

Abstract Submitted
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Model Comparison for Electron Thermal Transport GREGORY MOSES, JEFFREY CHENHALL, University of Wisconsin, Madison, DUC CAO, JACQUES DELETTREZ, Laboratory for Laser Energetics, University of Rochester — Four electron thermal transport models are compared for their ability to accurately and efficiently model non-local behavior in ICF simulations. Goncharov's transport model¹ has accurately predicted shock timing in implosion simulations but is computationally slow and limited to 1D. The iSNB (implicit Schurtz Nicolai Busquet²) electron thermal transport method of Cao et. al.³ uses multigroup diffusion to speed up the calculation. Chenhall has expanded upon the iSNB diffusion model to a higher order simplified P₃⁴ approximation and a Monte Carlo transport model, to bridge the gap between the iSNB and Goncharov models while maintaining computational efficiency. Comparisons of the above models for several test problems will be presented. This work was supported by Sandia National Laboratory – Albuquerque and the University of Rochester Laboratory for Laser Energetics.

¹Goncharov et. al. Phys. Plasmas 13, 012702 (2006)

²Schurtz et. al. Phys. Plasmas 7, 4238 (2000)

³Cao et. al. BAPS DDP14 UP8.84 (2014)

⁴Larsen et. al. Nucl. Sci. & Engr. 123, 328-242 (1996)

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