Li
04213 E

$O^{5+}$ + Li
04213 E

$O^{6+}$ + Ar
03143 E

$O^{6+}$ + H
03690 E-T 04203 E 04205 T
04316 E

$O^{6+}$ + $H_2$
03143 E 04316 E

$O^{6+}$ + He
03143 E 04090 T

$O^{6+}$ + Li
04213 E

$O^{8+}$ + H
03419 E 04218 E

OH + $H_2$
03148 T 03313 T

Rb + He
03617 E

$Rb^{+}$ + Ar
03355 T 03388 E

$Rb^{+}$ + He
03355 T 03388 E

$Rb^{+}$ + Kr
03355 T 03388 E

$Rb^{+}$ + $H_2$
03388 E

$Rb^{+}$ + Ne
03355 T 03388 E

$Rb^{+}$ + Rb
03388 E 03756 E

$Rb^{+}$ + Xe
03204 E 03355 T 03388 E

S + He
03770 T

$S^{+}$ + Au
04057 E

$S^{12+}$ + He
03473 E 04053 E

$S^{14+}$ + C
03858 E

$S^{14+}$ + $H_2$
04094 E

$Si^{11+}$ + He
03417 E 04056 E

$Si^{12+}$ + He
04068 T

$Sm^{44+}$ + Xe
03806 E

$Sm^{45+}$ + Xe
03806 E

$Sm^{46+}$ + Xe
03806 E

$Sm^{47+}$ + Xe
03806 E

$Sm^{48+}$ + Xe
03806 E

$Sm^{49+}$ + Xe
03806 E

$Sm^{50+}$ + Xe
03806 E

$Sm^{51+}$ + Xe
03806 E

$Sm^{52+}$ + Xe
03806 E

$V^{20+}$ + He
03414 E

$Xe^{+}$ + Ar
03355 T

$Xe^{+}$ + He
03355 T

$Xe^{+}$ + Kr
03355 T

$Xe^{+}$ + Ne
03355 T

$Xe^{+}$ + Xe
03355 T 03624 E

Undef
03627 T 03657 T 04193 T

A04

HEAVY PARTICLE - HEAVY PARTICLE INTERACTIONS

Dissociation

$D_2^+$ + Cs
03460 E

$D_2^+$ + $H_2$
03811 T

$D_2^+$ + Cs
03460 E

$D_2^+$ + He
04108 E

$H_2^+$ + Ar
04107 E

$H_2^+$ + Cs
03460 E

$H_2^+$ + $D_2$
03811 T

$H_2^+$ + Hg
04107 E

$H_2^+$ + Cs
03460 E

$H_2^+$ + He
03717 E 04108 E

$HD_2^+$ + He
04108 E

$He^+$ + $H_2$
03468 E

$He_2^+$ + Ar
03533 E 04109 E

Undef
04304 T

A05

HEAVY PARTICLE - HEAVY PARTICLE INTERACTIONS

Fluorescence

Ar + H
03264 E

$Ar^+$ + $H_2$
03257 E

$Ar^{+*}$ + $H_2$
03257 E

$Cl^{1*+}$ + Ar
03265 E

$D^+$ + Au
03599 E

$D^+$ + Pb
03599 E

$D^+$ + U
03599 E

$H^+$ + Ar
03254 E

$H^+$ + As
03762 E

$H^+$ + Au
03599 E 03626 E

$H^+$ + Bi
03626 E

$H^+$ + $C^{6+}$
03663 T

$H^+$ + Cd
03623 E 03792 E

$H^+$ + Cu
03623 E 03762 E

$H^+$ + Dy
03626 E

$H^+$ + Ge
03762 E

$H^+$ + $He^+$
03663 T

$H^+$ + $H_2$
03254 E

$H^+$ + Hg
03792 E

$H^+$ + $Hg^{11+}$
03663 T

$H^+$ + Ho
03623 E

$H^+$ + Ni
03762 E

$H^+$ + Pb
03599 E 03626 E

$H^+$ + Pd
03762 E

$H^+$ + PERT
03678 T

$H^+$ + Rb
03762 E

$H^+$ + Sr
03762 E

$H^+$ + Th
03626 E

$H^+$ + U
03599 E 03626 E

$H^+$ + W
03626 E

$H^+$ + Y
03762 E

$H^+$ + Yb
03626 E

$H^+$ + Zn
03792 E

$H^+$ + Zr
03762 E

$H_2^+$ + Ar
03254 E

$He^+$ + PERT
03678 T

$He^{2+}$ + Au
03599 E

$He^{2+}$ + Pb
03599 E

$He^{2+}$ + U
03599 E

Undef
03655 T

A06

**HEAVY PARTICLE - HEAVY PARTICLE INTERACTIONS**

**Electron Capture**

$Al^{2+}$ + H
03307 E-T 03399 E-T

$Al^{2+}$ + $H_2$
03399 E-T

$Al^{3+}$ + H
03307 E-T 03399 E-T

$Al^{3+}$ + $H_2$
03399 E-T

$Al^{4+}$ + H
03307 E-T 03399 E-T

$Al^{4+}$ + $H_2$
03399 E-T

$Al^{5+}$ + H
03307 E-T 03399 E-T

$Al^{5+}$ + $H_2$
03399 E-T

$Al^{6+}$ + H
03307 E-T 03399 E-T

$Al^{6+}$ + $H_2$
03399 E-T

$Al^{7+}$ + H
03307 E-T 03399 E-T

$Al^{7+}$ + $H_2$
03399 E-T 03653 E-T

$Al^{8+}$ + H
03307 E-T 03399 E-T

$Al^{8+}$ + $H_2$
03399 E-T 04195 E

$Al^{9+}$ + H
03307 E-T 03399 E-T

$Al^{9+}$ + $H_2$
03399 E-T

$Al^{10+}$ + H
03307 E-T 03399 E-T

$Al^{10+}$ + $H_2$
03399 E-T

$Al^{11+}$ + H
03307 E-T

$Al^{12+}$ + H
03307 E-T

$Al^{13+}$ + H
03307 E-T

$Al^{14+}$ + H
03307 E-T

$Ar^{+}$ + Ar
03094 E 03505 T

$Ar^{+}$ + $H_2$
04111 T

$Ar^{2+}$ + Ar
03094 E 03713 E

$Ar^{2+}$ + $D_2$
04113 E

$Ar^{2+}$ + H
03188 E

$Ar^{2+}$ + $H_2$
03188 E

$Ar^{2+}$ + He
04289 E

$Ar^{2+}$ + Ne
04289 E

$Ar^{2+e}$ + Ar
04294 E

$Ar^{3+}$ + Ar
03094 E 03107 E 04206 E

$Ar^{3+}$ + H
03188 E

$Ar^{3+}$ + $H_2$
03132 E 03188 E

$Ar^{3+}$ + He
03107 E 04206 E

$Ar^{3+}$ + Kr
03107 E 04206 E

$Ar^{3+}$ + Ne
03107 E 04206 E

$Ar^{4+}$ + Ar
03094 E 04201 E 04206 E

$Ar^{4+}$ + H
03188 E

$Ar^{4+}$ + $H_2$
03188 E

$Ar^{4+}$ + He
04206 E

$Ar^{5+}$ + Ar
03094 E 04201 E

$Ar^{5+}$ + H
03188 E

$Ar^{5+}$ + $H_2$
03188 E

$Ar^{6+}$ + Ar
03094 E 03562 E 04201 E
04207 E

$Ar^{6+}$ + H
03188 E

$Ar^{6+}$ + $H_2$
03188 E

$Ar^{6+}$ + He
03562 E 04207 E

$Ar^{6+}$ + Xe
03562 E 04207 E

$Ar^{7+}$ + Ar
03094 E 03562 E 04201 E
04207 E

$Ar^{7+}$ + H
03188 E

$Ar^{7+}$ + $H_2$
03188 E

$Ar^{7+}$ + He
03562 E 04207 E

$Ar^{7+}$ + Xe
03562 E 04207 E

$Ar^{8+}$ + Ar
03094 E 03562 E 04201 E
04207 E

$Ar^{8+}$ + H
03188 E

$Ar^{8+}$ + $H_2$
03188 E

$Ar^{8+}$ + He
03210 T

$Ar^{8+}$ + Ne
03562 E 04207 E

$Ar^{8+}$ + Xe
03562 E 04207 E

$Ar^{9+}$ + Ar
03094 E 03562 E 04072 E
04207 E

$Ar^{9+}$ + H
03188 E

$Ar^{9+}$ + $H_2$
03188 E

$Ar^{9+}$ + Ne
03562 E 04207 E

$Ar^{9+}$ + Xe
03562 E 04207 E

$Ar^{10+}$ + Ar
03562 E 04207 E

$Ar^{10+}$ + H
03188 E

$Ar^{10+}$ + $H_2$
03188 E

$Ar^{10+}$ + Ne
03562 E 04207 E

$Ar^{10+}$ + Xe
03562 E 04207 E

$Ar^{15+}$ + He
04095 E

$Ar^{17+}$ + He
03487 T

$Ar^{18+}$ + Ag
03589 T

$Ar^{18+}$ + Al
03455 E 03589 T

$Ar^{18+}$ + Au
03455 E

$Ar^{18+}$ + Cu
03455 E 03589 T

$Ar^{18+}$ + H
03358 E

$Ar^{18+}$ + $H_2$
03358 E

$Ar^{18+}$ + He
03358 E

$Ar^{18+}$ + $N_2$
03154 E

$Ar^{18+}$ + PERT
03413 T

$Ar^{18+}$ + Ta
03455 E

Au + U
03268 T

$Au^{5+}$ + Ar
03089 E

$Au^{5+}$ + $H_2$
03089 E

$Au^{5+}$ + He
03089 E

$Au^{6+}$ + Ar
03089 E

$Au^{6+}$ + $H_2$
03089 E

$Au^{6+}$ + He
03089 E

$Au^{7+}$ + Ar
03089 E

$Au^{7+}$ + $H_2$
03089 E

$Au^{7+}$ + He
03089 E

$Au^{8+}$ + Ar
03089 E

$Au^{8+}$ + $H_2$
03089 E

$Au^{8+}$ + He
03089 E

$Au^{9+}$ + Ar
03089 E

$Au^{9+}$ + $H_2$
03089 E

$Au^{9+}$ + He
03089 E

$Au^{10+}$ + Ar
03089 E

$Au^{10+}$ + $H_2$
03089 E

$Au^{10+}$ + He
03089 E

$Au^{11+}$ + Ar
03089 E

$Au^{11+}$ + $H_2$
03089 E

$Au^{11+}$ + He
03089 E

$Au^{12+}$ + Ar
03089 E

$Au^{12+}$ + $H_2$
03089 E 03090 E

$Au^{12+}$ + He
03089 E

$Au^{13+}$ + Ar
03089 E

$Au^{13+}$ + $H_2$
03089 E 03090 E

$Au^{13+}$ + He
03089 E

$Au^{14+}$ + Ar
03089 E

$Au^{14+}$ + $H_2$
03089 E 03090 E

$Au^{14+}$ + He
03089 E

$Au^{15+}$ + Ar
03089 E

$Au^{15+}$ + $H_2$
03089 E 03090 E

$Au^{15+}$ + He
03089 E

$Au^{16+}$ + Ar
03089 E

$Au^{16+}$ + $H_2$
03089 E 03090 E

$Au^{16+}$ + He
03089 E

$Au^{17+}$ + Ar
03089 E

$Au^{17+}$ + $H_2$
03089 E 03090 E

$Au^{17+}$ + He
03089 E

$Au^{18+}$ + Ar
03089 E

$Au^{18+}$ + $H_2$
03089 E 03090 E

$Au^{18+}$ + He
03089 E

$Au^{19+}$ + Ar
03089 E

$Au^{19+}$ + $H_2$
03089 E

$Au^{19+}$ + He
03089 E

$B^{3+}$ + H
03690 E-T

$Be^{4+}$ + H
03628 T 04283 T

$C^{+}$ + Li
04079 E

$C_2H^{+}$ + $CH_3$
04140 T

$C^{3+}$ + H
03680 E

$C^{3+}$ + $H_2$
03680 E

$C^{4+}$ + Ar
03915 E

$C^{4+}$ + H
03112 E 03130 T 03690 E-T
04203 E 04205 T 04213 E
04316 E

$C^{4+}$ + $H_2$
03130 T 04204 E-T 04316 E

$C^{4+}$ + He
03289 E-T 03915 E 04204 E-T

$C^{4+}$ + Li
04213 E

$C^{4+}$ + Ne
03915 E

$C^{4+}$ + Xe
03915 E

$C^{5+}$ + H
04163 E

$C^{5+}$ + $H_2$
04163 E

$C^{6+}$ + Ag
03589 T

$C^{6+}$ + Al
03455 E 03589 T

$C^{6+}$ + Ar
03143 E

$C^{6+}$ + Au
03455 E

$C^{6+}$ + Cu
03455 E 03589 T

$C^{6+}$ + H
03358 E 03419 E 03628 T
03690 E-T 03735 T 03860 E
04163 E 04200 T 04218 E
04219 E

$C^{6+}$ + $H_2$
03143 E 03358 E 03860 E
04163 E 04219 E

$C^{6+}$ + He
03143 E 03358 E

$C^{6+}$ + PEET
03413 T

$C^{6+}$ + Ta
03455 E

$Ca^{16+}$ + $H_2$
04055 E

$Ca^{16+}$ + He
03414 E

$Ca^{17+}$ + $H_2$
04054 E 04055 E

$Ca^{17+}$ + He
03414 E 04095 E

$Ca^{18+}$ + He
03414 E

$CH_2^{+}$ + $NH_3$
04140 T

$CH_5^{+}$ + $NH_3$
04140 T

$Cl^{-}$ + Cl
03508 T

Cs + $O_2$
04261 E-T

$D^{+}$ + Cs
03460 E

$D_3^{+}$ + Cs
03460 E

$F^{6+}$ + Ar
03228 E

$F^{8+}$ + H
04163 E

$F^{8+}$ + $H_2$
04163 E

$F^{8+}$ + He
03228 E

$F^{8+}$ + Ne
03228 E

$F^{9+}$ + H
03690 E-T 03860 E 04083 E
04163 E 04194 T

$F^{9+}$ + $H_2$
03860 E 04083 E 04163 E

$Fe^{2+}$ + H
03307 E-T

$Fe^{3+}$ + H
03307 E-T

$Fe^{4+}$ + H
03307 E-T

$Fe^{5+}$ + H
03307 E-T

$Fe^{6+}$ + H
03307 E-T

$Fe^{7+}$ + H
03307 E-T

$Fe^{8+}$ + H
03307 E-T

$Fe^{9+}$ + H
03307 E-T

$Fe^{10+}$ + H
03307 E-T

$Fe^{11+}$ + H
03307 E-T

$Fe^{12+}$ + H
03307 E-T 03570 T

$Fe^{13+}$ + H
03307 E-T 03570 T

$Fe^{14+}$ + H
03307 E-T 03570 T

$Fe^{15+}$ + H
03570 T

$Fe^{26+}$ + H
04091 T

H + He
04066 E

H + Hg
03707 E

H + Na
03942 T

$H^+$ + $Al^+$
04116 E

$H^+$ + Ar
03275 T 03359 E 03461 T
03714 T 03825 T

$H^+$ + $B^{++}$
03656 T

$H^+$ + C
03275 T 03461 T 03714 T

$H^+$ + $CH_4$
03126 E 03381 E

$H^+$ + CO
03381 E

$H^+$ + $CO_2$
03381 E

$H^+$ + Cs
03460 E

$H^+$ + $D_2$
03182 E

$H^+$ + $Fe^+$
04225 T

$H^+$ + $Ga^+$
04116 E

$H^+$ + H
03129 T 03222 T 03285 T
03506 T 03559 T 03588 T
03628 T 03629 T 03656 T
03714 T 03735 T 03793 T
03831 T 03936 T 04101 T
04102 T 04123 T

