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Multiple-Picket Cryogenic Target Designs and Performance for OMEGA and the National Ignition Facility V.N. GONCHAROV, T.C. SANGSTER, T.R. BOEHLY, R.L. MCCRORY, D.D. MEYERHOFER, P.B. RADHA, V.A. SMALYUK, S. SKUPSKY, Laboratory for Laser Energetics, U. of Rochester, J.A. FRENJE, R.D. PETRASSO, PSFC-MIT — Low-adiabat cryogenic-target-compression experiments are currently performed on the OMEGA laser. Multiple-picket designs have several advantages over the continuous-drive pulses. First, as shown in recent shock-velocity measurements performed on OMEGA,[1] the shock tuning can be facilitated by replacing the region of gradual intensity rise in the continuous-pulse designs with three pickets. The required shock-timing accuracy can be achieved in this case by adjusting energies of individual pickets. Second, the main pulse's contrast ratio is reduced from 40 to 100 in the continuous designs to 2 to 5 in multiple-picket designs. The latter are also less susceptible to Rayleigh–Taylor instability since the intensity pickets produce an enhanced adiabat steepening at the ablation front, increasing the ablative stabilization. This talk will summarize details of the multiple-picket designs and modeling validation with the experimental data. This work was supported by the U.S. Department of Energy Office of Inertial Confinement Fusion under Cooperative Agreement No. DE-FC52-08NA28302.

[1]T. R. Boehly *et al.*, Phys. Plasmas **16**, 056302 (2008).

V.N. Goncharov
Laboratory for Laser Energetics, U. of Rochester

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