

Abstract Submitted  
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**Using Radiation Preheat to Improve Shell Stability in OMEGA Implosions** P.B. RADHA, J.P. KNAUER, T.C. SANGSTER, V.N. GONCHAROV, I.V. IGUMENCHEV, R. BETTI, R. EPSTEIN, D.D. MEYERHOFER, S. SKUPSKY, Laboratory for Laser Energetics, U. of Rochester — Preheat of imploding shells from coronal photons in direct-drive implosions has been previously proposed to shape the adiabat in the shell and reduce ablative Rayleigh–Taylor growth rates during acceleration.<sup>1</sup> OMEGA cryogenic and warm plastic designs with Si-doped ablaters are studied using one- and two-dimensional simulations. The effect on compression, single-mode growth rates, and shell distortions are examined. Areal density, which primarily depends on the inner-shell adiabat, is a sensitive measure of preheat of the inner fuel. Simulation results will be compared with observations of areal densities in OMEGA implosions. This work was supported by the U.S. Department of Energy Office of Inertial Confinement Fusion under Cooperative Agreement DE-FC52-92SF19460.

<sup>1</sup>S. E. Bodner *et al.*, Phys. Plasmas **5**, 1901 (1998).

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