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Sputtering and Evaporation Studies of Lithiated Graphite[1] VIJAY SURLA, KENZO IBANO, MARTIN NEUMANN, DAVID RUZIC, University of Illinois at urbana-Champaign — To understand the complex system of lithiated ATJ graphite, studies of sputtering and evaporation of lithium and lithiated ATJ graphite are conducted in the Ion InterAction eXperimental (IIAX) facility. The sputtering yields are measured using QCM for both graphite and lithiated graphite targets when bombarded by Li ions with energies ranging from 700 eV-2000 eV. Typical flux of Li ion beam obtained is $\sim$ 4 x 10^{13} ions/ (cm^2- s). Results indicate suppressed amounts of sputtered yields after Li treatment. Deuterium saturation for target samples is also performed to simulate actual divertor conditions; however, no distinct difference in sputter yields is seen after D treatment. The percentage fraction of sputtered Li ions to neutrals is also determined. The thermal evaporation flux studies of Li on stainless steel (SS) and lithiated graphite show that there is an order of magnitude less evaporation from lithiated graphite compared to Li on SS, thereby enhancing the temperature limit on plasma facing components.

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Vijay Surla
University of Illinois, Urbana Champaign

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