

Abstract Submitted
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Powder X-ray diffraction of dynamically-compressed tantalum and lead in the terapascal pressure regime AMY LAZICKI, JON EGERT, RYAN RYGG, FEDERICA COPPARI, DAYNE FRATANDUONO, DAVE BRAUN, GILBERT COLLINS, Lawrence Livermore National Laboratory — We will present advances in powder x-ray diffraction methods for measuring crystal structure in the Terapascal pressure regime on laser ramp-compressed solids, and will show results for dynamically compressed tantalum up to 750 GPa and lead up to 600 GPa. Both of these systems show signatures of high pressure phase transitions not yet seen in static high pressure studies. We will discuss the possible effects of temperature and kinetics on high pressure phase transitions in ramp-compressed materials. This work was performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory under Contract DE-AC52-07NA27344.

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