Abstract Submitted
for the DPP15 Meeting of
The American Physical Society

Quantifying low-mode shell asymmetry as a means to predict ICF implosion performance on the NIF[1] RYAN NORA, BRIAN SPEARS, RICCARDO TOMMASINI, J. LUC PETERSON, JOHN FIELD, PAUL SPRINGER, JIM GAFFNEY, JIM HAMMER, ANNIE KRITCHER, Lawrence Livermore National Laboratory — Low mode fuel and ablator asymmetries are a significant degradation mechanism in NIF indirect drive ICF implosions. These asymmetries are forced by radiation drive asymmetry stemming from asymmetric hohlraum wall illumination. We develop an ensemble of two, three, and four-shock high-density-carbon ablator simulations with varying drive asymmetries and convergence ratios. We use this ensemble to relate the shell properties prior to its peak implosion velocity to the overall implosion performance and extend this technique to analyze NIF in-flight radiograph (convergent ablator) experimental data.

[1]This work performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory under Contract DE-AC52-07NA27344.

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Date submitted: 23 Jul 2015 Electronic form version 1.4