

Abstract Submitted
for the DPP10 Meeting of
The American Physical Society

Beryllium liner z-pinch implosions for equation of state studies on Z¹ R.W. LEMKE, R.D. MCBRIDE, M.R. MARTIN, M.D. KNUDSON, J.P. DAVIS, Sandia National Laboratories — We are investigating the feasibility of determining equation of state data from a temporal sequence of x-ray radiography images of an imploding z-pinch liner on the Z accelerator. Time and space dependent density profiles of the imploding liner are obtained via Abel inverting the x-ray images. The density profiles are then used to calculate pressure on either the Hugoniot or isentrope of the material depending on the form of the drive magnetic pressure. We present experimental and computational results for beryllium (Be) liners shock and quasi-isentropically compressed to pressures of 3 Mb, and discuss techniques for unfolding pressure using the x-ray images. We have captured multiple images of a shock moving through a Be liner and, by shaping the 20 MA current pulse on Z, have successfully imploded a Be liner quasi-isentropically and captured multiple images of the dynamic compression.

¹Sandia is a multiprogram laboratory managed and operated by Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Company, for the US Department of Energy's National Nuclear Security Administration under Contract No. DE-ACO4-94AL85000.

Raymond Lemke
Sandia National Laboratories

Date submitted: 19 Jul 2010

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