

Abstract Submitted
for the DPP07 Meeting of
The American Physical Society

Density Profile of the ZaP Flow Z-pinch Plasma using a 4-chord Interferometer B.J. CHAN, U. SHUMLAK, B.A. NELSON, R.P. GOLINGO, University of Washington, ZAP TEAM¹ — The ZaP experiment focuses on the goal of generating a sheared flow stable Z-pinch plasma. This study investigates the density measurements of ZaP using a 4-chord, Mach-Zehnder configuration, heterodyne quadrature interferometer driven by a HeNe laser with a 632.8 nm wavelength. A single Bragg cell is used to split the laser beam and add a 40 MHz beat to the reference beam. The beams can be as close as 4 mm while the plasma has a 1 cm characteristic radius during the quiescent period. Radial density profiles along the z-axis can be determined using an Abel inversion technique. The axial variation of the plasma can also be determined by distributing the chords axially. These measurements will augment the temperature measurements made by the Thomson scattering system, helping to determine the Z-pinch pressure and current profiles. Experimental density measurements will be presented.

¹Department of Aeronautics and Astronautics, University of Washington

Bei-Jing Chan
University of Washington

Date submitted: 24 Jul 2007

Electronic form version 1.4