

Abstract Submitted
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Kinetic effects during the interaction between high density microplasma and electromagnetic wave.¹ DMYTRO LEVKO, LAXMI-NARAYAN 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 $\sim 20\%$. 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 probability function.

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