Abstract Submitted for the DPP05 Meeting of The American Physical Society

Initial results from mode conversion current drive experiments on Alcator C-Mod¹ A. PARISOT, S.J. WUKITCH, P. BONOLI, Y. LIN, R. PARKER, M. PORKOLAB, A.K. RAM, J.C. WRIGHT, MIT PSFC — Current drive experiments using mode converted waves in the ion cyclotron range of frequencies are being conducted in the Alcator C-Mod tokamak. While the strong and localized electron damping of Ion Cyclotron Waves (ICWs) suggests possible current drive, the efficiency may be lowered by poloidal field and propagation effects, interaction with thermal electrons and magnetic trapping. Using predictions from the full wave code TORIC [M. Brambilla, Plasma. Phys. Cont. Fusion 41 (1999)], optimal scenarios have been defined for C-Mod and will be studied experimentally based on loop voltage analysis and changes in the sawtooth period. Initial results will be presented and compared with latest developments in the TORIC modeling. This includes current drive efficiency calculations for ICWs using quasilinear diffusion coefficients from TORIC [Bilato et al., Nucl. Fusion, 42 (2002)] imported in the Fokker-Planck codes RELAX [Westerhof et al., Rijnhuizen Report 92-211] and CQL3D [Harvey et al, Phys. Plasmas, 12 (2005)].

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