

Abstract Submitted
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Overview of results from the Lithium Tokamak eXperiment (LTX)¹ R. MAJESKI, R. BELL, D. BOYLE, A. CAPECE, A. DIALLO, E. GRANSTEDT, C.M. JACOBSON, R. KAITA, B. KOEL, T. KOZUB, B. LEBLANC, M. LUCIA, R. MAINGI, E. MERINO, J. SCHMITT, D. STOTLER, G. TCHILINGURIAN, PPPL, T.M. BIEWER, T.K. GRAY, ORNL, S. KUBOTA, W.A. PEEBLES, UCLA, P. BEIERSDORFER, LLNL, K. TRITZ, JHU, J.P. ALLAIN, F. BEDOYA, UIUC — LTX is a low aspect ratio tokamak with a heated liner or shell, which covers 80 percent of the plasma surface area (4 square meters). In 2014, a new approach to wall coatings was developed. The shells are now preheated to 300 C, and previously applied lithium coatings are allowed to oxidize. An electron beam system is then used to evaporate lithium from a pool of liquid at the bottom of the lower shell. The e-beam system produces a 50 – 100 nm coating of liquefied lithium in <5 minutes. Compared to previous results with helium-dispersed coatings, discharges using the new approach have strongly reduced impurities, especially oxygen. Magnetic analysis indicates that confinement in LTX Ohmic discharges is now improved by 10x, compared to best previous results. Confinement times exceed H-mode scalings by 4-5x. This is the first experimental evidence that high performance tokamak discharges are compatible with large-area liquid lithium walls. An overview of LTX, especially the lithium systems, will be presented, as well as a summary of results.

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