

Abstract Submitted
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The influence of divertor geometry on access to high confinement regimes on the Alcator C-Mod tokamak¹ J.W. HUGHES, B. LABOMBARD, A. HUBBARD, E. MARMAR, J. TERRY, J. RICE, J. WALK, D. WHYTE, MIT PSFC, Y. MA, ITER Organization, I. CZIEGLER, UCSD, E. EDLUND, PPPL, C. THEILER, EPFL — The placement of X-point and strike points in a diverted tokamak can have a remarkable impact on properties of the discharge, including thermal and particle confinement. The distinctive divertor of Alcator C-Mod allows us to demonstrate these effects experimentally, as we vary equilibrium shaping to obtain substantial variation of divertor leg length, field line attack angle and divertor baffling. In response to these changes, we observe differences in both L-mode confinement and access to high-confinement regimes (i.e. ELMy H-mode and I-mode). With the ion grad-B drift directed toward the divertor, scanning the strike point can induce $\sim 2x$ reductions in H-mode power threshold, and can produce a window for I-mode operation with $H_{98} > 1$. Recent experiments seek to explore these effects using improved diagnostics, and to extend them to the case with ion grad-B drift directed away from the divertor.

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