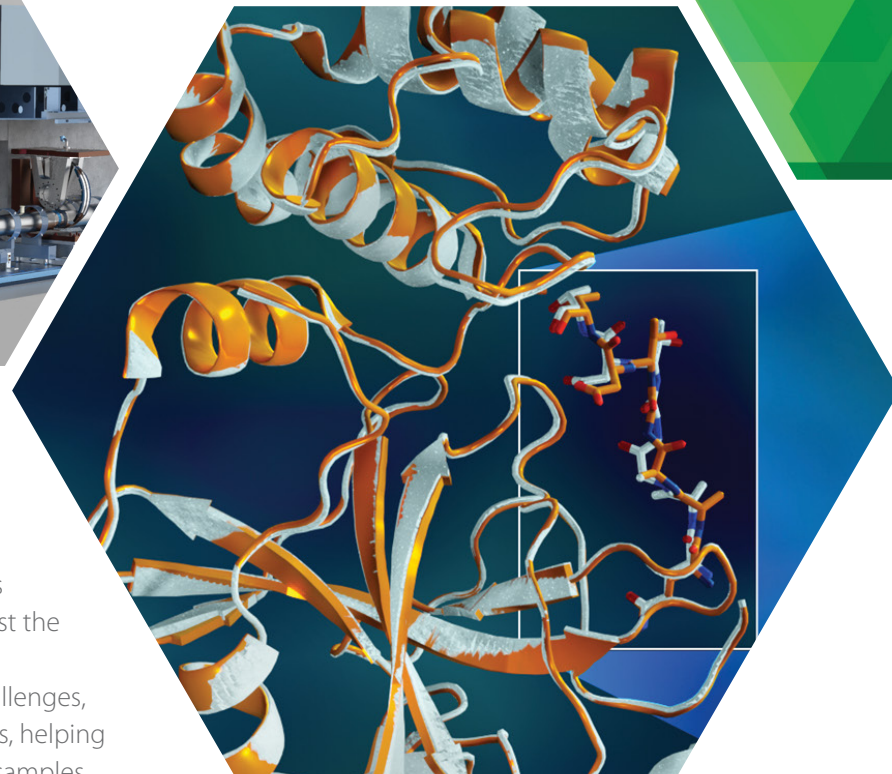


2021

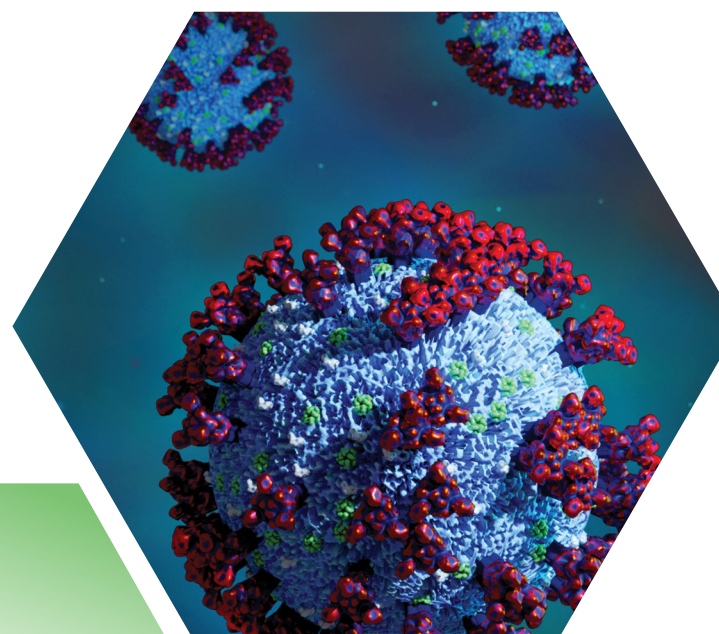
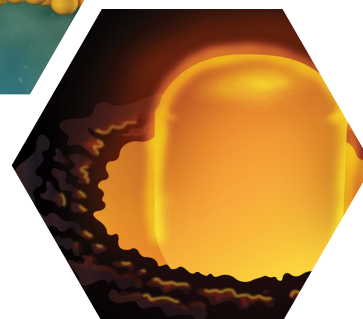
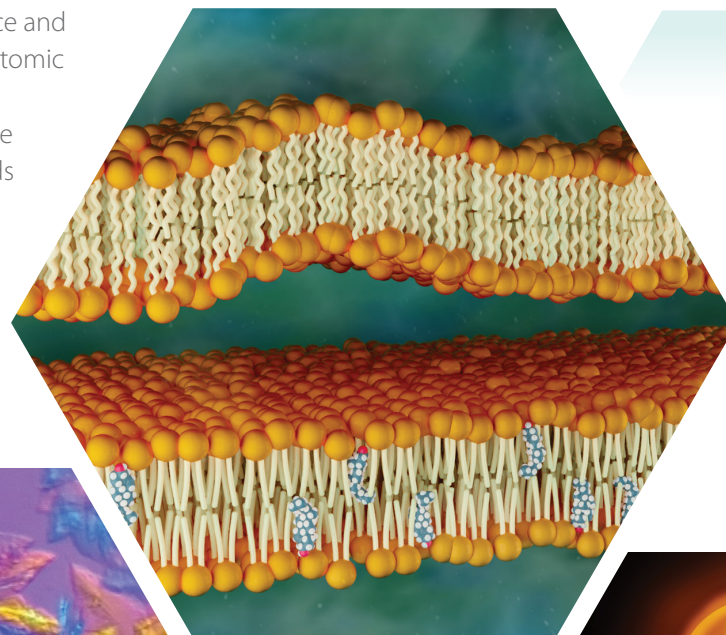


ORNL neutron research to fight COVID-19

Home to two world-leading neutron sources, the Spallation Neutron Source (SNS) and the High Flux Isotope Reactor (HFIR), ORNL was one of the world's first neutron research centers to join the fight against the SARS-CoV-2 virus that causes COVID-19 disease.

Despite the added personal and professional challenges, ORNL staff never stopped accepting mail-in samples, helping users to grow protein crystals, obtaining biological samples, developing simulations and models, applying bioscience and biotechnology expertise, and using neutrons to study atomic and molecular structures.

COVID-19 related studies conducted at ORNL include characterizing the interactions of viral proteins and lipids with membranes, evaluating the molecular activity of potential therapeutics and drugs, studying pulmonary surfactant inactivation during the immune response against the coronavirus, and performing the first room-temperature x-ray and neutron characterizations of the SARS-CoV-2 main protease.



january

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■ Proposal Call 2021-B closes at noon on March 24.

Rapid Access for COVID-19 experiments

Through a special Rapid Access program for COVID-19 research, ORNL has made available specific neutron beamlines at SNS and HFIR for high-priority neutron research related to the SARS-CoV-2 virus and COVID-19 disease.

Available beamlines include those used for reflectometry, small-angle scattering, macromolecular crystallography, spectroscopy, and imaging. The program supports scientists worldwide doing relevant research across many disciplines.

