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Multidimensional Study of High-Adiabat OMEGA Cryogenic Experiments T.J.B. COLLINS, R. BETTI, A. BOSE, A.R. CHRISTOPHERSON, J.P. KNAUER, J.A. MAROZAS, A.V. MAXIMOV, A. MORA, P.B. RADHA, W. SHANG, A. SHVYDKY, C. STOECKL, K.M. WOO, G. VARCHAS, Laboratory for Laser Energetics, U. of Rochester — Despite recent advances in modeling laser direct-drive inertial confinement fusion (ICF) experiments, there remains a predictability gap. This is particularly shown by the shortfall in hot-spot pressures inferred from OMEGA cryogenic implosions. To address this, a series of high-adiabat, cryogenic implosions were performed on OMEGA. These shots were performed with and without single-beam smoothing by spectral dispersion, at low and high drive intensities. These shots represent a regime where good agreement with simulation is expected because of the high adiabat. Multidimensional simulations of these shots will be presented with an emphasis on comparison with experimental indicators of departure from spherical symmetry ("1-D-ness"). The roles of short- and long-wavelength perturbations are considered. This material is based upon work supported by the Department of Energy National Nuclear Security Administration under Award Number DE-NA0001944.

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