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Exploring magnetized liner inertial fusion with a semi-analytic model*

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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.

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