$H^+$ + $He^+$
03218 T 03890 E

$H^+$ + H Seq
03714 T

$H^+$ + $H_2$
03182 E 03712 T 04112 T

$H^+$ + He
03272 T 03377 T 03380 T
03523 E 03524 T 03714 T
03736 T 03914 T 03929 E
04066 E 04085 T 04087 T
04089 T 04099 T 04100 T

$H^+$ + Hg
03768 E

$H^+$ + $In^+$
04116 E

$H^+$ + Kr
03689 E-T

$H^+$ + $Li^+$
04117 T

$H^+$ + Li
03187 E 03457 E 03602 E
03836 T 04080 E 04164 E
04282 E

$H^+$ + Mg
03457 E 04082 E

$H^+$ + N
03275 T 03461 T 04098 T

$H^+$ + $N_2$
03126 E

$H^+$ + Na
03457 E 03817 T 03937 T
04082 E 04084 T

$H^+$ + Ne
03144 T 03275 T 03381 E
03461 T 03714 T 04082 E

$H^+$ + Ni
03144 T

$H^+$ + O
03275 T 03461 T 04098 T

$H^+$ + $O_2$
03381 E

$H^+$ + $Si^+$
04225 T

$H^+$ + Si
03144 T

$H^+$ + $Tl^+$
04116 E

$H^+$ + Xe
03714 T

$H^-$ + H
03508 T

$H^-$ + Na
03720 E

$H^-$ + $Na^+$
03942 T

$H_2^+$ + Ar
04107 E

$H_2^+$ + Cs
03460 E

$H_2^+$ + $H_2$
03288 T

$H_2^+$ + Li
03187 E

$H_2^+$ + Hg
04107 E

$H_2O_2^+$ + $NH_3$
04140 T

$H_3^+$ + Cs
03460 E

$H_3^+$ + $NH_3$
04140 T

$H_3O^+$ + $NH_3$
04140 T

$He^+$ + Ar
03716 E

$He^+$ + Cd
03679 E

$He^+$ + $CH_4$
03381 E 03716 E

$He^+$ + CO
03381 E 03716 E

$He^+$ + $CO_2$
03381 E 03716 E

$He^+$ + Cs
03342 E-T

$He^+$ + H
03914 T

$He^+$ + $He^+$
03914 T

$He^+$ + $H_2O$
03777 E

$He^+$ + $H_2$
03716 E

$He^+$ + He
03241 T 03716 E 04305 E

$He^{+}$ + Kr
03716 E

$He^{+}$ + Li
03187 E 04164 E

$He^{+}$ + $N_2$
03716 E

$He^{+}$ + Ne
03079 T 03381 E 03716 E

$He^{+}$ + $O_2$
03381 E 03716 E

$He^{+}$ + Rb
03342 E-T

$He^{+}$ + $Si^{2+}$
04225 T

$He^{+}$ + Cd
03679 E

$He_2^{+}$ + Ar
03533 E

$He^{2+}$ + Ar
03765 E

$He_2^{+}$ + Ar
04109 E

$He^{2+}$ + Ar
04285 T

$He^{2+}$ + $CH_4$
03765 E

$He^{2+}$ + CO
03765 E

$He^{2+}$ + $CO_2$
03765 E

$He^{2+}$ + H
03112 E 03307 E-T 03383 T
03389 T 03390 T 03561 T
03769 T 04077 T 04123 T
04315 E

$He^{2+}$ + $H^{-}$
04119 E

$He^{2+}$ + $H_2$
03281 E 03765 E 04315 E

$He^{2+}$ + $H_2O$
03765 E

$He^{2+}$ + He
03380 T 03524 T 03765 E
03914 T 04285 T

$He^{2+}$ + Kr
03765 E 04285 T

$He^{2+}$ + Li
03457 E 03891 T 04097 T
04164 E 04196 E 04216 T
04282 E 04285 T

$He^{2+}$ + Mg
03457 E

$He^{2+}$ + $N_2$
03281 E 03765 E

$He^{2+}$ + Na
03457 E

$He^{2+}$ + Ne
03144 T 03765 E 04060 E

$He^{2+}$ + O
03144 T

$He^{2+}$ + $O_2$
03765 E

$He^{2+}$ + Si
03144 T

I + Pb
03268 T

I + U
03268 T

$I^{6+}$ + $H_2$
04075 E

$I^{6+}$ + He
04075 E

$I^{6+}$ + $H_2$
04075 E

$I^{6+}$ + He
04075 E

$I^{7+}$ + $H_2$
04075 E

$I^{7+}$ + He
04075 E

$I^{8+}$ + $H_2$
04075 E

$I^{8+}$ + He
04075 E

$I^{9+}$ + $H_2$
04075 E

$I^{9+}$ + He
04075 E

$I^{10+}$ + $H_2$
04075 E

$I^{10+}$ + He
03122 E 04075 E 04210 E

$I^{11+}$ + $H_2$
04075 E

$I^{11+}$ + He
03122 E 04075 E

$I^{12+}$ + $H_2$
04075 E

$I^{12+}$ + He
03122 E 04075 E

$I^{13+}$ + $H_2$
04075 E

$I^{13+}$ + He
03122 E 04075 E 04210 E

$I^{14+}$ + $H_2$
04075 E

$I^{14+}$ + He
03122 E 04075 E 04210 E

$I^{15+}$ + $H_2$
04075 E

$I^{15+}$ + He
03122 E 04075 E 04210 E

$I^{16+}$ + $H_2$
04075 E

$I^{16+}$ + He
03122 E 04075 E 04210 E

$I^{17+}$ + $H_2$
04075 E

$I^{17+}$ + He
03122 E 04075 E 04210 E

$I^{18+}$ + $H_2$
04075 E

$I^{18+}$ + He
03122 E 04075 E

$I^{19+}$ + $H_2$
04075 E

$I^{19+}$ + He
03122 E 04075 E 04210 E

$I^{20+}$ + $H_2$
04075 E

$I^{20+}$ + He
03122 E 04075 E 04210 E

$I^{21+}$ + $H_2$
04075 E

$I^{21+}$ + He
03122 E 04075 E

$I^{22+}$ + $H_2$
04075 E

$I^{22+}$ + He
03122 E 04075 E 04210 E

$I^{23+}$ + $H_2$
04075 E

$I^{23+}$ + He
03122 E 04075 E 04210 E

$I^{24+}$ + $H_2$
04075 E

$I^{24+}$ + He
03122 E 04075 E 04210 E

$I^{25+}$ + $H_2$
04075 E

$I^{25+}$ + He
03122 E 04075 E 04210 E

$I^{26+}$ + $H_2$
04075 E

$I^{26+}$ + He
03122 E 04075 E

$I^{27+}$ + He
03122 E

$I^{28+}$ + He
03122 E 04210 E

$I^{29+}$ + He
03122 E 04210 E

$I^{30+}$ + He
03122 E 04210 E

$I^{31+}$ + He
03122 E 04210 E

$I^{32+}$ + He
03122 E 04210 E

$I^{33+}$ + He
03122 E 04210 E

$I^{34+}$ + He
03122 E 04210 E

$I^{35+}$ + He
03122 E 04210 E

$I^{36+}$ + He
03122 E 04210 E

$I^{37+}$ + He
03122 E 04210 E

$I^{38+}$ + He
03122 E 04210 E

$I^{39+}$ + He
03122 E

$I^{40+}$ + He
03122 E 04210 E

$I^{41+}$ + He
03122 E 04210 E

K + NO
04261 E-T

K + $O_2$
04261 E-T

$K^+$ + Na
03216 T

$Kr^{2+}$ + $H_2$
04317 E

$Kr^{2+}$ + He
04289 E

$Kr^{3+}$ + He
04210 E

$Kr^{4+}$ + He
04210 E

$Kr^{5+}$ + He
04210 E

$Kr^{6+}$ + He
04210 E

$Kr^{7+}$ + He
04210 E

$Kr^{8+}$ + He
04210 E

$Kr^{9+}$ + He
04210 E

$Kr^{10+}$ + He
04210 E

$Kr^{11+}$ + He
04210 E

$Kr^{12+}$ + He
04210 E

$Kr^{13+}$ + He
04210 E

$Kr^{14+}$ + He
04210 E

$Kr^{26+}$ + Al
04096 T

$Kr^{26+}$ + Ar
04096 T

$Kr^{26+}$ + C
04096 T

$Kr^{26+}$ + V
04096 T

$La^{60+}$ + $H_2$
04052 T

$Li^+$ + Ba
03709 E

$Li^+$ + Ca
03709 E

$Li^+$ + He
03587 E

$Li^+$ + Li
03575 T

$Li^+$ + Hg
03709 E

$Li^+$ + Na
03575 T

$Li^+$ + Sr
03709 E

$Li^{2+}$ + H
03692 E-T

$Li^{3+}$ + H
03477 T

$Li^{3+}$ + He
03380 T 03524 T 04086 T
04089 T

$Mg^+$ + He
04081 E

$N^+$ + Cs
03460 E

$N^+$ + Li
04079 E

$N^+$ + N
03491 T

$N^{2+}$ + Ar
03131 E

$N_2^+$ + Cs
03460 E

$N^{2+}$ + H
03131 E

$N^{2+}$ + $H_2$
03131 E 03131 E

$N^{2+}$ + He
03131 E 04225 T

$N^{2+}$ + Kr
03131 E

$N^{2+}$ + $N_2$
03131 E

$N^{2+}$ + Ne
03131 E

$N^{2+}$ + Xe
03131 E

$N^{3+}$ + H
03130 T 04211 T

$N^{3+}$ + $H_2$
03130 T

$N^{5+}$ + H
03130 T 03690 E-T 04203 E
04205 T 04316 E

$N^{5+}$ + $H_2$
03130 T 04070 E 04316 E

$N^{5+}$ + He
04226 E

$N^{5+*}$ + $H_2$
03532 E

$N^{5+*}$ + He
03532 E

$N^{6+}$ + Ar
03143 E

$N^{6+}$ + H
03690 E-T 04163 E

$N^{6+}$ + $H_2$
03143 E 04163 E 04199 E

$N^{6+}$ + He
03143 E 03345 E 04071 E
04199 E

$N^{7+}$ + H
03419 E 03690 E-T 03860 E
04083 E 04163 E 04218 E

$N^{7+}$ + $H_2$
03860 E 04083 E 04163 E
04199 E

$N^{7+}$ + He
04071 E 04199 E

$N^{10+}$ + He
03984 T

Na + Cl
03641 E

Na + Na
03575 T

$Na^+$ + Li
03575 T

$Na^+$ + Ne
03095 E

$Ne^+$ + Li
03187 E

$Ne^{2+}$ + H
03188 E

$Ne^{2+}$ + $H_2$
03188 E

$Ne^{3+}$ + H
03188 E

$Ne^{3+}$ + $H_2$
03188 E

$Ne^{4+}$ + H
03188 E

$Ne^{4+}$ + $H_2$
03188 E

$Ne^{4+}$ + He
04074 E

$Ne^{5+}$ + H
03188 E

$Ne^{5+}$ + $H_2$
03188 E

$Ne^{6+}$ + Ar
03143 E

$Ne^{6+}$ + H
03188 E 03690 E-T

$Ne^{6+}$ + $H_2$
03143 E 03188 E

$Ne^{6+}$ + He
03143 E

$Ne^{7+}$ + H
03188 E 03690 E-T

$Ne^{7+}$ + $H_2$
03188 E

$Ne^{8+}$ + H
03690 E-T

$Ne^{8+}$ + $H_2$
03113 E 04195 E

$Ne^{8+}$ + He
03113 E 04195 E

$Ne^{9+}$ + H
03690 E-T 04163 E

$Ne^{9+}$ + $H_2$
03728 E 04163 E 04194 T

$Ne^{10+}$ + Ag
03589 T

$Ne^{10+}$ + Al
03455 E 03589 T

$Ne^{10+}$ + Au
03455 E

$Ne^{10+}$ + Cu
03455 E 03589 T

$Ne^{10+}$ + H
03358 E 03690 E-T 03860 E
04083 E

$Ne^{10+}$ + $H^+$
03563 T

$Ne^{10+}$ + H Seq
03476 T

$Ne^{10+}$ + $H_2$
03358 E 03860 E 04083 E

$Ne^{10+}$ + He
03358 E 03487 T

$Ne^{10+}$ + Ne
03487 T

$Ne^{10+}$ + PERT
03413 T

$Ne^{10+}$ + Ta
03455 E

$Ne^{10+}$ + Xe
04208 E

$NH_3^+$ + $NH_3$
04140 T

$Ni^{20+}$ + Ni
03353 T

O + C
03770 T

$O^+$ + Li
04079 E

$O^{2+}$ + H
04239 E

$O^{2+}$ + $H_2$
03153 E

$O^{2+}$ + He
03153 E

$O^{2+}$ + $N_2$
03153 E

$O_2H^+$ + $NH_3$
04140 T

$O^{3+}$ + H
04225 T 04239 E

$O^{3+}$ + H
03690 E-T

$O^{4+}$ + Ar
03143 E 04072 E

$O^{4+}$ + H
03690 E-T 04203 E 04235 T
04316 E

$O^{4+}$ + $H_2$
03143 E 04316 E

$O^{4+}$ + He
03143 E 03307 E-T 04090 T

$O^{7+}$ + H
03690 E-T 04163 E

$O^{7+}$ + $H_2$
04163 E

$O^{8+}$ + H
03358 E 03419 E 03690 E-T
03860 E 04083 E 04163 E
04218 E 04284 T

$O^{8+}$ + $H_2$
03358 E 03860 E 04083 E
04163 E

$O^{8+}$ + He
03358 E 03984 T 04093 E

PERT + H
03507 T

S + Ne
03770 T

$S^{3+}$ + Ar
03236 E

$S^{3+}$ + He
03236 E

$S^{4+}$ + Ar
03236 E

$S^{4+}$ + He
03236 E

$S^{5+}$ + Ar
03236 E

$S^{5+}$ + He
03236 E

$S^{7+}$ + Ar
03236 E

$S^{7+}$ + He
03236 E

$S^{8+}$ + Ar
03236 E

$S^{8+}$ + He
03236 E

$S^{9+}$ + Ar
03236 E

$S^{9+}$ + He
03236 E

$S^{10+}$ + Ar
03236 E

$S^{10+}$ + He
03236 E

$S^{11+}$ + Ar
03236 E

$S^{11+}$ + He
03236 E

$S^{13+}$ + Ar
03236 E 04095 E

$S^{13+}$ + He
03236 E 03473 E 04053 E
04095 E

$S^{14+}$ + Ar
03236 E

$S^{14+}$ + C
03858 E

$S^{14+}$ + He
03236 E

$S^{15+}$ + Ar
03236 E

$S^{15+}$ + He
03236 E

$S^{16+}$ + Ar
03236 E

$S^{16+}$ + He
03236 E

$S^{16+}$ + $N_2$
04094 E

$Si^{4+}$ + He
03494 T

$Si^{11+}$ + He
03417 E

$Si^{14+}$ + H
04091 T

$Sm^{44+}$ + Xe
03806 E

$Sm^{45+}$ + Xe
03806 E

$Sm^{46+}$ + Xe
03806 E

$Sm^{47+}$ + Xe
03806 E

$Sm^{48+}$ + Xe
03806 E

$Sm^{49+}$ + Xe
03806 E

$Sm^{50+}$ + Xe
03806 E

$Sm^{51+}$ + Xe
03806 E

$Sm^{52+}$ + Xe
03806 E

$U^{65+}$ + Ar
03121 E

$U^{65+}$ + Xe
03121 E

$U^{66+}$ + Ar
03121 E

$U^{66+}$ + Xe
03121 E

$U^{67+}$ + Ar
03121 E

$U^{67+}$ + Xe
03121 E

$U^{68+}$ + Ar
03121 E

$U^{68+}$ + Xe
03121 E

$U^{69+}$ + Ar
03121 E

$U^{69+}$ + Xe
03121 E

$U^{70+}$ + Ar
03121 E

$U^{70+}$ + Xe
03121 E

$U^{71+}$ + Ar
03121 E

$U^{71+}$ + Xe
03121 E

$U^{72+}$ + Ar
03121 E

$U^{72+}$ + Xe
03121 E

$U^{73+}$ + Ar
03121 E

$U^{73+}$ + Xe
03121 E

$U^{74+}$ + Ar
03121 E

$U^{74+}$ + Xe
03121 E 03121 E

$U^{75+}$ + Ar
03121 E

$U^{75+}$ + Xe
03121 E

$V^{18+}$ + He
03603 E

$V^{19+}$ + He
03603 E

$V^{20+}$ + He
03414 E 03603 E 04095 E

$V^{21+}$ + He
03603 E

$V^{22+}$ + He
03603 E

$V^{23+}$ + He
03603 E

$Xe^{+}$ + Xe
04078 E

$Xe^{2+}$ + Ar
03307 E-T 04289 E

$Xe^{2+}$ + H
03307 E-T

$Xe^{2+}$ + $H_2$
03132 E

$Xe^{3+}$ + Ar
03307 E-T

$Xe^{3+}$ + H
03307 E-T

$Xe^{4+}$ + Ar
03307 E-T

$Xe^{4+}$ + H
03307 E-T

$Xe^{5+}$ + Ar
03307 E-T

$Xe^{5+}$ + H
03307 E-T

$Xe^{6+}$ + Ar
03307 E-T

$Xe^{6+}$ + H
03307 E-T

$Xe^{7+}$ + Ar
03307 E-T

$Xe^{7+}$ + H
03307 E-T

$Xe^{8+}$ + Ar
03307 E-T

$Xe^{8+}$ + H
03307 E-T

$Xe^{9+}$ + Ar
03307 E-T

$Xe^{9+}$ + H
03307 E-T

$Xe^{10+}$ + Ar
03307 E-T

$Xe^{10+}$ + H
03307 E-T

$Xe^{11+}$ + Ar
03307 E-T

$Xe^{11+}$ + H
03307 E-T

$Xe^{12+}$ + H
03307 E-T

$Xe^{13+}$ + H
03307 E-T

$Xe^{14+}$ + H
03307 E-T

$Xe^{52+}$ + Ag
04161 E

$Xe^{52+}$ + Al
04161 E

$Xe^{52+}$ + Au
04161 E

$Xe^{52+}$ + Be
04161 E

$Xe^{52+}$ + Cu
04161 E

$Xe^{52+}$ + U
04161 E

$Xe^{53+}$ + Ag
04161 E

$Xe^{53+}$ + Al
04161 E

$Xe^{53+}$ + Au
04161 E

$Xe^{53+}$ + Be
04161 E

$Xe^{53+}$ + Cu
04161 E

$Xe^{53+}$ + U
04161 E

$Xe^{54+}$ + Ag
04161 E

$Xe^{54+}$ + Al
04161 E

$Xe^{54+}$ + Au
04161 E

$Xe^{54+}$ + Be
04161 E

$Xe^{54+}$ + Cu
04161 E

$Xe^{54+}$ + U
04161 E

Undef
03471 T 03472 T 03525 T
03600 T 03627 T 03657 T
03741 T 03913 T 03944 T
04193 T 04214 T

