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Scaling of Intrinsic Rotation in tokamaks with ion temperature and plasma current[1] M.F.F. NAVE, F.I. PARRA, Associaçao EURATOM/IST, Inst de Plasmas e Fusao Nuclear, Portugal, A.A. SCHEKOCHIHIN, R.Peierls Centre for Theoretical Phys, Oxford Univ, UK, C. GIROUD, CCFE/Euratom Fusion Assoc., UK, J. DE GRASSIE, General Atomics, San Diego, Ca , USA, J.H.F. SEVERO, Inst. of Phys, USP, Brazil, P. DE VRIES, Assoc. EURATOM-FOM, the Netherlands, JET-EFDA TEAM — Studies of spontaneous plasma rotation are relevant for ITER where momentum sources will be small. Here we study toroidal velocity profiles with rotation monotonically increasing from the core to the outside. This type of profile with either counter or a small co current rotation in the core are often observed in tokamaks. We compare data from devices with a large size range (DIII-D, JET, TCABR and TCV [1]) and different heating mechanisms. The maximum difference in velocity correlates linearly with the change in ion temperature divided by plasma current with a proportionality constant of order 10 km/s MA /keV. This scaling can be recovered from simple theoretical arguments based on the symmetry properties of the turbulent transport of toroidal angular momentum.

[1] A.Scarabosio et al. PPCF 48, 663 2006.

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