



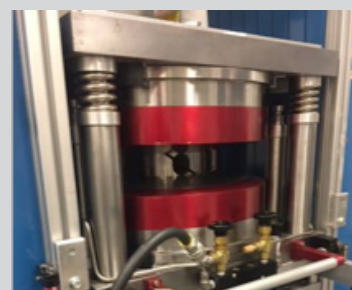
Upcoming COMPRES Sponsored Workshops

Envisioning the Next Generation of In-situ Synchrotron X-ray Techniques in Large-Volume High Pressure Apparatus for Mineral and Rock Physics

September 28-30, 2018

Advanced Photon Source, Argonne National Lab, Chicago, Illinois

Workshop Organizers: Pamela Burnley, Haiyan Chen, William Durham, Shun Karato, Andreas Kronenberg, Donald Weidner, Matthew Whitaker



This two and a half day COMPRES workshop will explore how cutting edge synchrotron techniques, including those that can characterize the 3D distribution of properties such as phase, density, grain orientation or stress states can be integrated into large volume apparatus experiments. The workshop will review the state of the art for both imaging and other synchrotron tools coupled with large volume high pressure capabilities and explore which techniques are most likely to yield new insights into transport properties in geologic materials and are most likely to be successfully adapted to high pressure environments. Such technological advances will benefit researchers working on rock deformation at both high and moderate pressure (above ambient), as well as those working on the kinetics of a wide variety of earth processes from melting and phase transformations to solution and precipitation in the control of porosity.

Registration information and workshop details: <http://pburnley.faculty.unlv.edu/workshop.html>

Nuclear Resonant Inelastic X-ray Scattering and Data Analysis

November 2-5, 2018

Advanced Photon Source, Argonne National Lab, Chicago, Illinois

Workshop Organizers: Wenli Bi, Ercan Alp, Jay Bass



This two-and-half-day COMPRES workshop is to educate current and potential scientific users in nuclear resonant inelastic x-ray scattering (NRIXS) and data analysis. NRIXS is a powerful tool to provide information on vibrational and elastic properties, such as the phonon density of states, sound velocities and isotope fractionation in Fe-bearing planetary materials under extreme pressure and temperature conditions. Due to complexity of physics in inelastic x-ray scattering and lattice dynamics, many of the users face challenges in understanding the fundamental physics of the technique and handling the data in a proper manner.

Tentative speakers and topics: Introduction to lattice dynamics (John Tse), Introduction to NRIXS (Wolfgang Sturhahn), Geophysical Applications of NRIXS (Jennifer Jackson), Introduction to PHOENIX (Wolfgang Sturhahn), Hands-on training sessions for PHOENIX (Wolfgang Sturhahn), Introduction to SciPhon (Nicholas Dauphas), Introduction to Isotope fractionation (Anat Shahar), Instrumentation and recent development at Sector 3 (Jiyong Zhao)

For registration info contact: Wenli Bi wbi@aps.anl.gov

COMPRES Facility Highlight

MAXPD: Multi-Anvil X-ray Powder Diffraction Beamline

National Synchrotron Light Source II (NSLS-II)
Brookhaven National Laboratory (BNL)



The Multi-Anvil X-ray facility at the XPD-D (28-ID-2-D) Beamline of the National Synchrotron Light Source II (NSLS-II) is a new cutting-edge facility designed to push the limits of high pressure multi-anvil synchrotron research. The MAXPD (Multi-Anvil X-ray Powder Diffraction) facility is one of the spiritual successors to the X17MAC facility at NSLS-I, which ceased operations in late 2014. This program was best known for the development of high pressure and high temperature experimental deformation/rheological techniques and in situ ultrasonic interferometry experiments at extreme conditions.

MAXPD facility is located in the downstream D hutch on the XPD beamline, which is served by a 1.8T damping wiggler insertion device. The facility contains an 1100-ton hydraulic press with DIA, Deformation-DIA, T-25 (Kawai-style multi-anvil), and the first ever functional Deformation-T-25 compressional modules. MAXPD utilizes monochromatic X-ray beam (usually 52 keV or 67 keV).

The MAXPD facility is in the process of developing an on-site fully equipped sample and experiment preparation laboratory that is maintained by beamline staff, as well as preparation facilities at Stony Brook University that are maintained and operated by the Mineral Physics Institute. These preparation facilities are/will be available to facility users. This facility has been open to General Users since the 2018-1 beam cycle, and will complete its final Science Commissioning beamtime the week after the COMPRES meeting in August. If you are interested in potentially conducting experiments at this new facility, contact Matt Whitaker; for additional information and the strategic plan see <http://compres.us/about-us/facility/multi-anvil-x-ray-powder-diffraction-xpd-beamline>.

