

Abstract Submitted  
for the FWS14 Meeting of  
The American Physical Society

**Spectroscopic Analysis of Radiation from New Planar Wire Array Experiments on the LTD Generator at U Michigan**<sup>1</sup> M.Y. LORANCE, A. STAFFORD, M.E. WELLER, A.S. SAFRONOVA, V.L. KANTSYREV, I. SHRESTHA, V.V. SHLYAPTSEVA, M.C. COOPER, E.E. PETKOV, University of Nevada, Reno, N.M. JORDAN, S.G. PATEL, A.M. STEINER, D.A. YAGER-ELORRIAGA, R.M. GILGENBACH, The University of Michigan — Recently experiments of planar wire arrays (PWAs) were carried out on the MAIZE Linear Transformer Driver (LTD) generator at the University of Michigan (UM) for the first time. Specifically, Al 5056 (95% Al, 5% Mg) double planar wire arrays (DPWAs) comprised of two planes of six wires with various interplanar and interwire gaps were imploded. Spectra were gathered with an x-ray time-integrated spatially resolved spectrometer capable of measuring approximately between 4 – 16 Å. This presentation focuses on using non-local thermodynamic equilibrium (non-LTE) kinetic models of K-shell Al and Mg to estimate the plasma conditions of the experiments, such as electron temperature ( $T_e$ ) and density ( $n_e$ ). The DPWAs with different wire diameters were used to create masses of 41 or 25  $\mu\text{g}$  and modeling indicates a higher  $T_e$  for the less massive loads with a maximum  $T_e$  of approximately 550 eV for K-shell Al. The importance of studying radiation and spectra from planar wire arrays on LTD devices are discussed.

<sup>1</sup>This work supported by NNSA under DOE Cooperative Agreement DE-NA0001984. S. Patel & A. Steiner supported by Sandia. D. Yager-Elorriaga supported by NSF GF.

Mindy Lorance  
University of Nevada, Reno

Date submitted: 10 Oct 2014

Electronic form version 1.4