

Abstract Submitted
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2-D Laser-Calibrated Doppler Images of HeII and CIII Emission on DIII-D S.L. ALLEN, CAMERON SAMUELL, W.H. MEYER, Lawrence Livermore National Lab — Recent improvements to the DIII-D CIS system have reduced the error bars of the inferred Doppler velocity by over an order of magnitude, i.e. to ~ 0.1 km/s. Coherence imaging of plasma emission superimposes an interferogram on the plasma image, and the interferometer phase is a sensitive measure of the central wavelength of the emission. A tuneable diode laser calibration image at ~ 465 nm is automatically acquired between plasma shots and provides the rest wavelength in the lab frame; the wavelength is measured with a wavemeter to 0.01 pm. The interferometer is stabilized mechanically and thermally with a unique system so that the interferometer drift between calibrations is small. These improvements have enabled tomographically inverted images of main ion He II parallel flow in the divertor during He plasma operation. The parallel flow, as expected, is observed to depend on the direction of the $B \times \nabla B$ drift, which is reversed by changing the direction of the toroidal field. For many conditions, the C III Doppler velocity is also in the same direction as the main ion. *Work supported by the US DOE under DE-FC02-04ER54698 and DE-AC52-07NA27344. LLNL-ABS-88688.

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