Abstract Submitted
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Collisional Relaxation of Super Thermal Electrons Generated by Relativistic Laser Pulses in Dense Plasma[1] ANDREAS KEMP, YASUHIKO SENTOKU, VLADIMIR SOTNIKOV, University of Nevada, Reno, SCOTT WILKS, Lawrence Livermore National Laboratory — Energy relaxation of the hot electron population generated by relativistic laser pulses in overdense plasma is analyzed for densities ranging from below- to one thousand times solid density. It is predicted that longitudinal beam-plasma instabilities, which dominate energy transfer between hot electrons and plasma at lower densities, are suppressed by collisions beyond solid density. The respective roles of collisional energy transfer modes, i.e. direct collisions, diffusion and resistive return current heating, are identified with respect to plasma density.

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