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Spectroscopic Measurements on the Lithium Tokamak eXperiment[1] E.M. GRANSTEDT, R. KAITA, R. MAJESKI, PPPL, T.K. GRAY, R. MAINGI, ORNL, K. TRITZ, JHU, V.A. SOUKHANOVSKII, LLNL — The Lithium Tokamak eXperiment (LTX) is a spherical torus designed to investigate the very low-recycling, lithium wall regime for magnetically confined plasmas. Since lithium surfaces primarily influence plasma performance through their effect on wall recycling, comprehensive measurements of hydrogen fluxes from the wall are necessary. Three instruments measure Lyman-α emission around most of the poloidal cross-section: two arrays view the inboard shell and outboard shell, and a single diode views a molybdenum limiter. These measurements will be used with a neutral transport code to calculate recycling and the fueling profile. Lithium wall conditioning also affects plasma performance through modifying wall impurity fluxes. A visible survey spectrometer and filterscope measurements of lithium, carbon, and oxygen emission lines are used to quantify the fluxes of light impurities ejected from the walls. Trends in the core penetration of these light impurities are measured by an XUV spectrometer, which is also used to examine high-Z impurity emission. Finally, an AXUV array is used as a radiometer to quantify the radiation emission profile.

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