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Laser–Plasma Interaction Near the Quarter-Critical Density in Direct-Drive Inertial Confinement Fusion A.V. MAXIMOV, H. WEN, J.F. MYATT, R.W. SHORT, C. REN, Laboratory for Laser Energetics, U. of Rochester — The laser–plasma interaction (LPI) near the quarter-critical density in direct-drive inertial confinement fusion (ICF)[1] plasmas strongly influences the coupling of laser energy to the target and the generation of fast electrons capable of preheating the target fuel. The full modeling of LPI near the quarter-critical density includes the interplay between two-plasmon decay and stimulated Raman scattering instabilities as well as ion-acoustic perturbations. The results of the kinetic particle-in-cell simulations are in agreement with the simulation results from the fluid-type code.[2] The fast-electron flux and the $\omega/2$ half-omega light spectra are calculated for the parameters relevant to direct-drive ICF experiments on the OMEGA Laser System and at the National Ignition Facility. This material is based upon work supported by the Department of Energy National Nuclear Security Administration under Award Number DE-NA0001944.

[1]J. F. Myatt *et al.*, Phys. Plasmas **21**, 055501 (2014).
[2]H. Wen *et al.*, Phys. Plasmas **22**, 052704 (2015).

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