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3-D simulations for assessment of NIF shock timing techniques[1]
H.F. ROBEY, LLNL, R.E. OLSON, Sandia National Laboratories, O.S. JONES, J.L. MILOVICH, S.M. SEPKE, LLNL — Capsule implosions planned for the National Ignition Facility (NIF) require a series of shocks, which propagate through the ablator and DT ice shell. The strength and timing of these shocks is critical for maintaining the DT fuel on a low adiabat. To meet the requirements, tuning experiments are being planned to measure and adjust the shock timing. These experiments use a modified target geometry that employs a re-entrant Au cone to provide optical access to the shocks in capsule interior. This modified geometry introduces some additional uncertainties, which are intrinsically three-dimensional in nature. Examples of 3D uncertainties include beam-to-beam power balance, pointing, and 3D fabrication features, all of which may have a greater impact on these localized shock timing measurements than they will have on the overall drive symmetry in the hohlraum. In order to assess the effect of these uncertainties, 3D simulations using HYDRA have been performed to test the robustness of the shock timing measurements.

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Harry Robey
LLNL

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