



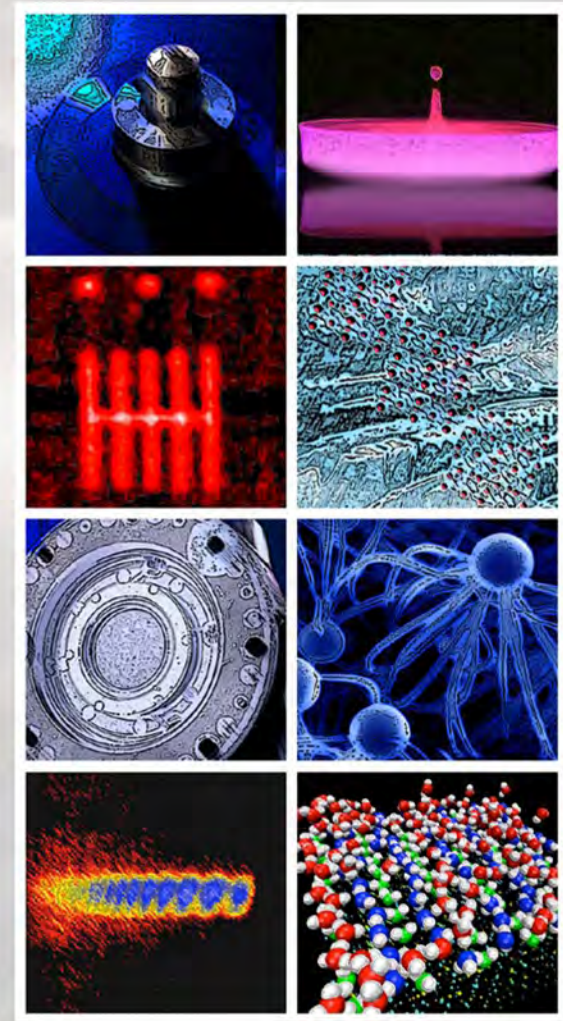
Spallation Neutron Source

The next generation of materials research

SNS at a Glance

Location	Oak Ridge National Laboratory Oak Ridge, Tennessee USA
Sponsor	U.S. Department of Energy Office of Basic Energy Sciences
Design and construction cost	\$1.4 billion
Research and support staff	450
Visiting scientists	2000 annually when all instruments are online
Scientific instruments	25
Scientific purpose	Provide unique information about the structure and dynamics of materials at the atomic level

neutrons.ornl.gov

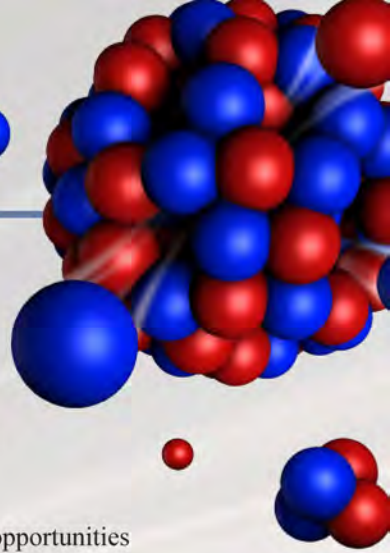


The potential to change our lives

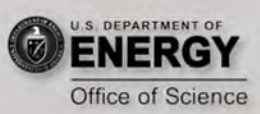
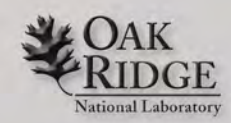
Oak Ridge National Laboratory operates the Spallation Neutron Source, one of the world's foremost facilities for the study of materials. Built and funded by the U.S. Department of Energy Office of Basic Energy Sciences, SNS provides the most intense pulsed neutron beams in the world for scientific and industrial research and development.

Experts in practically every scientific and technical field can take advantage of the opportunities provided by SNS. An intense beam of neutrons is delivered to an advanced suite of up to 25 instruments, providing researchers with more detailed information about smaller samples of physical and biological materials than ever before possible.

The capabilities of SNS will enable scientific breakthroughs that will enrich our lives in ways we haven't yet imagined.



Neutron scattering was pioneered at ORNL by Clifford G. Shull, who later received a Nobel Prize for his work. Today, ORNL attracts neutron scattering researchers from all over the world.



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OAK RIDGE NATIONAL LABORATORY

MANAGED BY UT-BATTELLE FOR THE U.S. DEPARTMENT OF ENERGY

A brighter future

Neutron scattering research is leading to the improvement of many products and technologies that are part of everyday life.

Scientific and technological discoveries at SNS will provide lasting benefits to the scientific, business, and industrial communities, leading to advances such as

- Medical implants that last indefinitely, reducing the need for additional surgeries
- Drug delivery systems that release a medicine precisely when and where needed by the body
- Lightweight fuel cells that power emission-free vehicles
- Efficient, nonpolluting industrial plants
- Economical energy from abundant sources such as the sun and water

Transportation

Lighter, more efficient motors for powering hybrid and electric vehicles

High-speed (over 300 mph) trains powered by electromagnetism rather than petroleum



Electronics

Better optical fibers for telecommunication equipment

Techniques for developing smaller, more durable devices for computers and other electronics

Environment

Environmentally friendly processes for manufacturing plastics that produce less toxic waste

Chemical production processes that create less greenhouse gas

Medicine

Advanced treatments for the protein abnormalities that cause diseases such as Alzheimer's and Parkinson's

Synthetic biomaterials for more effective drugs and methods for diagnosing disease

Engineering

Safer designs and more durable materials for machinery, bridges, and nuclear power plants

Stronger materials and improved techniques that reduce stresses in welded equipment and structures

Manufacturing

Improved thin films for use in batteries, electronic semiconductors, and packaging materials

Better understanding of the health and environmental effects of "engineered" materials used in manufacturing

Polymers

Coatings that continually kill germs that land on surfaces such as doorknobs and counters

New polymer-based materials for solar cells

