

Abstract Submitted
for the DPP20 Meeting of
The American Physical Society

Effect of realignment on detachment in DIII-D small angle slot divertor¹ A.L. MOSER, H.Y. GUO, GA, J.D. LORE, ORNL, A.G. MCLEAN, C.M. SAMUELL, LLNL, M.W. SHAFER, ORNL, D.M. THOMAS, H.Q. WANG, GA, J.G. WATKINS, SNL — Analysis using the newly aligned small angle slot (SAS) divertor shows robustness of detachment onset to small divertor misalignments. The toroidal alignment of the SAS divertor in DIII-D was recently improved with respect to the outer strike point (OSP) location, as confirmed by toroidally separated Langmuir probes. Preliminary analysis of matched pre- and post-alignment discharges shows no significant difference in detachment onset for the OSP in the outer divertor corner. Detachment onset is rapid and observed across diagnostics for discharges with ion ∇B drift into the SAS; detachment onsets at $n_e \approx 6.0 \times 10^{13} \text{ cm}^{-3}$ pre-alignment, and $\approx 6.0 - 6.6 \times 10^{13} \text{ cm}^{-3}$ post-alignment. For ion ∇B drift out of the divertor, target J_{sat} measured in the near scrape off layer rolls over at $n_e \approx 4.7 \times 10^{13} \text{ cm}^{-3}$ in both pre- and post-alignment discharges. Probe-measured T_e drops from $\approx 17 \text{ eV}$ at $\approx 3.7 \times 10^{13} \text{ cm}^{-3}$; pre-alignment T_e drops immediately to $< 10 \text{ eV}$ but post-alignment T_e drops more slowly to $< 10 \text{ eV}$ near J_{sat} rollover. These observations suggest that local variations in divertor conditions may have little effect on global detachment.

¹Work supported by US DOE under DE-FC02-04ER54698, DE-AC05-00OR22725, DE-AC52-07NA27344, DE-NA0003525

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Date submitted: 26 Jun 2020

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