

Abstract Submitted
for the DPP05 Meeting of
The American Physical Society

Velocity Field Analysis of NSTX Gas Puff Imaging Data T. MUNSAT, University of Colorado, R. MAQUEDA, Nova Photonics, J. MYRA, Lodestar, T. STOLTZFUS-DUECK, S. ZWEBEN, PPPL — Time-resolved 2-D maps of velocity have been derived for fluctuation measurements in the edge plasma of NSTX using an optical flow technique. The velocity maps are derived from image sequences produced by the Gas Puff Imaging diagnostic, which covers a poloidal section of the outer plasma edge. The velocity maps are resolved to the same level as the data (~ 1 cm spatial resolution, $4 \mu\text{s}$ time resolution). Details and limitations of the optical flow technique are presented, including global velocity limits, aperture effects, and comparisons to other velocity derivation methods. Analysis of NSTX data, both in L-mode and H-mode plasmas, includes the comparison of radial and poloidal flow, implications for intermittent plasma transport, and statistical properties of the velocity distribution both in space and time.

Tobin Munsat
University of Colorado

Date submitted: 21 Jul 2005

Electronic form version 1.4