Condensed Matter Scattering Sector APS-U Whitepaper

Title

Condensed Matter Scattering Sector

Abstract

The developers propose a major upgrade to both insertion device beamlines in Sector 6 to enable use of the increased flux, brightness, and coherence promised by APS-U. These improvements will make Sector 6 the premier facility for condensed matter hard x-ray scattering experiments by offering beam properties, techniques, detectors, and sample environments tailored to the needs of a broad range of problems of scientific and technological importance to the DOE-BES mission. Flexibility to adapt the instrumentation to the often multifaceted needs of experiments will take precedence over optimization of any single beamline characteristic. Resonant and anomalous elastic scattering will be a mainstay of the lower energy line. Single crystal scattering, small angle scattering, and PDF studies will occupy the higher energy line. Unique sample environments will be used interchangeably between the two beamlines.

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