Abstract Submitted for the DPP98 Meeting of The American Physical Society

Sorting Category: 5.1.1.2 (experimental)

Reconstruction of 2-D Profiles of CIV Vacuum Ultraviolet Emission from Tangential Images of the Divertor in DIII-**D**¹ M. DONALIES, N.W. JALUFKA, Hampton University, M.E. FEN-STERMACHER, W. MEYER, D.G NILSON, R.D. WOOD, Lawrence Livermore National Lab — This paper presents the technique used to generate 2D profiles of 155 nm emission from CIV in the DIII–D divertor. First, 3-D images are recorded by a new tangentially viewing TV which images the CIV 155 nm line. Reconstruction of the 2-D profiles is carried out using general 3-D tomographic inversion software. Each pixel is treated as a chordal measurement with the imaging geometry taken into account by a transformation matrix assuming toroidal symmetry. Least squares regression is used to obtain the 2-D profile without inverting the geometry matrix. A calibration constant for the 2D reconstruction data is obtained by integrating the calculated profile along the vertical line of sight of a VUV SPRED spectrometer and normalizing to the absolute calibrated SPRED measurement at 155 nm. Sweeping of the X-point allows the SPRED to view vertically chords at several radial positions. Examples of the 3-D image data, the reconstructed 2-D profiles and calibration comparisons will be shown for several divertor plasma conditions.

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Prefer Oral Session Prefer Poster Session N.W. Jalufka jalufka@fusion.hamptonu.edu Hampton University

Special instructions: DIII–D Poster Session II (divertor physics, disruptions, RF, & diagnostics), immediately following Jalufka

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