

Soft X-ray Scattering and Spectroscopy (SSS)

SSS at NSLS-II

- Spectroscopy and Scattering with “extreme” and tunable sample environments
 - Ambient pressure soft x-ray spectroscopy
 - High magnetic field (10 T) scattering
 - Fully tunable magnetic vector field + scattering
- World unique endstations

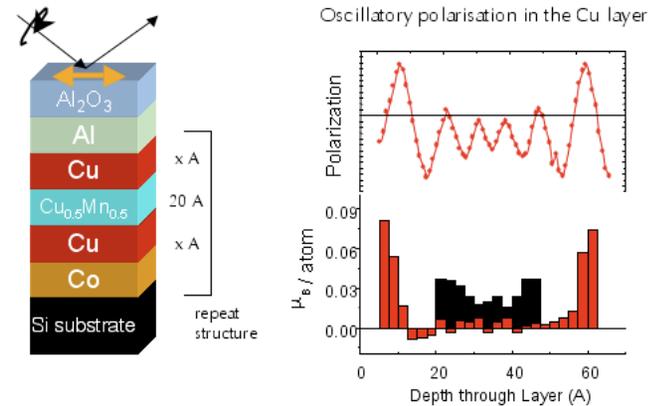
Examples of Science Areas & Impact

- **CATALYSIS:** Ambient pressure soft x-ray spectroscopy will enable the study of the transformation of hydrocarbons and organic material under real world conditions.
- **SPINTRONICS:** The ability to measure the magnetic and chemical structure of multilayer devices is critical to our control of charge and spin transport in these devices.
- **ADVANCED MATERIALS:** High TC superconductors and other strongly correlated systems require high magnetic fields to drive them into interesting ordered electronic phases.



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Spin Polarization in Multilayer Devices



Soft x-ray magnetic scattering determination of the spin polarization of nonmagnetic coupling layers in a model spintronic device structure. Full vector field capabilities will allow the 3 dimensional spin structure to be determined in similar complex systems. (J of Appl Phys V105 (2009) 07C703).

Beamline Capabilities

TECHNIQUE(S): soft x-ray linear and magnetic scattering and spectroscopy in fields up to 10T, as well as ambient pressure fluorescence spectroscopy.

SOURCE: soft bend radiation

ENERGY RANGE / RESOLUTION: 100–2000 eV / 0.1 eV

SPOT SIZE: ~50 x 2 μm

