

Abstract Submitted  
for the DPP06 Meeting of  
The American Physical Society

**Turbulence Measurements with the Upgraded Phase Contrast Imaging Diagnostic in Alcator C-Mod**<sup>1</sup> L. LIN, M. PORKOLAB, E.M. EDLUND, Y. LIN, S.J. WUKITCH, MIT PSFC — The Phase Contrast Imaging diagnostic (PCI) in Alcator C-Mod has been upgraded to improve the frequency and wavenumber sensitivity and provide localized measurements along the beam. Optional optics configurations are available for optimizing turbulence measurements in different wavenumber ranges. With the low-k setup ( $6\text{ cm}^{-1}$ ) and the widened beam, new features of the Quasi-Coherent (QC) modes were observed. The coherence of the QC modes is reduced toward the X-point. Furthermore, the spatial location of the coherence reduction moves with the X-point. With the medium-k setup ( $12\text{ cm}^{-1}$ ), three coupled ( $f_3 \sim f_2 + f_1$  and  $k_{R3} \sim k_{R2} + k_{R1}$ ) semi-coherent modes have been detected. The initial analysis of these two measurements will be presented. For the high-k setup (up to  $40\text{ cm}^{-1}$ ), initial tests with sound burst transducers have shown capability to measure modes with wavenumbers up to  $40\text{ cm}^{-1}$ . Currently, the PCI is operating with the high-k setup to search for the short wavelength turbulence in the ETG range and results will be presented as available.

<sup>1</sup>Work supported by U. S. DOE under DE-FG02-94-ER54235 and DE-FC02-99-ER54512.

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Date submitted: 23 Jul 2006

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