Abstract Submitted
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Turbulence Dynamics During Internal Transport Barrier Formation Via Beam Emission Spectroscopy on DIII-D,[1] M.W. SHAFER, R.J. FONCK, G.R. MCKEE, D.J. SCHLOSSBERG, U. Wisconsin-Madison, M.E. AUSTIN, U. Texas-Austin, R.E. WALTZ, J. CANDY, GA — The formation of localized internal transport barriers (ITBs) is observed at the appearance of low order values of q_{min} surfaces in negative central shear L-mode discharges on DIII-D. Related GYRO simulations suggest that increased zonal flows may be responsible for such ITBs [1]. Newly expanded high-sensitivity 2D beam emission spectroscopy (BES) fluctuation and flow measurements will be utilized to quantitatively examine turbulence dynamics and test this prediction of a zonal flow- driven ITB trigger mechanism. Time delay estimation via dynamic programming is applied to the fluctuation data to measure high-frequency poloidal velocity fluctuations to search for increased zonal flow activity during q-triggered ITB formation. In addition, newly implemented rotation control capability via co- and counter-neutral beam injection on DIII-D will be exploited to study ITB formation with varying momentum input.

[1] R.E. Waltz, et al., Phys. Plasmas **10, 052301 (2006).**

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