

Abstract Submitted
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Investigation of deuterium retention and uptake in lithium plasma-facing components in fusion reactors¹ PROMISE ADEBAYO-IGE, University of Pennsylvania, YUXIN YANG, BRUCE KOEL, Princeton University — The reaction of incident energetic deuterium (D) and hydrogen (H) ions and atoms with surfaces plays a critical role in plasma-surface interactions in nuclear fusion experiments. Liquid metals, such as Lithium, offer solutions to significant problems of the plasma-facing components (PFC) in fusion energy systems. Lithium is a widely accepted candidate for PFCs because of its ability to retain both D and H over a wide range of temperatures. In this study, temperature programmed desorption and Auger electron spectroscopy will be used to obtain quantitative measurements on D uptake and retention to elucidate the surface chemistry of Li coatings on metal PFCs in high power fusion energy devices. We will report data on the sputtering yields and time dependent retention of D ions on Li and Li₂O films under ultra-high vacuum conditions.

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