

Abstract Submitted
for the DPP08 Meeting of
The American Physical Society

Dynamics of conical wire array implosions on a central plasma¹ DAVID MARTINEZ, RADU PRESURA, SANDRA WRIGHT, CHRIS PLECHATY, STEPHAN NEFF, Nevada Terawatt Facility, University of Nevada, Reno — Sheared plasma flows are seen in Earth's magnetosphere and have been theorized to stabilize conducting plasma columns. A conical wire array has been shown to produce an axially flowing pinching plasma. Adding a wire on the axis of the array, we can create an axial plasma flow with a radial velocity gradient. These experiments were conducted on Zebra, a 2 TW pulsed power device located at the Nevada Terawatt Facility. From experimental observation we know that the center conductor pulls a significant amount of the array current and ablates. This plasma then acts as a target for the imploding array, creating the desired flow profile. This presentation will discuss the change in dynamics of the conical wire array by adding a center wire that is either straight or helically perturbed. Cylindrical wire arrays with a center wire will also be presented for comparison.

¹This work was supported by the DOE/NNSA grant DE-FC52-06NA27616

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Date submitted: 18 Jul 2008

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