Abstract Submitted
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Copper Wire Arrays at the 1 MA Zebra Facility C.A. COVERDALE, B. JONES, D.J. AMPLEFORD, C. DEENEY, Sandia National Labs, P.D. LEPELL, Ktech Corporation, A.S. SAFRONOVA, V.L. KANTSYREV, N. OUART, V.V. IVANOV, Univeristy of Nevada, Reno — Experiments to study the implosion dynamics and radiation characteristics of copper z-pinches have been fielded at the 1 MA Zebra facility. At Zebra, load diameters ranged from 8mm to 16mm, with 6 to 14 wires, and load masses of 80 to 200 μg. All arrays utilized 10 micron diameter wire. The impact of initial load mass and initial load diameter on the precursor and the stagnated plasma has been evaluated through spectroscopy, shadowgraphy, and fluence measurements. Plasma parameters have been extracted from modeling of the time-integrated L-shell spectra to study temperature and density variations as a function of spatial position and initial load configuration. Comparisons will be made with harder x-ray spectra and pinhole images to identify regions of highest temperature and density. Shadowgraphy has been fielded to study the formation of the precursor and the main implosion; significant structure is observed. Substantial radiation is observed from the precursor, with variations in the precursor associated with initial load configuration. *Sandia is a multi-program laboratory operated by Sandia Corporation, a Lockheed Martin Company, for the United States Department of Energy's National Nuclear Security Administration under Contract DE-AC04-94AL85000.

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