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[ ] Theory [X] Experiment

Impurity Poloidal Rotation in DIII-D Under Low Toroidal Field Conditions,* K.H. Burrell, E.A. Belli, *General Atomics*; W.M. Solomon, B,A, Grierson, W. Wang, G.W. Rewoldt, *PPPL* – Predictive understanding of plasma transport is a long-term goal of fusion research. This requires testing models of plasma rotation including poloidal rotation. The present experiment was motivated by recent poloidal rotation measurements on NSTX which show that the poloidal rotation of C^{+6} is much closer to the neoclassical value than results in larger aspect ratio machines such as TFTR, DIII-D and JET working at higher toroidal field B_T. We investigated whether the difference in aspect ratio (1.44 on NSTX vs 2.7 on DIII-D) could explain this. We performed a poloidal rotation experiment in DIII-D under conditions which matched, as best possible, those in the NSTX experiment; we matched plasma current (0.65 MA), on-axis B_T (0.55 T), minor radius (0.6 m), and outer flux surface shape as well as the density, and temperature profiles. DIII-D results from this work show reasonable agreement with neoclassical theory. Accordingly, the different aspect ratio does not explain the previously mentioned difference in poloidal rotation results.

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