Abstract Submitted
for the DPP10 Meeting of
The American Physical Society

Beryllium liner z-pinches for Magneto-Rayleigh-Taylor studies on Z[1] R. MCBRIDE, S. SLUTZ, C. JENNINGS, D. SINARS, R. LEMKE, M. MARTIN, R. VESEY, M. CUNEO, M. HERRMANN, Sandia National Laboratories — Magnetic Liner Inertial Fusion (MagLIF) [S. A. Slutz, *et al.*, Phys. Plasmas **17** 056303 (2010)] is a promising new concept for achieving >100 kJ of fusion yield on Z. The greatest threat to this concept is the Magneto-Rayleigh-Taylor (MRT) instability. Thus an experimental campaign has been initiated to study MRT growth in fast-imploding (<100 ns) cylindrical liners. The first sets of experiments studied aluminum liner implosions with prescribed sinusoidal perturbations (see talk by D. Sinars). By contrast, this poster presents results from the latest sets of experiments that used unperturbed beryllium (Be) liners. The purpose for using Be is that we are able to radiograph "through" the liner using the 6-keV photons produced by the Z-Beamlet backlighting system. This has enabled us to obtain time-resolved measurements of the imploding liner's density as a function of both axial and radial location throughout the field of view. This data is allowing us to evaluate the integrity of the inside (fuel-confining) surface of the imploding liner as it approaches stagnation.

[1]Sandia is a multiprogram laboratory operated by Sandia Corporation, a Lockheed-Martin company, for US Department of Energy's National Nuclear Security Administration under Contract No. DE-AC04-94AL85000

Ryan McBride
Sandia National Laboratories

Date submitted: 07 Sep 2010 Electronic form version 1.4