

Abstract Submitted  
for the DPP11 Meeting of  
The American Physical Society

**Controlling fluctuations in an ITB and comparison with gyrokinetic simulations**<sup>1</sup> D.R. ERNST, C.L. FIORE, A. DOMINGUEZ, Y. PODPALY, M.L. REINKE, J.L. TERRY, N. TSUJII, I. BESPAMYATNOV, M. CHURCHILL, M. GREENWALD, A. HUBBARD, J.W. HUGHES, J. LEE, Y. MA, S. WOLFE, S. WUKITCH, MIT PSFC — We have modulated on-axis ICRF minority heating to trigger fluctuations and core electron transport in Alcator C-Mod Internal Transport Barriers (ITB's). Temperature swings of 50% produced strong bursts of density fluctuations, measured by phase contrast imaging (PCI), while edge fluctuations from reflectometry, Mirnov coils, and gas puff imaging (GPI) simultaneously diminished. The PCI fluctuations are in phase with sawteeth, further evidence that they originate within the ITB foot. Linear gyrokinetic analysis with GS2 shows TEMs are driven unstable in the ITB by the on-axis heating, as in Refs. [1,2]. Nonlinear gyrokinetic simulations of turbulence in the ITB are compared with fluctuation data using a synthetic diagnostic [1]. Strong ITB's were produced with high quality ion and electron profile data.

[1] D. R. Ernst et al., 20th IAEA Fusion Energy Conference (2006), Chengdu, China, paper IAEA-CN-149/TH/1-3.

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

<sup>1</sup>Supported by U.S. DoE awards DE-FC02-99ER54512, DE-FG02-91ER54109, DE-FC02-08ER54966.

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Date submitted: 22 Jul 2011

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