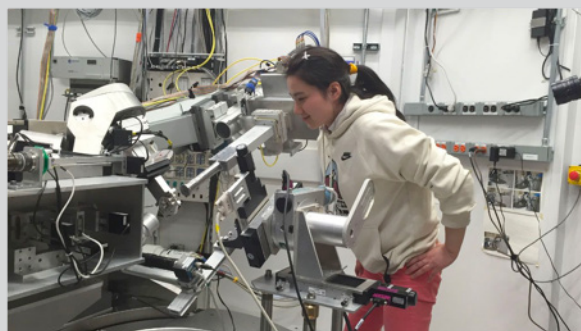


Principal Investigator:
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& Beamline Scientist:**
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Equipment Upgrade for the COMPRES/GSECARS Partnership for Extreme Crystallography (PX²) at Beamline 13-BM-C Advanced Photon Source, Argonne National Lab



A cost-sharing arrangement between GSECARS and COMPRES has enabled the acquisition of detector upgrade for PX². We have selected the DeCTRIS Pilatus 1M-S with a 1 mm silicon sensor for this beamline. This is a photon counting detector with a 2 millisecond readout time and a frame rate of 25 Hz. It will thus let users collect data 100 times faster than with the existing MarCCD which has a 3.5 second readout time, and requires use of a shutter. We are excited about the prospect of dramatically enhancing the data collection at PX² and are eager to implement this plan for upcoming fall run at APS.

Some Past COMPRES Annual Meetings



Cheyenne Mountain (2015)

From L to R: Jay Bass (COMPRES President), Andy Campbell (Facilities Committee), Quentin Williams (Executive Committee), Pamela Burnley (outgoing Chair, Executive Committee), Abby Kavner (incoming Chair, Executive Committee), Jennifer Jackson (Executive Committee), Wendy Panero Vice Chair, (Executive Committee).



Mohonk Mountain House, New Paltz, NY (2005)



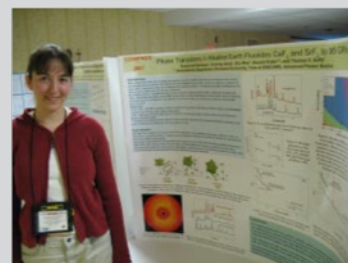
Tamaya Resort, Santa Ana Pueblo, NM (2016)



Cheyenne Mountain (2008)
Bob Liebermann (COMPRES President)

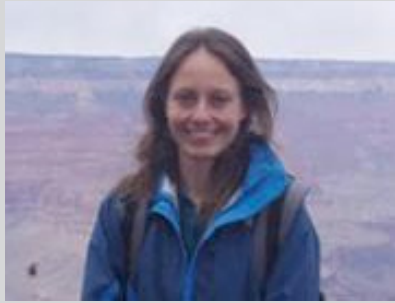


Lake Tahoe (2004)
Bob Liebermann (COMPRES President)



Lake Morey (2007)
Suki Dorfman (Graduate student, Princeton University)

COMPRES Distinguished Lecturers for 2018-2019: Anne Pommier and Bin Chen



Anne Pommier
University of California, San Diego



Bin Chen
University of Hawaii

COMPRES announces the speakers for its 2018-2019 Distinguished Lecture series in the field of Mineral Physics. The talks feature topics that highlight high-pressure geoscience research being conducted within the COMPRES community and its significance for understanding fundamental Earth and planetary processes.

We are pleased to announce that the COMPRES Distinguished Lecturers for 2018-2019 are Anne Pommier of University of California, San Diego and Bin Chen of University of Hawaii.

The Distinguished Lecture Series was established in 2008 and its objectives include the following

- (1) To inform students and faculty at a variety of institutions about the new and exciting work being done within the COMPRES community and at COMPRES facilities, and highlight the connections this work has to other areas of Earth and planetary science and related fields.
- (2) To connect COMPRES with members of related scientific research communities (i.e. seismology, geodynamics, geochemistry, material science, planetary, etc.) to help bridge gaps in knowledge and identify areas of mutual interest and/or intersection of ideas.

We invite you to request a visit of a COMPRES lecturer to your institution during the coming academic year. COMPRES will fund all travel costs for the speaker, including transportation, accommodation and meals. There is no cost to the hosting institution. The host colleges or universities will be expected to arrange the talks and provide local logistical support. If your institution is interested in requesting a visit, please send your request to Carl Agee, President of COMPRES [agee@unm.edu] with a copy to Beth Ha [beth3ha@unm.edu].



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