

Abstract Submitted  
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**Gyrokinetic analysis of the linear ohmic confinement regime in Alcator C-Mod**<sup>1</sup> M. PORKOLAB, J. DORRIS, P. ENNEVER, C. FIORE, A. HUBBARD, M. GREENWALD, Y. MA, Y. PODPALY, M.L. REINKE, J. RICE, J.C. ROST, N. TSUJII, MIT PSFC, J. CANDY, G.M. STAEBLER, R. WALTZ, General Atomics — In earlier studies of ohmically heated low density C-Mod plasmas, TRANSP results indicated ion heat diffusivities significantly smaller than those predicted by GYRO [1]. In the present work we present new experimental data where the ion temperature profiles have been measured by x-ray crystal spectroscopy, and the radial electric field is deduced from toroidal flow measurements. TGLF, the trapped gyro-Landau fluid model code was used to model the turbulent transport as a function of density,  $Z_i$  and  $Z_{eff}$ , and the results indicate that the second (impurity) ion species with moderate  $Z_i$  ( $\leq 8$ ) reproduce the measured ion and electron thermal diffusivities in the range  $0.5 < r/a < 0.8$ . The nonlinear flux tube code GYRO predicts similar results [2]. The global GYRO based synthetic PCI diagnostic predicts Doppler shifted frequencies in agreement with observations.

[1] L. Lin, et al, Plasma Phys. Contr. Fusion 51, 065006 (2009).

[2] M. Porkolab, et al, EPS 2011, Strasbourg, France, P5.109.

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