Abstract Submitted
for the DPP06 Meeting of
The American Physical Society

**Edge Ion Velocity Measurements with a Novel Doppler Spectrometer at the Alcator C-Mod Tokamak** ALEXANDER GRAF, University of California at Davis, MARK MAY, PETER BEIERSDORFER, Lawrence Livermore National Laboratory, JIM TERRY, Plasma Science and Fusion Center, MIT — A high throughput, f/# ∼3.1, transmission grating Doppler spectrometer for visible light (3500-6700 Å) is currently measuring ion or neutral velocities and temperatures at the Alcator C-Mod tokamak. The ion velocities are measured through the Doppler shift of impurities that are present in the plasma. A line width of as small as 0.4 Å(velocity sensitivity of $\sim 10^5$ cm/s) has been measured using calibration lamps. The spectrometer is fiber optically coupled and has access to toroidal and poloidal views. A spectral survey has been done with various views of the C-Mod plasma identifying various intrinsic impurities. The first Doppler measurements of B II were recorded with ∼15 ms per frame. Additional Doppler velocity and temperature measurements in both poloidal and toroidal directions for some of the brighter impurities (e.g. He II and N III), will be given. This work is supported was performed under the auspices of the DoE by UC LLNL under contract W-7405-ENG-48 and also under DoE Coop. Agreement DE-FC02-99ER54512.

Alexander Graf
University of California at Davis

Date submitted: 24 Aug 2006 Electronic form version 1.4