Abstract Submitted
for the DPP07 Meeting of
The American Physical Society

3D Simulations of the "Keyhole" Hohlraum for Shock Timing on NIF[1] H.F. ROBEY, M.M. MARINAK, D.H. MUNRO, O.S. JONES, Lawrence Livermore National Laboratory — Ignition implosions planned for the National Ignition Facility (NIF) require a pulse shape with a carefully designed series of steps, which launch a series of shocks through the ablator and DT fuel. The relative timing of these shocks must be tuned to better than +/- 100ps to maintain the DT fuel on a sufficiently low adiabat. To meet these requirements, pre-ignition tuning experiments using a modified hohlraum geometry are being planned. This modified geometry, known as the "keyhole" hohlraum, adds a re-entrant gold cone, which passes through the hohlraum and capsule walls, to provide an optical line-of-sight to directly measure the shocks as they break out of the ablator. In order to assess the surrogacy of this modified geometry, 3D simulations using HYDRA [1] have been performed. The drive conditions and the resulting effect on shock timing in the keyhole hohlraum will be compared with the corresponding results for the standard ignition hohlraum. [1] M.M. Marinak, et al., Phys. Plasmas 8, 2275 (2001).

[1]Work performed under the auspices of the Department of Energy by the Lawrence Livermore National Laboratory under contract number W-7405-ENG-48.

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Date submitted: 09 Oct 2007 Electronic form version 1.4