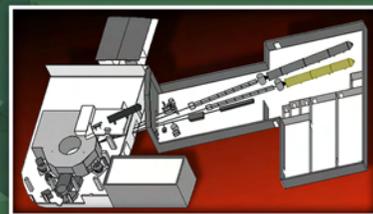


# INSTRUMENT

# CG-3

BEAM LINE HIGH FLUX ISOTOPE REACTOR

# Factsheet



## 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 right.

### 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 information about the CSMB rapid access proposal process, go to [www.csmb.ornl.gov](http://www.csmb.ornl.gov).

### FOR MORE INFORMATION, CONTACT

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[http://neutrons.ornl.gov/hfir\\_instrument\\_systems/factsheet\\_pdf/Instrument\\_cg3.pdf](http://neutrons.ornl.gov/hfir_instrument_systems/factsheet_pdf/Instrument_cg3.pdf)

### SPECIFICATIONS

Wavelength	$6 < \lambda < 30 \text{ \AA}$
Wavelength resolution	$\Delta\lambda / \lambda = 12\text{--}45\%$
Q range	$0.002\text{--}1 \text{ \AA}^{-1}$
Sample-to-detector distance	1–15 m
Detector	2-D $^3\text{He}$
Detector size	1 x 1 m
Detector resolution/pixel size	5.1 x 5.1 mm <sup>2</sup>
Max count rate	200 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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