

Abstract Submitted
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Using ECE Measurements to Assess Equilibrium Reconstructions on DIII-D¹ M.E. AUSTIN, E. LI, U. of Texas-Austin, R.F. ELLIS, U. of Maryland — Information from electron cyclotron emission (ECE) can be used to evaluate a wide range of plasma parameters in tokamaks outside of T_e profile and T_e fluctuation measurements. On DIII-D, the ECE data is increasingly used to assess equilibrium reconstructions and to aid in the determination of the magnetic field and density profile. For reconstructions, the correct location of the magnetic axis and nested flux surfaces is determined by the overlap of the high-field-side and low-field-side ECE- T_e data. Both absolutely calibrated Michelson interferometer and relatively calibrated heterodyne radiometer measurements are employed. For simple profile comparison of EFITs, good calibration of the ECE instruments is of course critical. However, for the case of modulated heat input, it is possible to do the comparison with uncalibrated data using the heat pulse amplitude on flux surfaces. Examples for modulated electron cyclotron heating and sawteeth are given. The effects of errors are discussed and the importance of relativistic and Doppler broadening are also examined.

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