

**Abstract Submitted for the Forty-Eighth Annual Meeting  
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Category Number and Subject: 5.6.2. DIII-D Tokamak

Theory      Experiment

**Turbulence and Flow Dynamics via Velocimetry at the L-H Transition in DIII-D,\*** D.J. Schlossberg, R.J. Fonck, G.R. McKee, and M.W. Shafer, *University of Wisconsin-Madison* – Turbulence dynamics and the effects of sheared poloidal flows on turbulence in the pedestal region are examined at the L-H transition. The dependence of L-H transition characteristics on applied torque is investigated by varying the co- and counter-beam injection. High frequency turbulence velocity measurements are obtained via application of the dynamic programming method of time-delay estimation [1] to high-sensitivity 2D density fluctuation data from the beam emission spectroscopy diagnostic on DIII-D. The high-frequency motion of turbulent eddies in 1 and 2 dimensions is explored prior to and across the transition time. The role of zonal flows, including the Geodesic Acoustic Mode and other low-frequency zonal flows, on L-H transition behavior is investigated. Characteristic turbulence parameters are compared across the L-H transition. Nonlinear coupling between turbulence modes prior to, during, and just after the L-H transition is measured using bispectral and other analysis methods.

[1] D.J. Schlossberg, et al., Rev. Sci. Instrum. (2006).

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