Abstract Submitted
for the DPP10 Meeting of
The American Physical Society

Analysis of Implosion and Radiative Properties of Ag Single Planar Wire Array Z-pinches on Zebra at UNR* S.F. KEIM, A.S. SAFRONOVA, V.L. KANTSYREV, A.A. ESAULOV, I. SHRESTHA, M.E. WELLER, K.M. WILLIAMSON, N.D. OUART, V. SHLYAPTSEVA, G.C. OSBORNE, University of Nevada, Reno — Silver is the highest atomic number element (z = 47) to be investigated for L-shell radiative characteristics at 1.0MA on the Zebra pulsed-power generator at UNR and has been shown to produce radiation yields up to 29kJ in planar wire arrays (PWAs). Silver is also expected to reach the highest electron temperature for PWAs. In order to investigate this more thoroughly, the results of experiments with two Ag single PWA implosions are explored using a full diagnostic suite. In particular, implosion and radiative characteristics of the two single PWA loads, one consisting of eight 15μm Ag wires (M $\sim$ 296 μg) and another of nearly identical mass consisting of seven 15μm Ag wires and one 30μm Al wire, are analyzed over a broad spectral range, from 15eV to 10keV. Synthetic spectra produced by a new non-LTE kinetic model of Ag are compared to the results of spatially resolved time-integrated x-ray spectroscopy to assess L-shell Ag plasma parameters and their axial gradients. The importance of the continued study of Ag PWAs is also discussed. *This work was supported by NNSA under DOE Cooperative Agreements DE-FC52-06NA27588, DE-FC52-06NA27586, and in part by DE-FC52-06NA27616.

Steven Keim
University of Nevada, Reno

Date submitted: 15 Jul 2010 Electronic form version 1.4