

Abstract Submitted
for the DPP11 Meeting of
The American Physical Society

PCI measurements of Turbulence and Transport in Alcator C-Mod P. ENNEVER, MIT, M. PORKOLAB, J. DORRIS, N. TSUJII, E. DAVIS, AND ALCATOR C-MOD TEAM — Measurements of turbulent density fluctuations on C-Mod using Phase Contrast Imaging (PCI) are reported. PCI is an interferometric technique that measures line-integrated density fluctuations at frequencies up to 2 MHz in the wave number range $0.5\text{-}30\text{ cm}^{-1}$ [1]. The PCI system on C-Mod consists of a beam that passes vertically through the plasma core and images onto a 1-D array of 32 HgCdTe detectors. Owing to lack of localization along the beam path, the signal includes contributions from the plasma edge as well as the core. To distinguish edge turbulence from that emanating from the core, we compare the spectrum to other edge localized turbulence measurements (ie, GPI, reflectometry). The core turbulence spectrum is modeled by a synthetic PCI diagnostic and non-linear global GYRO analysis [2]. Fluctuation spectra predicted by GYRO will be compared with those measured with PCI in different modes of plasma operation. Supported by US DoE awards DE-FG02-94-ER54235 and DE-FC02-99-ER54512.

- [1] M. Porkolab, et al, IEEE Transactions on Plasma Science, **34**, 229 (2006).
[2] C. Rost et al, Phys. Plasmas **17**, 062506 (2010).

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Date submitted: 29 Jul 2011

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