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Rational-q Triggered Transport Changes With Varying Toroidal Rotation in DIII-D[1] M.E. AUSTIN, U. Texas-Austin, K.H. BURRELL, R.E. WALTZ, M.A. VAN ZEELAND, GA, G.R. MCKEE, M.W. SHAFER, U. Wisc., T.L. RHODES, UCLA — Comparison of rational-q triggered ITBs in discharges with varying toroidal torque injection was carried out. Experiments were conducted in negative central shear discharges with different mixes of co/counter neutral beam injection (NBI) that altered the equilibrium ExB shear in conditions where transient improvements in transport occur near integer q_{min} values. The transport changes were seen in high and low rotation cases; however, the latter discharges did not transition to improved core confinement. Observations support the model that sufficient background ExB shear is required for barrier formation and zonal flow effects at integer q_{min} act as trigger in this case. The lack of TAE modes in the balanced injection cases indicates they are not linked to the transient confinement improvement. Fluctuation data obtained in co and balanced NBI show similar reductions in turbulence near integer q_{min} as well as poloidal velocity excursions that may be further evidence of zonal flow.

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