Abstract Submitted
for the DPP16 Meeting of
The American Physical Society

Systematic Fuel Cavity Asymmetries in Directly Driven ICF Implosions RAHUL SHAH, F. J. WYSOCKI, B. M. HAINES, Los Alamos National Laboratory, J. F. BENAGE, Sandia National Laboratories, J. FOOKS, General Atomics, V. GLEBOV, University of Rochester, P. HAKEL, Los Alamos National Laboratory, M. HOPPE, General Atomics, I. V. IGUMENSHCHEV, University of Rochester, G. KAGAN, Los Alamos National Laboratory, R. C. MANCINI, University of Nevada, Reno, F. J. MARSHALL, D. T. MICHEL, University of Rochester, T. J. MURPHY, Los Alamos National Laboratory, M. E. SCHOFF, General Atomics, C. STOECKL, B. YAAKOBI, University of Rochester — Direct-drive ICF could provide the additional energy needed for ignition. However, sub-scale experiments have reached only half the expected pressure. Simulations suggest asymmetry as the culprit [1]. Herein we assess symmetry by use of a novel imaging technique enabling diagnosis of the fuel-cavity shape as defined at the fuel-shell interface. In this approach, targets are slightly modified such that a Ti tracer layer is selectively placed only at the innermost surface of the ablator. The specificity of the emission to the fuel-shell interface, coupled with spectrally selective imaging, leads us to profoundly new imaging evidence asymmetries. Identifications are made with anticipated systematic asymmetries of shape during deceleration at convergence $\sim$15. An $\ell \sim 1$ systematic asymmetry is revealed suggesting evidence of a blow-out which quashes pressure. [1] I. V. Igumenshchev *et. al.* Phys. Plasmas **23**, 052702 (2016).

Rahul Shah
Los Alamos National Laboratory

Date submitted: 15 Jul 2016 Electronic form version 1.4