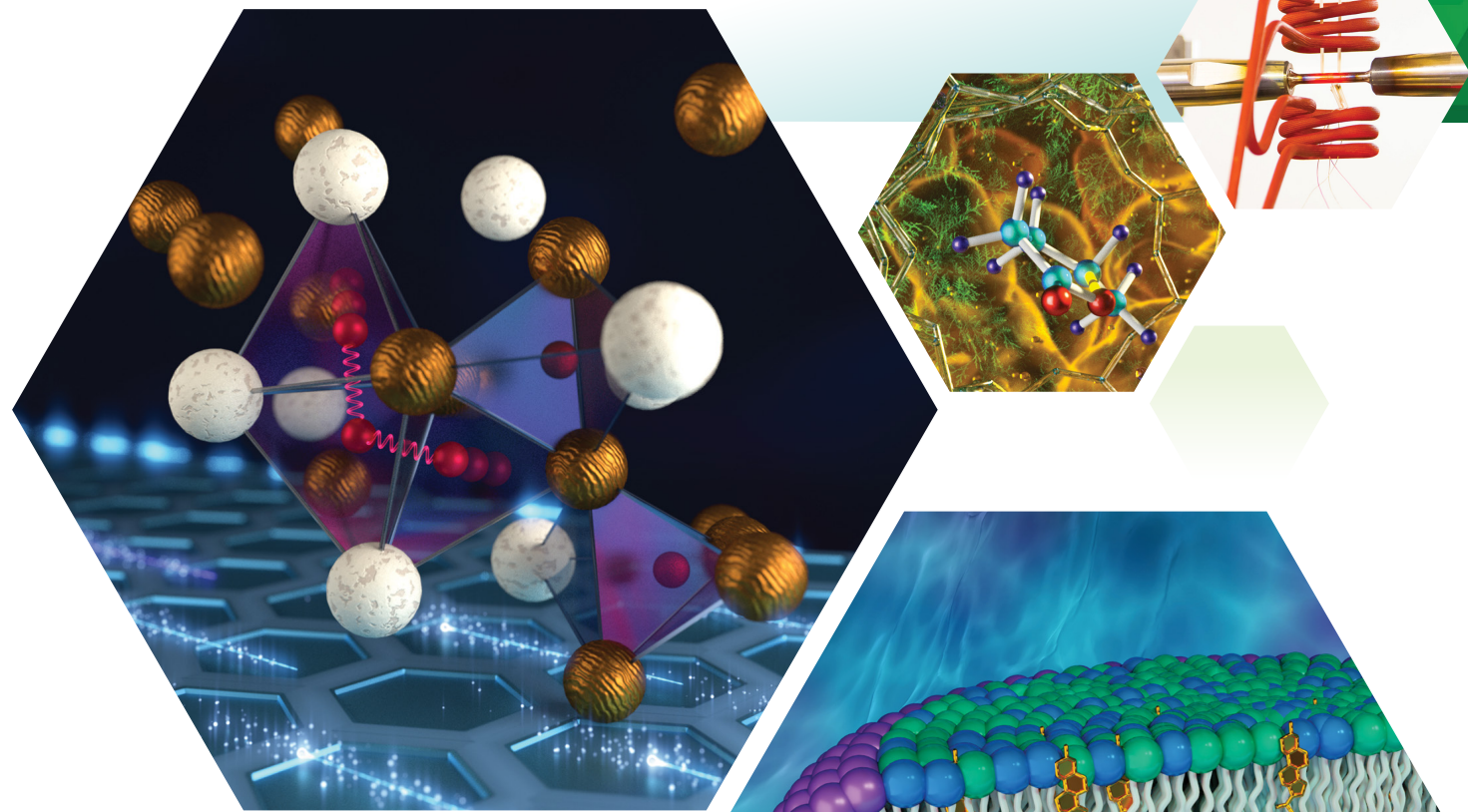
Rapid Access experiments are performed by ORNL staff with optional real-time data monitoring and experiment supervision by the outside users.

The resulting data is securely transmitted to the users for analysis at their own research centers. ORNL staff can collaborate with users in designing the neutron experiments and assist in interpreting and analyzing the data.

Visit go.usa.gov/xGm3p for the proposal form. Send questions to neutronusers@ornl.gov.

Download a copy of this calendar and read about the research featured here at neutrons.ornl.gov/2021scienceposter.

2021



Inviting remote access science proposals

Due to the pandemic, access restrictions remain in place for staff and visitors to the ORNL campus and facilities. However, neutron proposals are invited for remote access studies that can be performed on-site by ORNL neutron science staff.

