

Abstract Submitted  
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**Laser Gate Experiment for Increasing Preheat Energy Coupling Efficiency in Magnetized Liner Inertial Fusion (MagLIF)\*<sup>1</sup>** S.M. MILLER, R.D. MCBRIDE, S.R. KLEIN, P.C. CAMPBELL, J.M. WOOLSTRUM, N.M. JORDAN, C.C. KURANZ, University of Michigan, S.A. SLUTZ, M.R. GOMEZ, Sandia National Laboratories, S.N. BLAND, Imperial College London — In Magnetized Liner Inertial Fusion (MagLIF), a laser pulse preheats fuel inside of a cylindrical metal tube. The tube is imploded, which compresses and heats the fuel to fusion relevant temperatures. Currently, the laser ablates through a laser entrance window (LEW) that contains the fuel. To reduce absorption energy loss in the LEW, radiative loss from fuel-window mix, and laser plasma instabilities, the LEW could be removed before the laser reaches the LEW [1]. This concept is referred to as “Laser Gate.” In our version of Laser Gate, we weaken the LEW by driving current through a wire wrapped around the LEW perimeter. The target pressure opens the weakened window up and out of the laser path. We have imaged the LEW opening out of the laser path. Repeatability and scaling studies are ongoing. Additionally, we are integrating our setup with facilities at Sandia National Labs. [1] S.A. Slutz, et al., Phys. Plasmas 24, 012704 (2017);

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Stephanie Miller  
University of Michigan

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