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Laser–Plasma Coupling Near Critical Density in Direct-Drive ICF Plasmas A.V. MAXIMOV, J. MYATT, R.W. SHORT, Laboratory for Laser Energetics, U. of Rochester — Laser–plasma coupling near the critical density has a major effect on absorption and heat transport in direct-drive inertial confinement fusion (ICF) plasmas. The characteristic features of the near-critical-density region are steep gradients of plasma density and temperature. This region also includes turning points for laser beams, and laser–plasma coupling is influenced by interference between multiple incident and reflected beams. Modeling with the laser–plasma interaction code[1] for nonlinear beam propagation near the beam turning points allows us to study the generation of magnetic fields caused by crossing gradients of temperature and laser-driven density perturbations, and also the structure of p-polarized laser fields that affect the resonance absorption. The modification of transport by laser-driven magnetic fields together with the effect of the laser field on the electron-distribution function are implemented in the hydrodynamic modeling. This work was supported by the U.S. Department of Energy Office of Inertial Confinement Fusion under Cooperative Agreement No. DE-FC52-92SF19460.

[1]A. V. Maximov *et al.*, Phys. Plasmas **11**, 2994 (2004).

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