Abstract Submitted
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**A Microwave FMCW Reflectometer for Electron Density Measurements on LTX**[1] W.A. PEEBLES, S. KUBOTA, X.V. NGUYEN, UCLA, R. KAITA, R. MAJESKI, PPPL — An FMCW (frequency-modulated continuous-wave) reflectometer is being installed on the Lithium Tokamak Experiment (LTX) for electron density profile and fluctuation measurements. The system has two channels covering 13.5–33 GHz for (O-mode) electron density measurements in the range of $0.2-1.3\times10^{13}$ cm$^{-3}$. The diagnostic can operate at ultrafast full-band sweep intervals ($\Delta t \geq 4$ $\mu$s), which allows the system to function as both a profile and fluctuation monitor. The reflectometer utilizes a mid-plane port on LTX and views the plasma through a 4.8″ gap between the upper and lower in-vessel shells. A pair of bi-static conical horns are attached to the ends of 18″ long circular waveguide sections and mounted on a rotatable flange. This sub-assembly is attached to a jacking stage such that the horns can be positioned arbitrarily close to the plasma edge, or retracted outside the main chamber. A rotary joint allows the polarization of the launch and receive waves to be independently selected. Further details of the design and capabilities of the diagnostic, along with preliminary data, will be presented at the meeting.

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