

Abstract Submitted
for the DPP05 Meeting of
The American Physical Society

Diagnosing Asymmetry in Ignition Implosions with Neutron Imaging and Spectra C.K. CHOI, D.C. WILSON, P.A. BRADLEY, R.D. RUSSELL, J.E. SWEEZY, Los Alamos National Laboratory — Simulations of NIF ignition hohlraums and capsule implosions with different laser pointings and identical laser pulse histories produce yields between 0.6 and 16 MJ. Simulations of temporal, spatial, and energy-dependent neutron images have been carried out. Images of the 14 MeV neutrons show an asymmetrical hot spot in capsules that fail to ignite. Images in the down-scattered neutrons show complementary asymmetries in the cold fuel. Images are obtained both along and normal to the hohlraum axis. The neutron spectra show the presence of the asymmetry visible in the energy gated images, as well as a variation with angle of observation with respect to the hohlraum axis. We compare neutron images and spectra from both failed and full yield NIF capsules. This work was sponsored by the US DOE.

Douglas Wilson
Los Alamos National Laboratory

Date submitted: 21 Jul 2005

Electronic form version 1.4