A07

HEAVY PARTICLE - HEAVY PARTICLE INTERACTIONS

Ionization

$Ar + Ar$
03307 E-T

$Ar^{+} + Ar$
03094 E 03907 E

$Ar^{2+} + Ar$
03094 E 03907 E

$Ar^{2+} + Kr$
04073 E

$Ar^{3+} + Ar$
03094 E 03907 E

$Ar^{3+} + Kr$
04073 E

$Ar^{4+} + Ar$
03094 E 04201 E 04209 E

$Ar^{4+} + Kr$
04073 E

$Ar^{5+} + Ar$
03094 E 04201 E

$Ar^{5+} + Kr$
04073 E

$Ar^{6+} + Ar$
03094 E 04201 E 04209 E

$Ar^{6+} + Kr$
04073 E

$Ar^{6+} + He$
03118 E 04215 T

$Ar^{7+} + Ar$
03094 E 04201 E

$Ar^{7+} + Kr$
04073 E

$Ar^{8+} + Ar$
03094 E 04201 E

$Ar^{8+} + Kr$
04073 E

$Ar^{9+} + Ar$
03094 E 04072 E

$Ar^{9+} + Kr$
04073 E

$Ar^{10+} + Ar$
04209 E

$Ar^{11+} + Ar$
04209 E

$Ar^{12+} + Ar$
04209 E

$Ar^{13+} + Ar$
04209 E

$Ar^{14+} + Ar$
04209 E

$Ar^{17+} + He$
03118 E 04215 T

$Au + U$
03268 T

$Au^{2+} + Ar$
03089 E

$Au^{2+} + H_2$
03089 E

$Au^{2+} + He$
03089 E

$Au^{4+} + Ar$
03089 E

$Au^{4+} + H_2$
03089 E

$Au^{4+} + He$
03089 E

$Au^{7+} + Ar$
03089 E

$Au^{7+} + H_2$
03089 E

$Au^{7+} + He$
03089 E

$Au^{8+} + Ar$
03089 E

$Au^{8+} + H_2$
03089 E

$Au^{8+} + He$
03089 E

$Au^{9+} + Ar$
03089 E

$Au^{9+} + H_2$
03089 E

$Au^{9+} + He$
03089 E

$Au^{10+} + Ar$
03089 E

$Au^{10+} + H_2$
03089 E

$Au^{10+} + He$
03089 E

$Au^{11+} + Ar$
03089 E

$Au^{11+} + H_2$
03089 E

$Au^{11+} + He$
03089 E

$Au^{12+} + Ar$
03089 E

$Au^{12+} + H_2$
03089 E

$Au^{12+} + He$
03089 E

$Au^{13+} + Ar$
03089 E

$Au^{13+} + H_2$
03089 E

$Au^{13+} + He$
03089 E

$Au^{14+} + Ar$
03089 E

$Au^{14+} + H_2$
03089 E

$Au^{14+} + He$
03089 E

$Au^{15+} + Ar$
03089 E

$Au^{15+} + H_2$
03089 E

$Au^{15+} + He$
03089 E

$Au^{16+} + Ar$
03089 E

$Au^{16+} + H_2$
03089 E

$Au^{16+} + He$
03089 E

$Au^{17+} + Ar$
03089 E

$Au^{17+} + H_2$
03089 E

$Au^{17+} + He$
03089 E

$Au^{18+} + Ar$
03089 E

$Au^{18+} + H_2$
03089 E

$Au^{18+} + He$
03089 E

$Au^{19+} + Ar$
03089 E

$Au^{19+} + H_2$
03089 E

$Au^{19+} + He$
03089 E

$C^{+} + CH_4$
03207 E-T

$C^{+} + Ne$
04058 E

$C^{2+} + Ar$
04209 E

$C^{2+} + He$
04209 E

$C^{2+} + Ne$
04209 E

$C^{3+} + Ar$
04209 E

$C^{3+} + He$
04209 E

$C^{3+} + Ne$
04209 E

$C^{4+} + Ar$
04209 E

$C^{4+} + He$
03289 E-T 04209 E 04212 E

$C^{4+}$ + He
04209 E

$C^{5+}$ + Ar
04209 E

$C^{5+}$ + He
04209 E

$C^{5+}$ + Ne
04209 E

$C^{6+}$ + Ar
04061 E 04209 E

$C^{6+}$ + He
04061 E 04209 E

$C^{6+}$ + Ne
04061 E 04209 E

$Cl^{3+}$ + K
03229 E

$Cl^{3+}$ + Mn
03229 E

$Cl^{3+}$ + Ti
03229 E

$Cl^{6+}$ + K
03229 E

$Cl^{6+}$ + Mn
03229 E

$Cl^{6+}$ + Ti
03229 E

$Cl^{7+}$ + Br
03229 E

$Cl^{7+}$ + K
03229 E

$Cl^{7+}$ + Mn
03229 E

$Cl^{7+}$ + Ti
03229 E

$Cl^{8+}$ + Br
03229 E

$Cl^{8+}$ + K
03229 E

$Cl^{8+}$ + Mn
03229 E

$Cl^{8+}$ + Ti
03229 E

$Cl^{10+}$ + Br
03229 E

$Cl^{10+}$ + K
03229 E

Cs + $O_2$
04261 E-T

$D^+$ + Au
03120 E

$D^+$ + $H_2$
03191 E 03753 E-T

$D^+$ + He
03560 E 03753 E-T

$D^+$ + N
03120 E

$D_2^+$ + He
03560 E

$D_3^+$ + He
03560 E

$F^{6+}$ + Ne
03239 T

$Fe^{12+}$ + H
03570 T

$Fe^{13+}$ + H
03570 T

$Fe^{14+}$ + H
03570 T

$Fe^{16+}$ + H
03570 T

H + C
04092 T

H + H
04092 T

$H^+$ + $Al^+$
04116 E

$H^+$ + Ar
04010 E

$H^+$ + As
03762 E

$H^+$ + Au
03626 E 03795 T 04306 T

$H^+$ + Ba
03761 E

$H^+$ + Bi
03626 E

$H^+$ + C
04092 T

$H^+$ + Cd
03141 E

$H^+$ + Cu
03762 E

$H^+$ + Dy
03626 E

$H^+$ + $Ga^+$
04116 E

$H^+$ + Gd
03299 E 04306 T

$H^+$ + Ge
03762 E

$H^+$ + H
03559 T 03774 T 04092 T

$H^+$ + $H_2O$
03211 E

$H^+$ + $H_2$
03191 E 03753 E-T

$H^+$ + He
03150 E 03380 T 03484 T
03523 E 03560 E 03753 E-T
03774 T 03914 T 04062 T

$H^+$ + $In^+$
04116 E

$H^+$ + $Li^+$
04117 T

$H^+$ + Li
04059 E 04164 E 04282 E

$H^+$ + Mg
04062 E

$H^+$ + Na
04082 E

$H^+$ + Ne
03484 T 04082 E 04085 T

$H^+$ + Ni
03762 E

$H^+$ + Pb
03106 T 03626 E 04178 E
04306 T

$H^+$ + Pd
03762 E

$H^+$ + PERT
03678 T

$H^+$ + Pt
04306 T

$H^+$ + Rb
03762 E

$H^+$ + Sb
03141 E

$H^+$ + Sr
03762 E

$H^+$ + $Ti^+$
04116 E

$H^+$ + Ta
04306 T

$H^+$ + Te
03141 E

$H^+$ + Th
03626 E

$H^+$ + U
03626 E 04306 T

$H^+$ + W
03626 E

$H^+$ + Xe
03798 T

$H^+$ + Y
03762 E

$H^+$ + Yb
03626 E

$H^+$ + Zr
03762 E

$H_2^+$ + He
03560 E

$H_3^+$ + He
03560 E

He + Ar
03799 T

He + Kr
03799 T

He + Xe
03799 T

$He^+$ + Ar
03716 E 04010 E

$He^+$ + Au
03299 E

$He^+ + CH_4$
03716 E

$He^+ + CO$
03716 E

$He^+ + CO_2$
03716 E

$He^+ + H$
03914 T

$He^+ + He^+$
03914 T

$He^+ + H_2O$
03777 E

$He^+ + H_2$
03468 E 03716 E

$He^+ + He$
03716 E 03732 E 04305 E

$He^+ + Hg$
03421 E

$He^+ + Ir$
03193 E

$He^+ + Kr$
03716 E

$He^+ + Li$
04164 E

$He^+ + N_2$
03716 E

$He^+ + Ne$
03093 E 03716 E

$He^+ + O_2$
03716 E

$He^+ + Pb$
03193 E

$He^+ + PEBT$
03678 T

$He^+ + Pt$
03193 E

$He^+ + W$
03299 E

$He^{++} + Cd$
03679 E

$He^{++} + N_2$
03679 E

$He^+ + Ar$
03558 E 04044 E

$He^+ + CH_4$
03558 E

$He^+ + CO$
03558 E

$He^+ + Cs$
03733 E

$He^+ + D_2$
03329 E-T 03558 E

$He^+ + H_2O$
03117 T

$He^+ + N_2$
03329 E-T 03558 E

$He^+ + Ne$
03740 E

$He^+ + He^+$
03918 T

$He^+ + Hg$
03449 E

$He^+ + K$
03733 E

$He^+ + Kr$
03558 E

$He^+ + N_2$
03688 E

$He^+ + Na$
03195 T

$He^+ + Ne$
03088 T

$He^+ + O_2$
03558 E 03733 E

$He^+ + Rb$
03733 E

$He^{2+} + Ar$
03765 E 04060 E 04061 E

$He^{2+} + Au$
03120 E

$He^{2+} + CH_4$
03765 E

$He^{2+} + CO$
03765 E

$He^{2+} + CO_2$
03765 E

$He^{2+} + H_2$
03765 E 04060 E

$He^{2+} + H_2O$
03765 E

$He^{2+} + He$
03150 E 03380 T 03765 E
03914 T 04060 E 04061 E
04085 T

$He^{2+} + Kr$
03765 E

$He^{2+} + Li$
04059 E 04164 E 04216 T
04282 E

$He^{2+} + N_2$
03765 E

$He^{2+} + Ne$
03765 E 04060 E 04061 E

$He^{2+} + O_2$
03765 E

$He^{2+} + Pb$
03106 T 03912 E

$He^{2+} + W$
03120 E 03912 E

$He^{2+} + Yb$
03912 E

$He^{2+} + Au$
03912 E

$Hg^+ + Hg^+$
03171 E

$I + Pb$
03268 T

$I + U$
03268 T

$K + NO$
04261 E-T

$K + O_2$
04261 E-T

$K^+ + He$
03119 E

$Li + Ni$
03433 T

$Li^+ + He$
03259 E

$Li^+ + Ne$
04063 E

$Li^+ + Li$
04189 E

$Li^{3+} + He$
03380 T

$Li^{3+} + He$
03150 E

$Na^+ + Na$
03546 E

$Na^+ + Na^+$
03201 T 03309 E 03354 E
03492 E

$Ne^+ + Ar$
03116 T 03262 E 03321 E

$Ne^{3+} + Ne$
03118 E 04215 T

$Ne^{10+} + Ar$
04061 E

$Ne^{10+} + Au$
04306 T

$Ne^{10+} + Gd$
04306 T

$Ne^{10+} + He$
04061 E

$Ne^{10+} + Ne$
03118 E 04061 E 04215 T

$Ne^{10+} + Pb$
04306 T

$Ne^{10+} + Pt$
04306 T

$Ne^{10+} + Ta$
04306 T

$Ne^{10+} + Xe$
04208 E

$Ni + Fe$
04197 E

$O + Al$
03433 T

$O^{5+} + Ag$
03767 E

$O^{5+} + Au$
03767 E

$O^{5+}$ + Ba
03767 E

$O^{5+}$ + Bi
03767 E

$O^{5+}$ + Cd
03767 E

$O^{5+}$ + Ce
03767 E

$O^{5+}$ + Cr
03767 E

$O^{5+}$ + Cu
03767 E

$O^{5+}$ + Fe
03767 E

$O^{5+}$ + Ho
03767 E

$O^{5+}$ + Mo
03767 E

$O^{5+}$ + Ni
03767 E

$O^{5+}$ + Pb
03767 E

$O^{5+}$ + Pt
03767 E

$O^{5+}$ + Ru
03767 E

$O^{5+}$ + Sc
03767 E

$O^{5+}$ + Se
03767 E

$O^{5+}$ + Sm
03767 E

$O^{5+}$ + Sn
03767 E

$O^{5+}$ + Sr
03767 E

$O^{5+}$ + Ta
03767 E

$O^{5+}$ + Te
03767 E

$O^{5+}$ + Ti
03767 E

$O^{5+}$ + Tm
03767 E

$O^{5+}$ + Zn
03767 E

$O^{5+}$ + Zr
03767 E

$O^{6+}$ + Ar
04072 E

$O^{6+}$ + Ar
04061 E

$O^{6+}$ + He
04061 E

$O^{6+}$ + Ne
04061 E

$Rb^{8+}$ + K
04301 E

$S^{9+}$ + Ag
03767 E

$S^{9+}$ + Au
03767 E

$S^{9+}$ + Ba
03767 E

$S^{9+}$ + Bi
03767 E

$S^{9+}$ + Cd
03767 E

$S^{9+}$ + Ce
03767 E

$S^{9+}$ + Cr
03767 E

$S^{9+}$ + Cu
03767 E

$S^{9+}$ + Fe
03767 E

$S^{9+}$ + Ho
03767 E

$S^{9+}$ + Mo
03767 E

$S^{9+}$ + Ni
03767 E

$S^{9+}$ + Pb
03767 E

$S^{9+}$ + Pt
03767 E

$S^{9+}$ + Ru
03767 E

$S^{9+}$ + Sc
03767 E

$S^{9+}$ + Se
03767 E

$S^{9+}$ + Sm
03767 E

$S^{9+}$ + Sn
03767 E

$S^{9+}$ + Sr
03767 E

$S^{9+}$ + Ta
03767 E

$S^{9+}$ + Te
03767 E

$S^{9+}$ + Ti
03767 E

$S^{9+}$ + Tm
03767 E

$S^{9+}$ + Zn
03767 E

$S^{9+}$ + Zr
03767 E

$Si^{13+}$ + Ar
03239 T

$Si^{14+}$ + He
03494 T

$U^{45+}$ + Ar
03121 E

$U^{45+}$ + Xe
03121 E

$U^{46+}$ + Ar
03121 E

$U^{46+}$ + Xe
03121 E

$U^{47+}$ + Ar
03121 E

$U^{47+}$ + Xe
03121 E

$U^{48+}$ + Ar
03121 E

$U^{48+}$ + Xe
03121 E

$U^{49+}$ + Ar
03121 E

$U^{49+}$ +Xe
03121 E

$U^{70+}$ + Ar
03121 E

$U^{70+}$ + Xe
03121 E

$U^{71+}$ + Ar
03121 E

$U^{71+}$ + Xe
03121 E

$U^{72+}$ + Ar
03121 E

$U^{72+}$ + Xe
03121 E

$U^{73+}$ + Ar
03121 E

$U^{73+}$ + Xe
03121 E

$U^{74+}$ + Ar
03121 E

$U^{74+}$ + Xe
03121 E

$U^{75+}$ + Ar
03121 E

$U^{75+}$ + Xe
03121 E

Undef
03750 T 03913 T

A08

HEAVY PARTICLE - HEAVY PARTICLE INTERACTIONS

Stripping

$Ar^{+}$ + Ar
03094 E

$Ar^{2+}$ + Ar
03094 E

$Ar^{3+}$ + Ar
03094 E

$Ar^{4+}$ + Ar
03094 E

$Ar^{5+}$ + Ar
03094 E

$Ar^{6+}$ + Ar
03094 E

$Ar^{7+}$ + Ar
03094 E

$Ar^{8+}$ + Ar
03094 E

$Ar^{9+}$ + Ar
03094 E

$C^{+}$ + H
04067 T

$C^{2+}$ + H
04067 T

$C^{3+}$ + H
04067 T

$C^{4+}$ + H
04067 T

$C^{5+}$ + H
04067 T

$Ca^{17+}$ + $H_2$
04054 E

$Fe^{12+}$ + H
03570 T

$Fe^{13+}$ + H
03570 T

$Fe^{14+}$ + H
03570 T

$Fe^{16+}$ + H
03570 T

$He^{+}$ + Ar
03716 E 03771 T

$He^{+}$ + $CH_4$
03716 E

$He^{+}$ + CO
03716 E

$He^{+}$ + $CO_2$
03716 E

$He^{+}$ + $H_2O$
03777 E

$He^{+}$ + $H_2$
03716 E

$He^{+}$ + He
03716 E 03771 T

$He^{+}$ + Kr
03716 E 03771 T

$He^{+}$ + $N_2$
03716 E 03771 T

$He^{+}$ + Ne
03716 E

$He^{+}$ + $O_2$
03716 E

$He^{+}$ + PERT
03771 T

$He_2^{+}$ + Ar
03533 E

$Li^{+}$ + H
03139 T

$Li^{2+}$ + H
03139 T

$Ne^{4+}$ + Ar
03226 E

$Ne^{4+}$ + $CH_4$
03226 E

$Ne^{4+}$ + He
03226 E

$Ne^{5+}$ + Ar
03226 E

$Ne^{5+}$ + $CH_4$
03226 E

$Ne^{5+}$ + He
03226 E

$Ne^{6+}$ + Ar
03226 E

$Ne^{6+}$ + $CH_4$
03226 E

$Ne^{6+}$ + He
03226 E

$S^{3+}$ + Ar
03236 E

$S^{3+}$ + He
03236 E

$S^{4+}$ + Ar
03236 E

$S^{4+}$ + He
03236 E

$S^{5+}$ + Ar
03236 E

$S^{5+}$ + He
03236 E

$S^{7+}$ + Ar
03236 E

$S^{7+}$ + He
03236 E

$S^{8+}$ + Ar
03236 E

$S^{8+}$ + He
03236 E

$S^{9+}$ + Ar
03236 E

$S^{9+}$ + He
03236 E

$S^{10+}$ + Ar
03236 E

$S^{10+}$ + C
03640 E

$S^{10+}$ + He
03236 E

$S^{11+}$ + Ar
03236 E

$S^{11+}$ + C
03640 E

$S^{11+}$ + He
03236 E

$S^{12+}$ + C
03640 E

$S^{13+}$ + Ar
03236 E

$S^{13+}$ + C
03640 E

$S^{13+}$ + He
03236 E

$S^{14+}$ + Ar
03236 E

$S^{14+}$ + C
03640 E

$S^{14+}$ + He
03236 E

$S^{15+}$ + Ar
03236 E

$S^{15+}$ + C
03640 E

$S^{15+}$ + He
03236 E

$S^{16+}$ + Ar
03236 E

$S^{16+}$ + C
03640 E

$S^{16+}$ + He
03236 E

$Si^{11+}$ + He
04056 E

$V^{18+}$ + He
03603 E

$V^{19+}$ + He
03603 E

$V^{20+}$ + He
03603 E

$V^{21+}$ + He
03603 E

$V^{22+}$ + He
03603 E

$V^{23+}$ + He
03603 E

$Xe^{52+}$ + Ag
04162 E

$Xe^{52+}$ + Al
04162 E

$Xe^{52+}$ + Au
04162 E

$Xe^{52+}$ + Be
04162 E

$Xe^{52+}$ + Cu
04162 E

$Xe^{52+}$ + U
04162 E

$Xe^{53+}$ + Ag
04162 E

$Xe^{53+}$ + Al
04162 E

$Xe^{53+}$ + Au
04162 E

$Xe^{53+}$ + Be
04162 E

$Xe^{53+}$ + Cu
04162 E

$Xe^{53+}$ + U
04162 E

Undef
03775 T

A09

HEAVY PARTICLE - HEAVY PARTICLE INTERACTIONS

Recombination or Mutual Neutralization Leading to Neutral Products (ion-ion)

