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Pedestal Structure in DIII-D Steady-State Discharges[1] A.C. SONTAG, S.J. DIEM, M. MURAKAMI, J.M. PARK, Oak Ridge National Laboratory, J.R. FERRON, T.H. OSBORNE, General Atomics, C.T. HOLCOMB, Lawrence Livermore National Laboratory — A range of DIII-D steady-state discharges have been analyzed to determine the pedestal structure and bootstrap current as a function of several global parameters including q_{min}, q_{95} and β_N. The pedestal structures are compared with EPED predictions. Variations in turbulence, $E \times B$ shearing rate, j_{BS} and MHD stability are examined. DIII-D is developing candidate high-β_N steady-state operational scenarios, including high-q_{min} and high-ℓ_i, through current and pressure profile optimization. Pedestal structure and how it affects the current profile is important for any sustained high performance scenario. High-q_{min} scenarios require a relatively large pedestal height with significant bootstrap current, while high-ℓ_i scenarios require a smaller pedestal and reduced bootstrap current. Understanding how the pedestal structure is affected by the other requirements of operating in these scenarios is needed for this optimization.

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