

Abstract Submitted
for the DPP07 Meeting of
The American Physical Society

Ohmic ITBs in Alcator C-Mod¹ C.L. FIORE, MIT-PSFC, W.L. ROWAN, UT-FRC, A. DOMINGUEZ, A.E. HUBBARD, A. INCE-CUSHMAN, M.J. GREENWALD, L. LIN, E.S. MARMAR, M. REINKE, J.E. RICE, K. ZHUROVICH, MIT-PSFC — Internal transport barrier plasmas can arise spontaneously in ohmic Alcator C-Mod plasmas where an EDA H-mode has been developed by magnetic field ramping. These ohmic ITBs share the hallmarks of ITBs created with off-axis ICRF injection in that they have highly peaked density and pressure profiles and the peaking can be suppressed by on-axis ICRF. There is a reduction of particle and thermal flux in the barrier region which then allows the neoclassical pinch to peak the central density. Recent work on ITB onset conditions [1] which was motivated by turbulence studies [2] points to the broadening of the T_i profile with off-axis ICRF acting to reduce the ion temperature gradient. This suppresses ITG instability driven particle fluxes, which is thought to be the primary mechanism for ITB formation. The object of this study is to examine the characteristics of ohmic ITBs to find whether the stability of plasmas and the plasma parameters support the onset model.

[1]K. Zhurovich, et al., To be published in Nuclear Fusion

[2] D. R. Ernst, et al., Phys. Plasmas 11, 2637 (2004)

¹Work supported by USDOE Grant DE-FG03-96ER54373 and Coop. Agree. No. DE-FC02-99-ER54512.

Catherine Fiore
MIT-PSFC

Date submitted: 19 Jul 2007

Electronic form version 1.4