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Nonlocal Ion-Heat Transport and Viscosity in ICF Implosions Using a Quasi-Monte Carlo Approach S. SKUPSKY, V.N. GONCHAROV, D. LI, Laboratory for Laser Energetics, U. of Rochester — During shock propagation and coalescence in the vapor region of ICF targets, the ion mean free path can become large compared to relevant spatial scale lengths and to the size of computational cells in computer models. During this time, a local treatment of heat conduction and viscosity is not valid. To investigate the effect of these long mean-free-path ions, two different models (based on Monte Carlo and kinetic techniques) have been developed to treat the nonlocal ion transport, and they have been applied to the modeling of experiments on the OMEGA laser. This presentation will focus on the quasi-Monte-Carlo approach in which ions are tracked through the plasma, and energy and momentum are deposited nonlocally. The following paper (D. Li) will discuss the quasi-kinetic approach. Comparison of the results will be presented. This work was supported by the U.S. Department of Energy Office of Inertial Confinement Fusion under Cooperative Agreement DE-FC52-92SF19460.

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