

Abstract Submitted  
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**Diagnostic issues with measuring electrical conductivity and equation of state data from Ohmically exploded planar foils** E.L. RUDEN, Air Force Research Laboratory, Directed Energy Directorate, P. POULSEN, CAREN, J.F. CAMACHO, S.K. COFFEY, NumerEx, J.E. BEACH, D.J. BROWN, T.C. GRABOWSKI, C.W. GREGG, M.R. KOSTORA, B.M. MARTINEZ, J.V. PARKER, SAIC — Diagnostic development is underway for the simultaneous dynamic measurement of local electrical conductivity, pressure, density, specific energy, and temperature of an LiF tamped planar metal foil exploded by a 36  $\mu\text{F}$ , 50 kV capacitor bank discharge. Voltage differentials measure the foil's electric field, a B-dot probe measures surface current density, a laser velocity interferometer (VISAR) measures foil thickness, and a spectrometer measures temperature. From these, the desired properties are inferred. This presentation discusses issues which must be resolved to meaningfully interpret the data such as RF interference from the rail-gap current trigger system, uniformity of the foil properties, planarity of the foil expansion and subsequent LiF pressure wave, thermal conduction and radiation, compression and impedance matching of the (LiF embedded) E and B-dot probes, and emissivity spectral dependence of the foil surface.

Edward Ruden  
Air Force Research Laboratory, Directed Energy Directorate

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