Abstract Submitted
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Microwave and Millimeter-Wave Diagnostics Upgrades for LTX-β[1] S. KUBOTA, UCLA, R. MAJESKI, PPPL, X.V. NGUYEN, W.A. PEEBLES, T.L. RHODES, UCLA, R. KAITA, PPPL — Measurements of fluctuations and their relation to transport are of key interest in the LTX-β device, which will feature higher B_T and I_P, and neutral beam heating. Improvements are underway for the microwave and millimeter-wave diagnostics on LTX-β, with the goal of significantly enhancing the capabilities for fluctuation measurements. Currently, a 296 GHz single-chord interferometer provides radial line density measurements, while an FM-CW (frequency-modulated continuous-wave) reflectometer (13.5−33 GHz) provides fast density profile measurements. Additional hardware and data acquisition for these systems will provide both higher bandwidths and better noise rejection. Two new variable-frequency reflectometer channels with frequency ranges of 13−20 GHz and 27−40 GHz will provide quadrature measurements of edge and core electron density fluctuations. New data analysis techniques include using the FM-CW system as a correlation reflectometer for low-k fluctuations near the cutoff layer, as well as a radial backscattering ($k_r \leq 16$ cm^{-1}) system for fluctuations far from the cutoff, while the interferometer can function as a far-forward scattering system.

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