

Abstract Submitted
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Laser Pre-Heat Studies for MagLIF with Z-Beamlet¹ MATTHIAS GEISSEL, ADAM J. HARVEY-THOMPSON, T.J. AWE, M.R. GOMEZ, E. HARDING, C. JENNINGS, M.W. KIMMEL, P. KNAPP, K. PETERSON, M. SCHOLLMEIER, A.B. SEFKOW, J.E. SHORES, D.B. SINARS, S.A. SLUTZ, I.C. SMITH, C.S. SPEAS, R.A. VESEY, J.L. PORTER, Sandia National Laboratories, E.M. CAMPBELL, Laboratory for Laser Energetics, S.M. LEWIS, UT Austin — Magnetized Liner Inertial Confinement Fusion (MagLIF) relies on strong pre-heat of the fuel, typically hundreds of eV. Z-Beamlet delivers up to 4 kJ of laser energy to the target to achieve this goal. Over the last year, several experimental campaigns at the Pecos target area of Sandia's Z-Backlighter Facility and in the center section of the Z-Accelerator have been performed to investigate pre-heat. Primary objectives of these campaigns were the transmission through the laser entrance hole (LEH) in dependence of window thicknesses and focus parameters (including phase plate smoothing), as well as energy coupling to the gaseous fuel. The applied diagnostic suite included a wide range of time integrated and time-resolved X-ray imaging devices, spectrometers, backscatter monitors, a full-beam laser transmission calorimeter, and X-ray diodes. We present the findings of these studies, looking ahead towards a standard pre-heat platform.

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