Abstract Submitted
for the DPP12 Meeting of
The American Physical Society

Seeded Magneto Rayleigh Taylor Experiments on a 1-MA LTD[1] DAVID CHALENSKI, RONALD GILGENBACH, SONAL PATEL, ADAM STEINER, DAVID YAGER-ELIORRAGA, University of Michigan, UNIVERSITY OF MICHIGAN TEAM — Recent work on the 1-MA Michigan Linear Transformer Driver, MAIZE, has focused on the Magneto Rayleigh-Taylor (MRT) instability and validation of analytic theory, developed at UM. MAIZE is a nominal 1-MA, 100 ns, 100 kV driver, capable of driving 0.1 Ω matched loads. We present here the continuing results of diagnostic development on experiments on planar and pseudo-planar foils. Some of the results will include various techniques used to seed the MRT instability on the foil. This work was conducted on 400-nm thick, 1-cm wide aluminum foils placed between two planar current return plates. The driver charge was limited to ±70 kV, giving ∼700 kA with a risetime of ∼180 ns. Experiments were performed employing two methods to seed the MRT instability on either the foil. We have developed a laser-ablation mass perturbation technique using a 150 fs Ti:sapphire laser. We have also developed an initial displacement perturbation, in which the foil is pushed into a non-planar, rippled position by retractable knife-edges. The progress of these experiments is presented here. Analysis of MRT was derived from laser shadowgraphic images.

[1]Supported by DoE award number DE-SC0002590, NSF grant number PHY 0903340, and by US DoE through SNL award numbers 240985 and 76822 to the U of Michigan. + S.G. Patel and A.M Steiner were supported by N.P.S.C. fellowships through Sandia National Labs.

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Date submitted: 18 Jul 2012 Electronic form version 1.4