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Comparison of Theoretical and Measured Edge Pedestal Parameters in DIII-D[1] W.M. STACEY, Georgia Institute of Technology, R.J. GROEBNER, General Atomics — We are developing a predictive model for edge pedestal parameters by first testing the potential elements of such a model against experimental data from several DIII-D shots spanning a range of operating conditions. Transport and ballooning mode type constraints on edge gradients and neutral penetration and edge pressure (β) limit constraints on pedestal width are being examined. We find that the measured density pedestal width is 1.0-1.4 times the calculated neutral penetration (transport) mean-free-path and that the measured average pedestal pressure is 30%-110% of the limiting pressure predicted for stability against pressure-driven surface modes, encouraging us that neutral penetration and surface pressure limits can be used to predict density and, pressure widths, respectively. We have used transport constraints to infer pedestal transport coefficients from measured density and temperature gradients.

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