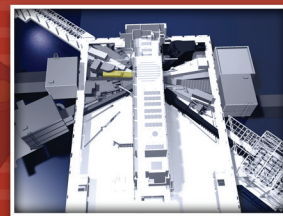


INSTRUMENT

BEAM LINE

4B

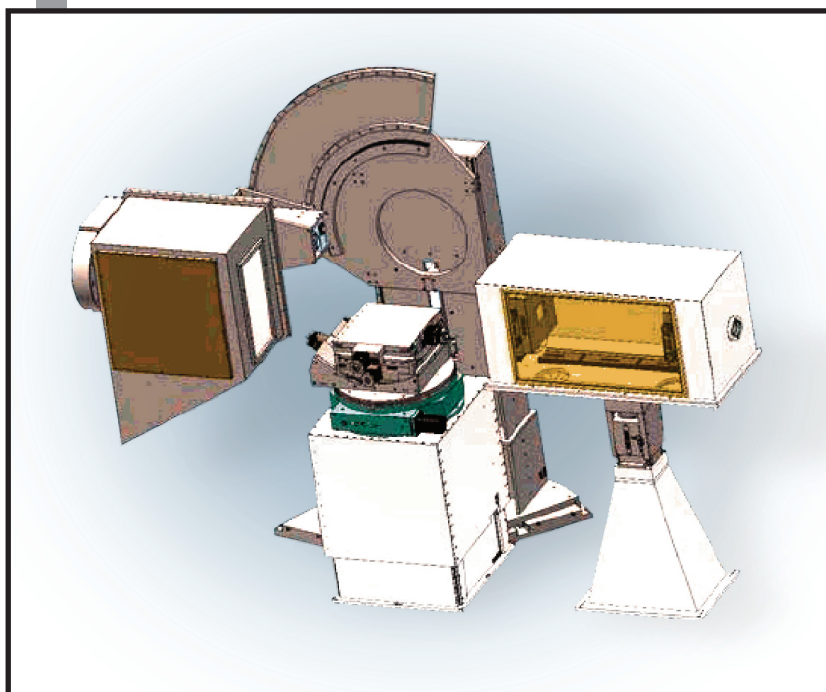
Fact Sheet



LIQUIDS REFLECTOMETER

The liquids reflectometer features a horizontal sample geometry and so can accommodate air/liquid surfaces, in addition to air/solid and liquid/solid interfaces. Active vibration isolation minimizes the capillary-wave production by the external environment. The instrument will be useful for a wide range of science, including interfacial

studies of biomaterials, polymers, and surface chemistry involving thin layers of surfactants or other materials on the surfaces of liquids. Data rates and Q-range covered at a single scattering angle setting will be sufficiently high to permit “real-time” kinetic studies on many systems. Time-resolved experiments include investigations of chemical kinetics, solid-state reactions, phase transitions, and chemical reactions in general.



SPECIFICATIONS

Source-sample distance	13.6 m
Sample-detector distance	1.5 m
Detector size	20 • 20 cm ²
Detector resolution	1.3 mm
Moderator	coupled supercritical hydrogen
Bandwidth	$\Delta\lambda = 3.5 \text{ \AA}$
Wavelength range	$2.5 \text{ \AA} < \lambda < 15.6 \text{ \AA}$
Q range (air/liquid)	$0 \text{ \AA}^{-1} < Q < 0.5 \text{ \AA}^{-1}$
Q range (air/solid)	$0 \text{ \AA}^{-1} < Q < 1.5 \text{ \AA}^{-1}$
Minimum reflectivity	5×10^{-10}

REGENT SIGNIFICANT EVENTS

Instrument Construction

- Concrete pour of sample enclosure walls was completed in August 2005.
- All poured-in-place shielding has been installed.
- Factory acceptance test of 3 disk choppers was successful.

FOR MORE INFORMATION, CONTACT LIQUIDS REFLECTOMETER STAFF

Instrument Scientist: John Ankner, anknerjf@sns.gov, (865) 576-5122

Lead Engineer: Tim Chae, chaet@sns.gov, (865) 241-6740

Designer: Larry Davis, davisle@sns.gov, (865) 241-1751

Scientific Associate: Tammy McHargue, mchargueta@sns.gov, (865) 576-9036

www.sns.gov/users/instrument_systems/instruments/elastic/liquid.shtml

