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The Influence of Temperature and Oxygen Surface Contamination on the Adsorption of Deuterium on Lithium-Coated Molybdenum Substrates[1] ANGELA CAPECE, Princeton Plasma Physics Laboratory, JOHN ROSZELL, Princeton University, CHARLES SKINNER, Princeton Plasma Physics Laboratory, BRUCE KOEL, Princeton University — Lithium-conditioned plasma-facing components have improved plasma performance by reducing the recycling of hydrogenic species; however, this process is not well understood in the complex tokamak environment. UHV surface science experiments are used to investigate the processes that occur at the plasma-surface interface by probing surface chemistry and composition while independently controlling vacuum conditions, surface temperature, and D atom/ion flux. We report on the effects of temperature and surface oxygen contamination on D retention of lithiated TZM alloy and Mo(100) single crystal. The Mo(100) substrate is used for comparison with the TZM to determine the effects of impurities and grain boundaries. The Mo substrate is coated with a monolayer-scale Li film and then exposed to D atoms and 500 eV D^+ ions. Auger electron spectroscopy is used to probe the surface composition, and D retention is determined using temperature programmed desorption. Plots of D retention as a function of D atom/ion exposure will be presented for a range of surface temperatures.

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