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Electron Temperature Fluctuations in DIII-D SOL, D.L. Rudakov, J.A. Boedo, R.A. Moyer, *UCSD*; J.G. Watkins, *SNL* – We present an overview of electron temperature (T_e) fluctuation properties in the scrape-off layer (SOL) of low (L) and high (H) confinement discharges, over L-H transitions, and during edge localized modes. T_e fluctuations play an important role in the tokamak SOL, being responsible for the “conductive” (due to correlated fluctuations of T_e and poloidal electric field, E_θ) part of the cross-field turbulent transport. In DIII-D, SOL T_e fluctuations are measured using a harmonic technique deployed on the midplane reciprocating probe and having a bandwidth of up to 100 kHz [1]. Relative T_e fluctuation levels range from 0.1–0.2 inside the last closed flux surface (LCFS) to 0.3–0.5 in the SOL. T_e fluctuations tend to be roughly in phase with the electron density (n_e) fluctuations. “Conductive” and “convective” (due to correlated n_e and E_θ fluctuations) components of the cross-field turbulent heat fluxes are comparable near the LCFS, while in the far SOL the convective component tends to be larger. Most of the T_e fluctuation and heat flux spectral energy is below 50 kHz. Cross-field heat fluxes measured near the LCFS in L-mode are in reasonable agreement with the SOL power balance.

[1] D.L. Rudakov, *et al.*, *Rev. Sci. Instrum.* **70**, 453 (2001).

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