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Particle-in-Cell Simulations of Nonlinear LaserPlasma Interactions and Hot-Electron Generations in the Shock-Ignition Regime R. YAN, U. Science and Technology of China, U. of Rochester, E. BORWICK, R. BETTI, J. LI, W. THEOBALD, C. REN, U. of Rochester, C. KRAULAND, M. S. WEI, General Atomics, S. ZHANG, F. N. BEG, UCSD — We performed particle-in-cell (PIC) simulations with parameters relevant to laserplasma interaction (LPI) experiments on OMEGA EP using high laser intensities (10^{16} to $10^{17} W/cm^2$). Rich physics were observed in this new LPI regime, including laser filamentation and plasma cavitation, plasma waves beyond the Landau cutoff, and significant pump depletion. We will also compare hot-electron generation from the simulations with the experimental measurements. This material is based upon work supported by the Department of Energy under Grant No. DE-SC0012316; by NSF under Grant No. PHY-1314734; and by Laboratory for Laser Energetics. The research used resources of the National Energy Research Scientific Computing Center.

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