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Theory Experiment

C²⁺ Flow Measurement in DIII-D Using Coherence Imaging Spectro-Polarimetry,* T.R. Weber, S.L. Allen, D.N. Hill, W.H. Meyer, G.D. Porter, *LLNL*; J. Howard, *Australian National University* – Recently, C²⁺ flows have been measured at DIII-D using a recent, advanced technique in coherence imaging spectroscopy [1]. The diagnostic yields a two dimensional C²⁺ flow measurement over of the entire lower divertor, with $\approx \pm 1$ cm resolution in space, and $\approx \pm 2$ km/s resolution in velocity. Preliminary analysis of data from a plasma shot during the 2010 campaign yields high flow (~ 30 km/s) near the X-point and a flow reversal between the low and high field side of the scrape-off-layer. Results are in good agreement with predictions from the fluid plasma code, UEDGE. A discussion on the fundamental physics behind the flow as indicated by experimental and UEDGE results will be included. Data will likely prove useful in efforts to understand impurity transport processes critical in tokamak operations.

[1] J. Howard, *et al.*, *Rev. Sci. Instrum.* **81**, 10E528 (2010).

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