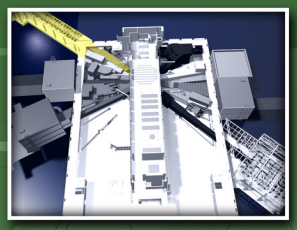
Spallation Neutron Source

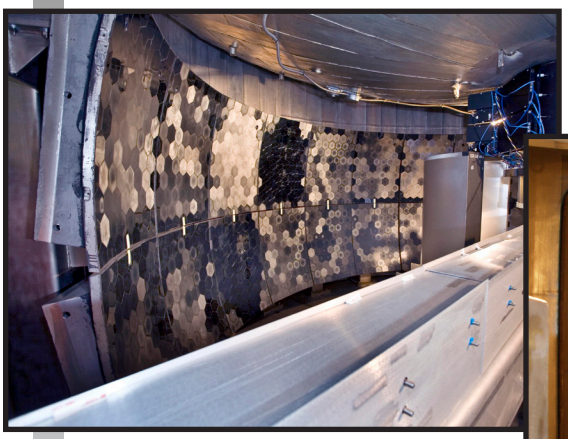
Instrument

Beam Line 2



BASIS – Backscattering Spectrometer

BASIS is designed to provide extremely high-energy resolution near the elastic peak, enabling studies of the diffusive dynamics of atoms / ions / molecules on the atomic length scale (quasi-elastic neutron scattering). This instrument features very high flux and a dynamic range in energy transfer that is approximately five times greater than what is available on comparable instruments today.



Applications

BASIS can be used to probe dynamic processes in various systems on the pico- to nanosecond time scale. It is well suited for probing diffusive and relaxation motions. Applicable fields of study include, but are not limited to, biology, polymers, small molecules, complex fluids, magnetism, materials science, ionic conductors, catalysts, hydrogen storage materials, functional energy-related materials, and low-energy spin excitations.

Specifications

Si 111	
Elastic energy	2.08 meV
Bandwidth	±100 μeV or ±200 μeV
Resolution (elastic)	3.5 μeV
Q range (elastic)	0.2 $Å^{-1}$ < Q < 2.0 $Å^{-1}$
Solid angle	1.8 sr

Si 311	
Elastic energy	7.63 meV
Bandwidth	±660 μeV or ±1700 μeV
Resolution (elastic)	15 μeV
Q range (elastic)	0.4 $Å^{-1}$ < Q < 3.8 $Å^{-1}$
Solid angle	0.6 sr

Status: Available to users

For more information, contact

Instrument Scientist: Eugene Mamontov, mamontove@ornl.gov, 865.771.1387
Instrument Scientist: Niina H. Jalarvo, jalarvonh@ornl.gov, 865.360.0304
Instrument Scientist: Naresh C. Osti, ostinc@ornl.gov, 917.340.1192

neutrons.ornl.gov/basis

OAK RIDGE National Laboratory

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