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Thomson Scattering Measurements on the Lithium Tokamak Experiment (LTX) TREVOR STRICKLER, BENOIT LEBLANC, RICHARD MAJESKI, ROBERT KAITA, Princeton Plasma Physics Laboratory — Experiments are beginning on the Lithium Tokamak Experiment (LTX). The goal of LTX is to investigate tokamak plasmas that are almost entirely surrounded by walls coated in liquid lithium. Past results have shown that liquid lithium coatings on plasma facing components may behave as low-recycling boundary surfaces, which can fundamentally alter the behavior of the confined plasma. On CDX-U, results with lithium limiters indicated a reduction in the overall recycling coefficient and an increase in the confinement time. On LTX, it is expected that liquid lithium will result in higher temperatures at the plasma edge, flatter overall temperatures profiles, density profiles peaked near the plasma center, and an increase in confinement time. To test these predictions, the temperature and density profiles in LTX will be measured by a multi-point TVTS Thomson scattering system, in conjunction with microwave interferometry for density. Presently, the TVTS system for LTX offers up to 12 diagnostic channels to measure plasma conditions between the plasma edge and the plasma center. In the future, Thomson scattering measurements focusing on the edge conditions will be made at higher spatial resolution. *Supported by US DOE contract #DE-AC02-76CH-03073 and the ORISE Fusion Postdoctoral Fellowship

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