Abstract Submitted
for the DPP05 Meeting of
The American Physical Society

2-D Simulations of Adiabat-Shaped Targets K. ANDERSON, R. BETTI, Laboratory for Laser Energetics, U. of Rochester — Adiabat shaping has been proposed as a method for simultaneously achieving high compression and high stability in inertial confinement capsule implosions. Adiabat shaping is a concept by which the radial entropy profile in the capsule is modified to allow for low entropy (adiabat) in the inner portion of the shell, giving high 1-D compression and high entropy in the outer portion, which leads to higher ablative stabilization of the Rayleigh–Taylor instability. Two such adiabat-shaping techniques rely solely on temporal laser pulse shaping; the decaying shock[1] and the relaxation[2] methods. Results are presented from a series of 2-D single-mode and multimode laser imprint simulations of cryogenic implosions on the OMEGA laser using the code *DRACO* to compare the effectiveness of these two designs with respect to the Rayleigh–Taylor growth and the initial perturbation seeds to that of capsules with constant entropy profiles. This work was supported by the U.S. Department of Energy Office of Inertial Confinement Fusion under Cooperative Agreement No. DE-FC52-92SF19460.

[1]V. N. Goncharov *et al.*, Phys. Plasmas **10**, 1906 (2003).
[2]K. Anderson and R. Betti, Phys. Plasmas **11**, 5 (2004).

K. Anderson
Laboratory for Laser Energetics, U. of Rochester

Date submitted: 20 Jul 2005 Electronic form version 1.4