

Abstract Submitted  
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**Spectroscopic Measurements on  
the Lithium Tokamak eXperiment<sup>1</sup>** ERIK GRANSTEDT, ROBERT KAITA,  
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TRITZ, JHU, VLAD SOUKHANOVSKII, LLNL — The Lithium Tokamak eXper-  
iment (LTX) is a spherical torus designed to investigate the very low-recycling,  
liquid lithium wall regime for magnetically confined plasmas. Visible spectroscopic  
measurements made using two filterscopes (one viewing the center-stack, one the  
shell edge and molybdenum limiter) give ( $D_\alpha$ ) a qualitative idea of the particle  
fueling/recycling, (CIII and OII) an indication of progress in LTX wall condition-  
ing, and (LiI) an indication of the lithium-plasma interaction. The reflectivity of  
the plasma-facing-components hinders accurate quantitative measurements of recy-  
cling using  $D_\alpha$  emission; the negligible VUV reflectivity of lithium motivates use of  
Lyman- $\alpha$  emission instead. Three instruments measure Lyman- $\alpha$  emission around  
most of the poloidal cross-section: two arrays viewing the center stack/inboard shell  
and outboard shell, and a single diode viewing a molybdenum limiter. The effects  
of fueling and wall conditioning on Lyman- $\alpha$  emission will be discussed. Lyman-  
 $\alpha$  measurements will be used with a neutral transport code to calculate calculate  
recycling and the neutral particle deposition profile.

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