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Developing predictive capability for the H-mode pedestal: Experimental contributions from Alcator C-Mod[1] J.W. HUGHES, R.M. CHURCHILL, I. CZIEGLER, A. DOMINGUEZ, A.E. HUBBARD, B. LIPSCHULTZ, Y. MA, J.L. TERRY, N. TSUJII, MIT Plasma Science and Fusion Center, R.J. GROEBNER, P.B. SNYDER, General Atomics — Experiments on Alcator C-Mod characterize the edge pedestal in several high confinement regimes, as part of a community experimental and theoretical effort to improve predictive capability for the pedestal. Pedestal structure in both transiently evolving and stationary enhanced D_α H-modes is studied and examined alongside edge fluctuations (*e.g.* quasi-coherent modes), allowing us to seek evidence for transport-driven mechanisms limiting pedestal width and gradients. The pedestal structure in H-modes with edge-localized modes (ELMs) is likely to be governed both by transport and by intermittent ELM relaxation. ELMy H-modes are diagnosed and used to test directly models for pedestal height/width, *e.g.* EPED. Pedestal profiles, fluctuations and ELM activity in these H-mode regimes are compared to those in I-mode, in which a temperature and a pressure pedestal are maintained in the absence of a particle barrier (*i.e.* edge $L_n/L_T \gg 1$), and which can provide additional insight into physics governing pedestal formation and structure.

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