

Abstract Submitted  
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**Magneto Rayleigh-Taylor, Sausage, and Kink Instability Experiments on a MegaAmpere Linear Transformer Driver**<sup>1</sup> D.A. YAGER-ELORRIAGA, A.M. STEINER, S.G. PATEL, N.M. JORDAN, R.M. GILGENBACH, Y.Y. LAU, M.R. WEIS, P. ZHANG, University of Michigan — At the Michigan Accelerator for Inductive Z-Pinch Experiments (MAIZE) facility, a 1-MA Linear Transformer Driver (LTD) is being used to deliver 500-600 kA to cylindrical liners in order to study the magneto Rayleigh-Taylor (MRT), sausage, and kink instabilities in imploding and exploding Al plasmas. The liners studied in this experiment had thicknesses of 400 nm to 30  $\mu\text{m}$ , heights of 1-2 cm, and diameters of 1-6 mm. The plasmas were imaged using 4-time-frame, laser shadowgraphy and shearing-interferometry at 532 nm. For imploding liners, the measured acceleration was found to be less than predicted from the current pulse, indicating significant diffusion of the azimuthal magnetic field. A simple experimental configuration is presented for “end-on” laser probing in the  $r$ - $\theta$  plane in order to study the interior of the liner. Finally, the effects of axial magnetic fields are determined by modifying the return current posts and incorporating external coils. Experimental growth rates are determined and discussed.

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