Abstract Submitted
for the DPP11 Meeting of
The American Physical Society

Capsule Symmetry in Different Scale Size NIF hohlraums[1] R.P.J. TOWN, M.D. ROSEN, P.A. MICHEL, L. DIVOL, D.J. STROZZI, D.A. CALLAHAN, N.B. MEEZAN, M.J. EDWARDS, J.D. MOODY, J.E. RALPH, S. GLENN, D.K. BRADLEY, Lawrence Livermore National Laboratory, J.L. KLINE, G.A. KYRALA, Los Alamos National Laboratory — A key requirement for the achievement of ignition on the National Ignition Facility (NIF) is to adequately control the low mode symmetry of the imploding capsule. The NIF's 192 beams are arranged in inner and outer cones of beams whose powers can be varied, either directly or by crossbeam energy transfer, to achieve a uniform drive. NIF experiments to date have predominantly used hohlraums with a diameter of 5.44mm that require an inner cone fraction of up to 50% to achieve a round implosion. Lasnex hi-flux simulations of hohlraums with a diameter of 5.75 mm predict that symmetry can be achieved at a lower cone fraction closer to NIF's intrinsic 33% split. This paper will review the necessary cone fraction to obtain a symmetric implosion and discuss the laser beam propagation and plasma conditions of hohlraums with diameters up to 6mm.

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

R. P. J. Town
Lawrence Livermore National Laboratory

Date submitted: 13 Jul 2011 Electronic form version 1.4