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Increased electron temperature turbulence and pedestal transport in ELM suppressed QH-Mode and RMP DIII-D plasmas[1] C. SUNG, T.L. RHODES, W.A. PEEBLES, UCLA, T. OSBORNE, G. STAEBLER, S. SMITH, G. WANG, GA — New observations in DIII-D reveal significant levels of T_e turbulence near the top of the pedestal during ELM-free H-mode operation. These large, increased levels of T_e turbulence are observed in two different scenarios, quiescent H-mode (QH-mode) and resonant magnetic perturbations (RMP), where ELMs have been eliminated. These new results are significant because: 1)the T_e turbulence increase, combined with n, provide two distinct states for new and unique tests of nonlinear gyrokinetic simulation predictions; 2)these data provide new insights into the transport mechanisms just inboard of the pedestal top, a region where gyrokinetic simulations are challenging. In ELMing H-modes, the inter-ELM T_e turbulence is close to the noise level and can increase to as much as 1.8% with RMP ELM suppression and to 1.2% in QH-mode. During QH-mode, the T_e turbulence increases with lower collisionality and a similar, but smaller, increase in T_e turbulence is observed in RMP ELM-suppressed plasmas. This is consistent with the growth of Trapped Electron Mode turbulence where destabilization occurs preferentially at lower collisionality. The physics relevance of these new measurements will be discussed in the context of linear stability (TGLF) and power balance analyses

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