Abstract Submitted
for the DPP11 Meeting of
The American Physical Society

**Evolution of Thermal Plasma Formed from Thick Aluminum Pulsed with Multi-MG Magnetic Field**[1] B.S. BAUER, S. FUELLING, I.R. LINDEMUTH, R.E. SIEMON, K.C. YATES, University of Nevada, Reno, W.L. ATCHISON, T.J. AWE, LANL, S.F. GARANIN, S.D. KUZNETSOV, VNIIEF — Understanding the evolution of ohmically heated conductors is exceptionally important for basic physics and applications. The thermal ionization of the surface of Al-6061 rods with radii larger than the magnetic skin depth has been investigated with well-characterized experiments and detailed numerical modeling. With appropriate rod electrical connections, plasma formation is predominantly a thermal process. Time-resolved imaging, radiometry, spectroscopy, and laser shadowgraphy find plasma forms when the surface magnetic field reaches 2.2 MG. As the pulsed current grows, the visible spectrum shifts from more bremsstrahlung-like to blackbody-like. Radiation-MHD simulations with UP, MHRDR, and Raven are explaining the experimental data, which can be computationally reproduced using certain choices of models for resistivity, equation of state, other transport coefficients, and radiation opacities.

[1]Supported by DOE DE-FG02-04ER54752 and LANL/VNIIEF Contract #37713-000-02-35, Task Order 037.

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Date submitted: 25 Jul 2011 Electronic form version 1.4