

Electron gyro-scale fluctuations in NSTX plasmas

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The NSTX high- k scattering system has observed prominent and persistent electron gyro-scale fluctuations in the core and outer region of NSTX plasmas. Fluctuations are investigated in the context of the ETG mode critical gradient, the toroidal field scaling of energy confinement, and the dependence upon magnetic shear. Fluctuation magnitudes and spectra are presented along with ray tracing calculations, TRANSP transport calculations, and GS2 linear gyrokinetic calculations. This work is supported by the U.S. Department of Energy under Contract Nos. DE-AC02-76CH03073, DE-FG03-95ER54295, and DE-FG03-99ER54531.