

Abstract Submitted
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Laser Driven Shock Experiments for Deuterium EOS Studies

JAECHUL OH, Research Support Instruments, Inc., ANDREW MOSTOVYCH, Enterprise Sciences, Inc. — With the Nike KrF laser facility at the Naval Research Laboratory, we have conducted laser driven shock experiments along the primary Hugoniot of deuterium in the pressure range $25 \sim 200$ GPa ($0.25 \sim 2$ Mbar). A streak camera was used to resolve the optical self-emission from the shocks and provide information about the shock temperatures. A NIST traceable lamp with photomultipliers was used to calibrate *in situ* the device for the temperature measurements. Velocity interferometer system for any reflector (VISAR) measured the shock speed and the reflectivity at the shock front. The preheat effect on the shock formation is also investigated. The results from these measurements will be presented to evaluate various EOS models. This research was performed in Laser Plasma Branch, Plasma Physics Division, Naval Research Laboratory and was supported by the U.S. Department of Energy.

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