

Abstract Submitted
for the DPP12 Meeting of
The American Physical Society

Simultaneous time-gated measurements of K- and L-shell radiation from brass wire array implosions on Zebra¹ N.D. OUART, Plasma Physics Division, NRC/NRL Postdoc, Naval Research Laboratory, J.L. GIULIANI, A. DASGUPTA, Plasma Physics Division, Naval Research Laboratory, A.S. SAFRONOVA, V.L. KANTSYREV, A.A. ESAULOV, I. SHRESTHA, M.E. WELLER, V. SHLYAPTSEVA, G.C. OSBORNE, A. STAFFORD, S. KEIM, University of Nevada, Reno, R.W. CLARK, Berkeley Research Associates — New experiments have simultaneously measured both the copper and zinc K- and L-shell radiation with two time-gated spectrometers on the 1 MA Zebra generator at the University of Nevada, Reno. This work extends the previous brass wire implosions which only used one time-gated spectrometer [Ouart *et al.*, IEEE Trans. Plasma Sci. **38**, 631 (2010) and Ouart *et al.*, HEDP **8**, 247 (2012)]. The diagnostic suite also includes time-integrated spatially resolved spectrometers, time-integrated and time-gated pinhole imaging, various x-ray diodes, Ni bolometers, a Faraday cup, and laser shadowgraphy. The L-shell radiation comes from ionization stages around the Ne-like charge state that is largely populated by a thermal electron energy distribution function, while the K-shell radiation is subsequently produced by electron beams removing an inner-shell electron. A multi-zone non-LTE copper and zinc pinch model will be used to model the radiation from experiments. Diagnostic analysis will be presented using contours of line ratios and powers.

¹Work supported by DOE/NNSA. This research was performed while N. Ouart held a National Research Council Research Associateship Award at NRL.

Nicholas Ouart
NRC Postdoc, Naval Research Laboratory

Date submitted: 05 Jul 2012

Electronic form version 1.4