



Materials Science with Coherent Nanobeams at the Edge of Feasibility

June 27 & 28, 2011

Robert Purcell Conference Center, Cornell University, Ithaca NY

The purpose:

To assess the challenges and possibilities of producing submicron x-ray beams and using them for materials science and other applications.

The emphasis is on techniques that extend and transcend nanobeam x-ray science emerging at ultra-low emittance, continuous duty synchrotron sources.

Héctor Abruña, Cornell University

"In-situ Probing of Fuel Cell and Battery Systems"

Don Bilderback, Cornell University

"Introduction to ERL & Beamline Example: fluorescence analysis at the yoctogram level"

Simon Billinge, Columbia University

"Nanostructure and Diffraction of Heterogeneous Materials with Nanobeams"

David Eisenberg, University of California, Los Angeles

"Adventures in Microcrystallography of Biological Specimens"

Paul Evans, University of Wisconsin, Madison

"Ultrafast Diffraction with Nanobeams: reversible and irreversible processes"

Sol Gruner, Cornell University

"X-ray Detectors: State-of-the-art & Future Possibilities"

Gene Ice, Oakridge National Laboratory

"3D Ptychography with Differential Aperture Microscopy"

Wendy Mao, Stanford University

"Fluorescence Tomography in a Diamond Anvil Cell"

Jörg Maser, Advanced Photon Source

"High Resolution Hard X-ray Microscopy at the Advanced Photon Source: current capabilities and future thrust"

Jennifer Mass, University of Delaware

"The Degradation Mechanisms of Matisse's and van Gogh's Pigments – Probing Photo-oxidation Reactions at the Nanoscale"

David Muller, Cornell University

"3D and Atomic-resolution Imaging with Coherent Electron Nanobeams – Opportunities and Challenges for X-rays"

Mark Pfeifer, Cornell University

"Coherent Diffraction Imaging with Nano- and Microbeams"

Harald Reichert, European Synchrotron Radiation Facility

"High-Energy Scattering with Micro- and Nanobeams"

Christian Riekkel, European Synchrotron Radiation Facility

"Contact-free Manipulation and Probing of Single Biological and Soft Matter Objects"

Stephan Roth, Deutsches Elektronen-Synchrotron

"GISAXS: Development and applications using nanobeams, microbeams and tomography"

Christian Schroer, Technical University Dresden

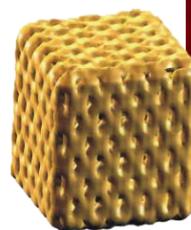
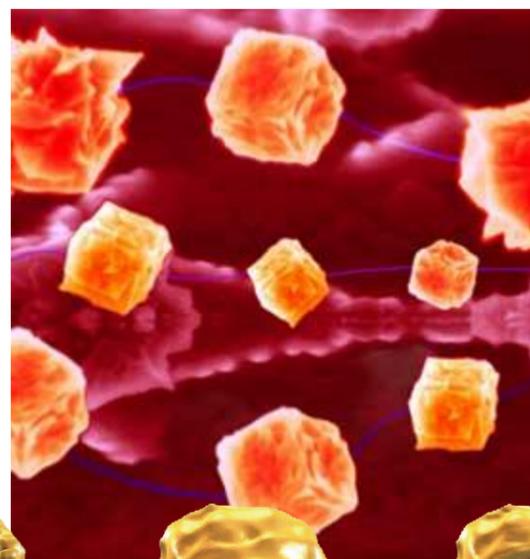
"Hard X-ray Scanning Nanoprobe: coherent nanobeam optics limits; refractive lenses"

Laszlo Vincze, Ghent University

"3D X-ray Fluorescence Tomography with Nanoscale Resolution on Cosmic Dust"

Stefan Vogt, Advanced Photon Source

"X-ray Fluorescence Microscopy for Biology and Bionanotechnology: Challenges and Unique Opportunities"



Foreground: DNA origami by Anderson *et al.*, Nature **459**, 73 (2009)
Background: Tethered Pd nanocubes by Clausen *et al.*, ACS Nano **3**, 37 (2009)



Organizers:

Christian Riekkel (European Synchrotron Radiation Facility),
Simon Billinge (Columbia University),
Kenneth Evans-Lutterodt (Brookhaven National Laboratory),
Detlef Smilgies (Cornell University)



Go to http://erl.chess.cornell.edu/gatherings/2011_Workshops/index.htm

For more information contact Kathy Dedrick, User Administrator – 607-255-0920

