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Cryogenic-DT-Implosion Performance with Improved Target-Surface Quality T.C. SANGSTER, V.N. GONCHAROV, D.H. EDGELL, D.H. FROULA, V.YU. GLEBOV, D.R. HARDING, S.X. HU, F.J. MARSHALL, R.L. MCCRORY, P.W. MCKENTY, D.D. MEYERHOFER, J.F. MYATT, P.B. RADHA, W. SEKA, C. STOECKL, B. YAAKOBI, Laboratory for Laser Energetics, U. of Rochester, J.A. FRENJE, M.G. JOHNSON, R.D. PETRASSO, PSFC, MIT — High fuel areal densities (ρR) are routinely achieved in low-adiabat cryogenic deuterium–tritium (DT) implosions on the OMEGA laser.[1] While these ρR's agree with 1-D hydrocode predictions, the measured yields have been lower than predictions, even when cross-beam energy transfer is included. The yield deficit is believed to be caused by nonuniformities on the target surfaces and in the laser-drive symmetry.[2] A significant source of outer-surface perturbations has been identified and partially mitigated-condensable gases that freeze out on the surface of the capsule. Mitigating this source led to a consistent $2\times$ improvement in the measured primary yield. This work was supported by the U.S. Department of Energy Office of Inertial Confinement Fusion under Cooperative Agreement No. DE-FC52-08NA28302.

[1]V. N. Goncharov *et al.*, Phys. Rev. Lett. **104**, 165001 (2010).
[2]S. X. Hu *et al.*, Phys. Plasmas **17**, 102706 (2010).

T.C. Sangster
Laboratory for Laser Energetics, U. of Rochester

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