

XDDL 2011

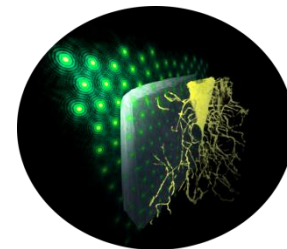
A series of workshops
Cornell University, Ithaca NY • June 2011

Diffraction Microscopy, Holography and Ptychography using Coherent Beams

June 6 & 7, 2011

- Harald Ade**, North Carolina State University - "Spectromicroscopy, Resonant Scattering, Possible Extensions to Ptychographic Imaging"
- Don Bilderback**, Cornell University - "Energy Recovery Linac (ERL) and Ultimate Storage Ring (USR) Properties"
- Jim Fienup**, University of Rochester - "X-ray Coherent Diffractive Imaging with an Extended Reference"
- Sol Gruner**, Cornell University - "X-ray Detectors: State-of-the-art & Future Possibilities"
- Ross Harder**, Advanced Photon Source - "Probing Strain and Defects in Single Crystals with Coherent X-ray Diffraction"
- Chris Jacobsen**, Northwestern University - "Imaging with Coherent Beams: let's not do it in a vacuum"
- Chae Un Kim**, Cornell University - "Cryopreservation of Structural Integrity under High Pressure"
- Stefano Marchesini**, Lawrence Berkeley National Laboratory - "High-efficiency Fourier Holography with Uniformly Redundant Arrays" [tentative]
- Ian McNulty**, Advanced Photon Source - "Resonant Coherent X-ray Imaging"
- John Miao**, University of California, Los Angeles - "Three-Dimensional Coherent Diffraction Imaging of Materials and Cells"
- Yoshinori Nishino**, Hokkaido University - "Imaging Cellular Organelles"
- David Shapiro**, National Synchrotron Light Source II - "High-resolution Imaging of Biological Specimens"
- Qun Shen**, National Synchrotron Light Source II - "New Opportunities with Hard X-ray Diffraction Limited Sources"
- Oleg Shpyrko**, University of California, San Diego - "Magnetic Domains and Dynamics"
- Pierre Thibault**, Technische Universität München - "Ptychography in 2D and 3D"
- Ivan Vartaniants**, Deutsches Elektronen-Synchrotron - "Coherent Diffractive Imaging and Determining Structural Properties from Cross-correlation Analysis"
- Garth Williams**, Linac Coherent Light Source - "Coherent Imaging Without a Laser: getting the most bang for your electrons"

Location:
Robert Purcell Conference Center

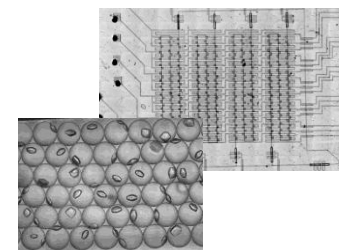


Biomolecular Structure from Nanocrystals and Diffuse Scattering

June 13 & 14, 2011

- Philip Anfinrud**, National Institutes of Health - "Time-resolved Scattering of Proteins in Solution: new opportunities for an ERL"
- Don Bilderback**, Cornell University - "Energy Recovery Linac (ERL) and Ultimate Storage Ring (USR) Properties"
- Martin Caffrey**, Trinity College, Ireland - "Toward Rational Crystallization for Structure-Function Studies of Membrane Proteins"
- Brian Crane**, Cornell University - "Biological Opportunities with Solution Scattering"
- Bob Fischetti**, Argonne National Laboratory - "Data Collection from Nanocrystals with Reduced Radiation Damage"
- Seth Fraden**, Brandeis University - "Microfluidics to Produce and Manipulate Microcrystals"
- Sol Gruner**, Cornell University - "X-ray Detectors: State-of-the-art & Future Possibilities"
- James Holton**, Lawrence Berkeley National Laboratory - "Predicting and Processing Nanocrystal Diffraction Data"
- Roger Sunahara**, University of Michigan - "G Protein Coupled Receptor Structure Determination Enabled by Microdiffraction Technology"
- Lee Makowski**, Northeastern University - "Next Generation Solution Scattering"
- Alex McPherson**, University of California, Irvine - "The Challenge of Novel, Nanoscale Biological Samples"
- George Phillips**, University of Wisconsin, Madison - "Non-Bragg Scattering from Protein Crystals"
- Doug Rees**, California Institute of Technology - "Membrane Proteins and Membrane Potentials"
- Ilme Schlichting**, Max Planck Institute, Heidelberg - "Emerging Biological Opportunities with ERL/USR Beams" [tentative]
- John Spence**, Arizona State University & Lawrence Berkeley National Laboratory - "Nanocrystals, Injectors and Correlations for an ERL"
- Dmitri Svergun**, European Molecular Biology Laboratory - "Small-angle Scattering from Biological Solutions: potential of the ERL/USR Sources"

