

Abstract Submitted
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Reflectometer Measurement for LDX¹ B. KARDON, MIT PSFC, D. GARNIER, Columbia Univ, J. KESNER, P. WOSKOV, MIT PSFC, M. MANUEL, Columbia Univ — A flexible and general purpose microwave reflectometer system is being developed for density measurement in the Levitated Dipole Experiment. LDX is uniquely suited for reflectometry due to its observed high density gradients and shear-free magnetic field. Various diagnostics exist in LDX to make chordal measurements of the plasma, including an interferometer and visible light diagnostics; the reflectometer will be able to make non-perturbative local measurements in the core of the plasma. In its initial configuration, the reflectometer will be used to determine the peak plasma density. It will sweep the frequency of launched waves through the peak density O-mode cutoff frequency. Once it passes above that frequency, a sharp jump in time of flight will be observed due to waves passing through the entire radius of the plasma and reflecting off the floating coil at the center of the vessel. The reflectometer will be reconfigured to measure density fluctuations by using a fixed frequency and observing the time of flight as the location of the density-dependent cutoff layer fluctuates. First results will be presented.

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