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Dynamic Compression Sector: Time-Resolved Synchrotron X-Ray Measurements in Shock Wave Experiments[1] P. A. RIGG, N. ARGANBRIGHT, J. KLUG, C. KONRAD, Y. LI, D. RICKERSON, A. SCHUMAN, J. SETHIAN, N. SINCLAIR, Y. TOYODA, S. TURNEAURE, B. WILLIAMS, E. ZDANOWICZ, K. ZIMMERMAN, Y. M. GUPTA, Washington State University — The Dynamic Compression Sector (DCS) at the Advanced Photon Source (APS) located at Argonne National Laboratory – a first-of-its-kind user facility – has been established to address long standing scientific questions regarding atomistic – and micro/meso – scale mechanisms governing condensed matter changes under high stress, dynamic loading. By linking a diverse set of dynamic compression drivers to ∼80ps bright, hard x-ray pulses from a synchrotron, the temporal evolution (or "movies") of material phenomena (structural changes, inelastic deformation, chemical changes) can be observed in single event, dynamic compression experiments. An overview of the DCS capabilities, operational guidelines, and representative results will be presented.

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