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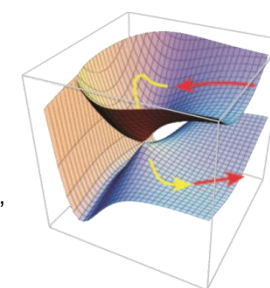


Ultra-fast Science with "Tickle and Probe"

June 20 & 21, 2011

- Shin-ichi Adachi**, High Energy Accelerator Research Organization, KEK - "Toward Fourier-limited X-ray Science"
- Don Bilderback**, Cornell University - "Expected Performance of CW ERL & USR Ultra-fast Hard X-ray Sources"
- Christian Bressler**, European XFEL GmbH - "Time-resolved X-ray Spectroscopies and Scattering with One Trillion Photons"
- Edward Castner**, Rutgers University - "Rapid Chemical and Physical Processes in Solution"
- Lin Chen**, Northwestern University - "X-ray Transient Absorption Spectroscopy: a journey in past and future decades"
- Chi-Chang Kao**, SLAC National Accelerator Laboratory - "What is the 'ideal' X-ray Source?"
- Aaron Lindenberg**, SLAC National Accelerator Laboratory - "High-repetition-rate Ultrafast X-ray Experiments with Accelerator-based Sources"
- Anne Marie March**, Advanced Photon Source - "X-ray Probes of Laser-controlled Molecules in Gases and Solutions"
- David Reis**, SLAC National Accelerator Laboratory - "Time-resolved Diffuse Scattering"
- Robert Schoenlein**, Lawrence Berkeley National Laboratory - "Ultrafast X-ray Studies of Complex Materials: Science Challenges and Opportunities"
- Roseanne Senson**, University of Michigan - "Using Optical Knobs to Control Photoinitiated Reactions"
- Simone Techert**, Max Planck Institute, Goettingen - "Molecular Switches and Molecular Machines Investigated with Ultrafast Pulsed X-ray Radiation"
- Carol Thompson**, Northern Illinois University - "Ferroelectrics at the ERL"

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See: <http://www.chess.cornell.edu> or http://erl.chess.cornell.edu/gatherings/2011_Workshops/index.htm

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



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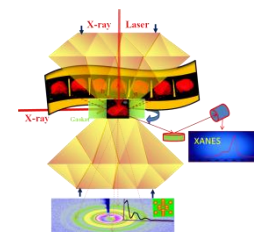
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High-pressure Science at the Edge of Feasibility

June 23 & 24, 2011

- Don Bilderback**, Cornell University - "Energy Recovery Linac (ERL) and Ultimate Storage Ring (USR) Properties"
- Reinhard Boehler**, Carnegie Institute of Washington - "Static and Dynamic Heating of Materials"
- Stanimir Bonev**, Lawrence Livermore National Laboratory - "Structure and Stability of Low-Z Materials at Extreme Pressure and Temperature"
- Alexander Goncharov**, Carnegie Institute of Washington - "Time-domain Measurements in Diamond Anvil Cells"
- Sol Gruner**, Cornell University - "X-ray Detectors: State-of-the-art & Future Possibilities"
- Yogendra Gupta**, Washington State University - "Dynamic Compression of Condensed Matter: Need for Time-Resolved Measurements"
- Roald Hoffmann**, Cornell University - "Solid Hydrogen Under Pressure"
- Jennifer Jackson**, California Institute of Technology - "Illuminating Earth's Core-mantle Boundary with Ultrabright X-rays"
- Malcolm McMahon**, University of Edinburgh - "Single Crystal X-ray Diffraction and IXS of Elements under Extreme Pressure"
- John Parise**, Stony Brook University - "Addressing Emergent Issues in High Pressure Research"
- Vitali Prakapenka**, Advanced Photon Source - "Dynamics of Crystallization and Melting under Pressure"
- Isaac Silvera**, Harvard University - "Hydrogen under Extreme Pressure"
- Wenge Yang**, Advanced Photon Source - "Synchrotron Techniques, X-ray Tomography and Imaging Through DAC"
- Choong-Shik Yoo**, Washington State University - "Time- and Angle-resolved X-ray Diffraction to Probe Structural and Chemical Evolutions of Single-event Phenomena"
- Yusheng Zhao**, University of Nevada at Las Vegas - "Energy Materials Research in Conversion, Storage, and Efficiency"

