

Abstract Submitted
for the DPP07 Meeting of
The American Physical Society

Surface analysis of lithium coatings in NSTX¹ J. TIMBERLAKE, H.W. KUGEL, C.H. SKINNER, Princeton Plasma Physics Laboratory, N. YAO, Princeton University PRISM Imaging and Analysis Center — Lithium coatings have been applied to NSTX plasma facing surfaces as part of a long term program to explore the potential for lithium to improve plasma and PFC performance. A LITHium EvaporatoR (LITER) directed a collimated stream of lithium vapor from an upper vacuum vessel port toward the graphite tiles of the lower center stack and divertor either before, or continuously between and during, discharges. Silicon witness coupons and other samples were retrieved from the vacuum vessel after the campaign and the surface morphology and elemental composition examined with a XL30 FEG-SEM microscope equipped with an energy dispersed X-rays system sensitive to elements with atomic number greater than 4. The surfaces showed a complex morphology with nucleation sites apparent. Carbon and oxygen were the dominant impurities. Trace metals (Fe and Cr) were detected in the coating on the Si coupon, but not in a flake of bulk Li. We will present results of the surface analysis of samples exposed to Li evaporation in NSTX.

¹Support is provided by the U.S. DOE Contract No. DE-AC02-76CH03073.

Charles Skinner
Princeton Plasma Physics Laboratory

Date submitted: 25 Jul 2007

Electronic form version 1.4