

Abstract Submitted
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Effects of lithium on chemical sputtering, physical sputtering, and deuterium pumping on graphitic substrates¹ CHASE TAYLOR, JEAN-PAUL ALLAIN, BRYAN HEIM, Purdue University, HENRY KUGEL, ROBERT KAITA, CHARLES SKINNER, RICHARD MAJESKI, Princeton Plasma Physics Laboratory, PURDUE UNIVERSITY TEAM, PRINCETON PLASMA PHYSICS LABORATORY TEAM — Lithium research has been conducted in various tokamak devices such as TFTR, CDX-U, FTU, T-11M and NSTX, as a means of enhancing plasma performance. Lithium has been found to reduce hydrogen recycling and facilitate H-mode power threshold. No systematic data is available on depumping properties of lithiated graphite structures and lithium film structures deposited on alternate substrates. Since most of the plasma- wetted surface during liquid lithium divertor (LLD) runs will consist of lithiated graphite, Purdue University is implementing a phased approach to study the effects of lithiated graphite surfaces on the LLD in NSTX. This approach includes design of a witness sample probe to examine erosion/redeposition mechanisms at the NSTX scrape-off-layer during experimental campaigns using the LLD. This work includes studies of D, He bombardment and D pumping on lithiated graphite systems using in-situ surface characterization techniques in the Omicron and PRIHSM facilities at Purdue University.

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