



DISCOVER: New instrument critical to enabling new discoveries and solutions

The Spallation Neutron Source (SNS) at Oak Ridge National Laboratory (ORNL) is an accelerator-based facility that provides the world's most intense pulsed neutron beams for scientific research and industrial development, attracting top materials researchers from around the globe to conduct experiments they can't perform elsewhere.

Neutron scattering is used in many industries—including automotive, aerospace, steel, defense, industrial materials, energy storage, data storage and biomedicine—to address the major scientific challenges of the 21st century.

Helping to drive the US economy

DISCOVER, a new instrument to be added to the SNS suite of instruments, will help drive the US economy with a critical role in expanding the creation and improvement of materials and structures that affect our daily lives. The discovery of new materials has played an enabling role in all aspects of modern civilization, ushering in new energy, security, health and information technologies.

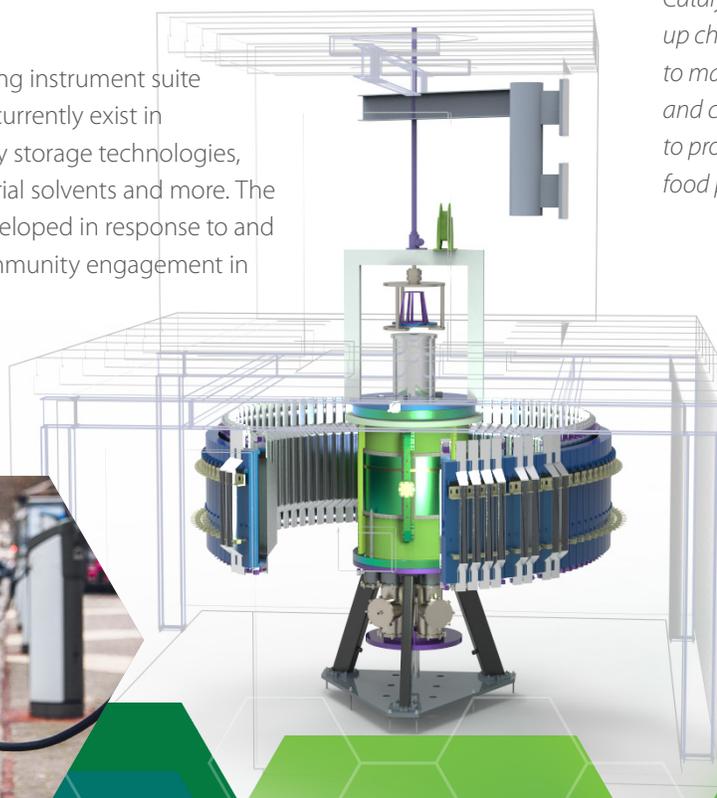
DISCOVER will complement SNS's existing instrument suite and fill the critical capability gaps that currently exist in materials research in the areas of energy storage technologies, transportation, medical devices, industrial solvents and more. The DISCOVER instrument concept was developed in response to and involving a wide range of scientific community engagement in many forms, which began in 2013.

Benefits of DISCOVER

- Helps address the ever-increasing demand for portable electronic devices and electric/hybrid vehicles, which mandates the development of next-generation energy storage devices and the new materials this requires.
- Develops new and more effective catalysts and sorbents for the biofuel and other chemical processing industries. Sorbents and catalysts contribute over \$1 trillion to the GDP.*
- Enables new scientific capabilities supported by the scientific community.
- Maintains US leadership in the neutron sciences.

**Sorbents— materials used to absorb liquids or gases—can be used to clean up chemical and acid spills, for example.*

Catalysts—materials used to speed up chemical reactions—are used to make car engines more efficient and cleaner and are used in industry to produce fertilizers for the world's food production.



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