

Abstract Submitted
for the DPP07 Meeting of
The American Physical Society

The Lithium Tokamak eXperiment (LTX) - Status and Plans¹

R. KAITA, R. MAJESKI, L. BERZAK, T. GRAY, T. KOZUB, H. KUGEL, T. STRICKLER, J. TIMBERLAKE, J. YOO, L. ZAKHAROV, PPPL, J. AHN, R. DOERNER, UCSD, R. MAINGI, ORNL, V. SOUKHANOVSKII, LLNL — The LTX is the first toroidal device with a fully non-recycling wall almost completely surrounding the plasma. Such a plasma-facing component (PFC) is expected to lead to a new plasma regime with flat T_e profiles, and the LTX goal is to explore its confinement and stability. The LTX is a spherical tokamak designed to have $R=40$ cm, $a=26$ cm, $B_t=3.4$ kG, $I_p=400$ kA, $T_e=1$ keV, and $T_i=200$ eV, for discharges of 100 ms or more. It contains a shell with four segments, each made of 0.375"-thick copper and a 0.0625"-thick stainless steel liner. A lithium layer, up to 100 nm thick, will be vapor deposited on the liner between shots. For a non-recycling PFC, the lithium will be kept chemically active with a shell temperature above the lithium melting point. The first tokamak experiments with large area liquid lithium PFC's used a toroidal liquid lithium limiter in the Current Drive eXperiment - Upgrade (CDX-U). To compare with CDX-U results, initial experiments will be performed with a toroidal liquid lithium "pool" in the lower half of the LTX shell. Assembly of LTX is complete, and preparations for plasma operations are in progress.

¹Supported by US DOE contract #DE-AC02-76CH-03073

Robert Kaita
PPPL

Date submitted: 25 Jul 2007

Electronic form version 1.4