

Abstract Submitted
for the DPP05 Meeting of
The American Physical Society

Sorting Category: 4.4.0 (T)

Effects of Perturbed Picket Pulses in Adiabatic-Shaped Direct-Drive Implosion Experiments R. EPSTEIN, T.J.B. COLLINS, J.A. DELETTREZ, V.N. GONCHAROV, J.P. KNAUER, J.A. MAROZAS, P.W. MCKENTY, P.B. RADHA, V.A. SMALYUK, Laboratory for Laser Energetics, U. of Rochester — The leading “picket” component of the laser drive pulse in implosion experiments launches a shock wave that tailors the entropy profile of the target shell for greater hydrodynamic stability when accelerated by the main pulse component. We determine the required picket timing and energy tolerances for individual beams of the laser system from one-dimensional simulations. Multidimensional simulations refine these specifications by considering the target’s tolerance to shock wave nonuniformities in setting up a sufficiently uniform shell for the main pulse. The timing specification for the individual beams is significantly less stringent than for the picket of the total pulse because of the averaging effect on the random mistiming of the individual beams that contribute to the irradiance at any one point on the target surface. This work was supported by the U.S. Department of Energy Office of Inertial Confinement Fusion under Cooperative Agreement No. DE-FC52-92SF19460.

Prefer Oral Session
 Prefer Poster Session

R. Epstein
reps@lle.rochester.edu
Laboratory for Laser Energetics, U. of Rochester

Date submitted: 22 Jul 2005

Electronic form version 1.4