Abstract Submitted
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Stochastic acceleration of electrons from multiple uncorrelated plasma waves.[1] DAVID GEE[2], PIERRE MICHEL, Lawrence Livermore National Laboratory, Livermore, California 94551, USA, JONATHAN WURTELE, Physics Department, University of California, Berkeley, California 94720 — One-dimensional theory puts a strict limit on the maximum energy attainable by an electron trapped and accelerated by an electron plasma wave (EPW). However, experimental measurements of hot electron distributions accelerated by stimulated Raman scattering (SRS) in ICF experiments typically show a thermal distribution with temperatures of the order of the kinetic energy of the resonant EPW's (Thot ˜mvpˆ2 , where vp is the phase velocity of the EPW's driven by SRS) and no clear cutoff at high energies. In this project, we are investigating conditions under which electrons can be stochastically accelerated by multiple uncorrelated EPW's, such as those generated by incoherent laser speckles in large laser spots like the ones used on NIF (˜mm-size), and reproduce distributions similar to those observed in experiments.

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