

JOIN US AT:

THE WORLD COMES HERE.

TMS 2017
146th Annual Meeting & Exhibition



February 26 – March 2, 2017
San Diego, California, USA

CHARACTERIZATION OF MATERIALS THROUGH HIGH RESOLUTION COHERENT IMAGING

This symposium will provide a venue for presentations regarding the use of coherent diffraction imaging techniques (x-ray and electron diffraction imaging, ptychography, holography) and phase contrast imaging techniques for high-resolution characterization in all classes of materials.

A high degree of spatial coherence is an attractive property in x-ray and electron beams. Those from modern synchrotrons and electron microscopes have enabled the development of novel imaging methods. In some cases these imaging methods provide resolution beyond that achieved with optics and can also provide remarkable sensitivity to a variety of contrast mechanisms.

The two methods that will be the focus of this symposium are coherent diffractive imaging (CDI) and phase contrast imaging (PCI). Both explicitly take advantage of the coherence properties of the incident beams. CDI has rapidly advanced in the last fifteen years to allow characterization of a broad range of materials, including nanoparticles, strained crystals, biomaterials, and cells. PCI has been widely employed in dynamics and engineering studies of materials, geophysics, medicine and biology. Various techniques making use of both x-rays and electrons have been developed that provide unique characterization abilities such as three-dimensional strain mapping and non-destructive three-dimensional quantitative tomographic imaging.

Areas of interest include:

- All x-ray based techniques including Bragg CDI, Fresnel CDI, ptychographic CDI, propagation phase contrast imaging, interferometry imaging, and analyzer based phase-contrast imaging
- All electron-based techniques including ptychography and electron CDI
- All structural and functional materials systems needing high-resolution imaging
- Industrial applications
- Development of new techniques and new sources

ORGANIZERS

Ross Harder, Argonne National Laboratory, USA

Xianghui Xiao, Argonne National Laboratory, USA

Richard Sandberg, Los Alamos National Laboratory, USA

Saryu Fensin, Los Alamos National Laboratory, USA

Brian Abbey, LaTrobe University, Australia

SYMPOSIUM SPONSOR

TMS Advanced Characterization, Testing, and Simulation Committee

PLAN TO JOIN US AT TMS2017. VISIT WWW.TMS.ORG/TMS2017 FOR MORE INFORMATION