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Scientific user facilities at Oak Ridge National Laboratory: New research capabilities and opportunities¹

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Over the past decade, Oak Ridge National Laboratory (ORNL) has transformed its research infrastructure, particularly in the areas of neutron scattering, nanoscale science and technology, and high-performance computing. New facilities, including the Spallation Neutron Source, Center for Nanophase Materials Sciences, and Leadership Computing Facility, have been constructed that provide world-leading capabilities in neutron science, condensed matter and materials physics, and computational physics. In addition, many existing physics-related facilities have been upgraded with new capabilities, including new instruments and a high-intensity cold neutron source at the High Flux Isotope Reactor. These facilities are operated for the scientific community and are available to qualified users based on competitive peer-reviewed proposals. User facilities at ORNL currently welcome more than 2,500 researchers each year, mostly from universities. These facilities, many of which are unique in the world, will be reviewed including current and planned research capabilities, availability and operational performance, access procedures, and recent research results. Particular attention will be given to new neutron scattering capabilities, nanoscale science, and petascale simulation and modeling. In addition, user facilities provide a portal into ORNL that can enhance the development of research collaborations. The spectrum of partnership opportunities with ORNL will be described including collaborations, joint faculty, and graduate research and education.

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