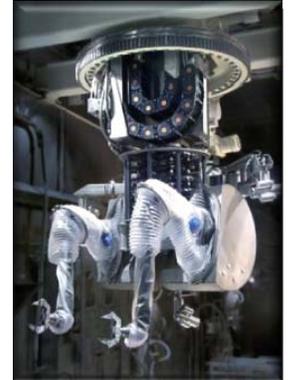


Nuclear Science and Technology Division

The Nuclear Science and Technology Division (NSTD) is committed to leadership-class research and development that integrates the division's comprehensive staff expertise, strategic resources, and facility capabilities to address the needs and interests of a diverse set of sponsors.



Servomanipulator



Irradiation Experiment Capsule



REDC

Capabilities

Key facilities used in research include the following:

- Capsule Assembly Laboratory
- High Flux Isotope Reactor (HFIR)
- Materials Irradiation Facility
- Oak Ridge Electron Linear Accelerator (ORELA)
- Radiochemical Engineering Development Center (REDC)



Materials Irradiation Facility



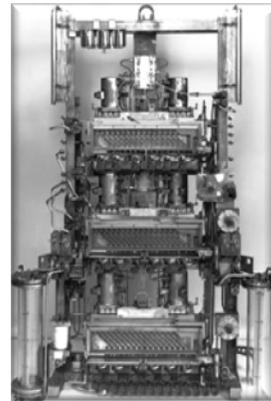
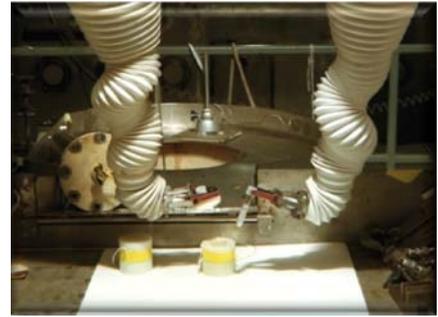
ORELA



Fuels, Isotopes, and Nuclear Materials

Our research teams are advancing the applications of medical, industrial, and research isotopes; developing separation sciences for the processing of isotopes and nuclear materials, including spent fuel recycling; and designing robotic systems and unique facilities for the safe handling of nuclear materials. Some examples are the following:

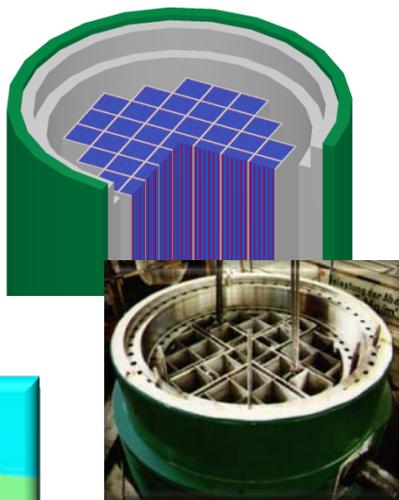
- Spent fuel recycling
- Nuclear materials processing and equipment design
- Robotics and remote handling
- Separation science and technology
- Medical isotope development
- Stable and radioactive isotopes
- Heavy element production
- Nuclear fuels



Nuclear Modeling, Design, and Safety

ORNL is solving a wide range of critical problems in nuclear science and engineering technology through application of computational modeling, experiment design, and staff expertise with operating nuclear systems. State-of-the-art solutions are developed through integrated capabilities in these areas:

- Nuclear computational methods and data
- Advanced reactor systems and controls
- Reactor and facility safety
- Radiation transport and reactor physics
- Criticality safety
- Nuclear software and data distribution
- Material irradiation experiments
- Thermal hydraulic analysis and experiments



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