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Category Number and Subject:

Theory      Experiment

**Impact of Resonant Magnetic Perturbations (RMPs) on Turbulence Drive, Damping, and Transport,\*** R.A. Moyer, S. Mordijck, *UCSD*; C. Rost, *MIT-PSFC*; G.R. McKee, *U. Wisc.*; T.L. Rhodes, E.J. Doyle, L. Zeng, L. Schmitz, *UCLA*; T.E. Evans, *GA* — It has been previously reported that broadband density fluctuations increase in RMP ELM-suppressed discharges in DIII-D, suggesting that electrostatic turbulence plays a role in RMP ELM suppression similar to the Edge Harmonic Oscillation in QH-modes: increasing particle transport to stabilize ELMs. Recent results show that the RMP-induced changes for ion-scale turbulence vary with radius. In the core, ion-scale fluctuations ( $k_{\theta}\rho_i \approx 0.2$ ) increase, while in the H-mode pedestal, they decrease. These changes correlate with ExB shearing rate changes. However, the ExB shearing rate doesn't scale with increasing RMP-coil current as the density pump-out does, suggesting that turbulence drive (ion pressure gradient) or intermediate-scale modes ( $k_{\theta}\rho_i \approx 1$ ) are important or that the turbulence and ExB shear changes are linked to remnant islands as seen in previous devices with stochastic fields.

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