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First Measurements of W Erosion from Ultraviolet Emission in DIII-D[1] C.A. JOHNSON, D.A. ENNIS, S.D. LOCH, Auburn Univ, S. ALLEN, B. VICTOR, C.M. SAMUELL, LLNL, C.P. BALLANCE, Queen's University Belfast, T. ABRAMS, ORAU, E. UNTERBERG, ORNL — Erosion of Plasma Facing Components (PFCs) will play a critical role in establishing the performance of future reactor-relevant fusion devices. Erosion can be diagnosed from spectral line emission together with atomic coefficients called 'ionizations per photon' (S/XB). New ultraviolet survey spectrometers (200 to 400 nm) have been commissioned on the DIII-D experiment for enhanced diagnosis of W erosion in the divertor region. Previous atomic calculations predict neutral W will radiate most strongly at ultraviolet wavelengths. Ultraviolet measurements from DIII-D experiments with W PFCs in the divertor have identified new candidate spectral lines for more accurately diagnosing neutral W erosion rates. For example, W emission lines at 265.65 and 363.19 nm were observed to be more intense than the widely used 400.89 nm. Complete UV spectra will be presented and compared to synthetic spectra generated by new atomic calculations of neutral W using ADAS for varying plasma conditions.

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