

Abstract Submitted
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Recent Experimental Results from Cryogenic Implosions on OMEGA T.C. SANGSTER, V.N. GONCHAROV, P.B. RADHA, R. BETTI, T.R. BOEHLY, V.YU. GLEBOV, S.X. HU, R.L. MCCRORY, P.W. MCKENTY, D.D. MEYERHOFER, W. SEKA, V.A. SMALYUK, Laboratory for Laser Energetics, U. of Rochester, J.A. FRENJE, R.D. PETRASSO, PSFC, MIT, D. SHVARTS, NCRN — The implosion performance of energy-scaled cryogenic D₂ and DT targets on the 60-beam OMEGA laser is important for understanding the physics of highly compressed fuel and the validation of ignition designs for the NIF. Recent experiments have demonstrated good performance using a multi-shock drive that has been tuned based on cryogenic cone-in-shell targets. Fuel areal densities are now consistently exceeding 80% of the 1-D prediction, while the yields are between 10% and 20% of 1-D predictions. These results demonstrate the benefit (and necessity) of an independent shock-timing platform. This talk will present the latest implosion performance results and potentially show the first cryogenic-fuel-core radiographs using a short pulse beam from the new OMEGA EP Laser Facility. This work was supported by the U.S. Department of Energy Office of Inertial Confinement Fusion under Cooperative Agreement No. DE-FC52-08NA28302.

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