

Abstract Submitted
for the DPP12 Meeting of
The American Physical Society

X-Pinch Experiments on UM Linear Transformer Drivers¹ SONAL PATEL, DAVID CHALENSKI, RONALD GILGENBACH, ADAM STEINER, DAVID YAGER-ELORRIAGA, YUE LAU, University of Michigan — X-pinch experiments have been tested on the MAIZE Linear Transformer Driver (LTD) at the University of Michigan. The MAIZE LTD can supply 1 MA, 100 kV pulses with 100 ns rise-time into a matched load. The x-pinch consists of a single wire separated by conical electrodes between two current return plates. The LTD was charged to +/-70 kV resulting in approximately 0.4-0.5 MA passing through a single wire. Initial tests with Mo and Al wires show several x-ray bursts over the length of the current pulse. The x-pinch is expected to be placed in parallel with a plasma load foil of 400 nm Al. Magnetic pressure causes the foil to accelerate, which drives the magneto-Rayleigh-Taylor (MRT) instability. Laser shadowgraphy has been used to image the foil and determine the growth rate, and the x-pinch is planned as a backlighter with the goal of x-ray probing the foil plasma at higher densities. A smaller 100-150 kA LTD x-pinch driver is also being developed.

¹This work was supported by DoE award number DE-SC0002590, NSF grant number PHY 0903340, US DoE through Sandia National Labs award numbers 240985 and 76822 to the U of Michigan. S.G Patel, A.M Steiner were supported by NPSC Fellowships from Sandia Labs.

Sonal Patel
University of Michigan

Date submitted: 09 Jul 2012

Electronic form version 1.4