

# X-ray Imaging at the Nanoscale



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## Frontiers in Chemical Imaging Seminar Series

### Presented by



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**Argonne National Laboratory**

### Abstract

Over the past two decades x-ray microscopy has blossomed into a popular and rich methodology, opening the door to new research in the nanomaterials, biological, and environmental sciences. X-rays offer penetration through thick samples and exquisite sensitivity to elemental, chemical and magnetic states in buried structures. The advent of brilliant x-ray sources, nanofocusing optics, and fast dispersive and area detectors has enabled dramatic progress in instrumentation. Modern microscopes include scanning and full-field instruments with a resolution approaching 20 nm that provide a variety of contrast mechanisms and sample environments. New methods based on coherent diffraction, promising for x-ray lasers as well as synchrotrons, offer imaging beyond the limits of lenses and sensitivity to ordering and lattice strain. This talk highlights recent work at the CNM, APS, and elsewhere.

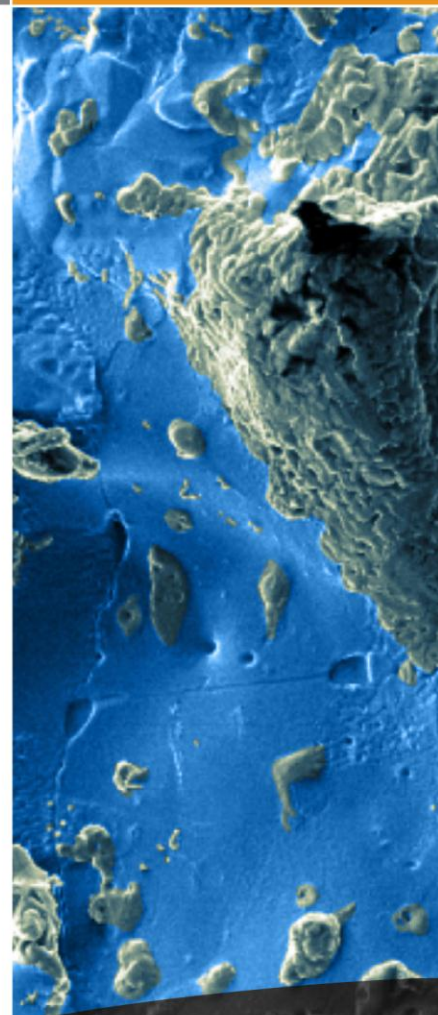
### Bio

Dr. Ian McNulty received a PhD in physics from Stony Brook University in 1991 and joined the Advanced Photon Source as an Enrico Fermi Postdoctoral Scholar in June that year. He became a staff physicist at Argonne in 1992 and built the first intermediate-energy x-ray microscopy beamline at APS in 1997. Ian subsequently oversaw the development of the APS Sector 2 beamlines and led the APS X-ray Microscopy Group during 2000-2004. After spending a year in Berlin studying resonant magnetic scattering, Ian returned to APS in 2006 and built a prolific coherent x-ray imaging program. Ian joined the Center for Nanoscale Materials in 2012. His current research focuses on ordering in nanomagnetic materials and orbital angular momentum states of light using coherent x-rays.

### More Info:

<https://blogs.anl.gov/expertsguide/ian-mcnulty/>

Host: Louis Terminello, CII Lead  
POC: Marla Seguin 372-4029



**Friday**

**March 23, 2012**

**9:00 am**

**EMSL Boardroom**