Abstract Submitted
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Gbar-range Hugoniot equation of state of Boron[1] AMY LAZICKI, DAMIAN SWIFT, HEATHER WHITLEY, TILO DOEPPNER, MADISON MARTIN, MICHELLE MARSHALL, DAVID ERSKINE, RICHARD LONDON, DAYNE FRATANDUONO, PETER CELLIERS, JON EGGERT, NATALIE KOSTINSKI, BRIAN MADDOX, SHUAI ZHANG, BRIAN WILSON, Lawrence Livermore Natl Lab, WALTER JOHNSON, University of Notre Dame, JOSEPH NILSEN, Lawrence Livermore Natl Lab — Using convergent drive geometries and large-scale laser facilities, it is now possible to experimentally access high-pressure, high-temperature regimes of phase space where the thermal excitation of bound electrons has a measurable effect on plasma compressibility. These states are important for modeling extreme astrophysical phenomena and fusion-energy experiments. Equation of state models have high uncertainty in this regime because of the lack of benchmarking experimental data. We will present new data on elemental boron spanning pressures of 10's of Mbar to near 1 Gbar, using planar and spherically-convergent drive platforms on the NIF laser facility, to test a range of equation of state models.

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