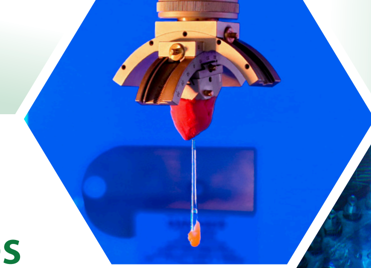

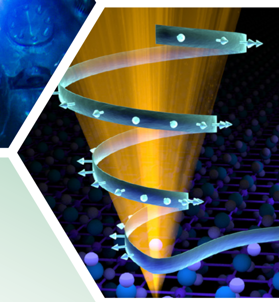

HFIR: Providing unique capabilities for research and isotope production

The High Flux Isotope Reactor (HFIR) is the most powerful reactor-based source of neutrons in the United States. The reactor was constructed in the 1960s to fulfill the need for producing "heavy" elements such as plutonium and curium.

Today, HFIR has four primary missions:

- Neutron scattering
- Isotope production
- Irradiation materials testing
- Neutron activation analysis

HFIR operates with high predictability. Its capabilities enable the exploration of the molecular and magnetic structures and behaviors of materials including high-temperature superconductors, polymers, metals, and biological samples.

The facility's high flux provides a unique source used for medical, industrial, and research isotope production, in addition to researching severe neutron damage to materials and neutron activation to examine trace elements.

ORNL Resources

Research capabilities at HFIR are enhanced by the proximity of other ORNL user facilities. Major user facilities include:

- Spallation Neutron Source
- Center for Nanophase Materials Sciences
- Oak Ridge Leadership Computing Facility
- Center for Structural Molecular Biology
- Bio-Deuteration Laboratory

Located at SNS are two additional facilities that benefit users:

- The Shull Wollan Center—a joint institute for neutron sciences, established in conjunction with the University of Tennessee
- The ORNL Guest House accommodates overnight visits for users

User Program

Each year, two calls for proposals are issued. Submissions are peer reviewed by external panels, with recommendations based on scientific and technological impact, feasibility, and safety.

For more information, visit neutrons.ornl.gov/users.

Contact Us

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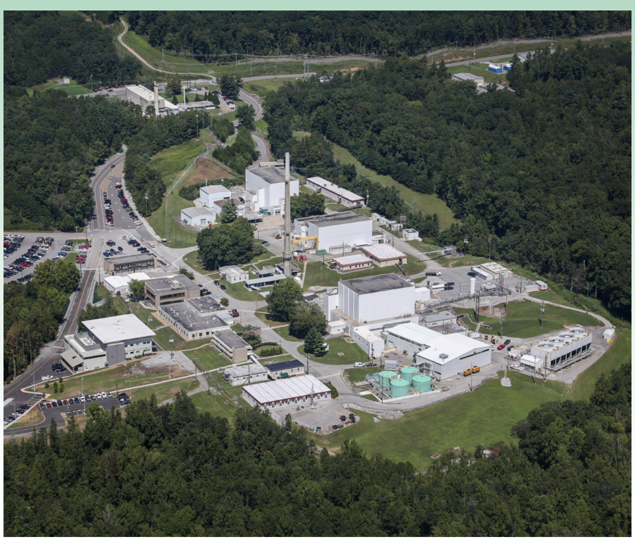

Sponsor

US Department of Energy, Office of Basic Energy Sciences

Features

- 85 MW steady-state source
- Peak thermal flux of 2.6 x 10^{15} neutrons/cm^2/sec
- On average provides 3,900 hours of beam time annually
- 12 neutron scattering instruments
- Hundreds of users conduct 300 experiments annually
- Over 1,300 materials and neutron activation analysis irradiations annually

Users

Scientists and engineers from universities, industries, and government laboratories.