Abstract Submitted
for the DPP06 Meeting of
The American Physical Society

Progress on Liner Implosions for compression of FRC's J.H. DEGNAN, M. DOMONKOS, F.M. LEHR, J.D. LETTERIO, N.F. RODERICK, E.L. RUDEN, W. TUCKER, P.J. TURCHI, Directed Energy Directorate, Air Force Research Laboratory, Kirtland AFB, NM, USA, D. AMDAHL, A. BROWN, S.K. COFFEY, M.H. FRESE, S.D. FRESE, NumerEx, Albuquerque, NM, USA, T. CAVAZOS, D. GALE, T.C. GRABOWSKI, J.V. PARKER, R.E. PETERKIN, JR., W. SOMMARS, SAIC, Albuquerque, NM, USA, G.F. KIUTTU, VTS, Albuquerque, NM, USA, R.E. SIEMON, University of Nevada Reno, Nevada, USA — Magnetized Target Fusion uses magnetic fields to reduce thermal conduction and required power density. Metal shell (liner) implosions driven by high current axial discharges, have been achieved with size, symmetry, and velocity suitable for compression of the Field Reversed Configuration (FRC) type of magnetized plasma. Using deformable liner – electrode contacts enables axial access to inject FRC's. Radiography indicates 16 times radial compression of the inner surface of a 0.11 cm thick, 5 cm radius Al liner, free of instability growth. Combined 2D-MHD simulations of FRC formation with imploding liner compression indicate capture of the injected FRC by the imploding liner with suitable relative timing of the FRC formation and liner implosion discharges. Sponsored by DOE-OFES.

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Date submitted: 21 Jul 2006 Electronic form version 1.4