

Interactions between Turbulence and Flows in the NSTX Edge

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Recent observations of edge turbulence and flows from the NSTX Gas Puff Imaging (GPI) diagnostic will be reviewed in the context of the drift wave-zonal flow paradigm and predator-prey models. L-H transition experiments revealed, for the first time on NSTX, a periodic modulation of the edge turbulence amplitude in L-mode plasmas. These modulations were marked by a reduction in plasma being ejected into the Scrape-off layer, and a quiescent, H-mode like edge. These 'quiet period' oscillations and the correlations with edge flow parameters leading up to the L-H transition will be discussed. In addition, recent evidence of zonal flows in the NSTX edge, as diagnosed by the GPI diagnostic, will be presented along with analysis of turbulent flow properties, including the shearing rate and Reynolds stress. Finally, preliminary analysis of more recent observations at significantly faster framing rates will be included.