

Abstract Submitted
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Lithium and Deuterium on NSTX Carbon Tiles¹ WILLIAM R. WAMPLER, Sandia National Laboratories, CHARLES H. SKINNER, HENRY W. KUGEL, Princeton Plasma Physics Laboratory — Evaporation of lithium onto the wall of NSTX has produced significant improvements in plasma conditions. The effect of this lithium on plasma-wall interactions is expected to depend mainly on its concentration near the surface of plasma-facing components. Here we report measurements of the concentration of lithium and deuterium (D) versus depth on 21 carbon tiles removed from NSTX after lithium deposition experiments in 2006. Measurements were done using nuclear reaction analysis. The lithium was observed to be within a few microns of the surface, which shows that diffusion of lithium into the carbon was less than a few microns. Lithium coverage was an order of magnitude lower on tiles shadowed from the lithium evaporation source than on unshadowed tiles at similar poloidal positions, whereas the D coverage was similar. This shows that the D coverage was not greatly changed by the lithium deposition. The D coverage was highest in the private flux region between inner and outer strike points of the high triangularity plasmas used. The presence of lithium at the strike points shows that it had not been removed by plasma erosion at these high flux locations.

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