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Effect of particle drifts on tungsten transport and leakage in the new V-shaped Small Angle Slot divertor in DIII-D[1] GREG SINCLAIR, ROBERTO MAURIZIO, General Atomics, XINXING MA, ALBERTO GALLO, Oak Ridge Associated Universities, TYLER ABRAMS, HOUYANG GUO, DAN THOMAS, General Atomics, DAVID ELDER, University of Toronto — The DIII-D Small Angle Slot (SAS) divertor will be coated with tungsten (W) to investigate W sourcing and leakage from a closed slot divertor during the next experimental campaign. The SOLPS-ITER code package with drifts, coupled with the DIVIMP impurity Monte Carlo code, finds that the addition of drifts shifts the previously predicted location of primary W sourcing, which will indirectly impact leakage due to spatial differences in plasma parameters throughout the slot. Differences in impurity transport based on the distance from the strike point for no-drift and drift cases are presented. Changes to the baffling in the SAS divertor, creating a V-shape, are predicted to facilitate detachment with the ion Bx∇B drift direction toward the slot. SOLPS-ITER simulations with the V-shape show better neutral confinement near the strike point, leading to lower target electron temperatures. This effect lowers the impact energy of particles incident on the W plasma-facing wall, thereby reducing gross erosion. Predicted increases in near-target electron density and strong near-target flows with the V-shape may also reduce the W impurity leakage fraction. Results are compared to previous simulations conducted using the original SAS geometry in both B_t directions.

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Greg Sinclair
General Atomics

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