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Category No. and Subject: 5.6.2. DIII-D Tokamak
 Theory Experiment Combined/General

ECE-Imaging of the H-mode Pedestal on DIII-D,* B.J. Tobias, *PPPL*; C.W. Domier, N.C. Luhmann, Jr., *UC-Davis*; M.E. Austin, *U. Texas-Austin* – Forward modeling of ECE originating near the edge of DIII-D plasmas has improved our understanding of radiation properties in this region and enabled interpretation of ECE-Imaging and radiation temperature profiles of the H-mode pedestal. A variety of coherent edge modes have been imaged, revealing the nature of the edge harmonic oscillation (EHO) present in QH-mode plasmas, as well as directly diagnosing the plasma response to RMP fields applied for ELM suppression. Attempts to image the most fleeting aspects of ELMs in low density H-mode discharges have revealed intense bursts of millimeter wave radiation. Initiating during ELM precursor oscillations and prevalent at ITER relevant collisionality, these bursts appear to be coherent, stimulated emission from thermal electrons interacting with a non-axisymmetric perturbation of the plasma boundary.

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