

Influence of global beta, shape and rotation on the H-mode pedestal structure in DIII-D

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Abstract. The scaling of pedestal pressure with global beta, shaping and toroidal rotation is examined. The pedestal pressure is observed to increase with higher global beta and increased shaping, but is not significantly affected by changes to toroidal rotation. Stability analysis of the pedestal is utilized to extract the respective contributions of pedestal gradient and pedestal width to the scaling of the pedestal pressure. An increase in pedestal width accounts for approximately half of the observed increase in pedestal pressure with improved edge stability. The pedestal width is observed to scale with the normalized pedestal pressure as $\Delta \propto \beta_{\text{ped}}^{1/2}$. No ion gyroradius dependence of the pedestal width is observed.

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