Abstract Submitted
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Erosion behavior of lithium coated tungsten fuzz samples under D and He ion irradiation[1] ANTON NEFF, ERIC LANG, Univesity of Illinois, Center for Plasma Material Interactions, Urbana, IL 61801, JEAN PAUL ALLAIN, Univesity of Illinois, Center for Plasma Material Interactions, and Micro and Nanotechnology Center, Urbana, IL 61801 — As the primary candidate for the ITER divertor, tungsten (W) should be tailored to produce a more radiation tolerant plasma facing component (PFC). This alteration must overcome the surface microstructure changes such as bubbles, pores, fuzz, etc. that form under D and He ion irradiation in order to reduce tungsten erosion from the ITER divertor. Studies have shown that adding low Z impurities (C and Be) to a mixed D-He plasma can inhibit the growth of fuzz [1]. In contrast, previous studies have shown that low Z lithium (Li) does not inhibit fuzz production but does appear to persist on the surface among the fuzz. To further investigate this, we exposed ∼1000 nm Li coatings on a fuzz coated W to D and He ion bombardment. The erosion yield was measured with a quartz crystal microbalance and surface chemical changes were measured in operando with our HP-XPS system IGNIS (Ion-Gas-Neutral Interactions with Surfaces) at UIUC. Helium and D ion fluxes were $\sim 10^{18}$ $m^{-2}s^{-1}$ at room temperature. After irradiation, the surfaces of the samples were characterized with scanning electron microscopy (SEM). These results will be presented along with SIMS results investigating the concentration depth profiles. [1] M.J. Baldwin et al., J. Nucl. Mater. 390391 (2009) 886890

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