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A Two-Dimensional Hydrocode to Study the Deceleration Phase and Hot-Spot Formation in Inertial Confinement Fusion Implosions K.M. WOO, A. BOSE, R. BETTI, Laboratory for Laser Energetics and Fusion Science Center, U. of Rochester, J.A. DELETTREZ, K.S. ANDERSON, R. EPSTEIN, Laboratory for Laser Energetics, U. of Rochester — A hydrocode[1] was developed to study the final stage of an implosion starting from the coasting phase, including hot-spot formation and thermonuclear burn. Recently, a flux-limited multigroup diffusion approximation model has been added to study the transport of radiation energy in the deceleration phase of a spherical inertial confinement fusion target. Numerical results from the multigroup model indicate a good agreement with *LILAC* 1-D simulations. The code is used to study effects of radiation on the hotspot formation and distortion. Results from 2-D runs are presented and the effect of radiation transport on the deceleration-phase Rayleigh–Taylor instability is discussed. This material is based upon work supported by the Department of Energy National Nuclear Security Administration under Award Number DE-NA0001944 and the Office of Fusion Energy Sciences Number DE-FG02-04ER54786.

[1]K. Anderson, R. Betti, and T. A. Gardiner, Bull. Am. Phys. Soc. **46**, 280 (2001).

K.M. Woo
Laboratory for Laser Energetics and Fusion Science Center, U. of Rochester

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