

Abstract Submitted
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Measurements of the Conduction-Zone Length and Mass Ablation Rate to Study the Hydrodynamic Coupling in Cryogenic Direct-Drive Implosions on OMEGA D.T. MICHEL, A.K. DAVIS, V.N. GONCHAROV, S.P. REGAN, T.C. SANGSTER, R. EPSTEIN, S.X. HU, I.V. IGUMENSHCHEV, D.D. MEYERHOFER, W. SEKA, D.H. FROULA, Laboratory for Laser Energetics, U. of Rochester — The ablation-front trajectory and the averaged mass ablation rate is measured in direct-drive cryogenic target implosions on the OMEGA Laser System by imaging the soft x rays emitted by the coronal plasma. The length of the conduction zone is determined by coupling x-ray and scattered-light measurements. These measurements are compared to hydrodynamic simulations to study the modeling of the hydrodynamic coupling for various beam and target radii. Reducing the beam focal-spot radius relative to the target radius is a method that is being studied to reduce cross-beam energy transfer and increase the hydrodynamic efficiency. This material is based upon work supported by the Department of Energy National Nuclear Security Administration under Award Number DE-NA0001944.

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