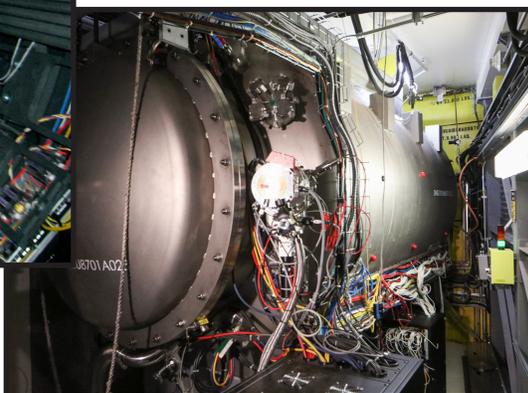
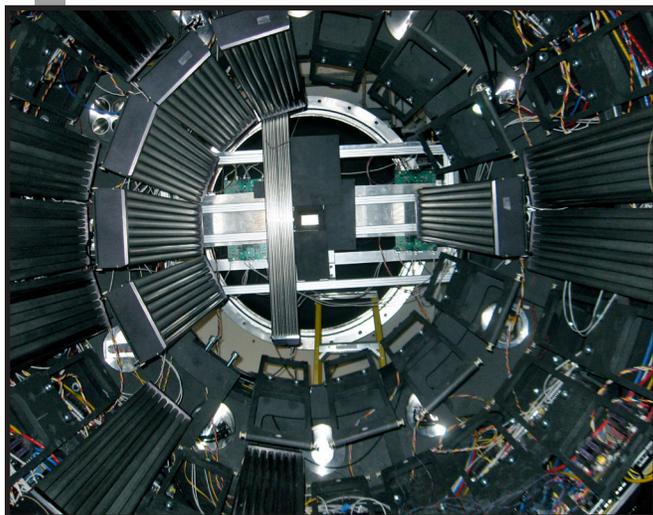




NOMAD – NANOSCALE-ORDERED MATERIALS DIFFRACTOMETER

NOMAD is a high-flux, medium-resolution diffractometer that uses a large bandwidth of neutron energies and extensive detector coverage to carry out structural determinations of local order in crystalline and amorphous materials. The instrument enables studies of a large variety of samples, ranging from liquids and solutions, glasses, and nanocrystalline materials to long-range-ordered crystals. The enhanced neutron flux at SNS, coupled

with the advanced neutron optics and detector features, allows for unprecedented access to high-resolution pair distribution functions, small-contrast isotope substitution experiments, small sample sizes, and parametric studies.



SPECIFICATIONS

Moderator	Decoupled poisoned supercritical hydrogen
Moderator-to-sample distance	19.5 m
Sample-to-detector distance	0.5–3 m
Wavelength range	0.1–3 Å
Detector angular range	3–175° scattering angle
Initial coverage	4.0 sr
Full detector complement	8.2 sr
Flux on sample	$\sim 1 \times 10^8$ neutrons $\text{cm}^{-2} \text{sec}^{-1}$

Status: Available to users

APPLICATIONS

- Environmental (e.g., solvent) effects on and direction of nanoscale structure formation
- In situ structural changes in nanoscale oxide catalysts used in automobile catalytic converters
- Structure of hydrogen storage materials under in situ conditions
- Transient structures of materials under extreme conditions (e.g., at high temperature or high pressure, under the influence of transient fields, or in metastable states)

FOR MORE INFORMATION, CONTACT

Instrument Scientist: Jörg Neufeind, neufeindjc@ornl.gov, 865.241.1635

Instrument Scientist: Dong Ma, dongma@ornl.gov, 865.806.9872

Instrument Scientist: Jue Liu, liuj1@ornl.gov, 865.576.4770

Instrument Scientist: Katharine Page, pagekl@ornl.gov, 505.695.1536

neutrons.ornl.gov/nomad