

Abstract Submitted  
for the DPP07 Meeting of  
The American Physical Society

**Wire Ablation Plasma Source Studies at Sandia National Laboratories**<sup>1</sup> M.D. JOHNSTON, K. HAHN, B.V. OLIVER, T.A. MEHLHORN, Sandia National Laboratories, D.W. DROEMER, R.L. STARBIRD, National Security Technologies, Y. MARON, E. KLODZH, E. STAMBULCHIK, Weizmann Institute of Science — Experiments are underway to investigate wire ablation plasmas as potentially tunable sources for applications such as intense electron beam transport and focusing. For these studies, one or more fine wires (100 micron diameter) are driven by a microsecond long, capacitive discharge (80kA, 100kV) to generate a plasma. High resolution visible/uv spectroscopy is used to spatially and temporally characterize the plasma throughout the pulse. Measured lineshapes and intensities are compared with time-dependent, collisional-radiative calculations to obtain plasma densities and temperatures. Changes in drive current, wire geometry, and materials are studied to determine the extent to which ablation plasma parameters can be controlled. Results are compared to MHD calculations and scaling laws for plasma mass ablation rates from wires.

<sup>1</sup>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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Date submitted: 25 Jul 2007

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