Abstract Submitted
for the DPP12 Meeting of
The American Physical Society

Upgrade to the Gas Puff Imaging Diagnostic that Views Alcator C-Mod's Inboard Edge[1] J.M. SIERCHIO, J.L. TERRY, Plasma Science and Fusion Center, MIT — We describe an upgrade of Alcator C-Mod's Gas Puff Imaging system which views the inboard plasma edge and SOL along lines-of-sight that are approximately parallel to the local magnetic field. The views are arranged in a 2D (R,Z) array with ∼2.8 cm radial coverage and ∼2.4 cm poloidal coverage. 23 of 54 available views were coupled via fibers to individual interference filters and PIN photodiode detectors. We are in the process of upgrading the system in order to increase the sensitivity of the system by replacing the PIN photodiodes with a 4x8 array of Avalanche Photo-Diodes (APD). Light from 30 views is coupled to the single-chip APD array through a single interference filter. We expect an improvement in signal-to-noise ratio of more than 10x. The frequency response of the system will increase from ∼400 kHz to 1MHz. The dynamic range of the new system is manipulated by changing the high-voltages on the APDs. Test results of the detectors' channel-to-channel cross-talk, frequency response, and gain curves will be presented, along with schematics of the experimental setup. The upgraded system allows for more study of inboard edge fluctuations, including whether the quasi-coherent fluctuations observed in the outboard edge also exist inboard.

[1]Supported by USDoE award DE-FC02-99ER54512.

Jennifer Sierchio
Plasma Science and Fusion Center, MIT

Date submitted: 11 Jul 2012 Electronic form version 1.4