

Abstract Submitted
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Effect of Evaporated Lithium PFC Coatings in NSTX¹ H.W. KUGEL, M.G. BELL, R.E. BELL, D.A. GATES, T. GRAY, R. KAITA, B.P. LEBLANC, R.P. MAJESKI, D.K. MANSFIELD, D. MUELLER, S.F. PAUL, A.L. ROQUEMORE, C.H. SKINNER, T. STEVENSON, L. ZAKHAROV, PPPL, C. BUSH, R. MAINGI, ORNL, P. BEIERSDORFER, V. SOUKHANOVSKII, LLNL, R. RAMAN, U. Washington, S.A. SABBAGH, Columbia U. — Two versions of a lithium evaporator (LITER-1) were installed in succession on an upper port aimed toward the graphite tiles of the lower center stack and divertor. Lithium temperatures in the range 450 to 680°C produced evaporation rates of 0.08 to 35 mg/ min with a gaussian-like angular distribution with a 1/e full width of about 22°. A quartz crystal micro-balance in the gap between two tiles on the lower divertor was used to measure the lithium deposited. Twelve separate depositions, ranging from about 10 mg to 5 g of lithium were performed. Lower single-null L-mode and H-mode, and double-null reversed-shear plasmas were studied. After lithium coating, the reference ratio of oxygen to carbon emission was lower than achieved with boronization. Other effects of lithium coating were variable, but under some conditions, there were decreases in the density and increases in electron and ion temperature, and neutron rate, and reductions in H-mode ELM frequency. These results and future plans will be discussed.

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