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First SOLPS-ITER modelling with drift effects of the new V-shape small angle slot divertor on DIII-D[1] ROBERTO MAURIZIO, HOUYANG GUO, DAN THOMAS, ANTHONY LEONARD, GA, ALBERTO GALLO, ORAU, GREG SINCLAIR, GA, XINXING MA, ORAU, DIII-D TEAM — This paper is the first numerical assessment of the detachment performance of a new DIII-D divertor configuration, the SAS-V, using SOLPS-ITER with drifts. Recent modelling indicates that a symmetric V-end slot divertor can reach detachment at lower plasma densities relative to other divertors for both toroidal field directions, significantly reducing detachment asymmetries resulting from particle drift effects. To test this promising finding, the flat-end of the currently installed small-angle slot (SAS) divertor in the DIII-D tokamak will be replaced with a V-end target, creating a new divertor shape, the SAS-V. In this contribution, the detachment performance of SAS-V is systematically studied using SOLPS-ITER with drifts for a range of plasma conditions (density, input power, current) typical for DIII-D. Scans of the strike point position in the slot, the angle between strike line and target, and divertor leg length are also performed to find the magnetic configuration that optimizes detachment. The results of this extensive modelling effort will guide future SAS-V experiments and improve our understanding of the strong interplay between divertor geometry, particle drifts and detachment physics.

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Roberto Maurizio
General Atomics - San Diego

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