

Abstract Submitted  
for the DPP10 Meeting of  
The American Physical Society

**Study of Self-Generated Magnetic Fields in Implosion Experiments on OMEGA I.V.** IGUMENSHCHEV, V.N. GONCHAROV, P.M. NILSON, T.C. SANGSTER, Laboratory for Laser Energetics, U. of Rochester, C.K. LI, R.D. PETRASSO, PSFC, MIT — Proton radiography of directly driven inertial fusion implosions has revealed the development of filamentary electromagnetic fields in outflowing corona of plastic-shell targets.<sup>1</sup> To explain these experiments, the dynamics of self-generated magnetic fields that originated near the critical surface of the targets is investigated using 2-D MHD simulations. Laser imprint is considered as the source of plasma nonuniformities that generate seed fields via the thermoelectric effect. The predicted fields ( $\sim 1$  MG) show good agreement with the fields inferred from the experiments. This work was supported by the U.S. Department of Energy Office of Inertial Confinement Fusion under Cooperative Agreement No. DE-FC52-08NA28302.

<sup>1</sup>C. K. Li *et al.*, Phys. Rev. Lett. **100**, 225001 (2008).

S. Skupsky  
Laboratory for Laser Energetics, U. of Rochester

Date submitted: 13 Jul 2010

Electronic form version 1.4