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Pedestal Scaling with Global Plasma Parameters in NSTX A. DIALLO, PPPL, R. MAINGI, J. MENARD, S. ZWEBEN, B. LEBLANC, R. MAQUEDA, B. STRATTON, PPPL, D. SMITH, University of Wisconsin-Madison, Y. REN, PPPL, S. KUBOTA, UCLA, NSTX TEAM — A successful mode of operation of ITER will require establishing sufficiently high pedestal pressure during H-mode discharges as well as small or no ELMs. Recent observations from high aspect ratio tokamaks (DIIID, ASDEX, JT60) have shown a general trend in the pedestal pressure and density widths scaling with the pedestal poloidal beta (β) to the power one half The low aspect ratio tokamak MAST reported similar scalings where the electron pedestal temperature width scales weakly with ρ^* but correlates with $\beta^{1/2}$ We report analysis of the NSTX pedestal pressure and density structure (height and width) during ELMy H-mode discharges. In this analysis, we focus on measurements of the pedestal structure as a function of plasma current and toroidal field. To approach the peeling-ballooning stability limit, and therefore the maximum achievable pedestal pressure, we target the intrinsic ELMs as opposed to those induced by resonant magnetic perturbations. Furthermore, to address the impact of edge turbulence on the pedestal structure during the evolution of an ELM, preliminarily turbulence measurements across multiple scales are discussed. Work supported by DOE contract DE-AC02-09CH11466.

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