NSLS-II First Experiments Workshop  
Monday-Tuesday, August 12-13, 2013  
Berkner Hall, Brookhaven National Laboratory  
Upton, NY 11973, USA

Monday, August 12, 2013

Plenary Session: Welcome and Introduction  
Berkner Auditorium, Berkner Hall Bldg. 488  
Session Chair – Bruce Ravel (Chair, Photon Sciences UEC)

8:00 Coffee and Light Breakfast
8:30 Doon Gibbs (Laboratory Director, BNL)  
Laboratory Welcome
8:40 Steve Dierker (Associate Laboratory Director – Photon Sciences, BNL)  
Welcome and NSLS-II Overview

Plenary Session: Grand Challenge Science Opportunities  
Berkner Auditorium, Berkner Hall Bldg. 488  
Session Chair – Qun Shen (BNL)

9:00 Sunil Sinha (University of California, San Diego)  
Complexity and Dynamics in Condensed Matter Systems
9:40 Gayle Woloschak (Northwestern University)  
Nanoparticles in Functional Biological Systems

10:20 Photo/Coffee/Tea Break
10:50 John Sarrao (Los Alamos National Laboratory)  
Materials Co-design at the Mesoscale: Opportunities for NSLS-II

11:30 Paul Zschack (Brookhaven National Laboratory)  
Scientific Capabilities at Initial Suite of NSLS-II Beamlines

12:00 Lunch – Berkner Hall Cafeteria

13:00 – 17:00 Breakout Sessions

Breakout A – Coherence, Dynamics, and Polarization (CHX, CSX-1, CSX-2)  
Berkner Conference Room B, Berkner Hall Bldg. 488

Steve Kevan, ALS, California  
Harald Reichert, European Synchrotron Radiation Facility  
Tom Hase, University of Warwick
Dario Stacchiola, Brookhaven National Lab
David Pine, New York University
Gerard Wong, University California Los Angeles
Oleg Shpyrko, University of California San Diego
Mark Sutton, McGill University

**Breakout B – Multi-length Scale Techniques for 21st Century Science (HXN, SRX, XPD)**
*Berkner Hall Auditorium, Bldg. 488*

Derk Joester, Northwestern University: *Hard X-rays in Biomineralization Research*
Ben Twining, Bigelow Laboratory for Ocean Sciences
Ralph Nuzzo, University of Illinois: *Structure-rate and Structure Property Correlations in Catalysis with Single Site/Cluster Resolution (The Impossible Dream?)*
Esther Takeuchi, Stony Brook University: *Multi-scale Study at Extreme Environments High Pressure Research Opportunities at HXN*
Peter Hosemann, UC Berkley: *Nuclear Environments: Challenge and Opportunity for Material Science*
Michael Short, Massachusetts Institute of Technology: *Nuclear Materials Challenges at the Mesoscale*

17:00 – 18:00 NSLS-II Beamline Tours

18:30 Dinner – Berkner Hall Cafeteria

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**TUESDAY, AUGUST 13, 2013**

9:00 AM - 3:00 PM Parallel Breakout Sessions
*(Lunch 12:00 – 1:00 at breakout locations)*

**HXN Breakout – Invited Speakers**
Ismail "Cev" Noyan, Columbia University: *Opening Remarks*
Yong Chu, Brookhaven National Laboratory: *Early Science Capabilities at the HXN Beamline*
Hanfei Yan, Brookhaven National Laboratory: *Imaging Techniques and Sample Requirements at the HXN Beamline*
Wilson Chiu, University of Connecticut: *Challenges and Opportunities in Solid Oxide Fuel Cells*
Esther Takeuchi, Stony Brook University: *In-situ and Ex-situ Exploration of Energy Storage System*
Ian Robinson, London Centre for Nanotechnology: *Use of X-ray Ptychography to Solve the Crystallographic Phase Problem*
Stephan Hruszkewycz, Argonne National Laboratory: *Bragg Ptychography on PZT*
Garth Williams, SLAC: *CDI, Related with Free-electron Laser*
Oleg Shpyrko, University of California, SD: *CDI, on Magnetic Materials*
Ismail "Cev" Noyan, Columbia University: *Nanodiffraction*
Conal E Murray, IBM: *Strain Mapping in Nanoelectronics*
Wenge Yang, Carnegie Institution of Washington: *High-pressure Research Opportunities at HXN*
Qingteng Zhang, University of Wisconsin: *Spatial Topology and Switching Dynamics of Nanodomains in Ferroelectric/Dielectric Superlattices*

