

Abstract Submitted
for the DPP13 Meeting of
The American Physical Society

Inferring time dependent drive-induced low mode shape asymmetries in NIF implosions ANDREA KRITCHER, DAN CLARK, RICHARD TOWN, BRIAN SPEARS, STEVE HAAN, DAVE BRADLEY, Lawrence Livermore National Laboratory — One of the most challenging tasks in ICF experiments is achieving adequate symmetry of the DT fuel and hot spot at high convergence ratios relevant for ignition. In addition, maintaining symmetry throughout the entire implosion is key for the efficient conversion of kinetic energy to compression and heating of the fuel and hot spot. In the recent shape campaign at NIF there has been an extensive effort to measure low mode asymmetries at various times during the implosion. In this talk, sensitivities of key performance metrics to applied low mode drive asymmetries will be discussed. These calculations have been performed using the rad-hydro code HYDRA, in capsule only simulations, which enables controlled application of drive asymmetries vs time. This work includes single mode, time varying, and multi-mode perturbations. Post processing of key diagnostics will be presented. Using the predicted responses of these diagnostics, a model for obtaining drive asymmetries vs time that reproduces the recent measurements has been constructed. Prepared by LLNL under Contract DE-AC52-07NA27344.

Andrea Kritcher
Lawrence Livermore National Laboratory

Date submitted: 12 Jul 2013

Electronic form version 1.4