Abstract Submitted
for the DPP17 Meeting of
The American Physical Society

The Multi-Spectral Imaging Diagnostic on Alcator C-MOD and TCV[1] B. L. LINEHAN, R. T. MUMGAARD, MIT PSFC, B. P. DUVAL, C. G. THEILER, EPFL SPC, TCV TEAM — The Multi-Spectral Imaging (MSI) diagnostic is a new instrument that captures simultaneous spectrally filtered images from a common sight view while maintaining a large tendue and high spatial resolution. The system uses a polychromator layout where each image is sequentially filtered. This procedure yields a high transmission for each spectral channel with minimal vignetting and aberrations. A four-wavelength system was installed on Alcator C-Mod and then moved to TCV. The system uses industrial cameras to simultaneously image the divertor region at 95 frames per second at f/ 2.8 via a coherent fiber bundle (C-Mod) or a lens-based relay optic (TCV). The images are absolutely calibrated and spatially registered enabling accurate measurement of atomic line ratios and absolute line intensities. The images will be used to study divertor detachment by imaging impurities and Balmer series emissions. Furthermore, the large field of view and an ability to support many types of detectors opens the door for other novel approaches to optically measuring plasma with high temporal, spatial, and spectral resolution. Such measurements will allow for the study of Stark broadening and divertor turbulence. Here, we present the first measurements taken with this cavity imaging system

[1]USDoE awards DE-FC02-99ER54512 and award DE-AC05-06OR23100, ORISE, administered by ORAU

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Date submitted: 14 Jul 2017 Electronic form version 1.4