

Abstract Submitted
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Plasma Performance with Lithium PFCs in CDX-U and Projections to LTX¹ R. MAJESKI, R. KAITA, L. BERZAK, T. GRAY, H. KUGEL, D. MANSFIELD, J. SPALETA, J. TIMBERLAKE, J. YOO, L. ZAKHAROV, PPPL, G. PEREVERZEV, IPP-Garching, J. AHN, R. DOERNER, UCSD, R. MAINGI, ORNL, V. SOUKHANOVSKII, LLNL — Use of a large-area liquid lithium limiter in the CDX-U tokamak produced the largest enhancements in ohmic tokamak confinement ever observed [R. Majeski, et al., Phys Rev. Lett. 97, 075002-1- 075002-4 (2006)]. Simulations of CDX-U have now been performed with the ASTRA code, utilizing a model with neoclassical ion transport and boundary conditions suitable to a nonrecycling wall, with fueling via edge gas puffing. This transport model reproduces the experimental values of the energy confinement, loop voltage, and density for a typical CDX-U lithium discharge. The model has been used to project the performance of the new Lithium Tokamak eXperiment (LTX), with fueling via edge gas puffing, and with the addition of core fueling via neutral beam injection (NBI). Core fueling with NBI in LTX, with a low recycling wall of liquid lithium, is predicted to result in core electron and ion temperatures of 1 - 2 keV, and energy confinement times in excess of 50 msec.

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Richard Majeski

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