

HPCAT NEWSLETTER – NOVEMBER-DECEMBER 2024

APS and HPCAT-Upgrade Status

Dear HPCAT Community,

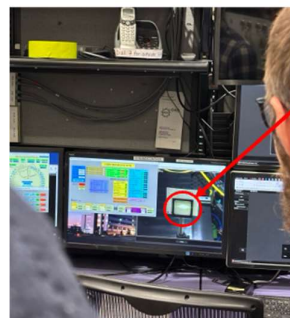
It has been an exciting year filled with numerous accomplishments and both anticipated and unforeseen challenges. We are thrilled to have the X-ray beam back, and the opportunity to continue making progress on the upgrade completion and resuming our work.

We wish everyone a safe and happy holiday season and look forward to collaborating in 2025 and beyond.

Here are a few updates on status recent progress:

- APS storage ring has been in operation for last few months and reaching 160+mA continuously stored and providing x-ray to experimental stations. For status of storage ring see <https://www.aps.anl.gov/Machine-Status>
- HPCAT has resumed operations in 16-ID-B station, with both General Purpose (GP) and Laser Heating (LH) operational. Starting 2025-1, the ID-B station is in normal operations, with General User program returning
- 16BM branch delivered first x-ray beam and started commissioning

Curt opening the shutter for first x-ray
into 16BM



First x-ray at
16BM Branch
post upgrade
Dec. 06, 2024

HPCAT status overall

Experimental Station	Current Status	Planned full user resumption
16-ID-B (GP and LH table)	<ul style="list-style-type: none"> Scientific commissioning 2024-3 and limited user experiments Operational and accepting General User (GU) proposals currently for 2025-1 cycle 	<ul style="list-style-type: none"> OPEN for General Users (GU) in 2025-1 via open GU proposal call (GU deadline Oct. 25, 2024)
16-BM-B (Paris-Edinburgh Station)	<ul style="list-style-type: none"> Final installation of major components completed First beam delivered in December 2024 Commissioning has started and is continuing in 2025-1 and 2025-2 cycles 	<ul style="list-style-type: none"> Planned resumption with users in mid/late 2025-2 (GU call will be announced in future newsletter) https://ups.servicenowservices.com/ups
16-BM-D (dedicated DAC station with Mono and White beam setup)	<ul style="list-style-type: none"> Commissioning starting in 2025-1 (in tandem with BM-B station) 	<ul style="list-style-type: none"> Planned resumption with GU in 2025-2
16-ID-D (Spectroscopy and Inelastic setup)	<ul style="list-style-type: none"> New Double Crystal Monochromator and new Double Multilayer Monochromator expected to arrive and be installed in July 2025 – this has been delayed from projected March install timeline ID-D planning to start technical commissioning in late 2025-2 	<ul style="list-style-type: none"> Resumption by late 2025-3 and into 2026
16ID-E (Planned setup for x-ray microscopy)	<ul style="list-style-type: none"> In development and install phase currently. Completion projected by end of 2025 (tentative) 	<ul style="list-style-type: none"> Projected early-2026

We hope to see you at HPCAT soon, and please reach out to HPCAT staff if any questions – beamline contacts are listed under APS directory <https://www.aps.anl.gov/Beamlines/Directory> or HPCAT website <https://hpcat.aps.anl.gov/hpcat-group-members>.

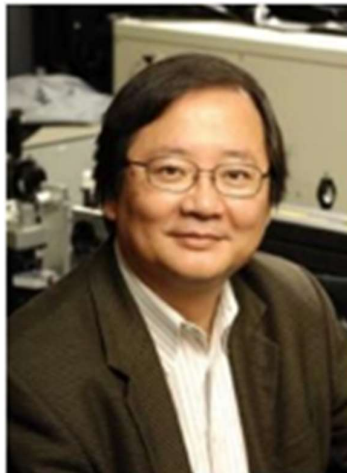
Below are some highlights from recent efforts at HPCAT.

News and Highlights

HPCAT staff scientist **Ross Hrubciak** participated in beamtime at SPring-8 with LANL experimenters **Blake Sturtevant** and **Garrett** in end of October.



Congratulation to our co-founding HPCAT member and distinguished high-pressure research scientist, Professor Choong-Shik Yoo from Washington State



University, on his prestigious selection for the 2024 American Physical Society Fellowship in the Topical Group on Compression of Condensed Matter. Professor Yoo is being recognized for his seminal contributions to understanding the response of condensed matter under extreme conditions, including the development of innovative high-pressure capabilities and novel experiments using optical and X-ray measurements. He has also played a vital role in mentoring future generations of scientists. As a founding member of HPCAT since ~1999 while at LLNL, Professor Yoo has been a long-time partner in our community. His longstanding commitment and contributions to HPCAT and the broader field of high-pressure research make this recognition especially well-deserved.

