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[] Theory [x] Experiment

ECE Imaging of Broadband Turbulence in DIII-D Plasmas,* S.E. Zemedkun, T. Munsat, *U. Colorado*; B.J. Tobias, *PPPL*; C.W. Domier, N.C. Luhmann, Jr., *UC Davis* – Observations of 2D turbulent structures have been performed with the ECEI instrument on DIII-D in plasmas heated by neutral beam injection (NBI) and electron cyclotron heating (ECH), at a fixed heating power (up to 5 MW). Correlation techniques similar to those used in correlation electron cyclotron emission (CECE) systems are employed, with the advantage that the ECEI system detects a full 2D array of plasma locations; vertical separation is provided by an optical system and horizontal separation is provided by frequency discrimination in the detection electronics. Among the results are 2D images of poloidally-propagating drift waves, and correlation properties of fluctuations (<200 kHz) in the poloidal direction. Observed dispersion relations for two different heating conditions (ECH and NBI) will be presented. Comparison of results with simulations using GEM code will be discussed. In addition to the physics results, the data demonstrates the viability of the ECEI system in the presence of ECH heating.

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