

Estimation of the ion toroidal rotation source due to momentum transfer from Lower Hybrid waves in Alcator C-Mod*

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Significant ion toroidal rotation (~ 50 km/s) has been measured by X-Ray spectroscopy for impurities in Alcator C-Mod during lower hybrid (LH) RF power injection [1]. We investigate the relation between the computed toroidal momentum input from LH waves and the measured INITIAL change of ion toroidal rotation when the LH power is turned on. The relation may depend on the plasma current and magnetic configuration [2]. Because of the fast build up time of the electron quasilinear plateau (< 1 millisecond), the electron distribution function rapidly reaches steady state in which the electrons transfer the momentum to the ions. The LH wave momentum input is computed from the self consistent steady state electron distribution function and a bounce-averaged quasilinear diffusion coefficient that are obtained by iterating a full wave code (TORLH) with a Fokker Plank code (CQL3D)

[1] A.Ince-Cushman,et.al., Phys.Rev.Lett.**102**,035002(2009)

[2] R.Parker, this conference

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