Job postings and various opportunities

- **Shock Physics and Materials at Extreme Conditions Postdoctoral Research Associate at Los Alamos National Laboratory.** Various positions open with focus on shock-dynamic and static high pressure techniques [Postdoc-LANL](#)
- **The University of Texas at Austin, Department of Earth and Planetary Sciences (EPS),** seeks to hire a Research Staff member in the broadly defined areas of Earth and planetary interiors. The emphases of the research areas include experimental mineral physics, physics and chemistry of planetary interiors, and high-pressure earth materials science. Candidates must hold a Ph.D. in Earth Science or a related field. Please apply by 1/1/2025 for best consideration. For more information, see https://utaustin.wd1.myworkdayjobs.com/en-US/UTstaff/details/Research-Associate_R_00036551?q=R_00036551+Research+Associate
- **Department of Earth and Planetary Sciences (EPS) and the Institute of Meteoritics (IOM) at the University of New Mexico** invites applications for an Open Rank tenure track faculty position (full, associate, assistant) in the field of Earth and Planetary Materials to begin in August 2025. Please apply by 12/16/2024 for best consideration. The position will remain open until filled <https://unm.csod.com/ux/ats/careersite/18/home/requisition/31368?c=unm>

- **The Department of Geology and Geophysics at the University of Utah** invites applications for an open-rank faculty position (Assistant/Associate/Full Professor) in the area geomechanics, with emphasis on rock and fracture mechanics, fracture networks, and/or fracture characterization and modeling. We seek applicants whose research complements and grows departmental strengths in areas such as Tectonic Processes, Earth Resources and Energy Transitions, Petrology and Volcanology, Experimental Mineral Physics, Seismology and Geodesy, Geological Engineering, Earth Surface Processes, and Geologic Hazards. Research approaches might include field data generation or exploration of field analogs, numerical modeling, computational methods such as machine learning and AI, and/or laboratory experiments. Position to begin July 2025. <https://utah.peopleadmin.com/postings/168605>
- **Post-doctoral position at Iowa State University** is available in [Dr. Valery Levitas' group](#) starting in the Spring of 2025 to perform experimental research on coupled plastic flow, phase transformations, and microstructure evolution under high-pressure and torsion of a sample in static and dynamic rotational diamond anvil cells. Experience with *in situ* high-pressure experimentation and/or x-ray characterization of stresses and structural changes in materials at the micron scale is desired. Close collaboration with theoretical/computational collaborators and Argonne National Laboratory of DoE is expected. Please email your application to Prof. Valery Levitas vlevitas@iastate.edu.

Upcoming events

Jan 14-15, 2025	FORCE facility WORKSHOP on Recent Advances in High Pressure Research – VIRTUAL
Jan 22, 2025	APS PUC/User meeting
Jan 21-24	DESY Photon Science and European XFEL Users' Meeting, DESY Campus in Hamburg (Germany).
Jan 27, 2025	2025-1 Beamtime cycle begins, run ends Apr. 30, 2025
Feb 4, 2025	HPCAT EC meeting
Feb 10-12, 2025	ESRF User meeting
Mar 16–21	2025 APS March meeting, Anaheim, CA https://www.aps.org/events/2025/joint-meeting
Mar 23-27, 2025	TMS Annual Meeting in Las Vegas, NV https://www.tms.org/TMS2025 NOTE: There is session organized by HPCAT/APS long time user Richard Sandberg and additional folks from APS “Characterization of Materials through High Resolution Coherent Imaging” https://www.programmaster.org/PM/PM.nsf/UpcomingSymposia/D6B7CB06ED39D35B85258AB5000D0E8F?OpenDocument&ParentUNID=268FE297891FF1D785258687004BB316
June 10-12	NNSA-SSAP symposium in Chicago area and Visit to APS and HPCAT on 12 th
Jun 22–27	2025 American Physical Society Science of Compression in Condensed Matter (SCCM) conference in Washington DC
July 6-11, 2025	Goldschmidt conference 2025 in Prague, Czech Republic. Includes high-pressure sessions https://conf.goldschmidt.info/goldschmidt/2025/meetingapp.cgi/Home/0
August 31 – September 05	European High Pressure Research Group EHPRG 62nd Meeting, Manchester, UK. https://www.ehprg.org/meetings.php
Sept. 28-Oct. 03	29th AIRAPT Intl. Conference on High Pressure Science and Technology, Matsuyama, Japan, 2025 https://smartconf.jp/content/airapt29/