

Second Target Station: Enabling New, World-Leading Neutron Science

Leadership in materials science will advance future technologies in energy, security, and other vital applications that drive the nation's economy. The Spallation Neutron Source is adding a Second Target Station that will provide transformative capabilities for more advanced studies of a wide range of materials and enable breakthrough discoveries in many areas of materials research and development. The Second Target Station will support basic and applied research in materials science, physics, chemistry, biology, engineering, and many other fields by scientists from academia, government laboratories, and industry.

Benefits of the Second Target Station

- Accelerate discovery in quantum matter, polymers and soft materials, biology and life sciences, energy materials, structural materials, and other scientific fields
- Enable innovative neutron experiments, under more extreme conditions, using smaller samples
- Provide the world's brightest "cold" (lower-energy) neutrons to study more complex materials
- Leverage ORNL's existing neutron facilities and expertise

Neutrons: An Essential Research Tool for Technology, Industry, and More

Oak Ridge National Laboratory has pioneered neutron research since 1944. Today, the laboratory operates the SNS (the most intense accelerator-based pulsed neutron source in the world) and the High Flux Isotope Reactor (a reactor-based neutron source that provides the brightest continuous neutron beams for research in the United States). With unique properties, neutrons have helped improve many technologies, including computers, cell phones, transportation, batteries, medical devices, energy production, cancer treatments, and airport shipping and security.

100–1,000x

Better performance
than existing
neutron instruments

22

New, independent
neutron beamlines

4x

Greater range
of usable neutron
wavelengths

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