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Electron Transport and Related Nonequilibrium Distribution Functions in Large Scale ICF Plasma W. ROZMUS, Univ of Alberta, AB, Canada, T. CHAPMAN, LLNL, A.V. BRANTOV, Lebedev Phys. Institute, Moscow, Russia, B. WINJUM, UCLA, CA, USA, R. BERGER, LLNL, CA, USA, S. BRUNNER, Ecole Polytechnique, Lausanne, Switzerland, V. YU. BYCHENKOV, Lebedev Phys. Institute, Moscow, Russia, A. TABLEMAN, UCLA, CA, USA — Using the Vlasov-Fokker Fokker-Planck (VFP) code OSHUN [M. Tzoufras *et a*l. Phys. Plasmas **2**0, 056303 (2013)] and higher order perturbative solutions to the VFP equation, we have studied electron distribution functions (EDF) in inhomogeneous and hot hohlraum plasmas of relevant to the current ICF experiments. For these inhomogeneous ICF plasmas characterized by with the temperature and density gradients consistent with the high flux model [M.D. Rosen, *et al.*, HEDP 7, 180 (2011)], nonequilibrium EDF often display unphysical properties related to first and second order derivatives at larger velocities. These EDF strongly modify the linear plasma response, including Lanadau damping of Langmuir waves, electrostatic fluctuation levels, and instability gain coefficients We have found that Langmuir waves propagating in the direction of the heat flow have increased Lanadau damping compared to damping calculated from a Maxwellian EDF, while Langmuir waves propagating in the direction of the temperature gradients are far less damped as compared to damping calculated from the Maxwellian EDF. These effects have been discussed in the context of stimulated Raman scattering, Langmuir decay instability and Thomson scattering experiments.

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