

Abstract Submitted
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Vector Tomographic Reconstruction of 3D Plasma Flows with Ion Doppler Spectroscopy¹ KEON VEREEN, SETTHIVOINE YOU, University of Washington — A laboratory astrophysical jet experiment is being constructed to investigate the dynamics of canonical flux tubes. This poster will present a vector field diagnostic able to measure 3D ion flows from spectroscopic Doppler shifts based on vector tomographic reconstruction techniques [1]. The Ion Doppler Spectroscopy (IDS) setup consists of a 1.0m Czerny-Turner monochromator, a dual-inline frame Princeton Instruments PIMAX-3 (1024 x 1024) iCCD camera, collimating optics, matching optics, and a fiber bundle. The fiber bundle is designed to group 48 optical detector arrays of 14 chords each, totaling 672 lines of sight, into a 2D iCCD image. The mounting hardware is designed to position the fiber arrays spherically around the plasma.

[1] A. L. Balandin, Y. Ono and S. You, “3D Vector tomography using vector spherical harmonics decomposition,” *Comput. & Math. Appl.*, vol. 63, (2012) 1433-1441.

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