Abstract Submitted
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Equilibrium reconstruction and interpretive edge modeling for LTX J. SQUIRE, E. GRANSTEDT, C.M. JACOBSON, M. JAWORSKI, R. KAITA, D. LUNDBERG, R. MAJESKI, J. MENARD, PPPL — The Lithium Tokamak eXperiment (LTX) is a medium sized spherical tokamak intended to advance understanding of discharges in very low recycling regimes. To create the necessary absorbing boundary conditions, lithium is evaporated onto a heated conducting shell designed to be conformal to the plasma edge. We present various important plasma parameters from the most recent run, as well as the first axisymmetric equilibrium reconstructions of LTX plasmas. The calculation of these equilibria is confounded by the strong eddy currents generated in the shell, as well as 3-D field effects from toroidal shell gaps. With the aim of characterizing important edge processes, equilibria are used as input for the OEDGE interpretive edge modeling suite.[1] OEDGE utilizes an onion-skin method to model a fluid background plasma and then employs Monte Carlo methods to solve the hydrogenic neutral and impurity species dynamics. This allows a large number of atomic physics processes to be included in a straightforward way. To improve the reliability of the model and reduce the influence of experimental uncertainties, many different LTX diagnostic data sets are utilized simultaneously. This work was supported by USDOE Contract DE-AC02-09CH11466.

[1]Stangeby, P.C., et al., J. Nucl. Mater. 313-316 (2003) 883.

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