Abstract Submitted
for the DPP13 Meeting of
The American Physical Society

Study of plasma-facing components in the Lithium Tokamak Experiment with the Materials Analysis and Particle Probe[1] M. LUCIA, R. KAITA, R. MAJESKI, D.P. BOYLE, E.M. GRANSTEDT, C.M. JACOBSON, J.C. SCHMITT, PPPL, J.P. ALLAIN, F. BEDOYA, U. Illinois, S. GONDERMAN, Purdue U. — The Lithium Tokamak Experiment (LTX) is a spherical torus designed to accommodate solid or liquid lithium as the primary plasma-facing component (PFC). We present initial results from the implementation on LTX of the Materials Analysis and Particle Probe (MAPP) diagnostic, a collaboration among PPPL, Purdue University, and the University of Illinois. MAPP is a compact *in vacuo* surface science diagnostic, and its operation on LTX will provide the first ever *in situ* surface measurements of a tokamak first wall environment. With MAPP's analysis techniques, we will study the evolution of the surface chemistry of LTX's first wall as a function of varied temperature and lithium coating. During its 2013 run campaign, LTX will use an electron beam to evaporate lithium onto the first wall from an in-vessel reservoir. We will use two quartz crystal microbalances to estimate thickness of lithium coatings thus applied to the MAPP probe. We have recently installed a set of triple Langmuir probes on LTX, and they will be used to relate LTX edge plasma parameters to MAPP results. We will combine data from MAPP and the triple probes to estimate the local edge recycling coefficient based on desorption of retained hydrogen.

[1]This work was supported by U.S. DOE contract DE-AC02-09CH11466

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Date submitted: 12 Jul 2013 Electronic form version 1.4