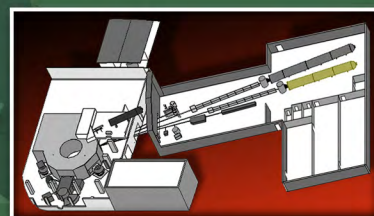


INSTRUMENT

BEAM LINE

CG-3

HIGH FLUX ISOTOPE REACTOR



BIO-SANS – BIOLOGICAL SMALL-ANGLE NEUTRON SCATTERING INSTRUMENT

The Bio-SANS instrument is optimized for analysis of the structure, function, and dynamics of complex biological systems. It is the cornerstone of the Center for Structural Molecular Biology (CSMB) at Oak Ridge National Laboratory. The Bio-

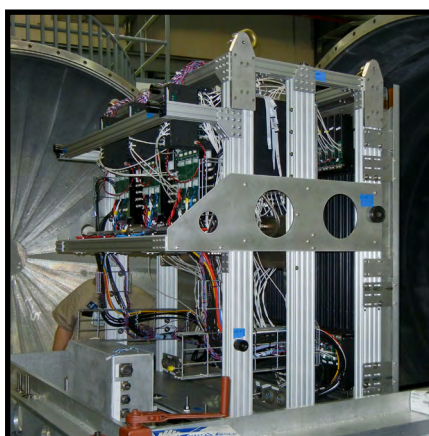
SANS instrument is supported by additional CSMB capabilities that include development of advanced computational tools for neutron analysis and modeling, as well as biophysical characterization and x-ray scattering infrastructure. A dedicated biological sample preparation laboratory is located adjacent to the instrument.



Detector tanks for the SANS instruments at HFIR. The Bio-SANS detector is on the left.

APPLICATIONS

- Biomacromolecules and their assemblies
 - Protein Complexes
 - Viruses
 - Protein/Nucleic Acid/Lipid Complexes
 - Carbohydrate Complexes
- Hierarchical and biomimetic systems
 - Gels
 - Fibers
 - Vesicles
 - Membranes
 - Microemulsions



CG-3 Detector Array

USER ACCESS

Bio-SANS is operated as a user facility and is sponsored by DOE's Office of Biological and Environmental Research. The instrument is managed under the CSMB User Program.

SPECIFICATIONS

Wavelength	$6 < \lambda < 25 \text{ \AA}$
Wavelength resolution	$\Delta\lambda/\lambda = 9\text{--}45\%$
Q range	$0.0009\text{--}1 \text{ \AA}^{-1}$
Sample-to-detector distance	1.1–15.5 m
Detector	2-D linear position-sensitive detector
Detector size	Main detector 1 x 1 m ² Wide angle detector 1 x 0.8 m ²
Detector resolution	Main detector 192 x 256 pixels Wide angle detector 160 x 256 pixels
Max count rate	1 MHz

CENTER CAPABILITIES

Bio-Deuteration Laboratory
Protein production + analysis
HFIR Bio-support Laboratory
Computational tools (Tools for GI SANS analysis)
Small-angle x-ray scattering (Available at SNS)
Light scattering (Available at the Shull Wollan Center for Neutron Sciences Lab)

Status: Available to users

FOR MORE INFORMATION, CONTACT

Instrument Scientist: Volker Urban, urbanvs@ornl.gov, 865.576.7221

Instrument Scientist: Sai Venkatesh Pingali, pingalis@ornl.gov, 865.241.2424

Instrument Scientist: Shuo Qian, qians@ornl.gov, 865.241.1934

neutrons.ornl.gov/biosans