Remote access allows off-site users and ORNL scientists to stay in contact by phone and video while off-site users can remotely view their data as it is acquired.

Since May 2020, hundreds of remote access neutron experiments unrelated to COVID-19 have been performed at ORNL, including studies of defects in oxides induced by ionizing radiation, single-ion properties in a quasi-1D Ising system, proton transport in high-temperature fuel cell material, and magnetic excitations in a topological insulator.

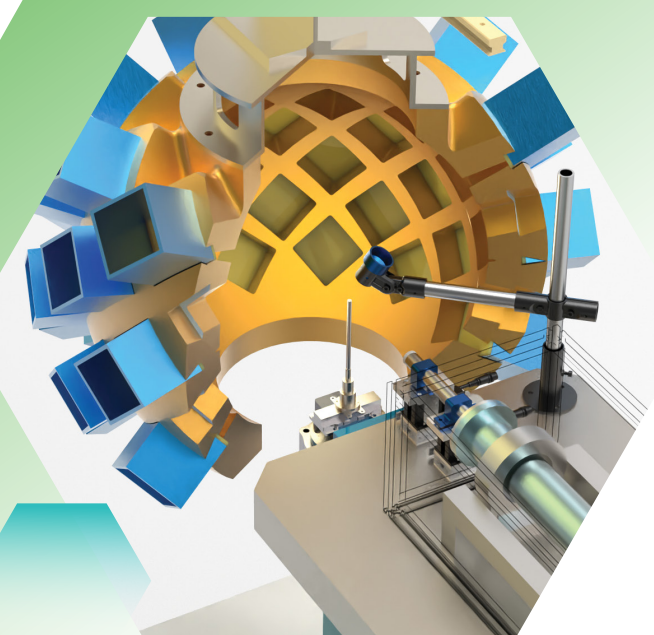
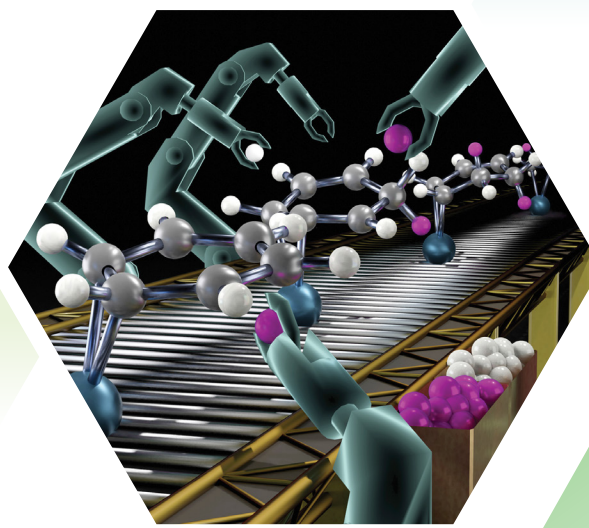
For information on how and when to submit a remote access proposal, visit go.usa.gov/xGpE3.

Download a copy of this calendar and read about the research featured here at neutrons.ornl.gov/2021scienceposter.

july							august							september						
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october							november							december						
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■ Proposal Call 2022-A closes at noon on September 22.



PPU and STS upgrades remain on track

Progress on planning, designing and developing the Proton Power Upgrade (PPU) and Second Target Station (STS) at the SNS facility continues during the pandemic. This is due to the dedication and hard work of the PPU and STS management teams and their staffs.

Initial construction is underway at the SNS accelerator to double proton power capability, by as early as 2024, to provide new capabilities at the First Target Station and to power the STS when completed in the early 2030s.

STS initially will have eight next-generation neutron beamline instruments—eventually up to a total of 22—using the cold (longer wavelength) neutrons needed to study a wider range of materials. Users will be able to conduct experiments on less-concentrated and smaller samples in more extreme environments.

Visit neutrons.ornl.gov/future.