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[ ] Theory [X] Experiment

Effect of Divertor Shaping on Divertor Plasma Behavior on DIII-D,* T.W. Petrie, A.W. Leonard, T.C. Luce, M.A. Mahdavi, *General Atomics*; C.T. Holcomb, M.E. Fenstermacher, D.N. Hill, C.J. Lasnier, *Lawrence Livermore National Laboratory*; J. Canik, *Oak Ridge National Laboratory*; J.G. Watkins, *Sandia National Laboratory*; R.A. Moyer, *University of California San Diego*; P.C. Stangeby, *University of Toronto* – Recent experiments examined the dependence of divertor density (n_{TAR}), temperature (T_{TAR}), and heat flux at the outer divertor separatrix target on changes in the divertor separatrix geometry. The responses of n_{TAR} and T_{TAR} to changes in the parallel connection length in the scrape-off layer (SOL) ($L_{||}$) are consistent with the predictions of the Two Point Model (TPM). However, n_{TAR} and T_{TAR} display a more complex response to changes in the radial location of the outer divertor strike point (R_{TAR}) than expected based on the TPM. SOLPS transport analysis indicates that small differences in divertor geometry can change neutral trapping sufficient to explain differences between experiment and TPM predictions. The response of the core and divertor plasmas to changes in $L_{||}$ and R_{TAR}, under both radiating and non-radiating divertor conditions, will be shown.

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