Abstract Submitted
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Non-local electron transport validation using 2D DRACO simulations[1] DUC CAO, JEFF CHENHALL, ELI MOLL, ALEX PROCHASKA, GREGORY MOSES, University of Wisconsin-Madison, JACQUES DELETTREZ, TIM COLLINS, Laboratory for Laser Energetics — Comparison of 2D DRACO simulations, using a modified version[2] of the Schurtz, Nicolai and Busquet (SNB) algorithm[3] for non-local electron transport, with direct drive shock timing experiments[4] and with the Goncharov non-local model[5] in 1D LILAC will be presented. Addition of an improved SNB non-local electron transport algorithm in DRACO allows direct drive simulations with no need for an electron conduction flux limiter. Validation with shock timing experiments that mimic the laser pulse profile of direct drive ignition targets gives a higher confidence level in the predictive capability of the DRACO code. This research was supported by the University of Rochester Laboratory for Laser Energetics.

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[2]private communications with M. Marinak and G. Zimmerman, LLNL.
[3]Schurtz, Nicolai and Busquet, "A nonlocal electron conduction model for multidimensional radiation hydrodynamics codes," Phys. Plasmas 7, 4238(2000).
[4]T. Boehly, et. al., "Multiple spherically converging shock waves in liquid deuterium," Phys. Plasmas 18, 092706(2011).
[5]V. Goncharov, et. al., "Early stage of implosion in inertial confinement fusion: Shock timing and perturbation evolution," Phys. Plasmas 13, 012702(2006).

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