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Kinetic effects during the interaction between high density microplasma and electromagnetic wave[1] DMITRY LEVKO, LAXMINARAYAN RAJA, The University of Texas at Austin — The interaction between a high-density microplasma and high-power electromagnetic wave is studied by one-dimensional Particle-in-Cell Monte Carlo collisions model coupled with the Maxwell's equations. We find the value of the amplitude of the wave field above which a fully ionized plasma is generated on the picosecond time scale. This fully ionized plasma is obtained only in the skin layer while the ionization degree of the plasma bulk is ˜20%. The simulation results show that such non-homogeneous distribution of plasma and gas density influences significantly the heating of plasma electrons and time evolution of the electron energy distribution function.

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