

## Toward the phase analog of XAFS

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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.

### Speakers Gender

Male

### Travel Funding

No

### Level of Expertise

Expert

### Do you wish to take part in the poster slam

No

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