

Abstract Submitted  
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**Temperature Programmed Desorption Upgrade for the Sample Exposure Probe for LTX- $\beta$  Surface Analysis**<sup>1</sup> U.D. EZE, MIT, A. MAAN, PPPL, E.T. OSTROWSKI, S. ABE, B.E. KOEL, Princeton U. — We have developed a Sample Exposure Probe (SEP), which is a sample translator and ultrahigh vacuum suitcase, for wall surface analysis in the Lithium Tokamak eXperiment- $\beta$  (LTX- $\beta$ ), which tests the performance of lithium-coated plasma facing components (PFCs). The SEP contains a heating element that can be used for temperature programmed desorption (TPD) measurements to identify the chemical composition of gaseous species that are desorbed (evolved) from a lithium-covered stainless steel sample after H plasma discharges in LTX- $\beta$ . H<sub>2</sub> evolution and other chemical species evolved from O and C impurities can be characterized and quantified using TPD. These results are important to help understand the chemical and physical state of lithium-coated PFCs, which affects H retention and plasma performance. The SEP upgrade involves a new configuration and installation of a residual gas analyzer (RGA) for use in TPD. A LabVIEW module was written, and integrated with the RGA software provided by the manufacturer, to control the temperature of the heating element in the SEP and obtain TPD data.

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