

Abstract Submitted
for the DPP07 Meeting of
The American Physical Society

Ablated Wire Material and Coronal Structure Interactions¹

DAVID HAAS, SIMON BOTT, YOSSOF ESHAQ, UTAKO UEDA, FARHAT BEG,
University of California San Diego — Results are presented from experiments studying the mass ablation, propagation, and jet development exhibited in pulsed power experiments. Jets were formed from x-pinchs and low wire number conical wire arrays. They were observed to form between the electrodes and propagating above the anode. All results were obtained on a compact pulsar having a maximum current of 80 kA with a rise-time of 50ns. Optical probing diagnostics included side on interferometry, shadowgraphy, and schlieren imaging. Time gated x-ray images were recorded simultaneously to trace the emission profile. Several wire materials, including aluminum, tungsten, and stainless steel, were investigated to determine the effect of radiation cooling. Jet parameters such as velocity, density, and temperature were investigated, along with dimensionless parameters to assess scalability to astro-physical regimes. Laboratory scale plasma jet interaction with side winds will be attempted.

¹This work supported by the DOE Junior Faculty Grant DE-FG02-05ER54842

David Haas
University of California San Diego

Date submitted: 10 Oct 2007

Electronic form version 1.4