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**Inter-Machine Comparison of Intrinsic Toroidal Rotation**

ALEXANDER INCE-CUSHMAN, JOHN RICE, YURI PODPALY, MIT — Toroidal plasma rotation in discharges with no external momentum input has been observed on a number of tokamaks in a variety of operating regimes. On all the machines included in this study (Alcator C-Mod, DIII-D, JET, Tore Supra, TCV & JT-60U) the intrinsic rotation in high confinement regimes is in the co-current direction, increases with plasma stored energy and decreases with increasing plasma current. Although all machines show positive correlation between stored energy and intrinsic rotation, the constant of proportionality for each machine differ considerably. These constants of proportionality can be brought into much better agreement by recasting the relationship in the non-dimensional form:  $M_A \propto \beta_N$  (some other mach numbers also work reasonably well). Extrapolation of this scaling to ITER relevant  $\beta_N$  suggests that toroidal rotation on ITER may be much higher than predicted based on neutral beam torque alone. For an ITER discharge with  $\beta_N = 2.6$ , the scaling predicts an intrinsic rotation of approximately  $M_A = 0.02$  (i.e. 2% of the Alfvén Speed), which may be enough to suppress resistive wall modes.

Alexander Ince-Cushman  
MIT

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