$H^+$ + $H^-$
03601 T 03611 E 03832 T
04118 T

$H^-$ + $H^+$
03581 E

$H^-$ + $H_2^+$
03310 E-T

$H^-$ + $He^+$
03942 T

$He^+$ + $H^-$
03611 E

Undef
03643 T

A11

**HEAVY PARTICLE - HEAVY PARTICLE INTERACTIONS**

**Collisional De-Excitation**

$Ar + N_2$
03301 E-T 03917 T

$Ar^+ + Na^*$
03128 E

$Ar^{+*} + H_2$
04104 E

$C_2D_2^* + Ar$
03878 E

$C_2D_2^* + CO$
03878 E

$C_2D_2^* + D_2$
03878 E

$C_2D_2^* + He$
03878 E

$C_2D_2^* + H_2$
03878 E

$C_2D_2^* + Kr$
03878 E

$C_2D_2^* + Ne$
03878 E

$C_2D_2^* + N_2$
03878 E

$C_2D_2^* + Xe$
03878 E

$Ca^* + CO$
03877 E

$Ca^* + D_2$
03877 E 03879 E

$Ca^* + H_2$
03877 E 03879 E

$Ca^* + N_2$
03877 E

$Ca^* + Sr$
03877 E

$Cd^* + Ar$
03705 E

$Cd^* + Ne$
03705 E

$CO^* + H_2$
03085 T 03318 T 03319 T

$CO^* + He$
04269 T

$CO^* + N_2$
03498 E

$CO^* + O_2$
03498 E

$Cs + OH + He$
03881 E

$Cs^* + Cs$
03547 E

$D_2^* + D_2$
03292 E

$H + Cs$
03374 T

$H + K$
03374 T

$H + Li$
03374 T

$H + Na$
03374 T

$H + Rb$
03374 T

$H^* + Ar$
03453 T

$H^* + He$
03453 T 03711 T

$H^* + Kr$
03453 T

$H^* + Ne$
03453 T

$H^* + Xe$
03453 T

$H_2 + F^* + h\nu$
03902 T

$H_2O^{+*} + H_2O$
03850 E

$He + H_2^*$
03904 T

$He + HD^*$
03904 T

$He + N_2$
03301 E-T

$He^* + D_2$
03329 E-T

$He^* + H_2O$
03117 T

$He^* + H_2$
03329 E-T

$He^* + He$
03176 E

$He^* + Hg$
03449 E

$He^* + N_2$
03688 E

$He^* + Ne$
03088 T

$Kr^* + Xe$
03190 E

$Li^* + Ar$
03356 E

$Li^* + He$
03356 E

$Li^* + Li$
03356 E

$Li^* + Ne$
03356 E

$Mg^* + He$
03573 T

$N_2^{+*} + N_2$
03336 E

$N_2^{+*} + O_2$
03336 E

$N_2^* + O^*$
03883 E

$N_2^* + O_2$
03498 E 04264 E

$Na^+ + Na$
03266 T

$Na^* + Ar$
03355 T 04120 T

$Na^* + He$
03355 T 03518 T

$Na^* + Kr$
03355 T

$Na^* + Na^*$
03760 E

$Na^* + Ne$
03355 T 03711 T 04120 T

$Na^* + Xe$
03355 T 04120 T

$Ne^* + Ar$
03116 T

$Ne^* + He$
03620 E

$OD^* + CO_2$
03843 E

$OD^* + D_2O$
03843 E

$OH^* + CO$
03843 E

$OH^* + CO_2$
03843 E

$OH^* + D_2O$
03843 E

$OH^* + D_2$
03843 E

$OH^* + H_2O$
03843 E

$OH^* + H_2$
03843 E

$OH^* + N_2$
03843 E

$OH^* + O_2$
03843 E

$Rb^* + Ar$
03355 T 03388 E

$Rb^* + D_2$
04105 E

$Rb^* + H_2$
04105 E

$Rb^* + He$
03355 T 03388 E 03518 T
04105 E

Rb* + K*
03650 E

Rb* + Kr
03355 T 03388 E

Rb* + $H_2$
03388 E

Rb* + He
03355 T 03388 E 03711 T
04120 T

Rb* + Rb
03388 E 03756 E

Rb* + Xe
03355 T 03388 E 03518 T

Sr* + $D_2$
03882 E

Sr* + $H_2$
03882 E

Sr* + $N_2$
03877 E

Xe* + Ar
03355 T

Xe* + He
03355 T

Xe* + Kr
03355 T

Xe* + Ne
03355 T

Xe* + Xe
03355 T

Yb* + Ar
03718 E

Yb* + He
03718 E 03749 E-T

Yb* + Ne
03749 E-T

Yb* + Xe
03749 E-T

A12

**HEAVY PARTICLE - HEAVY PARTICLE INTERACTIONS**

**Collisional Line Broadening**

Ba + Ar
03408 E

Cs + He
03625 T

$D^+ + Ar^{17+}$
03544 T

$D^+ + Br^{34+}$
03544 T

$D^+ + I^{52+}$
03544 T

$D^+ + Kr^{36+}$
03544 T

$D^+ + Xe^{53+}$
03544 T

$D_2^* + D_2$
03292 E

H + Na
03672 T

$H^+ + H$
03535 T

$H^* + H$
03076 T

$H^* + H^+$
03076 T

Na* + Ar
03105 E

Na* + H
03105 E

Na* + $H_2$
03105 E

Rb* + Xe
03947 E-T

Tm + He
03172 E

Undef
03742 T

A14

## HEAVY PARTICLE - HEAVY PARTICLE INTERACTIONS

### Heavy Particle Interchange (must involve some form of hydrogen or helium)

$Ar^+ + D_2$
03849 E

$Ar^+ + H_2$
03849 E

$Ar^+ + HD$
03849 E

$Ar_2^+ + H_2$
04265 E

$CH + O_2$
04153 T

$Cl + D_2$
03844 T

$Cl + H_2$
03844 T

$Cl + HD$
03844 T

$Cl + T_2$
03844 T

$D + H_2$
03305 T 03330 T 03443 E
03685 T 04263 T

$D_2^+ + H_2$
03811 T

$F + D_2$
03334 E 03810 T 03847 T

$F + H_2$
03315 T 03333 E 03810 T
03847 T 04266 T

$F + HD$
03334 E 03847 T

$H + CO_2$
03444 E

$H + D_2$
03327 T 03683 T 03852 T
04263 T

$H + H_2O$
03444 E

$H + H_2$
03331 T 03685 T 03838 T

$H + O_2$
03444 E 04146 E

$H^+ + D_2$
03839 E

$H_2 + OH$
03848 T

$H_2^+ + D_2$
03811 T

$H_2^+ + H_2$
03686 T

$HD + D$
03327 T

$He^+ + He + He$
04267 T

$HO_2 + HO_2$
03873 E

$K + OH + He$
03880 E

$H^+ + H_2$
03839 E

$H^+ + HD$
03839 E

$Na + OH + He$
03880 E

$O + D_2$
03323 E 04273 T

$O + H_2$
03323 E 04273 T

$O + HD$
03323 E 04273 T

$O + OH$
04153 T

$O^- + D_2$
03335 E

$O^- + H_2$
03335 E

$OH + H_2O_2$
03873 E

$OH + H_2$
03324 T 03445 E 03873 E
04146 E

$Rb + OH + He$
03880 E

$S^- + D_2$
03335 E

$S^- + H_2$
03335 E

Review
04142 T

Undef
03282 E-T

A16

## HEAVY PARTICLE - HEAVY PARTICLE INTERACTIONS

### Electron Detachment from Negative ions into Continuum

$Br^- + Ar$
03469 E

$Br^- + He$
03469 E

$Br^- + Kr$
03469 E

$Br^- + Ne$
03469 E

$Br^- + Xe$
03469 E

$C^- + He$
04058 E

$Cl^- + N_2$
04114 E

$Cl^- + O_2$
04114 E

$D^- + Ar$
03458 E 03616 E

$D^- + H$
03458 E

$D^- + H_2$
03458 E

$D^- + He$
03616 E

$D^- + Kr$
03616 E

$D^- + Ne$
03616 E

$D^- + Xe$
03616 E

$H^- + Ar$
03373 T 03458 E 03616 E

$H^- + CO$
03142 E

$H^- + CO_2$
03142 E

$H^- + D_2$
03142 E

$H^- + H$
03458 E 03725 T

$H^- + H_2$
03458 E 03725 T

$H^- + He$
03351 T 03616 E

$H^- + Hg$
03768 E

$H^- + Kr$
03616 E

$H^- + N_2$
03142 E

$H^- + Na$
03720 E

$H^- + Ne$
03616 E 03725 T

$H^- + O_2$
03142 E

$H^- + Xe$
03616 E

$K^- + Ar$
03478 E 04064 E

$K^- + He$
03478 E

$K^- + Kr$
03478 E

$K^- + Ne$
03478 E 04064 E

$K^- + Xe$
03478 E

$Na^- + Ar$
03478 E

$Na^- + He$
03478 E

$Na^- + Kr$
03478 E

$Na^- + Ne$
03478 E

$Na^- + Xe$
03478 E

$O^- + D_2$
03335 E

$O^- + H_2$
03335 E

$S^- + D_2$
03335 E

$S^- + H_2$
03335 E

A17

## HEAVY PARTICLE - HEAVY PARTICLE INTERACTIONS

### Interaction Potentials

$Al^{2+}$ + H
03399 E-T

$Al^{3+}$ + H
03399 E-T

Ar + Ar
03307 E-T

Ar + $H_2$
03739 T

Ar + $N_2$
03301 E-T

$Ar^{+}$ + He
03210 T

$B^{+}$ + Ne
03796 T

Be + Be
03412 T

$C^{-}$ + Ne
04058 E

$CO^{+}$ + $H_2$
03318 T

Cs + Cs
03404 T

Cs + $H_2$
03930 T

Cs + He
03625 T

D + He
04271 E

F + $H_2$
04266 T

H + Cs
03374 T

H + $D_2$
03327 T

H + H
03752 T  03834 T

H + $H_2$
03331 T

H + He
04045 T

H + K
03374 T

H + Li
03374 T  03834 T

H + Na
03374 T

H + Rb
03374 T

H + Xe
03649 T

$H^{+}$ + $H_2$
03712 T

$H^{+}$ + He
04045 T

$H^{-}$ + Na
03720 E

$H_2^{+}$
03586 T  03606 E

$H_2^{+}$ + H
03712 T

$H_2$
03337 T  03586 T  03606 E

HD + D
03327 T

He + $CH_4$
04252 E

He + $D_2$
03376 E-T

He + $H_2$
03376 E-T 03684 T  03739 T
03930 T

He + He
03834 T  04155 T  04271 E

He + Li
03834 T

He + Hg
03357 T

He + $N_2$
03301 E-T

$He^{+}$ + Hg
03357 T

$He^{+}$ + $D_2$
03329 E-T

$He^{+}$ + He
03329 E-T 03740 E

$He^{+}$ + $N_2$
03688 E

$He^{+}$ + Na
03195 T

$He^{+}$ + Ne
03179 T  03859 T

$He^{2+}$ + H
03383 T

$He^{2+}$ + Hg
03357 T

$HHe^{+}$
03586 T

K + $H_2$
03930 T

K + K
03404 T

K + Rb
03404 T

KAr
03857 T

KKr
03857 T

KNe
03857 T

$Kr^{+}$ + Ar
03537 E

KXe
03857 T

Li + H
03834 T

Li + $H_2$
03930 T

Li + Li
03404 T  03834 T

$Li^{+}$ + $H_2$
03930 T

$Li^{+}$ + He
04155 T

$Li^{2+}$ + H
03691 T

$Li^{3+}$ + H
03477 T

Mg + $H_2$
03687 T

$N_2$ + $N_2$
04250 T

$N_2^{-}$
04286 T

$N_2$
04286 T

Na + $H_2$
03930 T  04106 T

Na + K
03592 T

Na + $K^{+}$
03592 T

Na + Na
03404 T

$Na^{+}$ + H
03937 T

$Na^{+}$ + $Na^{+}$
03576 T

$Na^{+}$ + $Na^{+}$
03354 E

NaAr
03857 T

NaKr
03857 T

NaXe
03857 T

Ne + $CH_4$
04251 E

Ne + $H_2$
03739 T

$Ne^{+}$ + Ne
03610 T

$O^{+}$ + $H_2$
03499 T

Rb + $H_2$
03930 T

Rb + Rb
03404 T

$Xe^+$ + Ar
03537 E

$Xe^+$ + Kr
03537 E

A18

HEAVY PARTICLE - HEAVY PARTICLE INTERACTIONS

Angular Scattering

$Ar^{2+}$ + Ar
03713 E

$Ar^{2+}$ + $D_2$
04110 E

Au + U
03268 T

$Cl^{14+}$ + Ar
03265 E

D + $H_2$
03330 T

$D^+$ + D
03307 E-T

$D^+$ + H
03307 E-T

$D_3^+$ + He
04108 E

F + $D_2$
03334 E

F + $H_2$
03333 E

F + HD
03334 E

$F^{8+}$ + Be
03239 T

H + Hg
03768 E

H + Hg
03707 E

$H^+$ + Al
03502 T

$H^+$ + Ar
03359 E

$H^+$ + Ba
03761 E

$H^+$ + $CH_4$
03126 E

$H^+$ + D
03307 E-T

$H^+$ + $D_2$
03182 E

$H^+$ + H
03222 T 03307 E-T 03420 T
03506 T 03629 T 03936 T
04101 T

$H^+$ + $H_2$
03182 E 03712 T

$H^+$ + He
03272 T 03307 E-T 03501 T
03523 E 03736 T 03737 E-T
03827 T 03929 E 04087 T
04099 T 04100 T

$H^+$ + Hg
03768 E

$H^+$ $H_2$
03126 E

$H^-$ + $CO_2$
03261 E

$H^-$ + H
03725 T

$H^-$ + $H_2$
03261 E 03725 T

$H^-$ + He
03351 T

$H^-$ + Hg
03768 E

$H^-$ + $N_2$
03261 E

$H^-$ + Ne
03725 T

$H^-$ + $O_2$
03261 E

$H_2^+$ + Ar
04107 E

$H_2^+$ + Hg
04107 E

$H_3^+$ + He
04108 E

$HD_2^+$ + He
04108 E

He + $CH_4$
04252 E

He + He
03501 T

He + $N_2$
03301 E-T 03312 T 03642 E-T

He + $O_2$
03642 E-T

$He^+$ + $D_2$
03329 E-T

$He^+$ + $H_2O$
03117 T

$He^+$ + $H_2$
03329 E-T

$He^+$ + Na
03195 T

I + Pb
03268 T

I + U
03268 T

Li + Bi
03433 T

$Li^+$ + H
04047 E

$Li^+$ + He
03259 E

$Mg^+$ + He
04050 E 04081 E

$N^{4+}$ + He
04071 E

$N^{7+}$ + He
04071 E

$Na^+$ + CO
03889 E

$Na^+$ + $N_2$
03889 E

$Na^+$ + Na
03386 T

$Na^+$ + Ne
03395 E

$Na^+$ + He
03456 T

$Na^+$ + He
03255 E

Ne + $CH_4$
04251 E

$Ne^{++}$ + He
04074 E

O + Al
03433 T

OH + $H_2$
03313 T

$Si^{5+}$ + Ar
03239 T

A20

HEAVY PARTICLE - HEAVY PARTICLE INTERACTIONS

Attenuation (unspecified process)

$D_2^+$ + Cs
04113 E

$D_2^+$ + Cs
04113 E

H* + Ar
04124 E

$H_2^+$ + Cs
04113 E

$H_2^+$ + Cs
04113 E

He+ + He
03819 E

B01

INTERACTIONS OF ATOMIC PARTICLES WITH FIELDS

Interaction of Individual Atoms or Molecules with External fields

e
04172 T

H
03269 T

H*
03124 E

H* + 2hν
03415 E

H−
03248 T

He*
03208 T

hν + He*
03802 E

2hν + K
04179 E

2hν + Na
04179 E

Na*
03745 E

Undef
03225 T 03746 T 03747 T
04176 T

B07

INTERACTIONS OF ATOMIC PARTICLES WITH FIELDS

Collisions in Presence of Static or Time Varying Fields

e + H + hν
03665 T

e + hν + Ar
03647 T

F + $H_2$ + hν
03845 T

F* + $H_2$
03902 T

H+ + Na
03937 T

H* + H
03076 T

H* + H+
03076 T

He+ + He
03281 T

$He^{2+}$ + H
03152 T

hν + e
03667 T

hν + H
03405 T 03568 T

hν + H*
03214 E 03464 E 03884 E
03885 T

hν + Na
03646 T

hν + $O^{8+}$ + H
04284 T

hν + S−
03382 E-T

hν + Xe
03545 E

hν + Yb
03598 E

K+ + Na
03216 T

$Li^{3+}$ + H
03477 T

nhν + Cs
03213 E

nhν + Xe
03572 T

Sr + Ca
03933 T

Undef
03609 T 03750 T 03772 T
04165 T 04292 T

C01

PARTICLE PENETRATION IN MACROSCOPIC MATTER (IONS, NEUTRALS, AND ELECTRONS)

General

e + MgO
03894 T

C02

PARTICLE PENETRATION IN MACROSCOPIC MATTER (IONS, NEUTRALS, AND ELECTRONS)

Energy Loss and Stopping Power

$Ag^+$ + Ag
03788 T

$Al^+$ + Ag
03788 T

Ar + Cu
03177 T

$Be^+$ + Ag
03788 T

$C^+$ + Ag
03788 T

Cu + Cu
03177 T

e + Al
03081 T 03159 E-T 03702 T

e + Au
03159 E-T

e + Be
03081 T

e + C
03512 E

e + $H_2O$
03695 T

e + Si
03160 T 03695 T

$H^+$ + Ag
03788 T

$H^+$ + Al
03788 T

$H^+$ + Au
03804 T

$H^+$ + Be
03788 T

$H^+$ + Cu
03946 T

$H^+$ + Fe
03788 T

$H^+$ + $H_2O$
03489 T

$H^+$ + U
03788 T

$He^+$ + C
03950 E

Kr + Cu
03177 T

$Li^+$ + Ag
03166 E

$Li^+$ + Al
03166 E

$Li^+$ + Au
03166 E

$Li^+$ + C
03166 E

$Li^+$ + Ni
03166 E

$Li^+$ + Si
03166 E

Ne + Cu
03177 T

Sb + Si
03180 E-T

$Ti^+$ + Ag
03788 T

$U^+$ + Ag
03788 T

Xe + Cu
03177 T

Undef
03384 T 03701 T

C04

PARTICLE PENETRATION IN MACROSCOPIC MATTER (IONS, NEUTRALS, AND ELECTRONS)

Particle Range

As+ + Ge
03682 T

As+ + Si
03682 T 03892 T 04148 T

As+ + SiN
03682 T

Au+ + Si
03696 E 04148 T

B+ + Si
03696 E 03892 T

Bi+ + Ge
03682 T

Bi+ + Pb
03788 T

Bi+ + Si
03682 T 04148 T

Bi+ + SiN
03682 T

Cs+ + Si
04148 T

e + Ag
04151 T

e + C
03512 E

e + Gd
04151 T

e + Ge
04151 T

e + Li
04151 T

e + Pb
04151 T

e + Pt
04151 T

e + Si
03160 T 04151 T

e + Sn
04151 T

e + Ti
04151 T

e + U
04151 T

Ga+ + Si
03244 E

H+ + PERT
03797 T

H+ + Si
03454 E

He+ + SiC
03163 E

In+ + Si
04148 T

P+ + Ge
03682 T

P+ + Si
03682 T

P+ + SiN
03682 T

Pb+ + Si
04148 T

PERT+ + Si
03243 T

Pt+ + Si
04148 T

Sb + Si
03180 E-T

Sb+ + Ge
03682 T

Sb+ + Si
03682 T 04148 T

Sb+ + SiN
03682 T

Tl+ + Si
04148 T

U+ + Si
04148 T

Xe+ + Si
04148 T

Zn+ + GaAs
03892 T

C05

PARTICLE PENETRATION IN MACROSCOPIC MATTER (IONS, NEUTRALS, AND ELECTRONS)

Multiple Scattering

As+ + Si
03892 T

B+ + Si
03892 T

e + $H_2O$
03695 T

e + Si
03160 T 03695 T

Zn+ + GaAs
03892 T

Undef
03167 T

C06

PARTICLE PENETRATION IN MACROSCOPIC MATTER (IONS, NEUTRALS, AND ELECTRONS)

Charge State Population

$Ar^{+}$ + PERT
03455 E

$Au^{77+}$ + Au
04103 E

$Au^{79+}$ + Au
04103 E

$C^{+}$ + PERT
03455 E

$C^{4+}$ + C
03921 E

$H^{+}$ + C
03729 E

$He^{+}$ + C
03729 E

$He_2^{+}$ + Ar
04109 E

Li + Cs
03396 E

Li + Hg
03396 E

Li + Sr
03396 E

$Li^{+}$ + Cs
03396 E

$Li^{+}$ + Hg
03396 E

$Li^{+}$ + Sr
03396 E

$Li^{-}$ + Cs
03396 E

$Li^{-}$ + Hg
03396 E

$Li^{-}$ + Sr
03396 E

$N_2^{+}$ + C
03475 E

$Ne^{+}$ + PERT
03455 E

$S^{14+}$ + C
03640 E

C07

PARTICLE PENETRATION IN MACROSCOPIC MATTER (IONS, NEUTRALS, AND ELECTRONS)

Excited State Population

$Ar^{+}$ + PERT
03455 E

$C^{+}$ + PERT
03455 E

$C^{4+}$ + C
03921 E

H + C
03189 E

$H^{+}$ + C
03189 E 03729 E

$H_2^{+}$ + C
03189 E

$He^{+}$ + C
03729 E

$Li^{+}$ + C
03198 E

$Hg^{3+}$ + C
03219 E

$Ne^{+}$ + PERT
03455 E

$Ne^{8+}$ + C
03932 E

D01

PARTICLE INTERACTIONS WITH SOLID SURFACES

General

$Ar^{+}$ + Cu
03252 T

Undef
03784 T 03968 T

D02

PARTICLE INTERACTIONS WITH SOLID SURFACES

Sputtering by Electrons, Neutrons, and Heavy Particles (total removal coefficients)

