

Abstract Submitted
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Study of Ion-Temperature and Intrinsic Rotation-Velocity Profiles on the Alcator C-Mod Tokamak¹ K.W. HILL, M. BITTER, S.D. SCOTT, PPPL, A. INCE-CUSHMAN, M. REINKE, J.E. RICE, MIT, P. BEIERSDORFER, M.F. GU, LLNL, S.G. LEE, NFRC, Korea — Measurements of radial profiles ($r/a=0-0.75$) of ion temperature (T_i) and toroidal rotation velocity ($v\phi$) are made on C-Mod with a spatially resolving x-ray crystal spectrometer (~ 1 cm resolution) at 20 ms intervals via Doppler broadening and shifting of He-like and H-like Ar lines. Reversals of the rotation direction during transitions to H-mode, during formation of internal transport barriers, and during LHCD injection provide information on intrinsic rotation mechanisms. The data analysis techniques, T_i and $v\phi$ profile results, analysis of background resulting from fusion neutrons, and predictions of performance on the international tokamak ITER and other tokamaks will be presented.

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