

Abstract Submitted
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Study of Wire Contact Resistance in Single and Multi-wire Z-Pinch Experiments M.R. GOMEZ, J. ZIER, W. TANG, D.M. FRENCH, R.M. GILGENBACH, Y.Y. LAU, University of Michigan, M.E. CUNEO, M.D. JOHNSTON, M.G. MAZARAKIS, T.A. MEHLHORN, Sandia National Laboratories — Contact resistance of single and multi-wire array z-pinch has been measured for aluminum, stainless steel, and tungsten wires; diameters ranged from 7.5 to 30.5 micron. DC contact resistance in these experiments accounted for approximately 80% of load resistance, and resistance measurements varied from wire-to-wire by up to 15%. These DC measurements show that the resistance is highly dependent on both the wire material and the mass of the wire weights (0.8 g to 3.6 g). Marx pulses of 120 kV, 18 kA, 150 ns risetime were applied to the z-pinch. Wire plasma expansion velocity was measured using a streak camera, and expansion profile of the wires was determined using laser schlieren imaging. Electron temperature of individual wire plasmas is being determined by visible/UV spectra. Results will be presented of several methods being explored to reduce the contact resistance. *This work was supported by U. S. DoE through Sandia National Laboratories award number 240985 to the University of Michigan. Sandia is a multiprogram 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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