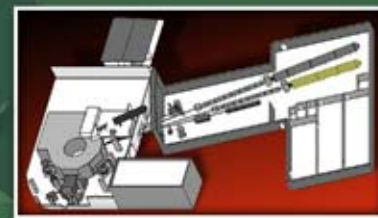


INSTRUMENT

CG-3

BEAM LINE HIGH FLUX ISOTOPE REACTOR



BIO-SANS – BIOLOGICAL SMALL-ANGLE NEUTRON SCATTERING INSTRUMENT

Bio-SANS was designed and optimized for analysis of the structure, function, and dynamics of complex biological systems. Bio-SANS 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 new SANS instruments at HFIR. The Bio-SANS detector is on the left.

APPLICATIONS

- Bio-macromolecules and their assemblies
 - Protein complexes
 - Protein/DNA complexes
 - Lipids
 - Viruses
 - Carbohydrates
- Hierarchical biological structures
 - Gels
 - Fibers and fibrils
 - Vesicles
 - Microemulsions
- Membrane diffraction
- Biomimetic and bio-inspired systems

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.

FOR MORE INFORMATION, CONTACT

Instrument Scientist: Volker Urban, urbanvs@ornl.gov, 865.576.2578

Instrument Scientist: William Heller, hellerwt@ornl.gov, 865.241.5694

Center Director: Dean Myles, mylesda@ornl.gov, 865.574.5662

http://neutrons.ornl.gov/hfir_instrument_systems/factsheet_pdf/Instrument_cg3.pdf

SPECIFICATIONS

Wavelength	$6 < \lambda < 25 \text{ \AA}$
Wavelength resolution	$\Delta\lambda/\lambda = 12-45\%$
Q range	$0.001-1 \text{ \AA}^{-1}$
Sample-to-detector distance	1-15 m
Detector	2-D ^3He
Detector size	1 x 1 m
Detector resolution/pixel size	$5.1 \times 5.1 \text{ mm}^2$
Max count rate	25 kHz

CENTER CAPABILITIES

X-ray scattering
Light scattering
Computational tools
Bio-support lab
Protein production + analysis
Bio-deuteration lab

Status: Operational



<http://www.csmb.ornl.gov>



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