Abstract Submitted
for the FWS17 Meeting of
The American Physical Society

X-ray Line Polarization of Mo X-pinch Radiation[1] R.R. CHILDERS, E.E. PETKOV, A.A. SAFRONOVA, V.L. KANTSYREV, V.V. SHLYAPTSEVA, I.K. SHRESTHA, M. COOPER, A. STAFFORD, K.A. SCHULTZ, C.J. BUTCHER, University of Nevada, Reno — Polarization of x-ray radiation is a powerful tool in the study of atomic processes in astrophysical and high-energy-density (HED) plasmas, all of which can be effectively studied through pulse-powered laboratory plasmas. Furthermore, x-ray polarization can be a formidable diagnostic in the detection of non-Maxwellian, suprathermal electrons, which have been shown to induce linearly polarized spectral emission through collisional processes with ions. In this talk, we explore the polarization of Mo radiation from HED high-Z laboratory plasmas on the Zebra Generator at the UNR Nevada Terawatt Facility. We investigate the polarization of Mo (Z = 42) plasma radiation through dual α-quartz crystal (2d = 6.67 Å) spectropolarimetry with horizontal and vertical spatial resolution. In particular, polarization is evaluated through a comparative analysis of relative line intensities observed over a range of Ne-like Mo transitions. This is the first comprehensive study of x-ray line polarization in Mo HED plasmas.

[1]This work was supported by NNSA under DOE grant DE-NA0002954. Experiments at the NTF/UNR were funded in part by DE-NA0002075.

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Date submitted: 16 Oct 2017 Electronic form version 1.4