Abstract Submitted
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Scaling of Intrinsic Torque with Normalized Gyroradius in DIII-D[1] C. CHRYSTAL, ORAU, W.M. SOLOMON, B.A. GRIERSON, PPPL, T. TALA, A. SALMI, VTT, J.S. DEGRASSIE, GA — Experiments at DIII-D have investigated the scaling of intrinsic torque with the normalized gyroradius, ρ^*, by performing a dimensionless parameter scan. High- and low-ρ^* versions of a plasma have been created such that the scan can be combined with similar scans on other tokamaks. Intrinsic torque and momentum transport coefficients are measured by applying repeated torque steps at constant power with co- and counter-current neutral beam injection. The intrinsic torque was also measured by determining the neutral beam torque required to null the toroidal rotation profile. These results show that the density of intrinsic torque in the core of these plasmas more than doubles while ρ^* decreases by approximately 23%. Independent measurements of intrinsic torque are consistent with each other and show that the dependence of intrinsic torque on the Mach number is minimal. The scaling of the Prandtl number and momentum pinch with ρ^* is also investigated.

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