**SRX Breakout - Invited Speakers**

Juergen Thieme, Brookhaven National Laboratory: *Introduction to Breakout Session*

Vincent de Andrade, Brookhaven National Laboratory: *The SRX Beamline*

Steve Heald, APS, Argonne National Laboratory: *Material Science at the APS 20-ID Microprobe*

Yuanyuan Li, Yeshiva University: *Catalysis Research with Multiple Probes in an Operando Microreactor*

Tobias Hanrath, Cornell University: *In-situ Studies of Nanocrystal Superlattice Self-Assembly at CHESS*

Darby Dyar, Mount Holyoke College: *Multivariate Analysis Applied to Valence State Determinations using XANES in Microbes and Minerals*

Timothy Glotch, Stony Brook University: *Extraterrestrial Sample Science enabled by the NSLS-II SRX Beamline*

George Flynn, SUNY Plattsburgh: *Deciphering the History of Solar System Formation from Sub-micron Analyses of Primitive Solar System Dust*

Jeff Fitts, Princeton University: *The Geochemical and Spatial Frontiers of Gas-bearing Shale*

Tanja Paunesku, Northwestern University: *Investigating Receptor Mediated Endocytosis with X-ray Fluorescence Microscopy*

Martin Schoonen, BNL and Stony Brook University: *The Chemical Composition of Aerosols: Implications from Climate Forcing to Human Health*

**CHX Breakout - Invited Speakers**

Robert Leheny, Johns Hopkins - Overview of CHX Science Case

Lutz Wiegart, Brookhaven National Laboratory - Overview of CHX Beamline – Design and Performance

James Harden, University of Ottawa

Karl Ludwig, Boston University

Larry Lurio, Northern Illinois University

Peter Green, University of Michigan

Tadanori Koga, Stony Brook University

Prerna Sharma, Brandeis University

Sam Sprunt, Kent State University

Michael Rogers, McGill Ottawa

Michael Pierce, Rochester Institute of Technology

**CSX-1 Breakout - Invited Speakers**

Stuart Wilkins, Brookhaven National Laboratory

Sarnjeet Dhesi, Diamond Light Source

Sujoy Roy, Advanced Light Source, LBNL

Thomas Beale, University of Durham, UK

Ian Robinson, London Centre of Nanotechnology

Stephan Hruszkewycz, Argonne National Laboratory

Garth Williams, SLAC National Accelerator Laboratory

Oleg Shpyrko, University of California, San Diego

Miriam Garcia-Fernandez, Brookhaven National Laboratory

Andrej Singer, University of California, San Diego
**CSX-2 Breakout - Invited Speakers**
Hermann Dürr, SLAC
Thomas Hase, The University of Warwick
Yves Idzerda, Montana State University
Cecilia Sanchez-Hanke, Brookhaven National Laboratory
Peter Sutter, Brookhaven National Laboratory
Dario Stacchiola, Brookhaven National Laboratory

**XPD Breakout - Invited Speakers**
Robert Cernik, University of Manchester: *Next Generation Powder Diffraction and Grand Challenges*
Eric Dooryhee, Brookhaven National Laboratory: *XPD: Technical and Scientific Capabilities*
Sanjit Ghose, Brookhaven National Laboratory: *XPD In situ Capabilities*
Jon Hanson, Brookhaven National Laboratory: *Time Resolved, In situ, In operando*
Pete Chupas, Argonne Nat Lab: *Disordered and Amorphous Structures*
Peter Stephens, Stony Brook University: *High-resolution*
Simon Billinge, Columbia University: *Data Acquisition and Handling*
John Parise, Stony Brook University: *Expressions of Interest*

**3:30 PM - 5:00 PM**
**Qun Shen, Brookhaven National Laboratory**
*Plenary Summary / Close-out Session*

*Brief summary by each Beamline Breakout Session - (Group Leaders and BAT Chairs)*
3:30 PM HXN
3:40 PM CHX
3:50 PM CSX-1
4:00 PM CSX-2
4:10 PM SRX
4:20 PM XPD
4:30 PM Concluding Remarks and Plan Forward - Qun Shen

**6:00 PM**
**Workshop BBQ – Berkner Hall Cafeteria Patio**