

Abstract Submitted
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Inferring Core Tungsten Behavior Using SPRED During the DIII-D Metal Rings Campaign¹ D.M. THOMAS, D. KAPLAN, R. GROEBNER, GA, B. GRIERSON, PPPL, Z. UNTERBERG, ORNL, B. VICTOR, LLNL — The GA SPRED EUV spectrometer was used to study core emission of highly charged tungsten ions (W40+-W45+) in the 120-135Å region during the recent Metal Rings Campaign. These experiments used two 5-cm wide toroidal rings of W-coated metal inserts exposed to a variety of DIII-D discharges to study effects of high-Z divertor erosion, migration, core uptake, and effects on advanced tokamak performance. For the proper core temperature range (2-4 keV), the measured multi-state W emission forms a well defined spectral pattern that can be used to study the relative importance of strike point location, flux expansion, injected power, ELM characteristics and magnetic drift direction for high-Z core contamination in DIII-D. The spectra are fit using simple Gaussians to estimate concentrations using the historical SPRED intensity calibration. Calibration shots using known core dosages of pellet injected W are used to help infer the relative response of the instrument.

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D.M. Thomas
GA

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