

Abstract Submitted
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Electric Fields Associated with Spherically Converging Shocks in Directly-Driven OMEGA Implosions C.K. LI, A. ZYLSTRA, M.J. ROSENBERG, H.G. RINDERKNECHT, J.A. FRENJE, F.H. SEGUIN, R.D. PETRASSO, MIT, S.X. HU, R. BETTI, T.C. SANGSTER, LLE, P.A. AMENDT, C. BELLEI, S.C. WILKS, LLNL, N.M. HOFFMAN, LANL, A. NIKROO, GA — Time-gated, proton radiography provides direct measurements of radial electric fields and their temporal evolution in directly-driven capsule implosions. The experimental data indicate that such fields are associated with a spherically converging shock inside an imploding capsule. The implosions are simulated with the 2D hydrodynamic code DRACO. Several related mechanisms for generating such fields are discussed. The measurements provide physical insight into the structure, strength and dynamics of spherically converging shocks and have important implications in ICF implosion physics. This work was supported in part by the U.S. DOE, NLUF, LLNL and LLE.

Fredrick Seguin
MIT

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