Ar + [Fe + Cr + Mo]
03429 E

$Ar^+$ + Au
03425 E  03699 E-T

$Ar^+$ + Cr + Mo
03975 E

$Ar^+$ + Cu
03697 E

$Ar^+$ + Ge
03697 E  03698 T

$Ar^+$ + Ni
03425 E

$Ar^+$ + PERT
03865 T

$Ar^+$ + Pt
03697 E

$Ar^+$ + $SiO_2$
03898 E

$Cl^+$ + Au
03897 T

$Cl^+$ Si
03897 T

$Cl_2^+$ + Au
03897 T

$Cl_2^+$ + Si
03897 T

$Cs^+$ + N + Cs
03840 T

e + Ar
03427 T

$Ga^+$ + Au
03897 T

$Ga^+$ + Si
03897 T

$Ga_2^+$ + Au
03897 T

$Ga_2^+$ + Si
03897 T

$H^+$ + N + Cs
03840 T

$H_2^+$ + N + Cs
03840 T

$H_3^+$ + N + Cs
03840 T

$He^+$ + $SiO_2$
03898 E

$Hg^+$ + Ag
04260 T

$Hg^+$ + Au
04260 T

$Hg^+$ + Co
04260 T

$Hg^+$ + Cu
04260 T

$Hg^+$ + Fe
04260 T

$Hg^+$ + Mo
04260 T

$Hg^+$ + Nb
04260 T

$Hg^+$ + Pt
04260 T

$Hg^+$ + Ta
04260 T

$Hg^+$ + Ti
04260 T

$Hg^+$ + W
04260 T

$Hg^+$ + Zr
04260 T

$Ne^+$ + Ag
03251 E

$Ne^+$ + Au
03251 E

$Ne^+$ + [Ni + Cu]
03432 E

$Ne^+$ + Si
03277 E

$Ne^+$ + $SiO_2$
03898 E

$O^+$ + Au
03897 T

$O^+$ + Si
03897 T

$O_2^+$ + Au
03897 T

$O_2^+$ + Si
03897 T

$S^+$ + Au
03897 T

$S^+$ + Si
03897 T

$Xe^+$ + Au
03897 T

$Xe^+$ + Si
03897 T

$Xe^+$ + $SiO_2$
03898 E

Review
03250 E

Undef
03161 T

D03

**PARTICLE INTERACTIONS WITH SOLID SURFACES**

**Sputtered Particle Charge and Quantum (Excited) State Distribution**

$Ar^+ + Co$
03162 E

$Ar^+ + CO$
03168 E 03169 E

$Ar^+ + Co_3O_4$
03162 E

$Ar^+ + Cr$
03162 E

$Ar^+ + Cr_2O_3$
03162 E

$Ar^+ + Cu$
03162 E

$Ar^+ + CuO$
03162 E

$Ar^+ + Ga$
03969 E

$Ar^+ + H_2O$
03168 E 03169 E

$Ar^+ + NH_3$
03168 E 03169 E

$Ar^+ + Ni$
03162 E 03969 E

$Ar^+ + NiO$
03162 E

$Ar^+ + Pt_3Pb$
03074 E

$Ar^+ + Si$
03899 E 03969 E

$Ar^+ + SiO_2$
03899 E

$Ar^+ + Ti$
03162 E

$Ar^+ + TiO_2$
03162 E

$Ar^+ + Zn$
03162 E

$Ar^+ + ZnO$
03162 E

$H^+ + CO$
03169 E

$H^+ + H_2O$
03169 E

$H^+ + NH_3$
03169 E

$H_2^+ + CO$
03168 E 03169 E

$H_2^+ + H_2O$
03168 E 03169 E

$H_2^+ + NH_3$
03168 E 03169 E

$He^+ + CO$
03168 E 03169 E

$He^+ + H_2O$
03168 E 03169 E

$He^+ + NH_3$
03168 E 03169 E

$O_2^+ + Si$
03164 E

**Review**
03253 E

**Undef**
03954 T 03970 T

D04

PARTICLE INTERACTIONS WITH SOLID SURFACES

Secondary Electron Ejection by Heavy Particles and Electrons

$Ar^{+}$ + Al
03960 E-T

$Ar^{+}$ + Cu
03971 E

$Ar^{+}$ + Zn
03971 E

$Ar^{2+}$ + W
04076 E

$Ar^{3+}$ + W
04076 E

$Ar^{4+}$ + W
04076 E

$Ar^{5+}$ + W
04076 E

$Ar^{6+}$ + W
04076 E

$Ar^{7+}$ + W
04076 E

$Ar^{8+}$ + W
04076 E

$Ar^{9+}$ + W
04076 E

$Ar^{10+}$ + W
04076 E

e + W
03249 E

$H^{+}$ + Cu
03971 E

$H^{+}$ + Zn
03971 E

$H_2^{+}$ + Cu
03971 E

$H_2^{+}$ + Zn
03971 E

$He^{+}$ + Cu
03971 E

$He^{+}$ + Zn
03971 E

$Kr^{+}$ + Cu
03971 E

$Kr^{+}$ + Zn
03971 E

$Kr^{3+}$ + W
04076 E

$Kr^{4+}$ + W
04076 E

$Kr^{7+}$ + W
04076 E

$Kr^{8+}$ + W
04076 E

$Kr^{9+}$ + W
04076 E

$Kr^{10+}$ + W
04076 E

$N^{3+}$ + W
04076 E

$N^{4+}$ + W
04076 E

$N^{3+}$ + W
04076 E

$N^{4+}$ + W
04076 E

$Ne^{+}$ + Cu
03971 E

$Ne^{+}$ + Zn
03971 E

$Ne^{2+}$ + W
04076 E

$Ne^{3+}$ + W
04076 E

$Ne^{4+}$ + W
04076 E

$Ne^{5+}$ + W
04076 E

$Ne^{6+}$ + W
04076 E

$Ne^{7+}$ + W
04076 E

$Ne^{8+}$ + W
04076 E

$Xe^{+}$ + Cu
03971 E

$Xe^{+}$ + Zn
03971 E

Review
03253 E

Undef
03274 E-T

D05

PARTICLE INTERACTIONS WITH SOLID SURFACES

Photoelectric Ejection of Electrons (coefficients)

hν + Al
04187 T

hν + Ce
03648 E

hν + Cu
03185 E-T 04187 T

hν + Dy
03648 E

hν + Si
03781 E

hν + Ta
04187 T

hν + Y
03648 E

hν + Yb
03648 E

Undef
03367 T

D06

PARTICLE INTERACTIONS WITH SOLID SURFACES

Reflection of Electrons from Surfaces (coefficients)

e + Ag
03082 E 03961 T

e + Al
03082 E 03159 E-T 03704 T
03961 T

e + Au
03082 E 03159 E-T 03704 T

e + C
03961 T

e + Cu
03082 E 03961 T

e + Fe
03961 T

e + Ge
03961 T

e + Mo
03961 T

e + Si
03961 T

e + V
03961 T

D07

PARTICLE INTERACTIONS WITH SOLID SURFACES

Reflection of Heavy Particles from Surfaces (total reflection coefficients)

Ar + Cu
03949 E

$Ar^+$ + Au
03700 T

$Ar^+$ + Hg
04275 E

$Ar^+$ + $Hg(OH)_2$
04275 E

$Ar^+$ + MgO
04275 E

$Ar^+$ + Y
04275 E

$Ar^+$ + $Y_2O_3$
04275 E

$Ar^+$ + $Y(OH)_3$
04275 E

$H_2$ + Cu
03949 E

He + CO
03423 T

He + Cu
03949 E

He + Pt
03422 T

He + Xe
03423 T

He + Xe + Ar
03424 T

$N_2$ + Cu
03949 E

$N_2^+$ + Cu
03431 T 04256 E

$Na^+$ + Pt
03965 E

Ne + Cu
03949 E

$Ne^+$ + Hg
04275 E

$Ne^+$ + $Hg(OH)_2$
04275 E

$Ne^+$ + MgO
04275 E

$Ne^+$ + Ti
03976 T

$Ne^+$ + Y
04275 E

$Ne^+$ + $Y_2O_3$
04275 E

$Ne^+$ + $Y(OH)_3$
04275 E

NO + C
03371 E

RbI + NaCl
03838 E

Undef
03426 T 03783 T 03963 T
03964 T 03974 T 03978 T
03979 T

D08

PARTICLE INTERACTIONS WITH SOLID SURFACES

Charge and Quantum State Distributions of Reflected Heavy Particles

$Ar^+$ + Hg
04275 E

$Ar^+$ + $Hg(OH)_2$
04275 E

$Ar^+$ + HgO
04275 E

$Ar^+$ + SS
04222 E

$Ar^+$ + W
03669 E

$Ar^+$ + Y
04275 E

$Ar^+$ + $Y_2O_3$
04275 E

$Ar^+$ + $Y(OH)_3$
04275 E

$Ar^{2+}$ + W
03669 E

$Ar^{3+}$ + W
03669 E

$Ar^{4+}$ + W
03669 E

$Ar^{5+}$ + W
03669 E

$Ar^{6+}$ + W
03669 E

$Ar^{7+}$ + W
03669 E

$Ar^{8+}$ + W
03669 E

$Ar^{9+}$ + W
03669 E

$Ar^{10+}$ + W
03669 E

$Ar^{11+}$ + W
03669 E

$Cl^{10+}$ + C
04224 E

$Cs^+$ + Cs + W
03839 E

$D^+$ + C
04221 E

$D_2^+$ + C
04221 E

$D_3^+$ + C
04221 E

$H_2^+$ + Au
03280 E

$He^+$ + Mo
03981 T

$He^+$ + W
03980 E-T

$Kr^{6+}$ + W
03669 E

$Kr^{7+}$ + W
03669 E

$Kr^{8+}$ + W
03669 E

$Kr^{9+}$ + W
03669 E

$Kr^{10+}$ + W
03669 E

$Kr^{11+}$ + W
03669 E

Li + C
04220 E

Li + Cu
04220 E

$N^+$ + Ni
04220 E

$N_2^+$ + Cu
03801 T

$N^{5+}$ + W
04223 E

$Na^+$ + Cu
03308 E

$Ne^+$ + Cu
03308 E 03967 E

$Ne^+$ + Hg
04275 E

$Ne^+$ + $Hg(OH)_2$
04275 E

$Ne^+$ + HgO
04275 E

$Ne^+$ + W
03669 E

$Ne^+$ + Y
04275 E

$Ne^+$ + $Y_2O_3$
04275 E

$Ne^+$ + $Y(OH)_3$
04275 E

$Ne^{2+}$ + W
03669 E

$Ne^{3+}$ + W
03669 E

$Ne^{4+}$ + W
03669 E

$Ne^{5+}$ + W
03669 E

$Ne^{6+}$ + W
03669 E

$Ne^{7+}$ + W
03669 E

$Ne^{8+}$ + W
03669 E

$Ne^{9+}$ + W
03669 E

NO + Ag
03966 E-T 04320 E

NO + C
03371 E

NO + Ge
04270 E

$Rb^+$ + Ni
04220 E

Undef
03974 T

D09

PARTICLE INTERACTIONS WITH SOLID SURFACES

De-Excitation, Neutralization, Ionization, or Dissociation of Particles Interacting with Surfaces

$CO^*$ + Ag
03325 E

$CO_2^*$ + Ag
03325 E

$H^+$ + CaO
03842 T

$H_2$ + Ti + Cu
03782 T

$H_3^+$ + Ni
03807 E

$He^+$ + Mo
03981 T

$He^+$ + W
03151 T  03980 E-T

$He^*$ + Cs + Cu
03863 E

KCl + He
03316 T

$Na^*$ + W
03302 E

$Ne^+$ + Au
03842 T

$Ne^+$ + Cu
03967 E

$SO_2$ + Pd
03905 E

Undef
03956 T

D11

PARTICLE INTERACTIONS WITH SOLID SURFACES

Sticking Coefficients, Thermal Energies and Adsorption

CO + C
03901 E

CO + Ni
03874 E

CO + Pt
03972 E

$D_2$ + Cu
04321 E

$H_2$ + Cu
03418 T  04321 E

$H_2$ + GaAs
03871 T

$H_2$ + Ni
03977 T

$H_2$ + Pt
03972 E

HD + Cu
03418 T

He + Cu
03428 T

He + W
03428 T

NO + Ag
03853 T

NO + Pt
03430 T  03853 T

$O_2$ + Pt
03332 E

$SO_2$ + Pd
03905 E

D12

PARTICLE INTERACTIONS WITH SOLID SURFACES

Electromagnetic Radiation Induced by Electron or Heavy Particle Impact on Surfaces

