Abstract Submitted
for the DPP09 Meeting of
The American Physical Society

Numerical Investigation of the Effects of Cross-Beam Energy Transfer on the Drive Uniformity of OMEGA Implosions A. SHVYDKY, P.W. MCKENTY, J.A. DELETTREZ, I.V. IGUMENSHCHEV, D.H. EDGELL, S. SKUPSKY, R.L. MCCRORY, Laboratory for Laser Energetics, U. of Rochester — Evaluation of the scattered light in OMEGA implosions indicates that cross-beam energy transfer caused by stimulated Brillouin scattering (SBS) may explain the observed reduction in the absorbed energy and the details of the spectral shifts in the scattered light. Recently, an *ad-hoc* model of the cross-beam energy transfer has been implemented that scatters light from the central portions of laser beams to reflected, outgoing rays before reaching the critical region. Such a process decreases the total absorption and increases laser deposition nonuniformities. In this paper, using the 2-D radiation-hydrodynamics code *DRACO*, we investigate these two effects and how they affect the implosion uniformity and target performance in OMEGA implosions. High- and low-adiabat plastic and cryogenic implosions are considered, and the simulation results are compared with available OMEGA experiments. This work was supported by the U.S. Department of Energy Office of Inertial Confinement Fusion under Cooperative Agreement No. DE-FC52-08NA28302.

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Date submitted: 14 Jul 2009 Electronic form version 1.4