Abstract Submitted
for the DPP11 Meeting of
The American Physical Society

Beryllium liner z-pinches for magneto-Rayleigh-Taylor studies on Z[1] R.D. MCBRIDE, S.A. SLUTZ, D.B. SINARS, R.W. LEMKE, M.R. MARTIN, C.A. JENNINGS, M.E. CUNEO, M.C. HERRMANN, Sandia National Laboratories, B.E. BLUE, General Atomics — Magnetized 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 experimental campaigns have been initiated to study MRT growth in fast imploding (<100 ns) cylindrical liners. This talk will present results from experiments that used 6.151-keV radiography to study the implosions of unperturbed (surface roughness only) beryllium (Be) liners. The high transmission efficiency of 6.151-keV photons through Be allowed us to obtain radiographs with finite transmission throughout the radial extent of the imploding liners. The data from these experiments will be shown and compared to simulation data from several magneto-hydrodynamic codes. These data are allowing us to evaluate the integrity of the inside (fuel-confining) surface of the imploding liner as it approaches stagnation.

[1]Sandia is a multi-program laboratory operated by Sandia Corp, a Lockheed-Martin company, for the US Dept of Energy's National Nuclear Security Administration under Contract DE-AC04-94AL85000.

Ryan McBride
Sandia National Laboratories

Date submitted: 14 Jul 2011 Electronic form version 1.4