



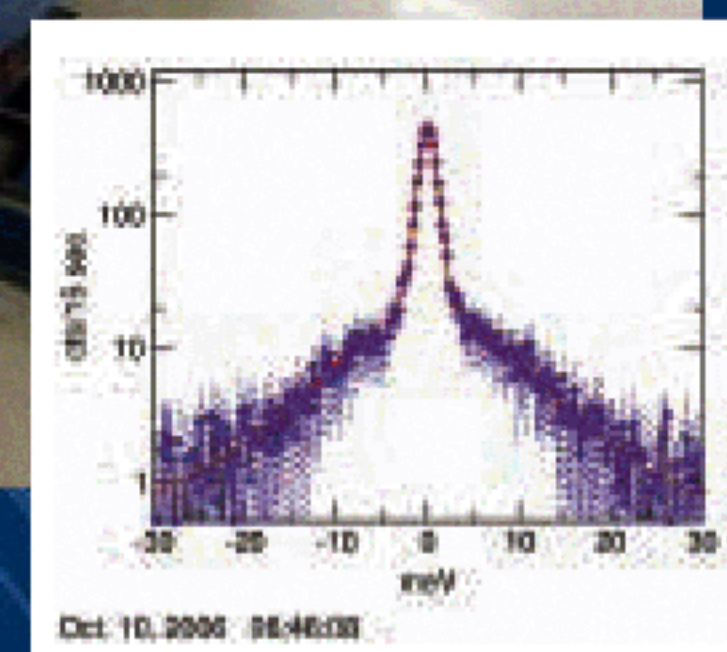
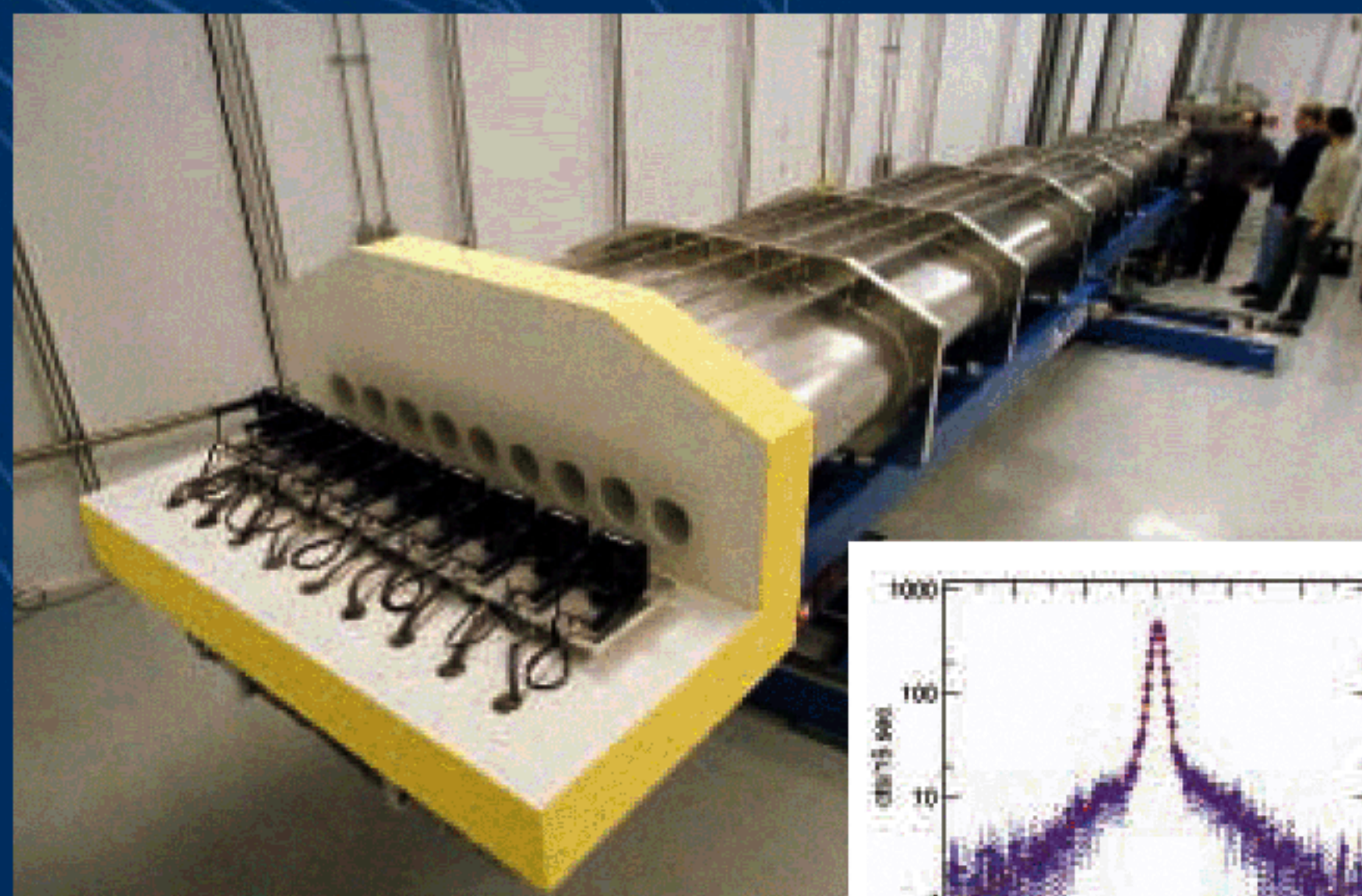
The U.S. Department of Energy's ADVANCED PHOTON SOURCE

