

Abstract Submitted
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Sputtering rates of lithium and lithium hydride due to low energy ion impact¹ JOHN ROSZELL, Princeton University, ANGELA CAPECE, CHARLES SKINNER, Princeton Plasma Physics Laboratory, BRUCE KOEL, Princeton University — The presence of lithium coatings on plasma facing components (PFCs) has been shown to improve plasma performance through the reduction of hydrogen recycling. Understanding the interactions between plasma species and lithium-covered PFCs is important to the successful implementation of lithium in a tokamak environment. Fundamental surface science experiments performed in a controlled UHV environment are used to investigate the interactions between deuterium ions and lithium films. Sputtering yields of lithium from pure and deuterated lithium films due to the impact of low energy deuterium and rare gas ions are measured with a well characterized ion beam capable of achieving energies of <10 eV/D⁺. Lithium films are deposited on a molybdenum single crystal substrate from an SAES getter source allowing for pure Li film growth with a highly reproducible thickness. These films are characterized with Auger electron spectroscopy (AES) and X-ray photoelectron spectroscopy (XPS), while sputtering yield is measured with temperature programmed desorption (TPD) to quantify the number of atoms remaining on the surface after ion bombardment. Sputtering yields are measured as a function of ion energy, film composition, and substrate temperature.

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