$Ag^{6+}$ + Pb
03594 E

$Ag^{6+}$ + Pt
03594 E

$Ag^{6+}$ + Ta
03594 E

$Ag^{6+}$ + Th
03594 E

$Ag^{6+}$ + W
03594 E

$Ag^{6+}$ + Yb
03594 E

$Ar^{+}$ + Mg
04275 E

$Ar^{+}$ + $Mg(OH)_2$
04275 E

$Ar^{+}$ + MgO
04275 E

$Ar^{+}$ + Y
04275 E

$Ar^{+}$ + $Y_2O_3$
04275 E

$Ar^{+}$ + $Y(OH)_3$
04275 E

$Cs^{+}$ + Al
03800 E

$Cs^{+}$ + Au
03800 E

$Cs^{+}$ + Ho
03800 E

$Cs^{+}$ + Mo
03800 E

$Cs^{+}$ + Pb
03800 E

$Cs^{+}$ + Re
03800 E

$Cs^{+}$ + Yb
03800 E

e + Ag
04150 E

e + Al
03723 E

e + Au
04006 E

e + Be
03723 E

e + C
03723 E

e + Cd
04149 E  04150 E

e + Cu
04149 E  04150 E

e + I
04150 E

e + Li
03790 E-T

e + Mo
04150 E

e + Pb
04149 E  04150 E

e + Ta
04149 E

e + U
04006 E

e + W
03787 T

$H^{+}$ + Au
03267 E  03626 E

$H^{+}$ + Bi
03626 E

$H^{+}$ + Co
03644 E

$H^{+}$ + Cu
03267 E  03644 E

$H^{+}$ + Dy
03626 E

$H^{+}$ + Gd
03299 E

$H^{+}$ + Ni
03644 E

$H^{+}$ + Pb
03626 E

$H^{+}$ + Si
03267 E

$H^{+}$ + Th
03626 E

$H^{+}$ + U
03626 E

$H^{+}$ + W
03626 E

$H^{+}$ + Yb
03626 E

$H^{+}$ + Zn
03644 E

$H_2^{+}$ + Au
03267 E

$H_2^{+}$ + Cu
03267 E

$H_2^{+}$ + Si
03267 E

$He^{+}$ + Au
03267 E  03299 E

$He^{+}$ + Cu
03267 E

$He^{+}$ + Ir
03193 E

$He^{+}$ + Pb
03193 E

$He^{+}$ + Pt
03193 E

$He^{+}$ + Si
03267 E

$He^{+}$ + W
03299 E

$Mo^{+}$ + Al
03800 E

$Mo^{+}$ + Au
03800 E

$Mo^{+}$ + Ho
03800 E

$Mo^{+}$ + Mo
03800 E

$Mo^{+}$ + Pb
03800 E

$Mo^{+}$ + Re
03800 E

$Mo^{+}$ + Yb
03800 E

$Kr^{+}$ + PERT
03240 T

$Ne^{+}$ + Mg
04275 E

$Ne^{+}$ + $Mg(OH)_2$
04275 E

$Ne^{+}$ + MgO
04275 E

$Ne^{+}$ + Y
04275 E

$Ne^{+}$ + $Y_2O_3$
04275 E

$Ne^{+}$ + $Y(OH)_2$
04275 E

$Ti^{+}$ + PERT
03240 T

Review
03253 E

Undef
03231 T  03232 T

D13

PARTICLE INTERACTIONS WITH SOLID SURFACES

Desorption of Gases from Surfaces

e + C + W
03952 T

e + Cu
03785 E

e + F + W
03952 T

e + H + Nb
03952 T

e + H + Ni
03952 T

e + H + W
03952 T

e + O + Mo
03952 T

e + O + Nb
03952 T

e + O + Pt
03952 T

e + O + Ti
03952 T

e + O + W
03952 T

$H^+$ + Ti
03693 E

$H_5^+$ + CsI
03861 E

$H_6^+$ + CsI
03861 E

$H_7^+$ + CsI
03861 E

$H_8^+$ + CsI
03861 E

$H_9^+$ + CsI
03861 E

$H_{10}^+$ + CsI
03861 E

$H_{11}^+$ + CsI
03861 E

$H_{12}^+$ + CsI
03861 E

$H_{13}^+$ + CsI
03861 E

$H_{14}^+$ + CsI
03861 E

$H_{15}^+$ + CsI
03861 E

$H_{16}^+$ + CsI
03861 E

$H_{17}^+$ + CsI
03861 E

$H_{18}^+$ + CsI
03861 E

$H_{19}^+$ + CsI
03861 E

$H_{20}^+$ + CsI
03861 E

$H_{21}^+$ + CsI
03861 E

$H_{22}^+$ + CsI
03861 E

$H_{23}^+$ + CsI
03861 E

hν + C + W
03952 T

hν + CO
03948 E

hν + F + W
03952 T

hν + H + Nb
03952 T

hν + H + Ni
03952 T

hν + H + W
03952 T

hν + $H_2O$
03953 T

hν + $N_2O$
03948 E

hν + $N_2$
03948 E

hν + NO
03948 E

hν + NO + LiF
03317 T

hν + O + Mo
03952 T

hν + O + Nb
03952 T

hν + O + Pt
03952 T

hν + O + Ti
03952 T

hν + O + W
03952 T

hν + $O_2$ + Cr
03951 E

hν + $O_2$
03948 E

hν + OH + Cr
03953 T

hν + OH + Ti
03953 T

NO + Pt
03322 E

$SO_2$ + Pd
03905 E

Review
04143 T

Undef
03955 T 03973 E

D17

PARTICLE INTERACTIONS WITH SOLID SURFACES

Electron-, Ion-, and Photon-Induced Chemical Changes to Surfaces

$Ar^+$ + Cr + Mo
03975 E

$Ar^+$ + $Cu_2O$
03962 E

$Ar^+$ + CuO
03962 E

$Ar^+$ + $SiO_2$
03898 E

$He^+$ + $SiO_2$
03898 E

$He^+$ + [Ni + Cu]
03432 E

$Ne^+$ + $SiO_2$
03898 E

$Xe^+$ + $SiO_2$
03898 E

D18

PARTICLE INTERACTIONS WITH SOLID SURFACES

Trapping and Reemission of Hydrogen (all forms) and Helium

$D_2^+$ + Mo
03786 E

$D_3^+$ + Mo
03786 E

H + C
03867 T

H + N + Nb
03896 T

H + Ti
03446 T

$He^+$ + W
03733 T

E01

ELECTRON-PARTICLE INTERACTION

General

e + Ar
03108 E

e + He
03108 E

e + Ne
03108 E

e + Xe
03108 E

Undef
03379 T 04158 T 04160 T

E02

ELECTRON-PARTICLE INTERACTION

Elastic Collisions

e + Al
03925 T

e + Ar
03091 T 03156 E 03490 T
03526 T 03647 T 03925 T
04001 E 04166 T 04318 E-T

e + $C_2H_2$
03529 E

e + $C_2H_4$
03590 E

e + Ca
03564 T

e + $CH_4$
03590 E 03612 E 03666 E
03916 E 03935 T 04024 T

e + CO
03579 E

e + $CO_2$
04295 E

e + H
03352 T 03395 E-T 03553 T
03604 T 03665 T 03738 T
03779 T 03826 T 03830 T
03837 T 03927 T

e + H*
03284 T 03837 T

e + $H_2$
03136 T 03223 T 03630 T
03670 T 03719 T 03738 T
03822 T 03828 T 03930 T
04019 T 04020 T 04339 T

e + He
03391 T 03435 T 03502 T
03582 T 03630 T 03658 T
03837 T 04000 T 04159 T
04318 E-T 04319 E-T

e + $He^+$
04122 T

e + Hg
03925 T

e + K
03604 T 03862 E

e + K*
03571 T

e + Kr
03526 T

e + Li
03604 T

e + $N_2$
03392 T 03402 T 03459 T
03738 T

e + Na
03604 T

e + $Na^+$
03230 T

e + Na*
03237 E

e + Ne
03343 E-T 03350 E 03925 T
04318 E-T

e + $O_2$
04021 E

e + Pb
03605 T

e + PERT
03291 T

e + Xe
03526 T 04002 E

Undef
03726 T 04181 T

P03

ELECTRON-PARTICLE INTERACTION

Excitation

e + Al
03145 E

e + $Al^{+}$
04287 T

e + Ar
03386 E-T 03841 E 04010 E

e + $Ar^{15+}$
04170 T

e + $Ar^{16+}$
04170 T

e + $Ar^{17+}$
04170 T

e + $B^{3+}$
03155 T

e + $Be^{2+}$
03155 T

e + Bi
04190 E

e + $Bi^{+}$
04190 E

e + $Bi^{2+}$
04190 E

e + $C^{+}$
03440 T

e + $C^{2+}$
03349 T 03595 T 04257 T

e + $C_2H_2$
03529 E

e + $C_2H_4$
03590 E

e + $C^{4+}$
03155 T 03816 T

e + $C^{5+}$
03663 T

e + $Ca^{18+}$
03155 T 03870 T

e + $Ca^{19+}$
03662 T

e + Cd
03451 E

e + $CH_4$
03271 E-T 03590 E 03916 E
04023 E

e + CO
03092 T 03098 E 03579 E

e + $CO^{+}$
03137 E

e + $CO_2$
04295 E 04296 T

e + $D_2$
03098 E 03482 T 03846 T

e + Fe
03246 E

e + $Fe^{14+}$
03474 T

e + $Fe^{23+}$
03528 T

e + $Fe^{24+}$
03155 T 03463 T 03870 T

e + $Fe^{25+}$
03662 T

e + Gd
03173 E

e + Ge
03856 T

e + H
03273 T 03276 T 03352 T
03436 E-T 03480 T 03503 T
03553 T 03604 T 03618 T
03659 T 03708 T 03820 T
03908 T 03922 T 04005 T
04016 T 04278 T 04313 E

e + $H_2O$
03271 E-T 04297 T

e + $H_2$
03092 T 03098 E 03136 T
03217 T 03436 E-T 03482 T
03510 T 03534 T 03613 E
03670 T 03868 E 04019 T
04024 T 04025 T 04168 T
04309 T 04310 T 04311 T
04312 E

e + HD
03092 T

e + He
03396 T 03149 E 03158 E
03224 T 03326 T 03462 T
03509 T 03519 E 03541 E
03794 T 03841 E 03869 E
03923 T 03924 T 03982 T
04003 T 04004 E 04279 E

e + $He^{+}$
03663 T

e + He*
03923 T 04017 T 04307 E

e + Hg
03157 E 03555 E 03556 E-T
03566 T 03578 E 04332 E

e + hν + H
04121 T

e + Ho
03706 E

e + K
03375 T 03604 T 04018 T
04126 E

e + Kr
03479 T 03660 E 03661 E

e + $Kr^{28+}$
04035 T

e + $Kr^{35+}$
03662 T

e + Li
03109 T 03114 T 03134 T
03375 T 03488 T 03604 T
03780 T 03791 E

e + $Li^{+}$
03155 T 03194 T 03349 T
03824 T 04031 T

e + Lu
03511 E

e + $Mg^{+}$
04030 E-T 04180 E 04254 E-T

e + $Mg^{8+}$
03441 T 03497 T 04029 T

e + $Mg^{10+}$
03155 T 03633 T

e + $Mg^{11+}$
03663 T

e + Mn
03854 T

e + $N^{5+}$
03155 T 03816 T

e + $N_2$
03092 T 03098 E 03402 T
03818 E 04286 T 04298 E

e + Na
03080 T 03123 E 03370 E
03375 T 03604 T 04018 T
04167 E

e + $Na^{+}$
03237 E 04167 E

e + Ne
03350 E 03632 T 03681 E
03764 E 03841 E

e + $Ne^{+}$
03694 T

e + $Ne^{4+}$
03441 T 04029 T

e + $Ne^{6+}$
03751 T 04257 T

e + $Ne^{7+}$
03751 T

e + $Ne^{8+}$
03155 T 03816 T

e + $O^{2+}$
03437 T 04029 T

e + $O^{4+}$
04257 T

e + $O^{5+}$
03715 T

e + $O^{6+}$
03155 T 03349 T 03816 T

