

Abstract Submitted
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Filamentation in the coronae of imploding ICF capsules F.H. SEGUIN, C.K. LI, M. MANUEL, J.R. RYGG¹, J.A. FRENJE, R.D. PETRASSO, MIT, R. BETTI, F.J. MARSHALL, D.D. MEYERHOFER, LLE — Electromagnetic fields associated with filamentary structures in the coronae of directly-driven ICF capsules have been studied with charged-particle radiography at the OMEGA laser facility. The time evolution and structures of the fields, including identification of field type, will be described on the basis of complementary radiographs recorded with several particle types as well as Monte-Carlo simulations. The particles include monoenergetic species (15-MeV protons, 3-MeV protons, and 3.6-MeV alpha particles, from laser-driven, imploding-pusher capsules with D³He fill) as well as protons with exponential spectra (produced from short-pulse OMEGA-EP laser beams incident on a foil). Possible connections with specific hydrodynamic and/or laser-plasma-interaction instabilities, and implications for implosion physics, will be discussed. This work was performed at the LLE NLUF, and was supported in part by the FSC at U. of R., US DoE, LLNL, and LLE.

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