Abstract Submitted
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Electron Transport Modeling in Inertial Confinement Fusion Experiments V.N. GONCHAROV, G. LI, P.B. RADHA, J.A. DELETTREZ, A.V. MAXIMOV, R.L. MCCRORY, Laboratory for Laser Energetics, U. of Rochester — Thermal transport plays an important role in inertial confinement fusion. The Spitzer–Harm model has conventionally been used in hydrocodes. Such a model, however, breaks when the electron mean free path exceeds a few percent of the spatial scale length in a plasma. To extend the validity of the model, a flux limiter $f$is introduced and the Spitzer flux q_{SH} is replaced by a fraction of the free-stream flux fq_{FS} in regions where $q_{SH} > fq_{FS}$. Alternatively, a convolution form[1] and multi-group diffusion model[2] of the thermal flux have been proposed in the past. In this talk, a new nonlocal model is presented which takes into account the finite deposition range of electrons. Such a model is based on the solution of a simplified kinetic equation. Heat flux, calculated with the model, is used in the hydrocode *LILAC* to simulate ICF experiments. Comparison of the results of such simulations with both the experimental data and Fokker–Planck simulations will be presented. This work was supported by the U.S. Department of Energy Office of Inertial Confinement Fusion under Cooperative Agreement No. DE-FC52-92SF19460.

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