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Electron Distribution and Transport in a Laser Field in Direct-Drive ICF Plasmas A.V. MAXIMOV, J. MYATT, R.W. SHORT, Laboratory for Laser Energetics, U. of Rochester — In studies of direct-drive inertial confinement fusion (ICF) physics, the modeling of electron heat transport has a major role. In the region close to the critical-density surface, the distribution of electrons is influenced simultaneously by steep density and temperature gradients and by multiple laser beams which have their turning points and are largely absorbed in this region. The effect of the laser field on the electron distribution function and on the electron heat transport in the near-critical-density region is considered. The modifications in the electron distribution function are obtained by solving the kinetic equation for electrons with the Fokker–Planck–Landau collision integral. The importance of these changes in the electron distribution and transport for the numerical modeling of direct-drive ICF experiments with hydrodynamic codes and Fokker–Planck codes[1,2] is discussed. This work was supported by the U.S. Department of Energy Office of Inertial Confinement Fusion under Cooperative Agreement No. DE-FC52-92SF19460.

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