Abstract Submitted
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DIII-D First Wall Metal Impurity Migration Trends[1] C.P. CHROBAK, H. TORREBLANCA, K. HOLTROP, D. THOMAS, GA, E.A. UNTERBERG, ORNL, D.C. DONOVAN, U. Tennessee, D. BUCHENAUER, SNL, P. STANGEBY, U. Toronto — Metal accumulation on the entire graphite first wall of the DIII-D tokamak was measured using a novel X-Ray Fluorescence technique. The technique is sensitive to and distinguishes between various elements from Al to U. During a two week campaign, the DIII-D tokamak operated with W-coated Mo alloy (TZM) metal tiles in the divertor, arranged in two 5cm wide toroidally uniform rings. These rings provided a large localized source of W to enable the first measurements of whole-vessel high-Z metal migration from a known divertor source. We have also measured deposits of Ni, Cr, Fe, Cu, and Mo originating from various other sources including sputtering from neutral beam drift-duct port walls and RF antenna Faraday shields. The integrated deposition pattern for different elements originating from different sources during these campaigns will be compared. In addition, a detailed description of the intrinsic metal impurities in different unexposed grades of graphite will be presented.

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