Abstract Submitted
for the DPP07 Meeting of
The American Physical Society

Experimental demonstration of increased radiation temperature using foam-walled hohlraums A.B. REIGHARD, P.E. YOUNG, M.D. ROSEN, J.H. HAMMER, W.S. HSING, S.G. GLENDINNING, R.E. TURNER, R. KIRKWOOD, J. SCHEIN, C. SORCE, J. SATCHER, A. HAMZA, G. NYCE, O. LANDEN, LLNL, S. MCALPIN, M. STEVENSON, B. THOMAS, AWE — Hohlraums are used in ICF applications to produce a nearly uniform x-ray radiation drive for imploding capsules. Primary x-rays produced by laser beams focused onto the inner wall are absorbed and re-radiated by the hohlraum interior. Analytic analysis and simulations have shown that there is an optimum hohlraum wall density which maximizes the temperature in the radiation heat wave and minimizes energy loss from hydrodynamics [1]. This has been demonstrated in experiments using cylindrical hohlraums, with either 100 mg/cc or 4 g/cc Ta_2O_5 inner walls. The low-density hohlraums had a maximum of 15% higher peak x-ray flux, and 5% higher radiation temperatures than 4 g/cc Ta_2O_5 targets in time-resolved Dante measurements. This work was performed under the auspices of the U.S. DOE by University of California, Lawrence Livermore National Laboratory under Contract W-7405-Eng-48.

[1] M. Rosen and J. Hammer, Phys. Rev. E., **72**, 056403 (2005).

Amy Reighard
Lawrence Livermore National Laboratory

Date submitted: 24 Jul 2007 Electronic form version 1.4