

Abstract Submitted
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Multiple-Picket, Direct-Drive Target Designs for OMEGA and the NIF V.N. GONCHAROV, T.C. SANGSTER, T.R. BOEHLY, P.B. RADHA, R.L. MCCRORY, D.D. MEYERHOFER, S. SKUPSKY, Laboratory for Laser Energetics, U. of Rochester — Multiple-picket, direct-drive target designs are considered for the National Ignition Facility. They have several advantages over conventional designs with continuous drive pulses. Because of inaccuracies in modeling EOS and laser coupling, the slope of the intensity rise in a continuous-pulse design must be experimentally “tuned” to prevent steepening of the compression wave front into a shock. Recent shock-velocity measurements¹ indicate that the shock tuning can be facilitated by replacing this rise region with two or three pickets. The required shock-timing accuracy can be achieved in this case by adjusting energies of individual pickets. In addition, the multiple-picket design produces an enhanced adiabat steepening at the ablation front that increases target robustness to the hydro instability. This work was supported by the U.S. Department of Energy Office of Inertial Confinement Fusion under Cooperative Agreement No. DE-FC52-08NA28302.

¹T.R. Boehly *et al.*, “Timing of Multiple Shock Waves in Cryogenic-Deuterium Targets,” invited talk, this conference.

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