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Evidence of Systematic Jetting in Nominal Omega Implosions RAHUL SHAH, B.M. HAINES, F.J. WYSOCKI, P. HAKEL, G. KAGAN, T.J. MURPHY, Los Alamos National Laboratory, J.F. BENAGE, Sandia National Laboratory, R.C. MANCINI, University of Nevada, Reno, V. GLEBOV, F.J. MAR-SHALL, D.T. MICHEL, C. STOECKL, B. YAAKOBI, University of Rochester, Laboratory for Laser Energetics — By means of detailed comparison between narrowspectrum tracer-emission-images and 2-D radiation-hydrodynamic calculation, we present evidence of a systematic hydrodynamic defect of nominal OMEGA implosions. The defect [1], which arises from a drive asymmetry caused by capsule mounting, distorts the low-mode symmetry and pressure profile of the fuel cavity and also enhances deceleration-phase fuel-shell mixing. It is a critical consideration for interpretations of performance degradation (and for analyses dependent on shape assumptions). The tracer technique is predicted to differentiate the change in fuel cavity structure between the existing and a proposed improvement of the capsule mounting. The influence of the defect on the fuel-shell mixing is also shown to be an essential consideration for analysis of separated reactants experiments.

[1] I.V. Igumenshchev et al. Physics of Plasmas 16: 082701 (2009).

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