WK1: Resolution@speed: Advanced X-ray Spectroscopies with Upgraded APS (APS_U)

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Advanced x-ray emission and absorption spectroscopies are important routes to explore the structural and electronic properties of advanced materials and devices in the field of physical science and engineering. With increases in brightness, flux, and sub-micro focusing by APS_U, it will become easier to apply high-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 workshop will consider the prospects of instrumentation and applications for improved high-energy resolution and high speed (*in operando* and time-resolved) advanced x-ray spectroscopies with APS_U. The workshop will include the various related topics in the field, such as the overall picture of advanced x-ray spectroscopies at APS_U, the proposal/design of 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 theory viewpoint, time-resolved XAS of photo-excited nanoparticles, and time-resolved XES with MHz pink beam at 7-ID.