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Assessing the Impact of Light Impurities on Tungsten Sourcing Beyond the Divertor in WEST.[1] C.C. KLEPPER, E.A. UNTERBERG, ORNL, G. CIRAOLO, H. BUFFERAND, CEA/IRFM, Y. MARANDET, A. GALLO, CNRS/Aix-Marseille-Univ, N. FEDORCZAK, CEA/IRFM, A.L. NEFF, K. DAVDA, ORNL, G. URBANCZYK, L. COLAS, M. GONICHE, CEA/IRFM
— WEST is the first superconducting tokamak to have begun operations with all tungsten (W) plasma-facing components. To fully benefit from the opportunity to study W sources in this all W environment, including the relative contributions from divertor and main chamber, dedicated experimental sessions are ongoing. Initial experiments have indicated that intrinsic, light impurities (mainly oxygen and carbon) play a dominant role in the W sputtering for L-mode discharges. Nitrogen seeding experiments have also been conducted and the impact of N on W sourcing will be assessed. In the present study, the impact of light impurities on the poloidal distribution of W is also examined. Neutral W spectroscopy (W-I) measurements are taken from multiple poloidal locations to aid in characterizing the gross erosion rate around the vessel and incident particle fluxes are characterized by spectroscopy methods as well as Langmuir probes both imbedded and plunged. Far-SOL Collector Probes are used to constrain the light impurity contents in the SOL. Constrained by these measurements, Soledge2D-Eirene is used, starting with oxygen added to the background plasma, to examine the impact on W sputtering and its distribution beyond the divertor.

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