

Abstract Submitted
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Kinetics studies across the phase transition of metals using *dynamic-DAC* JING-YIN CHEN, WILLIAM EVANS, LLNL — We utilize the time-resolved synchrotron x-ray diffraction and in-situ optical spectroscopy to study the dynamic properties of several metals across the phase transition under different compression rates. The dynamic properties of metals across the pressure-induced phase transition, for example the mechanism of solidification or solid-solid transitions, are lacking. Obtaining the time-resolved structural evolutions of metals under rapid compression is critical to understanding material stability or metastability, and transition mechanism. In addition, the dynamical pressure changes can dramatically influence the microstructure and even phase boundaries, further affecting the properties of metals, such as toughness and strength.

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