

Toroidal plasma rotation with minimal momentum input in ICRF only heated ASDEX Upgrade plasmas.

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Progress on understanding the toroidal plasma rotation in ICRF only heated plasmas with very little momentum input requires profile measurements. In JET, such profiles have been obtained mainly in L-mode [1]. On ASDEX Upgrade plasmas with reversed B_T and I_p compared to standard operations have been performed with ICRF only heating. Resulting from the higher H-mode threshold, plasmas have been observed both in L-mode and a weak H-mode. Rotation profiles were obtained with CXRS diagnostic using short beam blips in the counter-current direction. In spite of this, plasmas have been found to rotate in the co-current direction, similarly to most observations in JET [2] and Alcator C-Mod [3]. Furthermore, the toroidal velocity scales roughly as W_{dia}/I_p like in other machines. A comparison is made between rotation profiles obtained from CXRS and Doppler reflectometry diagnostics. The observed co-current rotation in L-mode, also seen on JET and Tore Supra, is not in agreement with the theory [4] based on a change in the edge turbulence during the transition to H-mode and predicting counter-current rotation in L-mode. However, the observed fairly flat rotation profiles could suggest an edge localized momentum source. A possible link to the turbulent activity at the edge is investigated.

[1] J.-M. Noterdaeme et al., *Nucl. Fusion* **43** (2003)

[2] L.-G. Eriksson et al., *Plasma Phys. and Contr. Fus.* **39** (1997)

[3] R. Rice, et al., *Nucl. Fusion* **39** (1999)

[4] B. Coppi, *Nucl. Fusion* **42** (2002)