e + $O_2$
03328 E 03763 E 04169 T

e + Pb
03605 T

e + S
03495 T

e + Si
03856 T

e + $Si^{+}$
03447 T

e + $Si^{8+}$
04029 T

e + $Si^{10+}$
04257 T

e + $Si^{12+}$
03155 T

e + $Si^{13+}$
03662 T

e + Sn
03645 E

e + $Ti^{+}$
03245 E

e + $Ti^{12+}$
03715 T

e + V
03854 T

e + Y
03278 E

e + Yb
03614 E

e + $Yb^{+}$
03614 E

E04

ELECTRON-PARTICLE INTERACTION

Dissociation

e + $CH_4$
04027 E

e + CO
03092 T 04027 E

e + $CO^{+}$
03137 E

e + $CO_2$
04027 E

e + $D_3^{+}$
03097 E

e + $D_2$
03482 T 03567 T 03829 T

e + $H_2^{+}$
03146 T 04040 T

e + $H_3^{+}$
03097 E 03895 E

e + $H_2$
03092 T 03436 E-T 03482 T
03567 T 03606 E 03829 T
03868 E 04028 T 04168 T

e + HD
03092 T

e + $HD_2^{+}$
03097 E

e + $N_2$
03092 T

e + $O_2$
03763 E 04169 T

R05

**ELECTRON-PARTICLE INTERACTION**

**Ionization**

e + Ag
03481 T 03821 T 04290 T

e + Al
03145 E

e + Ar
03181 E 03196 E 03936 T
03909 E 04010 E 04012 E
04144 T 04299 E

e + $Ar^{+}$
03634 E 03635 E 04145 T
04198 E

e + $Ar^{2+}$
03340 E 03398 E

e + $Ar^{4+}$
03635 E

e + $Ar^{7+}$
03411 E

e + $Ar^{8+}$
03411 E

e + $Ar^{9+}$
03411 E

e + $Ar^{10+}$
03411 E

e + $Ar^{11+}$
03411 E

e + Au
03481 T 04290 T

e + $B^{2+}$
03621 T 03805 T 04037 T

e + Be Seq
04192 T

e + $Bi^{+}$
03416 E 04034 E

e + $Bi^{2+}$
03416 E 04034 E

e + $Bi^{3+}$
03416 E 04034 E

e + Br
04009 E

e + $C_2H_2$
04145 T

e + $C^{3+}$
03621 T 03805 T 04037 T

e + $C^{5+}$
03663 T

e + $Ca^{+}$
03102 T

e + $Ca^{19+}$
03662 T

e + $CH_4$
04027 E 04145 T

e + Cl
04009 E

e + $Cl^{2+}$
03398 E

e + CO
03580 E 04027 E

e + $CO_2$
03607 E 04027 E

e + Cu
03481 T 03821 T

e + $F^{2+}$
03398 E

e + $Fe^{2+}$
03398 E

e + $Fe^{22+}$
04192 T

e + $Fe^{23+}$
03528 T

e + $Fe^{25+}$
03662 T

e + H
03178 T 03270 E-T 03395 E-T
03436 E-T 03651 T 03823 T
03833 T 03943 T 04013 T
04014 T

e + $H_2$
03407 T 03436 E-T 03606 E
04182 T

e + He
03133 E 03149 E 03158 E
03178 T 03260 E 03527 T
03541 E 03565 T 03631 E
03869 E 03924 T 03941 T
04007 E 04008 E 04156 T

e + $He^{+}$
03663 T

e + Hg
04302 E

e + I
04009 E

e + K
03135 E

e + $K^{+}$
04036 E

e + Kr
03608 E

e + $Kr^{2+}$
03340 E

e + $Kr^{33+}$
03662 T

e + Li
03135 E

e + $Li^{+}$
04156 T

e + $Li^{2+}$
03835 T

e + $Mg^{+}$
03102 T

e + $Mg^{11+}$
03663 T

e + $N^{4+}$
03805 T 04037 T 04202 E

e + $N^{5+}$
04202 E

e + $N_2$
03402 T

e + Na
03135 E

e + $Na^{+}$
04036 E

e + $Na^{9+}$
03237 E

e + Ne
03110 E 03181 E 03527 T

e + $Ne^{2+}$
03340 E

e + $Ne^{6+}$
03751 E

e + $Ne^{7+}$
03751 T 04032 E

e + Ni
03481 T

e + $Ni^{+}$
03542 E

e + $O^{4+}$
03715 T

e + $O^{5+}$
03805 T 04037 T

e + $O_2$
03181 E

e + $Sb^{+}$
03416 E

e + $Sb^{2+}$
03416 E

e + Si
03181 E

e + $Si^{13+}$
03662 T

e + Sn
03645 E

e + $Sr^{+}$
03102 T

e + $Ti^{+}$
04033 E

e + $Ti^{2+}$
03398 E 04033 E

e + $Ti^{12+}$
03715 T

e + Xe
03608 E 04011 E 04015 E

e + $Xe^{2+}$
03340 E

e + Yb
03614 E 04125 E

e + $Yb^{+}$
03614 E

Undef
03619 T

E06

ELECTRON-PARTICLE INTERACTION

Recombination (electron-ion)

e + $Ar^{+}$
04144 T

e + $Ar^{7+}$
03411 E

e + $Ar^{8+}$
03411 E

e + $Ar^{9+}$
03411 E

e + $Ar^{10+}$
03411 E

e + $Ar^{11+}$
03411 E

e + $Ar^{15+}$
03368 T  04170 T

e + $Ar^{16+}$
03294 T  03344 T  03368 T
04170 T

e + $Ar^{17+}$
04170 T

e + $B^{2+}$
03215 T  03543 T

e + Be Seq
04192 T

e + $C^{3+}$
03215 T

e + $C^{5+}$
03543 T

e + $Ca^{+}$
03543 T

e + $Ca^{19+}$
03662 T

e + $CO^{+}$
03137 E

e + $D_3^{+}$
03397 E

e + $Fe^{7+}$
04157 T

e + $Fe^{8+}$
04157 T

e + $Fe^{9+}$
04157 T

e + $Fe^{10+}$
04157 T

e + $Fe^{11+}$
04157 T

e + $Fe^{12+}$
04157 T

e + $Fe^{13+}$
04157 T

e + $Fe^{14+}$
04157 T

e + $Fe^{15+}$
04157 T

e + $Fe^{16+}$
04157 T

e + $Fe^{17+}$
04157 T

e + $Fe^{18+}$
04157 T

e + $Fe^{19+}$
04157 T

e + $Fe^{20+}$
04157 T

e + $Fe^{21+}$
04157 T

e + $Fe^{22+}$
04157 T  04192 T

e + $Fe^{23+}$
03368 T  04157 T

e + $Fe^{24+}$
03294 T  03368 T

e + $Fe^{25+}$
03662 T

e + $H^{+}$
03199 T  03911 T

e + $H_2^{+}$
03111 T  03146 T  04040 T

e + $H_3^{+}$
03097 E  03895 E

e + $HD_2^{+}$
03397 E

e + $Kr^{35+}$
03662 T

e + $Mg^{+}$
03543 T  03652 T  04039 T

e + $Na^{+}$
03496 T

e + $Na^{2+}$
03496 T

e + $Na^{3+}$
03496 T

e + $Na^{4+}$
03496 T

e + $Na^{5+}$
03496 T

e + $Na^{6+}$
03496 T

e + $Na^{7+}$
03496 T

e + $Na^{8+}$
03496 T

e + $Na^{9+}$
03496 T

e + $Na^{10+}$
03496 T

e + $O^{5+}$
03215 T

e + $O^{6+}$
03552 T

e + $Rb^{+}$
03911 T

e + $S^{5+}$
04038 E

e + $S^{13+}$
03368 T

e + $Si^{4+}$
04157 T

e + $Si^{5+}$
04157 T

e + $Si^{6+}$
04157 T

e + $Si^{7+}$
04157 T

e + $Si^{8+}$
04157 T

e + $Si^{9+}$
04157 T

e + $Si^{10+}$
04157 T

e + $Si^{11+}$
03368 T  04157 T

e + $Si^{12+}$
04157 T

e + $Si^{13+}$
03662 T

e + $Y^{19+}$
03368 T

e + $Y^{20+}$
03368 T

e + $Y^{21+}$
03368 T

Undef
03360 T  03551 T  03722 T

E07

ELECTRON-PARTICLE INTERACTION

Collisional De-Excitation

e + He*
04307 E

e + Ne*
03632 T

e + Ne**
03751 T

e + Ne7**
03751 T

e + Pb*
03605 T

E08

ELECTRON-PARTICLE INTERACTION

Collisional Line Broadening

e + B3+
04280 T

e + H
03535 T

E09

ELECTRON-PARTICLE INTERACTION

Negative Ion Formation

e + $D_2$
03492 T 03567 T 03829 T

04274 E-T

e + $H_2$
03482 T 03567 T 03829 T

04028 T 04274 E-T

E11

ELECTRON-PARTICLE INTERACTION

Free-Free Transitions (Bremsstrahlung)

e + Ar
03548 E 03647 T

e + Hg
03789 E-T

e + Kr
03789 E-T

e + La
04291 T

e + Xe
03789 E-T 04291 T

Undef
03378 T

E16

ELECTRON-PARTICLE INTERACTION

Fluorescence and Luminescence

e + Li
03791 E

E17

**ELECTRON-PARTICLE INTERACTION**

**Angular Scattering (specified process)**

e + Ag
03481 T

e + Al
03925 T

e + Ar
03490 T 03526 T 03577 E
03925 T 04166 T

e + Au
03481 T

e + $C_2H_2$
03529 E

e + $C_2H_4$
03590 E

e + $CH_4$
03271 E-T 03590 E 03666 E
03916 E 03935 T 04022 E
04023 E

e + CO
03579 E

e + Cu
03481 T

e + H
03178 T 03270 E-T 03273 T
03276 T 03352 T 03480 T
03533 T 03634 T 03651 T
03708 T 03820 T 03823 T
03826 T 03830 T 03833 T
03922 T 03927 T 03934 T
03999 T 04005 T 04014 T
04016 T 04313 E

e + H*
03593 T

e + $H_2O$
03271 E-T

e + $H_2$
03223 T 03397 E 03407 T
03510 T 03670 T 03719 T
03738 T 03828 T 03930 T
04019 T 04026 T 04311 T
04312 E

e + He
03096 T 03133 E 03178 T
03224 T 03260 E 03326 T
03435 T 03502 T 03509 T
03565 T 03631 E 03794 T
03941 T 04003 T 04007 E
04038 E

e + Hg
03925 T

e + K
03634 T 03862 E 04018 T

e + Kr
03479 T 03526 T 03577 E
03608 E

e + Li
03109 T 03134 T 03634 T
03780 T

e + $Li^{2+}$
03835 T

e + $Mg^{+}$
04030 E-T

e + $N_2$
03392 T 03738 T

e + Na
03123 E 03370 E 03634 T
04018 T 04041 E

e + Ne
03110 E 03350 E 03925 T

e + Ni
03481 T

e + $O_2$
04042 E

e + PERT
03291 T

e + Xe
03526 T 03577 E 03638 E
04015 E

E18

**ELECTRON-PARTICLE INTERACTION**

**Attenuation (unspecified process)**

e + Ar
03091 T

E19

**ELECTRON-PARTICLE INTERACTION**

**Momentum Transfer**

e + Ar
03909 E 04166 T

e + $CH_4$
03612 E

e + CO
03271 E-T

e + H
03352 T

e + $H_2$
03719 T 03828 T

e + Kr
03479 T

e + $N_2$
03402 T

e + Ne
03343 E-T

H01

PHOTON COLLISIONS WITH HEAVY PARTICLES AND ELECTRONS ($h\nu$ < 100 keV)

