Abstract Submitted
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Supporting facilities for synchrotron high-pressure high/low temperature research at HPCAT, APS STANISLAV SINOGEIKIN, ERIC ROD, GUOYIN SHEN, HPCAT, Geophysical Laboratory, Carnegie Institution of Washington — High Pressure Collaborative Access Team (HPCAT) is dedicated to advancing cutting-edge, high-pressure science and technology using synchrotron radiation at Sector 16 of the Advanced Photon Source (APS) of Argonne National Laboratory. Recently a number of supporting facilities have been developed and implemented to expand the P-T range of the experimental conditions, increase efficiency and productivity of the beamlines, and improve the quality of experimental data. We have developed instrumentation for remote and automatic pressure control in diamond anvil cells (DACs) during synchrotron experiments. These include mechanical (gearboxes) and pneumatic (double-diaphragm membrane) devises for controlling pressure in virtually any type of DAC at a variety pressure and temperature conditions - from cryogenic to laser heating experiments. We have expanded our cryogenic facilities by designing and implementing a number of compact cryostats for different synchrotron techniques and a variety of standard and novel DACs. All these devices can be easily integrated with our new portable online optical systems for pressure measurements and in-situ Raman characterization. These and other developments will be presented and discussed during the meeting.

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