

WK1: Resolution@speed: Advanced X-ray Spectroscopies with Upgraded APS (APS_U)**Organizers:** Chengjun Sun (APS, ANL) and Anne Marie March (CSE, ANL)**Location:** Building 402, Rm. E1100/1200

Advanced x-ray emission and absorption spectroscopies are important routes to explore the structural and electronic properties of complex materials and devices in the fields of physical science and engineering. With the increases in brightness, flux and sub-micron focusing provided by APS_U, it will become easier to apply high-energy-resolution detection methods at high speed to a wider variety of experiments, such as x-ray emission for ultra-diluted samples, high pressure x-ray emission spectroscopy, time-resolved x-ray emission/XANES, high-resolution x-ray absorption spectroscopy, and spin-resolved x-ray absorption spectroscopy.

This symposium will consider prospects of instrumentation and applications of high-energy-resolution and high speed (e.g. *in operando* and time-resolved) x-ray spectroscopies that will take advantage of APS_U. The symposium includes various related topics in the field, such as the overall picture of advanced x-ray spectroscopies at APS_U, the proposal/design of a next generation miniature x-ray emission spectrometers (miniXES), high-resolution x-ray emission and absorption spectroscopy for high-pressure research, the perspective of advanced x-ray spectroscopies from a theory viewpoint, time-resolved XAS of photochemical reactions, and time-resolved x-ray emission spectroscopy with MHz pink beam at 7-ID.

Session 1-Chair: Chengjun Sun

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| 8:25—8:30 | Assemble |
| 8:30—9:00 | Steve Heald (Advanced Photon Source, Argonne National Laboratory) <i>Opportunities for Advanced Spectroscopies at the APS-U and Sector 25</i> |
| 9:00—9:30 | Gilles Doumy (CSE/ Argonne National Laboratory) <i>Advanced Hard X-ray Spectroscopies for Tracking Optically Driven Molecular Dynamics</i> |
| 9:30—10:00 | Gilberto Fabbris (Advanced Photon Source, Argonne National Laboratory) <i>High-Pressure Spectroscopy at the APS-U POLAR Beamline</i> |
| 10:00—10:30 | Break |

Session 2-Chair: Anne Marie March

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| 10:30—11:00 | Robert Gordon (Simon Fraser University) <i>Upgrading S20 XES Capabilities for Improved Efficiency and Compatibility for High Pressure, Catalysis and Imaging Applications</i> |
| 11:00—11:30 | Yves Joly (Institut NEEL) <i>Interpretation of Advanced X-ray Spectroscopies Using ab Initio Simulations</i> |
| 11:30—12:00 | Amy Cordones-Hahn (SLAC National Accelerator Laboratory) <i>Photochemistry of Transition Metal Complexes Probed by Time-resolved XAS</i> |