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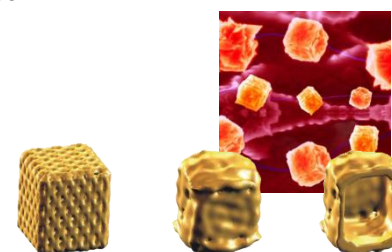


Materials Science with Coherent Nanobeams at the Edge of Feasibility

June 27 & 28, 2011

- 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 Riek**, 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 Biology and Bionanotechnology: Challenges and Unique Opportunities"

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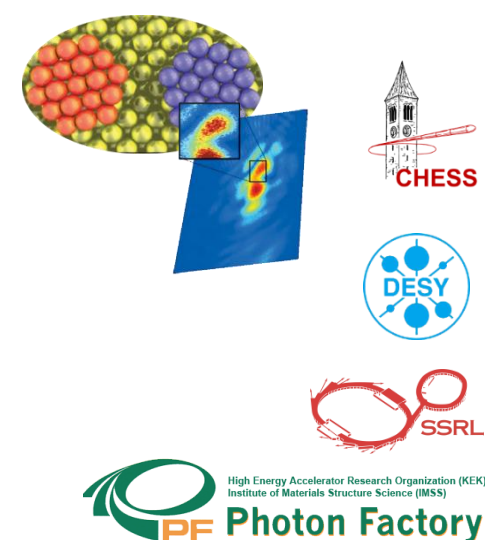


Frontier Science with X-ray Correlation Spectroscopies using Continuous Sources

June 29 & 30, 2011

- Don Bilderback**, Cornell University - "Energy Recovery Linac (ERL) and Ultimate Storage Ring (USR) Properties"
- Wes Burghardt**, Northwestern University - "XPCS During Shear"
- Andrei Fluerașu**, National Synchrotron Light Source II - "Dynamics in Soft-matter and Biological Systems: Trends and Opportunities at NSLS-II"
- Sol Gruner**, Cornell University - "X-ray Detectors: State-of-the-art & Future Possibilities"
- Christian Gutt**, Deutsches Elektronen-Synchrotron - "X-ray Cross Correlation Analysis (XCCA) and Bond-order in Liquid and Glasses"
- Stephen Kevan**, University of Oregon - "Probing Magnetic Complexity with Coherent Soft X-ray Beams"
- Karl Ludwig**, Boston University - "Martensitic Transitions & Opportunities in Non-equilibrium Physics"
- Larry Lurio**, Northern Illinois University - "Dynamics at Liquid and Soft-Matter Interfaces"
- Simon Mochrie**, Yale University - "Biophysics and Soft Matter"
- Michael Pierce**, Argonne National Laboratory - "XPCS on Surfaces: Challenges and Opportunities"
- Maikel Rheinstädter**, McMaster University - "Nanobiology: Membranes and Proteins in Motion"
- Alec Sandy**, Advanced Photon Source - "Scientific Trends and Opportunities from the Perspective of 8-ID"
- Bogdan Sepiol**, University of Vienna - "Nanoscale Dynamics, Atomic Diffusion"
- Yuya Shinohara**, University of Tokyo - "Dynamics in Nanocomposite and Opportunities at Japanese Future Light Source"
- Michael Sprung**, Deutsches Elektronen-Synchrotron - "Scientific Trends and Opportunities: P10 @ PETRA III"
- Mark Sutton**, McGill University - "New Opportunities for XPCS"

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