

Abstract Submitted
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Ion Temperature and Velocity Measurements using Fabry-Perot Spectroscopy¹ MEGAN TABBUTT, KEN FLANAGAN, MARK D. NORNBORG, JASON MILHONE, FRED L. ROESLER, CARY B. FOREST, Univ of Wisconsin, Madison, WISCONSIN PLASMA ASTRO-PHYSICS LABORATORY TEAM — A Fabry-Perot spectrometer system has been used to measure ion temperature and velocity in flowing, astrophysical plasmas at the Wisconsin Plasma Astrophysics Laboratory (WiPAL). WiPAL researches weakly magnetized, fast flowing, plasmas in order to study basic flow-driven MHD instabilities. The Fabry-Perot spectrometer images the ion-velocity distribution function (IVDF) of both Argon (488 nm ion line) and Helium (468.6 nm ion line complex) plasmas. Electron temperatures range from 5 eV to 15 eV; plasma densities range from $10^{11} \sim^{12} cm^{-3}$, ion temperatures range from 0.5 eV to 2 eV and flows can reach 10 km/s. Beyond the increased resolving power compared to grating spectrometers, the Fabry-Perots 2D interference pattern can be summed to give a large signal-to-noise increase.

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