

Abstract Submitted  
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**Exploring magnetized liner inertial fusion with a semi-analytic model\*** R.D. MCBRIDE, S.A. SLUTZ, D.B. SINARS, R.A. VESEY, M.R. GOMEZ, A.B. SEFKOW, S.B. HANSEN, K.R. COCHRANE, P.F. SCHMIT, P.F. KNAPP, M. GEISSEL, A.J. HARVEY-THOMPSON, C.A. JENNINGS, M.R. MARTIN, T.J. AWE, D.C. ROVANG, D.C. LAMPPA, K.J. PETERSON, G.A. ROCHAU, J.L. PORTER, W.A. STYGAR, M.E. CUNEO, Sandia National Laboratories — In this presentation, we explore magnetized liner inertial fusion (MagLIF) [S. A. Slutz et al., *Phys. Plasmas* 17, 056303 (2010)] using a semi-analytic model [R. D. McBride and S. A. Slutz, *Phys. Plasmas* 22, 052708 (2015)]. Specifically, we present simulation results from this model that: (a) illustrate the parameter space, energetics, and overall system efficiencies of MagLIF; (b) demonstrate the dependence of radiative loss rates on the radial fraction of the fuel that is preheated; (c) explore some of the recent experimental results of the MagLIF program at Sandia National Laboratories [M. R. Gomez et al., *Phys. Rev. Lett.* 113, 155003 (2014)]; (d) highlight the experimental challenges presently facing the MagLIF program (as MagLIF is first being tested using the infrastructure presently available at the Z pulsed-power facility); and (e) demonstrate how these challenges could change as various system upgrades are made to the Z facility over the next three to five years and beyond. \*Sandia National Laboratories is a multi-program laboratory managed and operated by Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Corporation, for the U.S. Department of Energy’s National Nuclear Security Administration under contract DE-AC04-94AL85000.

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