

Abstract Submitted
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Spectroscopic Diagnostics using a Visible Transmission Grating Spectrometer at the Alcator C-Mod Tokamak¹ A. GRAF, UC Davis, M. MAY, P. BEIERSDORFER, LLNL, D. WHYTE, B. LABOMBARD, N. SMICK, K. MARR, PSFC — A high throughput, $f/\# \sim 3.5$, transmission grating spectrometer for visible light (350-670 nm), is being used to make localized measurements of bulk flow velocities and temperatures of impurity ions and deuterium atoms, in the edge and scrape off layer of C-Mod. The flows and temperatures of the main atoms are investigated by detecting D_β emission from charge exchange recombined deuterons which is enhanced by providing a local atom source from a gas puff. The CCD detector used with the spectrometer allows a simultaneous measurement from 4 different spatial points with a time resolution ≥ 10 ms/frame. Comparison between our results and the edge flows measured by a Mach probe and those from other spectroscopic diagnostics will be given. A higher time resolution (~ 100 μ s/frame) is possible by using a special readout mode of the CCD. This allows time resolved electron density measurements from Stark broadened D_β during disruptions.

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