Abstract Submitted
for the DPP05 Meeting of
The American Physical Society

Z-pinch double-ended hohlraum energetics, coupling, and symmetry modeling compared with Z data[1] R.A. VESEY, M.E. CUNEO, G.R. BENNETT, J.L. PORTER, T.A. MEHLHORN, Sandia National Laboratories — Symmetry tuning in the pulsed-power driven double-ended vacuum hohlraum allows highly symmetric capsule implosions, aided by the separation of the capsule from the z-pinch and its associated instabilities, spatial variations, and non-thermal spectral components. X-ray backlit capsule experiments at Z have demonstrated the ability to predictably nullify and control time-integrated P_2 asymmetry [1], and have measured the sensitivity of P_2 and P_4 asymmetry to hohlraum geometric parameters (hohlraum length, case-to-capsule ratio, etc.). Detailed two-dimensional Lasnex hohlraum simulations of these experiments will be presented. These simulations include: hohlraum radiation transport, time-dependent asymmetry due to z-pinch source motion, hohlraum absorption/re-emission, wall plasma motion, and the capsule ablation and implosion process. The measured trends in P_2 and P_4 can be generally understood using these simulations, although quantitative uncertainties remain as to the precise sources of these modes within the hohlraum. [1] G. R. Bennett *et al.*, Phys. Plas. **10**, 3717 (2003), R. A. Vesey *et al.*, Phys. Plas. **10**, 1854 (2003).

[1]Sandia is a multiprogram laboratory operated by Sandia Corporation, a Lockheed Martin Company, for the United States Department of Energy under Contract DE-AC04-94AL85000.

Roger Vesey
Sandia National Laboratories

Date submitted: 21 Jul 2005 Electronic form version 1.4