Abstract Submitted
for the DPP15 Meeting of
The American Physical Society

Magnetic field topology analysis for the ZaP-HD sheared flow stabilized Z-pinch[1] E.L. CLAVEAU, U. SHUMLAK, B.A. NELSON, R.P. GOLINGO, S.A. DOTY, E.G. FORBES, M.C. HUGHES, B. KIM, M.P. ROSS, J.R. WEED, University of Washington — The ZaP-HD Experiment investigates high energy density plasmas in a sheared flow stabilized Z-pinch. The ZaP-HD device generates 5-10 mm radius Z-pinch plasmas with peak magnetic fields greater than 1 T. An array of 56 dual-winding magnetic field probes incased in boron nitride shields and surface mounted in the outer stainless steel electrode measures the azimuthal and axial field. The field gives instantaneous information about the magnitude and position of the plasma current. An analysis tool is created in order to visualize the complete 3D, time-dependent magnetic topology of the plasma column using the magnetic field value at each probe location. The information is used to investigate large scale structure and dynamics. Fourier transformations of the data provide frequency and phase information of the magnetic field fluctuations. These properties can give insight about spatial and temporal propagation of perturbations to better characterize the plasma evolution.

[1]This work is supported by grants from the U.S. Department of Energy and the U.S. National Nuclear Security Administration.

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Date submitted: 24 Jul 2015 Electronic form version 1.4