

Abstract Submitted  
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**Shock wave equation of state experiments at multi-TPa pressures on NIF<sup>1</sup>** P.M. CELLIERS, D.E. FRATANDUONO, J.L. PETERSON, N.B. MEEZAN, A.J. MACKINNON, D.G. BRAUN, M. MILLOT, J. FRY, K.J. BOEHM, G.W. COLLINS, Lawrence Livermore Natl Lab, A. NIKROO, P. FITZSIMMONS, General Atomics — The National Ignition Facility provides an unprecedented capability to generate steady, planar, ultra-high pressure shock waves (around 10 TPa) in solid samples. Building on successful laser shock equation of state experiments performed on a variety of other laser facilities, we have designed and fielded experiments to perform impedance match experiments on samples of C, Be, quartz and CH, in the range of 3 to 7 TPa. The experiments use a line-imaging VISAR as the primary diagnostic to measure the shock velocity in an Al reference standard and in an array of the four samples. Initial tests with the line-imaging VISAR show that the NIF is capable of driving shocks that are steady for several ns, with smooth planar breakout patterns over a 2 mm diameter spot. Initial results will be discussed.

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