Advanced Photon Source
Bldg. 401/Rm A4115
Argonne National Laboratory
9700 S. Cass Ave
Argonne, IL 60439 USA
apsinfo@aps.anl.gov • www.aps.anl.gov

First light for HERIX

The High Resolution Inelastic X-ray Spectrometer (HERIX, photo at right) at Advanced Photon Source sector 30 recorded its first spectrum during the commissioning phase in October 2006. The sample was honey, which, due to its high viscosity, produces a nearly delta-shaped peak (inset) that can be used to study the instrument resolution at different scattering angles. The broad wings on the sides are phonon excitations from the 20% residual water in the honey sample.

HERIX is now a user instrument with beam time allocated for general users. It works with up to nine analyzers in parallel with an energy resolution around 1.6 meV. The flux at the sample position will be 10^9 photons/sec in a spot of $30 \times 10 \mu\text{m}$.



First light for MERIX

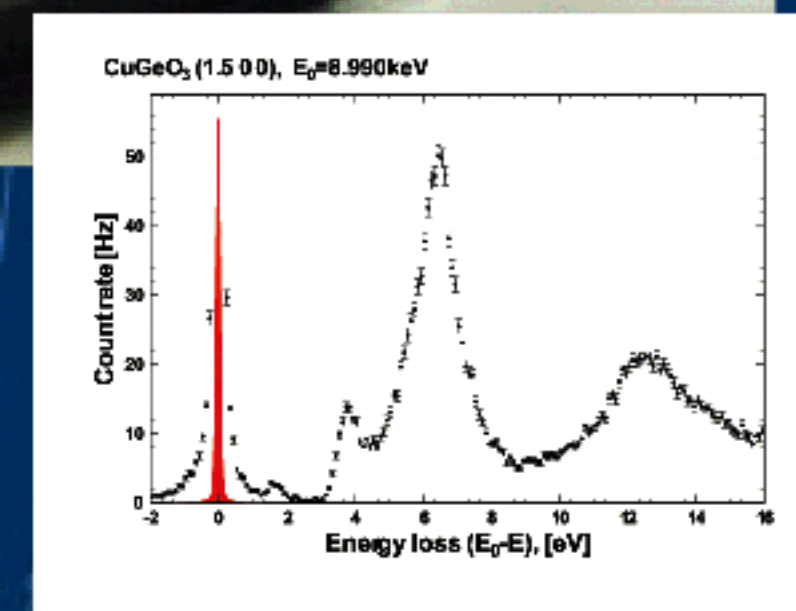
The MERIX (Medium Resolution Inelastic X-ray Scattering) Spectrometer (photo at right) was commissioned in November-December 2006 at the sector 30 beamline of the Advanced Photon Source. The spectrometer was developed by a collaborative design team comprising scientists and engineers from Argonne, Brookhaven National Laboratory, and Western Michigan University. The MERIX spectrometer will be used for the study of collective valence electron excitations in correlated electron systems, primarily of transition-metal oxides.

The x-ray photon energy range of MERIX is 5-12 keV and the targeted energy resolution is ~ 100 meV, covering the K-absorption of vanadium to zinc. A unique feature of the new MERIX spectrometer is its ability to scatter both vertically and horizontally, thus enabling study of polarization-dependent charge excitations.

The MERIX instrument is equipped with mirrors, providing microfocused beam on the sample— $5 \mu\text{m}$ in the vertical direction and $40 \mu\text{m}$ in the horizontal direction—enabling studies of small samples and samples under high pressure. The MERIX monochromator delivers to the sample x-ray photons in the 70-meV or 120-meV energy bandwidths.

The inset shows the first spectrum taken at the Cu K-edge of CuGeO_3 .

MERIX became a user instrument (with beam time allocated for general users) as of February 2007.



CALL FOR PROPOSALS

At the Advanced Photon Source, our door is open to experimenters from all scientific disciplines whose research requires the highest brilliance hard x-ray beams in the Western Hemisphere.

General-user proposals for beam time during Run 2007-3 are due by July 13, 2007.

Information on access to beam time at the APS is at http://www.aps.anl.gov/user/beamtime/get_beam.html or contact Dr. Dennis Mills, DMM@aps.anl.gov, 630/252-5680.

A U.S. Department of Energy laboratory managed by UChicago Argonne, LLC

The Advanced Photon Source is funded by the U.S. Department of Energy, Office of Science, Office of Basic Energy Sciences

