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Time Resolved X-Ray Diffraction of Reactive Solids Under Dynamic Loadings CHOONG-SHIK YOO, Washington State University — We present novel time-resolved (TR) x-ray diffraction and TR Raman spectroscopy capable of probing structural and chemical evolutions of solids undergoing chemical and phase transformations. These methods are applicable to a wide range of dynamic experiments to study both single event phenomena of solids under thermal, electric or mechanical impact conditions and non-single event phenomena under dynamic-diamond anvil cell (d-DAC) and high frequency pulse (or ramp) laser-heated DAC. In this talk, relevant technology developments are described with several examples of our recent studies on reactive metals and dense molecular systems, which are synergistic to many proposed activities to develop dynamic synchrotron x-ray diffraction capabilities centered at advanced third and fourth generation light sources.

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