

Abstract Submitted
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Improved doppler spectroscopy measurements on LTX¹ D.P. BOYLE, R.E. BELL, PPPL, T.M. BIEWER, T.K. GRAY, ORNL, R. KAITA, R. MAJESKI, PPPL — Lithium wall coatings in the Lithium Tokamak Experiment (LTX) reduce recycling, thus reducing collisions with edge neutrals that cause drag on rotation and energy losses. In order to measure the predicted improvements in plasma momentum and ion energy confinement, significant hardware upgrades to the passive doppler spectroscopy diagnostics on LTX have been performed. New collection optics for the poloidal and toroidal views have more sightlines and greater spatial coverage for measurements of line-integrated density, temperature, and rotation velocity. In addition to the existing Kaiser Holospec spectrometer, a novel high-throughput, high-resolution variable wavelength spectrometer has been installed and can be operated in parallel to measure emission in the remaining sightlines. It has similar capabilities to the Kaiser spectrometer, but can be adjusted between shots to measure any lines in the visible range with high accuracy. Measurements of the various impurity lines and charge states in the plasma with these improved capabilities will be used to study the dependence of plasma momentum and ion energy confinement on the wide variety of wall conditions achievable in LTX.

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