General

$h\nu + D_2$
04173 T

$h\nu + H_2$
04173 T

$h\nu + He$
04173 T

$h\nu + Na$
03293 E

Undef
03205 T

H02

PHOTON COLLISIONS WITH HEAVY PARTICLES AND ELECTRONS ($h\nu$ < 100 keV)

Total Absorption

$h\nu + Au$
03483 E

$h\nu + Ba$
03596 T 03754 E

$h\nu + Be$
03928 E

$h\nu + Cd$
03483 E

$h\nu + Ce$
03773 E

$h\nu + CO_2$
03450 E

$h\nu + Cs$
03099 E 04147 E

$h\nu + Er$
03773 E

$h\nu + H_2$
03174 E-T 04300 E

$h\nu + Ho$
03773 E

$h\nu + K$
03099 E 04147 E

$h\nu + N_2$
04154 T

$h\nu + Na$
03099 E

$h\nu + Ne$
03597 E-T

$h\nu + O_2$
03303 E

$h\nu + Pb$
03483 E

$h\nu + Pr$
03773 E

$h\nu + Pt$
03361 T 03483 E

$h\nu + Rb$
03099 E

$h\nu + Rh$
03361 T

$h\nu + Sb$
04147 E

$h\nu + Si$
03893 E

$h\nu + Sm$
04147 E

$h\nu + Tm$
03483 E

$h\nu + Y$
04147 E

$h\nu + Yb$
03483 E

$h\nu + Zr$
03483 E

$2h\nu + Be$
03675 T

$2h\nu + Na$
03721 E

Undef
03748 T

H03

PHOTON COLLISIONS WITH HEAVY PARTICLES AND ELECTRONS ($h\nu$ < 100 keV)

Elastic Scattering

$h\nu + Al$
03710 E

$h\nu + Cd$
03710 E

$h\nu + CH_4$
03539 T

$h\nu + CO_2$
03300 E-T

$h\nu + Cu$
03710 E

$h\nu + D_2$
03872 E

$h\nu + He$
03803 T

$h\nu + H_2$
03872 E

$h\nu + HD$
03872 E

$h\nu + Pb$
03710 E

$h\nu + Zn$
03710 E

Undef
03726 T

H04

PHOTON COLLISIONS WITH HEAVY PARTICLES AND ELECTRONS ($h\nu$ < 100 keV)

Excitation

$h\nu$ + Ba
03202 E 03583 E 04185 E

$h\nu$ + Be
03674 T

$h\nu$ + C
03075 T

$h\nu$ + $C^{2+}$
03438 T

$h\nu$ + Ca
03466 T

$h\nu$ + $Ca^{16+}$
03165 T

$h\nu$ + $Ca^{17+}$
03165 T

$h\nu$ + $Ca^{18+}$
03165 T

$h\nu$ + $Co^{23+}$
03165 T

$h\nu$ + $Co^{24+}$
03165 T

$h\nu$ + $Co^{25+}$
03165 T

$h\nu$ + Cr
04255 E

$h\nu$ + $Cr^{20+}$
03165 T

$h\nu$ + $Cr^{21+}$
03165 T

$h\nu$ + $Cr^{22+}$
03165 T

$h\nu$ + Cs
03200 E

$h\nu$ + Cs + He
03939 T

$h\nu$ + $Cu^{25+}$
03165 T

$h\nu$ + $Cu^{26+}$
03165 T

$h\nu$ + $Cu^{27+}$
03165 T

$h\nu$ + e + H
04121 T

$h\nu$ + F
04253 E

$h\nu$ + $Fe^{22+}$
03165 T

$h\nu$ + $Fe^{23+}$
03165 T

$h\nu$ + $Fe^{24+}$
03165 T

$h\nu$ + Ga
03855 E

$h\nu$ + Ga*
03173 E-T

$h\nu$ + H
03405 T

$h\nu$ + H*
03124 E 03493 T 03884 E
03885 T

$h\nu$ + $H_2$
03851 E

$h\nu$ + He
03515 T 03520 E

$h\nu$ + Hg
03521 E

$h\nu$ + Hg*
03555 E 03556 E-T

$h\nu$ + Mg
03203 T

$h\nu$ + $Mn^{21+}$
03165 T

$h\nu$ + $Mn^{22+}$
03165 T

$h\nu$ + $Mn^{23+}$
03165 T

$h\nu$ + N
03077 T 03341 T

$h\nu$ + Ne*
03467 E

$h\nu$ + $Ni^{24+}$
03165 T

$h\nu$ + $Ni^{25+}$
03165 T

$h\nu$ + $Ni^{26+}$
03165 T

$h\nu$ + $Sc^{17+}$
03165 T

$h\nu$ + $Sc^{18+}$
03165 T

$h\nu$ + Sr
03403 E

$h\nu$ + $Ti^{18+}$
03165 T

$h\nu$ + $Ti^{19+}$
03165 T

$h\nu$ + $Ti^{20+}$
03165 T

$h\nu$ + Tl
03671 E

$h\nu$ + $V^{19+}$
03165 T

$h\nu$ + $V^{20+}$
03165 T

$h\nu$ + $V^{21+}$
03165 T

$h\nu$ + W
03521 E

$h\nu$ + Xe
03983 E

2$h\nu$ + Ba
03636 E

2$h\nu$ + Be
03675 T

2$h\nu$ + Cs
03547 E

2$h\nu$ + $H_2O$
03664 T

2$h\nu$ + K
03549 E

n$h\nu$ + Xe
04171 E

Undef
03233 T 03938 T 04176 T

H05

PHOTON COLLISIONS WITH HEAVY PARTICLES AND ELECTRONS ($h\nu$ < 100 keV)

Dissociation

$h\nu$ + $CH_4$
03409 E

$h\nu$ + $CO_2$
03815 E

$h\nu$ + $D_2O$
03876 E

$h\nu$ + $H_2O$
03815 E 03850 E 03876 E

$h\nu$ + NO
04272 E

$h\nu$ + $O_2^+$
03197 E

$h\nu$ + $O_2$
03147 E 03554 E 03585 E

$h\nu$ + OH
03314 T

2$h\nu$ + $D_2O$
03933 E

2$h\nu$ + $HD^+$
03304 T 03998 T

2$h\nu$ + $H_2O$
03442 E 03903 E

Undef
03369 T 03743 T

H06

PHOTON COLLISIONS WITH HEAVY PARTICLES AND ELECTRONS ($h\nu$ < 100 keV)

Ionization

$h\nu$ + Ag
03919 E

$h\nu$ + Ag*
03536 T

$h\nu$ + Al
03448 E-T

$h\nu$ + $Al^{12+}$
04177 T

$h\nu$ + Ar
03127 T 03362 E 03434 T
03637 T 03654 T 03814 E-T
03906 T

$h\nu$ + Ar*
03306 E-T

$h\nu$ + Au
03387 T 03400 E 03483 E
03522 E

$h\nu$ + B
03991 T

$h\nu$ + Ba
03202 E 03305 E 03486 E
03989 E 04276 E

$h\nu$ + Ba*
03209 E 03988 E

$h\nu$ + $Ba^{2+}$
03910 T

$h\nu$ + Be
03476 T

$h\nu$ + Be*
03674 T

$h\nu$ + Bi
03387 T 03400 E

$h\nu$ + Ca
03083 E 03115 E 03138 E
03394 T 03466 T

$h\nu$ + Ca*
03209 E

$h\nu$ + Cd
03483 E

$h\nu$ + Ce
03724 E

$h\nu$ + $CH_4$
03409 E 03539 T 03550 E

$h\nu$ + Cl
03987 E

$h\nu$ + $CO_2$
03915 E

$h\nu$ + Cs
03200 E 03755 T

$h\nu$ + Cs+
03910 T

$h\nu$ + Cs*
03990 T

$h\nu$ + Cu*
03536 T

$h\nu$ + Dy
03724 E

$h\nu$ + Er
03724 E

$h\nu$ + Fe
03470 E

$h\nu$ + Ga*
03170 E-T

$h\nu$ + Gd
03724 E

$h\nu$ + H
03568 T

$h\nu$ + H*
03214 E 03464 E

$h\nu$ + $H_2$+
03221 T

$h\nu$ + $H_2O$
03815 E 04262 E

$h\nu$ + $H_2$
03125 T 03174 E-T 03514 T
03888 T 03995 T 04268 E

$h\nu$ + He
03515 T

$h\nu$ + He+
03227 E

$h\nu$ + HF
03514 T

$h\nu$ + Hg
03387 T 03400 E 03531 T
03677 T 03887 T 03986 E
03993 T

$h\nu$ + Hg*
03570 E

$h\nu$ + Ho
03724 E

$h\nu$ + Kr
03104 E

$h\nu$ + La
03724 E

$h\nu$ + $La^{3+}$
03910 T

$h\nu$ + Li
04217 T

$h\nu$ + Li Seq
03295 T

$h\nu$ + Mg
03203 T 03220 T 03406 T

$h\nu$ + Mg*
03220 T

$h\nu$ + Mn
03557 E

$h\nu$ + $N_2$
03311 E 03372 T 03514 T
03538 E 03766 T 03994 T

$h\nu$ + Na
03212 E 03230 T 03387 T
03646 T 03676 T 03744 T
03886 T

$h\nu$ + Na*
03730 E-T 03992 T

$h\nu$ + Nd
03724 E

$h\nu$ + Ni
03470 E

$h\nu$ + NO
04272 E

$h\nu$ + O
03364 E 03622 E

$h\nu$ + $O_2$
03147 E 03554 E

$h\nu$ + Os
03387 T

$h\nu$ + Pb
03387 T 03400 E 03483 E
03530 T

$h\nu$ + PERT
03465 T

$h\nu$ + Pr
03724 E

$h\nu$ + Pt
03387 T 03483 E

$h\nu$ + Rb+
03911 T

$h\nu$ + Re
03387 T

$h\nu$ + Sm
03724 E

$h\nu$ + Sn
03530 T

$h\nu$ + Sr
03403 E 04186 E

$h\nu$ + Sr*
03209 E

$h\nu$ + Ta
03387 T 03400 E

$h\nu$ + Th
03387 T 03400 E

$h\nu$ + Ti
03470 E

$h\nu$ + Tl
03387 T 03400 E

$h\nu$ + Tm
03483 E

$h\nu$ + U
03387 T 03400 E

$h\nu$ + W
03387 T 03400 E

$h\nu$ + Xe
03104 E 03366 E 03545 E
03654 T 03727 E 03814 E-T
03910 T 03945 T 03985 E

$h\nu$ + Yb
03387 T 03483 E 03598 E

hν + Zn
03256 E 03470 E

hν + Zr
03483 E

2hν + Ba
03410 E

2hν + Ca
03083 E

2hν + Cs
03087 T

2hν + H
03365 T

2hν + H*
03584 T

2hν + K
04179 E

2hν + Na
04179 E

2hν + Ne+
04308 E

3hν + C
03320 E

3hν + Ca
03083 E

3hν + $H_2$
03242 E

3hν + Pu
03866 E

4hν + H
03393 T

5hν + $H_2$
03639 E

6hν + Kr
03452 T

nhν + Ar
03386 E-T 03485 E 03516 T

nhν + Ca
03638 T

nhν + Cs
03213 E

nhν + Eu
03485 E

nhν + H
03452 T 03940 T

nhν + He
03485 E

nhν + Hg
03485 E

nhν + I
03485 E 03516 T

nhν + K
03615 E

nhν + Kr
03485 E 03516 T

nhν + Na
03363 E 03615 E

nhν + Ne
03084 E 03485 E

nhν + NO
03731 T 04184 E

nhν + Sr
03569 E

nhν + U
03485 E 03516 T

nhν + Xe
03084 E 03485 E 03516 T
03572 T 04171 E 04183 E

nhν + Yb
03485 E

Undef
03609 T 03722 T 03759 T
03778 T

H07

**PHOTON COLLISIONS WITH HEAVY PARTICLES AND ELECTRONS (hν < 100 keV)**

**Photodetachment**

hν + Co−
03206 T

hν + Cr−
03206 T

hν + Fe−
03206 T

hν + H−
03591 T 03673 T 03734 T
03758 E 04217 T

hν + He−
03864 E 03996 E 03997 E

hν + I−
03910 T

hν + Ir−
03206 T

hν + Li−
03757 E

hν + Mo−
03206 T

hν + Nb−
03206 T

hν + Ni−
03206 T

hν + Rh−
03206 T

hν + S−
03382 E-T

hν + Ta−
03206 T

hν + Ti−
03206 T

hν + V−
03206 T

hν + W−
03206 T

hν + Zr−
03206 T

2hν + H−
03673 T

H08

PHOTON COLLISIONS WITH HEAVY PARTICLES AND ELECTRONS ($h\nu$ < 100 keV)

Fluorescence

$h\nu$ + K
03286 E-T

$h\nu$ + Au
03522 E 04303 E

$h\nu$ + Ba
03103 E

$h\nu$ + Bi
04303 E

$h\nu$ + Cs
03200 E

$h\nu$ + $H_2O$
03850 E

$h\nu$ + Li
03234 T

$h\nu$ + Na
03212 E 04175 E-T

$h\nu$ + Ne
03597 E-T

$h\nu$ + $O_2$
03554 E

$h\nu$ + Ta
04303 E

$h\nu$ + Tl
04303 E

$h\nu$ + W
04303 E

Undef
03235 T 03369 T 04174 T

H11

PHOTON COLLISIONS WITH HEAVY PARTICLES AND ELECTRONS ($h\nu$ < 100 keV)

Free-Free Absorption or Inverse Bremsstrahlung

$h\nu$ + Mg
03287 T

$h\nu$ + Na
03290 E-T

J01

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03338 T

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03339 E

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03875 E

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03297 E

Ionization
04258 T 04259 T

Rate coefficients
04139 E-T

J02

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Dielectronic recombination
04138 E-T

Electron impact
03813 T

Excitation
03813 T 04257 T

Hydrogen rate coefficients
03436 E-T

Ionization
03439 E-T 03513 E 04137 E-T

Rate coefficients
04136 E-T

Recombination
03439 E-T

J03

DATA COMPILATION

Photons

H Stark broadening
03269 T

Photoionization
03296 T

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DATA COMPILATION

Particles on Surfaces and Solids

Electron ejection
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e + $N_2$
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03348 T 04237 E 04246 E
04247 E

Electron capture into excited states
03347 E-T

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04134 T

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03590 E-T

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