Abstract Submitted
for the DPP12 Meeting of
The American Physical Society

Time Evolution of the H-mode Pedestal Characteristics in Type I ELM Discharges on DIII-D[1] T.H. OSBORNE, R.J. GROEBNER, S.P. SMITH, P.B. SNYDER, D.M. THOMAS, General Atomics, J.A. BOEDO, UCSD, T.L. RHODES, UCLA, H. STOSCHUS, ORISE, Z. YAN, U. Wisc.-Madison — The time evolution of H-mode pedestal profiles leading up to a Type I edge localized mode (ELM) is studied in low ELM frequency discharges with electron cyclotron or neutral beam heating. A continuous increase of the pedestal pressure gradient, ∇p^{PED}, and/or the edge transport barrier, ETB, width was observed in all cases. Simulations and Li-beam measurements indicated a continuous increase in pedestal current, resulting in conditions consistent with destabilization of a peeling-ballooning mode. P^{PED} evolution was dominated by changes in the n_e profile while T_e stopped evolving after about 25% of the inter-ELM period, near the time of onset of density fluctuations observed by BES. However the T_e^{PED} and ∇T_e varied with heating power. P^{PED} in higher I_p discharges grew mainly through ∇p increases. In this case ∇p was below the KBM limit predicted by the EPED model early in the inter-ELM period, although all cases were near the EPED predictions at the ELM. The evolution of n_e and T_e in higher I_p cases was consistent with the paleo-classical model predictions.

[1]Work supported by the US Department of Energy under DE-FC02-04ER54698, DE-FG03-01ER54615, DE-FG02-07ER54917, DE-FG02-08ER54984, DE-FG02-89ER53296, and DE-FG02-08ER54999.

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Date submitted: 17 Jul 2012 Electronic form version 1.4