

Abstract Submitted
for the DPP20 Meeting of
The American Physical Society

Polar-Drive Cryogenic Implosions on the OMEGA Laser¹ RADHA BAHUKUTUMBI, WOLFGANG THEOBALD, DUC CAO, STEVE CRAXTON, CHAD FORREST, VLADIMIR GLEBOV, VALERI GONCHAROV, TIRTHA JOSHI, OWEN MANNION, FRED MARSHALL, ZAARAH MOHAMMED, SEAN REGAN, RAHUL SHAH, CHRISTIAN STOECKL, RICCARDO BETTI, MICHAEL CAMPBELL, VARCHAS GOPALASWAMY, JIM KNAUER, AARNE LEES, DHRUMIR PATEL, CRAIG SANGSTER, CLIFF THOMAS, University of Rochester, MARIA GATU-JOHNSON, JOHAN FRENJE, RICHARD PETRASSO, Massachusetts Institute of Technology — The first set of cryogenic PDD implosions on the OMEGA laser are described. The goal of these implosions is to identify and validate techniques to achieve comparable performance to the long-standing spherical direct-drive cryogenic campaign on OMEGA. Trends in the shape of the imploding shell were studied in the first set of PDD implosions by varying beam energies for specific OMEGA beams. Hot-spot images measured using x rays indicate the expected change in shape from prolate to oblate as the energy of the beams closer to the equator is decreased relative to that of the beams near the poles. The reduction in yield in these implosions is comparable to those in previous room-temperature implosions. Experimental observations will be compared with simulations. The path forward is described.

¹This material is based upon work supported by the Department of Energy National Nuclear Security Administration under Award Number DE-NA0003856.

Radha Bahukutumbi
University of Rochester

Date submitted: 08 Jul 2020

Electronic form version 1.4