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**NSTX Experiments with Lithium Plasma-Facing Components – Recent Results and Future Plans** H.W. KUGEL, D. MANSFIELD, M.G. BELL, R. BELL, D. GATES, S. GERHARDT, R. KAITA, J. KALLMAN, S. KAYE, B. LEBLANC, R. MAJESKI, D. MUELLER, S. PAUL, A.L. ROQUEMORE, P.W. ROSS, H. SCHNEIDER, C.H. SKINNER, J. TIMBERLAKE, PPPL, S. SABBAGH, Columbia University, V. SOUKHANOVSKII, LLNL, W.R. WAMPLER, SNL, R. MAINGI, J. WILGEN, ORNL, J.P. ALLAIN, Purdue University, R. RAMAN, UW, NSTX TEAM — Recent NSTX high power, H-mode divertor experiments have shown significant and recurring benefits from active lithium coatings on PFC's. Two lithium evaporators were used to routinely evaporate lithium onto the NSTX lower divertor region between discharges. The major improvements in plasma performance from these lithium depositions include: 1) plasma density reduction as a result of lithium deposition; 2) suppression of ELMs; 3) improvement of energy confinement in a low-triangularity equilibrium; 4) improvement in plasma performance for standard, high-triangularity discharges; 5) reduction of the required HeGDC time between discharges; 6) increased pedestal electron and ion temperature; 7) reduced SOL plasma density; and 8) reduced edge neutral density. The next step in this work is installation of a liquid lithium divertor (LLD). Physics design and progress in implementation will be discussed. Work supported by USDOE Contract DE-AC02-76-CH03073.

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