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[ ] Theory [x] Experiment

Effect of Divertor Shaping on Plasma Performance and Divertor Power Loading on DIII-D,* T.W. Petrie, J.R. Ferron, A.W. Hyatt, A.W. Leonard, T.C. Luce, P.A. Politzer, *GA*; C.T. Holcomb, M.E. Fenstermacher, D.N. Hill, C.J. Lasnier, *LLNL*; J.G. Watkins, *SNL* – Future generation tokamaks that produce significant fusion power will require a means of reducing damaging levels of both transient (ELM-induced) and steady power loads at the divertor targets. We report here on experiments at DIII-D that examine how certain variations in the divertor geometry affect both the capability to reduce heat flux at the outer divertor target and the H-mode quality of the main plasma. We focus specifically on documenting how core and divertor plasmas respond to changes in both the parallel path length of the outer divertor leg and the radial location of the outer divertor strike point, both in "standard" ELMing H-mode (without gas puffing) and in radiating divertor. We also investigate how these geometric changes may mitigate transient ELM-induced heat fluxes.

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