

High-pressure Science at the Edge of Feasibility

June 23 & 24, 2011

Robert Purcell Conference Center, Cornell University, Ithaca NY

The purpose:

To assess the state-of-the-art on the use of x-ray diffraction and x-ray spectroscopic techniques (1) to determine the structures and properties of materials at extreme conditions of pressure and temperature and (2) to explore the time-resolved dynamics and kinetics of the nucleation, growth and transformation of materials under extreme conditions.

The emphasis is on new approaches for very small samples under extreme conditions that would be enabled by the intense hard x-ray nanobeams that will be feasible with new continuous-duty x-ray sources.

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

"X-ray Studies at Multimegabar Pressures"

Hongyou Fan, Sandia National Laboratories

"Nanomaterials under High Pressure: a new opportunity for tunable structure and property"

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"

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"

Don Weidner, Stony Brook University

"Stress-strain-time Relations for Earth Materials"

Wenge Yang, Advanced Photon Source

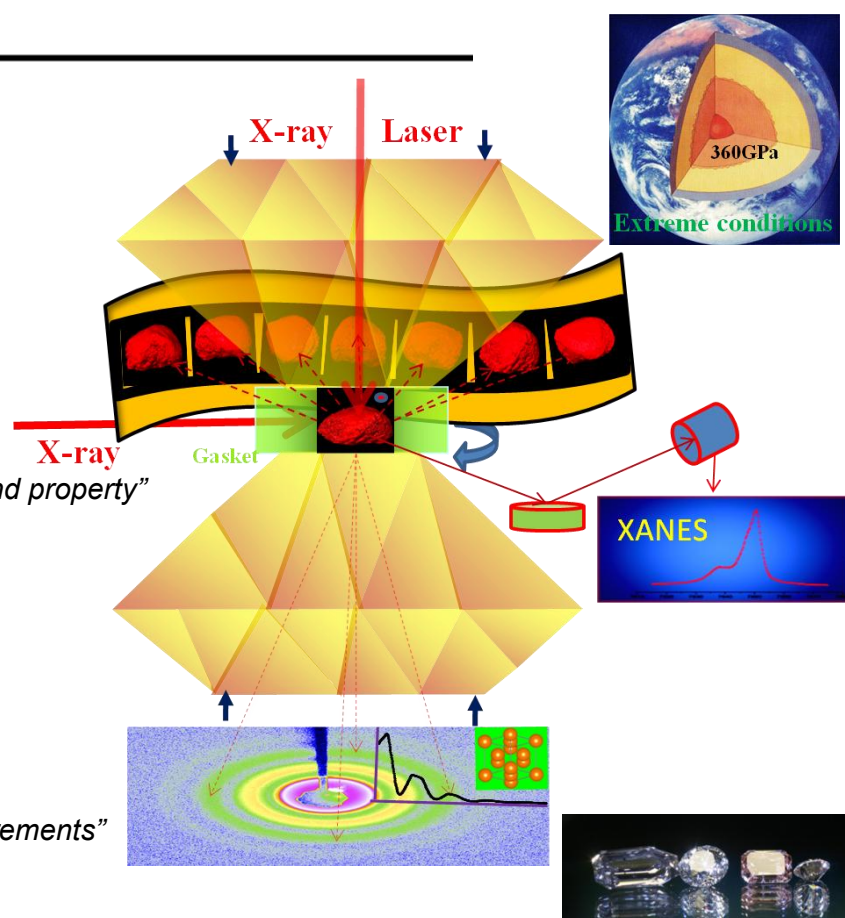
"Synchrotron Techniques, X-ray Tomography and Imaging Through DAC"

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"



Organizers:

Russell J. Hemley (Carnegie Institute of Washington),
Neil Ashcroft (Cornell University),
Roald Hoffmann (Cornell University),
John Parise (Stony Brook University),
Zhongwu Wang (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

