

Abstract Submitted  
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**Study of Lithium on Molybdenum substrates in IIAX (Ion surface Inter Action Surface eXperiment)** PRIYA RAMAN, ANDREW GROLL, DANIEL ANDRUCZYK, VIJAY SURLA, DAVID RUZIC — Plasma Facing Component(PFC) materials are critical to fusion reactor development. There is no one material that functions as an ideal PFC material. Coatings are applied to control the interaction between plasmas and the surrounding material. Boronization and lithiation are the most common methods of wall conditioning techniques that are currently used in tokamaks. In this work, we investigate lithium on molybdenum substrates for its wetting properties and erosion behavior. To understand the effect of boronization on wetting properties of lithium, a set of experiments have been conducted in the newly built facility, where liquid lithium is dropped on to a heated molybdenum substrate and the contact angle of lithium on substrate is measured. It is found that lithium wets both the molybdenum and the boronized molybdenum substrates. When lithium is sputtered, it has been observed that 55-65% of the sputtered particles are ions [1] and the sheath returns them to the wall. Li on top of other layers may act differently. To examine this phenomenon and assess erosion measurements of lithium on mixed materials (Li/Mo, Li/B/Mo), a methodology to measure ionization fraction of the sputtered lithium in the IIAX facility is also presented. Work supported by DOE/ALPS contract: DEFG02- 99ER54515.

[1] J.P.Allain and D.N.Ruzic, *Nucl.Fusion* **42** (2002), pp. 202–210.

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