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2D Measurements of TEM Structure at Varying Driven Toroidal Rotation on DIII-D[1] S.E. ZEMEDKUN, Y. CHEN JR, T. MUNSAT, S.E. PARKER, W. WAN, U. Colorado, S. CHE, C.W. DOMIER, N.C. LUHMANN, L. YU, UC-Davis, B.J. TOBIAS, PPPL — The first experimental 2D mapping of drift modes, trapped electron mode (TEM) spatial evolution, T_e fluctuation levels, and dispersion relations are achieved using electron cyclotron emission imaging (ECEI) in a regime far from ITG parameter space in DIII-D. Linear gyrokinetic simulations with the GEM code find that the TEM is most unstable in the parameter regimes studied ($a/L_n = 1.27$, $a/L_{Ti} = 1.9$, $a/L_{Te} = 3.3$), and exhibit a similar real frequency and eigenmode structure to that observed with ECEI. Measurements are made in L-mode discharges with neutral beam and electron cyclotron waves at fixed heating power over a range of driven toroidal rotation rates. 2D maps of the mode structure are determined using correlation techniques, and dispersion plots are constructed from the cross-phase and cross-spectral power. For different levels of NBI momentum input, T_e fluctuation levels measured over a range of poloidal wavenumbers (∼0.5%, up to 200 kHz) decrease with increasing imposed toroidal rotation, which may be related to local shearing rates.

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