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Spectroscopic Measurements of Planar Foil Plasmas Driven by a MA LTD[1] SONAL PATEL, DAVID YAGER-ELORRIAGA, ADAM STEINER, NICK JORDAN, RONALD GILGENBACH, Y.Y. LAU, University of Michigan — Planar foil ablation experiments are being conducted on the Linear Transformer Driver (LTD) at the University of Michigan. The experiment consists of a 400 nm-thick, Al planar foil and a current return post. An optical fiber is placed perpendicular to the magnetic field and linear polarizers are used to isolate the pi and sigma lines. The LTD is charged to +/-70 kV with approximately 400-500 kA passing through the foil. Laser shadowgraphy has previously imaged the plasma and measured anisotropy in the Magneto Rayleigh-Taylor (MRT) instability. Localized magnetic field measurements using Zeeman splitting during the current rise is expected to yield some insight into this anisotropy. Initial experiments use Na D lines of Al foils seeded with sodium to measure Zeeman splitting. Several ion lines are also currently being studied, such as Al III and C IV, to probe the higher temperature core plasma. In planned experiments, several lens-coupled optical fibers will be placed across the foil, and local magnetic field measurements will be taken to measure current division within the plasma.

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