Abstract Submitted
for the DPP16 Meeting of
The American Physical Society

Integrative Analysis of Hot Spot Conditions in MagLIF Experiments[1] PATRICK KNAPP, MATTHEW GOMEZ, ERIC HARDING, STEPHANIE HANSEN, KELLY HAHN, MATTHIAS GEISSEL, GORDON CHANDLER, IAN SMITH, STEVE SLUTZ, CHRIS JENNINGS, MATTHEW MARTIN, PAUL SCHMIT, KYLE PETERSON, GREGORY ROCHAU, RYAN MCBRIDE, DANIEL SINARS, Sandia Natl Labs — A large data set incorporating all available neutron and x-ray data is used to analyze a broad range of Magnetized Liner Inertial Fusion (MagLIF) experiments conducted on the Z machine at Sandia National Laboratories over the past two years. Electron and ion temperatures, electron density, mix fraction, burn volume and duration, and neutron and x-ray yields are all measured on each experiment; several through multiple independent methods. Complementary methods are used to infer the hot spot energy and pressure, and trends are analyzed. The results are placed in the context of accepted performance metrics for Magneto-Inertial Fusion.

[1]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 Energys National Nuclear Security Administration under contract DE

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Date submitted: 14 Jul 2016 Electronic form version 1.4