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Laser driven quasi-isentropic compression experiments (ICE) for extracting EOS and phase transition information RAYMOND SMITH, JAVE KANE, JON EGGERT, STEPHEN MOON, MICHAEL SACULLA, WALTER UNITES, ALAN JANKOWSKI, THOMAS LORENZ, Lawrence Livermore National Laboratory, JAMES ASAY, YOGI GUPTA, Washington State University, GILBERT COLLINS, PETER CELLIERS, JOHN EDWARDS, Lawrence Livermore National Laboratory — We demonstrate the recently developed technique of laser driven isentropic compression experiments (ICE) for extracting equation-of-state (EOS) information close to the Al isentrope up to a peak stress of 120GPa. We implement indirect drive techniques to achieve excellent planarity greater than the line visars 600μm field of view which allows use to use multiple steps. In addition the Laser driven ICE technique is been used to study phase changes in materials at higher strain rates than has been previously been possible using other drivers. We present data from experiments with shockless loading of Bi, Fe and Ce. The experimental work was performed on the Janus and Omega laser facilities.

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