

Abstract Submitted
for the DPP17 Meeting of
The American Physical Society

Modelling the detachment dependence on strike point location in the small angle slot divertor (SAS) with SOLPS¹ LIVIA CASALI, Oak Ridge Associated Universities, BRENT COVELE, HOUYANG GUO, General Atomics — The new Small Angle Slot (SAS) divertor in DIII-D is characterized by a shallow-angle target enclosed by a slot structure about the strike point (SP). SOLPS modelling results of SAS have demonstrated divertor closure's utility in widening the range of acceptable densities for adequate heat handling. An extensive database of runs has been built to study the detachment dependence on SP location in SAS. Density scans show that lower T_e at lower upstream density occur when the SP is at the critical location in the slot. The cooling front spreads across the entire target at higher densities, in agreement with experimental Langmuir probe measurements. A localized increase of the atomic and molecular density takes place near the SP, which reduces the target incident power density and facilitates detachment at lower upstream density. Systematic scans of variables such as power, transport, and viscosity have been carried out to assess the detachment sensitivity. Therein, a positive role of the viscosity is found.

¹This work supported by DOE contract number DE-FC02-04ER54698

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Date submitted: 06 Jul 2017

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