

Toward the phase analog of XAFS

Tuesday, 3 December 2019 14:00 (15 minutes)

XAFS in absorption and fluorescent modes has been one of the most commonly used techniques in a wide range of scientific research and applications. Current applications of XAFS to low absorbing samples such as ultra-thin films in semiconductors and nano-devices have been limited. As the real component of the complex refractive index (phase) is generally several orders of magnitude larger than the imaginary component (absorption) in the x-ray regime, X-ray phase fine structure is expected to be more sensitive in differentiating chemical states. In addition, X-ray phase fine structure provides extra information which is complementary to those obtained by conventional XAFS including coherent scattering processes undergoing within the sample. X-ray phase fine structure therefore opens great opportunities for extending XAFS research into a new dimension. We will present both phase and absorption fine structures of a copper sample obtained simultaneously at the XFM beamline (Australian Synchrotron) by applying the HERALDO imaging technique across the copper K-edge. The results provide a critical experimental benchmark for further theoretical development and has potential to delve into the phase equivalent of the XAFS technique.

Level of Expertise

Expert

Do you wish to take part in the poster slam

No

Travel Funding

No

Speakers Gender

Male

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