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Forward modeling of boron equation of state (EOS) measurements at the National Ignition Facility (NIF)[1] M. MARTIN, J. NILSEN, D. SWIFT, A. LAZICKI, T. DOEPPNER, N. KOSTINSKI, B. MADDOX, A. KRITCHER, A. MACPHEE, B. BACHMANN, S. GLENZER, S. ZHANG, M. MARSHALL, K. CASPERSEN, L. YANG, J. GAFFNEY, T. OGITSU, D. ERSKINE, R. LONDON, P. CELLIERS, P. STERNE, H. WHITLEY, Lawrence Livermore National Laboratory, California, USA, B. MILITZER, University of California - Berkeley, California, USA — A convergently-driven absolute EOS platform capable of accessing pressures up to 1 Gbar has been developed at the NIF. At these high-temperature, high-pressure regimes, atomic shell structure may affect the compressibility of materials. Using this NIF platform, we can conduct experimental measurements needed to validate existing EOS models. For this work, we will discuss boron EOS measurements at pressures of hundreds of Mbars. Boron is a candidate for experiments at the NIF that require low areal-density, high strength ablators. In our absolute EOS measurements, we use streaked x-ray radiography to determine shock Hugoniot states. We will examine forward modeling of radiographs of different boron experiments. Coupling radiation-hydrodynamic calculations to simulated radiographs allows us to explore sensitivities of the platform.

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Madison Martin
Lawrence Livermore Natl Lab

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