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Constraining heat-transport models by comparison to experimental data in a NIF hohlraum[1] W. A. FARMER, O. S. JONES, M. A. BARRIOS GARCIA, J. M. KONING, G. D. KERBEL, D. J. STROZZI, D. E. HINKEL, J. D. MOODY, L. J. SUTER, D. A. LIEDAHL, A. S. MOORE, O. L. LANDEN, Lawrence Livermore Natl Lab — The accurate simulation of hohlraum plasma conditions is important for predicting the partition of energy and the symmetry of the x-ray field within a hohlraum. Electron heat transport within the hohlraum plasma is difficult to model due to the complex interaction of kinetic plasma effects, magnetic fields, laser-plasma interactions, and microturbulence. Here, we report simulation results using the radiation-hydrodynamic code, HYDRA, utilizing various physics packages (e.g., nonlocal Schurtz model [1], MHD, flux limiters) and compare to data from hohlraum plasma experiments which contain a Mn-Co tracer dot [2]. In these experiments, the dot is placed in various positions in the hohlraum in order to assess the spatial variation of plasma conditions. Simulated data is compared to a variety of experimental diagnostics. Conclusions are given concerning how the experimental data does and does not constrain the physics models examined. [1] G. P. Schurtz et al., Phys. Plasmas 7, 4238 (2000). [2] M. A. Barrios Garcia, et al., Phys. Plasmas 23, 056307 (2016).

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