Abstract Submitted
for the DPP05 Meeting of
The American Physical Society

Laser-Driven Dynamic Hohlraums: Implosions[1] S.G. GLENDINNING, LLNL, M.C. HERRMANN, Sandia National Laboratory, L.J. PERKINS, LLNL — The Laser-Driven Dynamic Hohlraum (LDDH) is a direct-drive analogue to the dynamic hohlraums fielded on the Sandia Z machine[2]. In the LDDH, a radiatively collapsed shock driven in a xenon-filled capsule confines radiation in a spherically convergent geometry, leading to a small, hot hohlraum. Fielding a second capsule inside the LDDH results in a system which is significantly less vulnerable to mix than a hydrodynamically coupled double-shell implosion. Previously[3] we have reported on our observations of the radiatively collapsed shock (RCS) and ablation of a silver tracer layer. Since that time, we have used the LDDH to drive implosions in D_2-filled glass capsules placed inside the LDDH and observed yields of about $4X10^9$ neutrons ($\sim$10% of two-dimensional predictions) and the presence of significant x-ray emission from stagnation of ablated glass with the RCS. We will show our results from implosion experiments and comparisons with simulations.

[1]This work performed for the US DOE by UC LLNL under contract W-7405-ENG-48.
[2]Matzen, M. K. et al., Phys. Plasmas **12**, 055503 (2005).
[3]Herrmann, Mark, BAPS, November 2003 (BI2.003).

Sharon Glendinning
LLNL

Date submitted: 26 Jul 2005 Electronic form version 1.4