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Monoenergetic Proton Radiography Observations of E and B Field Evolution Outside Imploding, Direct-Drive ICF Capsules F.H. SEGUIN, C.K. LI, J.R. RYGG, J.A. FRENJE, R.D. PETRASSO, MIT PSFC, R. BETTI, O.V. GOTCHEV, J.P. KNAUER, F.J. MARSHALL, D.D. MEYERHOFER, V.A. SMALYUK, UR LLE — Monoenergetic proton radiography has been used to make the first observations of electromagnetic fields that appear outside imploding inertial confinement fusion capsules as a result of laser-plasma interactions in direct-drive experiments at OMEGA. Images made with 15-MeV protons and ∼130 ps time resolution show that field structures that are roughly spherically symmetric form around the capsule shortly after the onset of laser illumination; these gradually change to radially filamented structures before dying away. Estimates of mode numbers and field strengths will be made, and the relationship between the field evolution and measured spectra of ablator ions will be discussed. This work was performed in part at the LLE National Laser User's Facility (NLUF), and was supported in part by US DOE, LLNL, LLE and FSC at Univ. Rochester.

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