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Gyrokinetic Microstability Analysis of the Inner Boundary of the H-mode Pedestal[1] R.V. BRAVENEC, W.L. ROWAN, I.O. BESPAMYATNOV, U. Texas-Austin, R.J. GROEBNER, T.H. OSBORNE, G.M. STAEBLER, J. CANDY, R.E. WALTZ, GA, M. GREENWALD, MIT, W. DORLAND, U. Maryland — A yet unresolved puzzle concerning the H-mode pedestal is which instabilities determine the width of the steep-gradient region. One theory [1] posits that the steep-gradient region extends into the core only as far as the $E \times B$ shearing rate can overwhelm the maximum linear growth rate of the instabilities. We examine this conjecture by analyzing the region just at the top of the pedestal where the gradients are shallow enough so that the gyrokinetic treatment is certainly valid. We employ the continuum codes GKS, GYRO, and GS2 — the latter using actual numerical equilibria — to calculate the linear growth rates and then compare them to the $E \times B$ shearing rates calculated from data. This is done for a particularly well diagnosed low-density DIII-D ELMy H-mode plasma and a high-density Alcator C-Mod enhanced-D_α H-mode plasma.

[1] F.L. Hinton and G.M. Staebler, Phys. Fluids **B5**, 1281 (1993).

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