

The latest update of the advanced crystallography program at NSF's ChemMatCARS

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Located at the Advanced Photon Source (APS), NSF's ChemMatCARS addresses the need in the U.S. for facilities and expertise in synchrotron X-ray studies of advanced chemical and materials crystallography, liquid surface/interface scattering, and anomalous small angle x-ray scattering. The NSF's ChemMatCARS' advanced crystallography program is a dedicated third generation synchrotron X-ray beamline for small molecule. The program includes but not limited to, high-resolution charge density; photo-crystallography; resonant diffraction/Diffraction Anomalous Fine Structure (DAFS) (energy range is from 5 to 70 keV); structural dynamics; extreme conditions in both pressure and temperature (high P < 10 GPa, low T ~ 10 K); single micro-crystal diffraction; 3D D-pair distribution function. NSF's ChemMatCARS' advanced crystallography program uses a Huber 3-circle diffractometer equipped with two high dynamic range Pilatus 3X-CdTe-1M and Pilatus 3X Si(1mm) 2M detectors that are optimal for high and low energy single crystal diffraction respectively. This presentation focuses on the experimental setup for 15ID-D hutch and the scientific highlights of the NSF's ChemMatCARS' advanced crystallography program.