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Intrinsic Rotation Drive on DIII-D[1] W.M. SOLOMON, T.S. HAHM, PPPL, K.H. BURELL, J.S. DEGRASSIE, A.M. GAROFALO, R.E. WALTZ, General Atomics, H. REIMERDES, Columbia U., P.H. DIAMOND, S.H. MULLER, UCSD — Recent experiments on DIII-D have focused on understanding the drive mechanisms for intrinsic rotation in tokamak fusion plasmas. At the edge ($\rho > 0.8$) of H-mode plasmas, a clear dependence of the "intrinsic torque" associated with the intrinsic rotation is observed with the edge pressure gradient. The intrinsic torque in the core ($\rho < 0.5$) of H-mode plasmas tends to be small, although some cases have been found where it is sufficient to modify the rotation profile. For example, large core intrinsic torques have been observed in quiescent H-mode plasmas and more recently in hybrid discharges. In such cases, the net result when integrated across the profile is an intrinsic torque that is in the counter current direction, which is the opposite for usual H-modes. Recent studies of the residual stress with the global gyrokinetic code GYRO, suggest that nonlocal profile variations are capable of generating large residual stresses suitable for driving intrinsic rotation.

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