The Bio-SANS instrument is dedicated to structural analysis of complex biological systems. It is part of the Center for Structural Molecular Biology (CSMB) at Oak Ridge National Laboratory along with the Bio-deuteration Laboratory (BDL). The Bio-SANS instrument with its dual detector system offers users a wide dynamic Q-range (~300) in a single exposure. Users can avail a variety of sample environments for static and in-operando measurements of biomacromolecules and biomaterials.

The SANS instruments at HFIR. Bio-SANS is on the right.

**APPLICATIONS**

- Biomacromolecules and their assemblies
  - Protein Nucleic Acid/Lipid Complexes
- Bio-Membranes
  - Membrane Proteins
  - Liposomes
  - Nanodiscs
- Complex Systems
  - In-Cellulo Studies
  - Viruses
- Biomass & Biofuels
  - Plant cell wall structure & dynamics
- Biomimetic/Bioinspired Systems
  - Microemulsions
  - Micellar systems
  - Gels & fibers

**CSMB CAPABILITIES**

- Biological deuteration (proteins, lipids, and carbohydrates)
- Chemical deuteration (lipids and ligands)
- Small-angle x-ray scattering (Available at SNS)
- Dynamic and light scattering and optical spectroscopy (Available at SNS and Shull Wollan Center)

**SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Wavelength</th>
<th>6 &lt; λ &lt; 25 Å</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wavelength resolution</td>
<td>Δλ/λ = 9–45%</td>
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<tr>
<td>Q range</td>
<td>0.0009–1 Å⁻¹</td>
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<tr>
<td>Sample-to-detector distance</td>
<td>2.25–15.5 m</td>
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<tr>
<td>Detector</td>
<td>2–dimensional linear position-sensitive detector</td>
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<tr>
<td>Detector size</td>
<td>Main detector 1 x 1 m²</td>
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<tr>
<td></td>
<td>Wide angle detector 1 x 0.8 m²</td>
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<tr>
<td>Detector resolution</td>
<td>Main detector 192 x 256 pixels</td>
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<td>Wide angle detector 160 x 256 pixels</td>
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<tr>
<td>Max count rate</td>
<td>1 MHz</td>
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</tbody>
</table>

**USER ACCESS**

Bio-SANS operates an open access user program that is supported by DOE Biological and Environmental Research.

For more information, contact

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