

Abstract Submitted
for the DPP13 Meeting of
The American Physical Society

Direct Comparison of GPI and BES measurements of Edge Fluctuations in NSTX Y. SECHREST, CU-Boulder, D. SMITH, UW-Madison, T. MUNSAT, CU-Boulder, S.J. ZWEBEN, PPPL — The Gas Puff Imaging (GPI) diagnostic has been used in numerous studies of turbulent fluctuations in the edge region of NSTX since its installation in 2001. Before the recent 2010 run campaign a Beam Emission Spectroscopy (BES) diagnostic was added on NSTX to study density fluctuations in the scrape-off layer (SOL), edge, and pedestal regions. Both diagnostics operate using similar principles to view visible light fluctuations from collisional excitation of neutral atoms, and the diagnostic views share coverage at some R and Z positions just above the outboard midplane. Making use of these commonalities, we conduct a cross-diagnostic comparison of fluctuation measurements of edge turbulence in NSTX including: poloidal correlation lengths, decorrelation times, probability density functions and their moments, and dominant poloidal wavenumber estimates. In addition, we explore cross-correlation and cross-spectral analyses between diagnostics. By characterizing the amount of shared information, it may be possible to use the two diagnostics collaboratively to effectively extend the diagnostic coverage.

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Date submitted: 11 Jul 2013

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