Abstract Submitted for the DPP05 Meeting of The American Physical Society

Spatially resolved neon and fluorine soft X-ray spectra on Alcator C-MOD<sup>1</sup> ALEXANDER INCE-CUSHMAN, JOHN RICE, MIT PSFC, MAN-FRED BITTER, PPPL, SANG GON LEE, KBSI, YURI PODPALY, MIT PSFC — A new high resolution  $(\lambda/\Delta\lambda \sim 2000)$  x-ray spectrometer has been installed on Alcator C-Mod. The spectrometer consists of a spherically bent mica crystal and an x-ray sensitive CCD camera arranged in the Johann configuration which allows for spatial resolution in one dimension. The system was designed to measure impurity temperature and rotational velocity based on emission line spectra from helium-like neon  $(1s^12p^1 \rightarrow 1s^2)$  in a narrow spectral band centered on  $\lambda = 13.5$  Å. The instrument was mounted with a radial view below the midplane  $(r/a \sim 0.8)$ . This view allows for impurity temperature profile measurements – and potential measurements of the poloidal rotation velocity profile - in the pedestal region. The fact that the view is radial prevents the measurement of toroidal rotation. In addition to the neon emission lines, strong fluorine lines  $(1s^14p^1 \rightarrow 1s^2)$  were also observed. The presence of these fluorine lines makes it possible to simultaneously make spatially resolved measurements of both the neon and fluorine impurities with a single diagnostic.

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