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[] Theory [] Experiment

Off-diagonal Terms Connection Between Particle and Momentum Transport in DIII-D Plasma,* X. Wang, S. Mordijck, *William & Mary*; E.J. Doyle, *UCLA*; O. Meneghini, *ORAU* – Understanding particle and momentum transport in tokamaks is essential to predict density and rotation profiles. Previous work [1] has indicated that there is a connection between changes in momentum transport as well as particle transport across ITG-TEM domains and its relation to the peaking of density profiles. On DIII-D, recent experiments were unable to reproduce those results [1] in H-mode plasmas. In order to study the role of the rotation profile on the changes in particle transport, we varied the input torque through the neutral beams, from co to counter. We compare linear instability growth rates with changes in density fluctuations and we investigate the off-diagonal contribution of the rotation profile on the changes in particle transport. Using TGLF, we calculate the perturbed D and v coefficients and compare them to experimental measurements and theoretical predictions for inward turbulent pinch and outward diffusion.

[1] C. Angioni, et al., *Nuclear Fusion* **52**, 114003 (2012).

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