

Abstract Submitted
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GPI Measurements of Edge and SOL Turbulence Across the L-H transition in NSTX¹ A.L. ROQUEMORE, S.J. ZWEBEN, PPPL, R.J. MAQUEDA, Nova Photonics, S. KUBOTA, UCLA, T. MUNSAT, University of Colorado, S. KAYE, PPPL, R. MAINGI, ORNL, B.D. SCOTT, IPP-Garching, T.S. HAHM, PPPL, PPPL TEAM, NOVA PHOTONICS COLLABORATION, UCLA COLLABORATION, ORNL COLLABORATION, IPP-GARCHING COLLABORATION — Edge turbulence across the LH transition has been measured using the gas puff imaging (GPI) diagnostic at the outer midplane edge and scrape-off-layer (SOL) of NSTX. The cross-correlation data from the GPI diagnostic has been analyzed to determine the time- and space-dependent radial and poloidal correlation lengths L_r and L_p and flow speeds V_r and V_p across the transition. The local dimensionless poloidal flow shear $S=(dV_p/dr)(L_r/L_p)t$ was estimated from these measurements by averaging the turbulence flow speed over a suitable space and time range (t =autocorrelation time). In the SOL this shear ranges between ± 2 (with a wide scatter), but preliminary results do not show a clear correlation between the magnitude of S and the local fluctuation level across the transition. A comparison will be made between the turbulence seen by GPI and by the UCLA edge reflectometry diagnostic to determine whether the transition begins inside or outside the separatrix, and how the turbulence changes propagate during the transition.

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