

Abstract Submitted
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Deuterium retention in NSTX with lithium conditioning¹ C.H. SKINNER, H.W. KUGEL, L. ROQUEMORE, P.P.P.L., J.P. ALLAIN, C.N. TAYLOR, Purdue U., V. SOUKHANOVSII, L.L.N.L. — Fuel retention is an important constraint in the selection of plasma facing materials for next-step tokamaks. Gas balance measurements of retention in NSTX have been performed before- and with lithiumization of the vessel. The gas retained in ohmic discharges was measured by comparing the vessel pressure rise after a discharge to that of a gas-only pulse with the pumping valves closed. For neutral beam heated discharges the gas input and gas pumped by the NB cryopanel was tracked. Preliminary results show high ($\sim 90\%$) prompt retention both with- and without lithiumization. Outgassing of deuterium follows, initially at a high rate that then slowed over the following 24 hours to become comparable to the baseline vessel pressure rate of rise and reduced the retention to the $\sim 50\%$ level. Four material samples were exposed to the plasma and analysed in-vacuo the same evening in order to investigate the fundamental processes governing particle balance with lithium coatings.

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