



The next generation of materials research

*SNS site including support facilities and the Center for Nanophase Materials Sciences.*

**Purpose:** Provide intense neutron beams for research on the structure and dynamics of materials in fields such as physics, chemistry, materials science, and biology

**Sponsor:** U.S. Department of Energy, Office of Basic Energy Sciences

**Features:**

- Eventual 1.4-MW beam power at 60 Hz
- 25 instruments in operation, under design or construction, or planned

**Users:** Scientists and engineers from universities, industries, and government laboratories around the world

**Other North American Neutron Facilities:**

- Los Alamos Neutron Science Center
- National Institute of Standards and Technology Center for Neutron Research
- Canadian Neutron Beam Centre



neutrons.ornl.gov

## Spallation Neutron Source

SNS is an accelerator-based neutron source. This one-of-a-kind facility provides the most intense pulsed neutron beams in the world. When ramped up to its full beam power of 1.4 MW, SNS will be eight times more powerful than today's best facility. It will give researchers more detailed snapshots of the smallest samples of physical and biological materials than ever before possible.

### Capabilities

With the eventual SNS suite of up to 25 best-in-class instruments, scientists will be able to count scattered neutrons, measure their energies and the angles at which they scatter, and map their final positions. SNS will allow measurements of greater sensitivity, higher speed, higher resolution, and in more complex sample environments than have been possible at existing neutron facilities.

### Neutron Scattering Science User Program

Each year the User Office issues two calls for proposals. Submissions are peer-reviewed by external panels, with recommendations based on scientific and technological impact and the experience of the research team. Experiments are also reviewed by a safety committee and are approved by the director of the Neutron Scattering Science Division.

Meeting the needs of users is paramount at SNS. To find out more or to provide input on the Neutron Scattering Science User Program, contact [neutronusers@ornl.gov](mailto:neutronusers@ornl.gov) or visit our Web site at [neutrons.ornl.gov](http://neutrons.ornl.gov).

### Additional Nearby Facilities

Research capabilities at HFIR and SNS are enhanced by the proximity of other ORNL user facilities, most with the same access and training requirements. One of our major goals is to improve integration between the facilities, making it easier for users to access the support they need. Major user facilities at ORNL include the following:

- Center for Structural Molecular Biology
- Bio-Deuteration Laboratory
- Center for Nanophase Materials Sciences
- National Center for Computational Sciences
- Shared Research Equipment User Facility
- High Temperature Materials Laboratory

Located at the SNS site are two additional facilities that benefit users:

- The Joint Institute for Neutron Sciences, established in conjunction with The University of Tennessee, is an intellectual center for neutron users.
- The ORNL User Housing Facility accommodates overnight visits for users.



*Valeria Lauter and Hailemariam Ambaye at the SNS Magnetism Reflectometer.*



*Candice Halbert, Scientific Associate for the SNS Liquids Reflectometer.*