

Abstract Submitted
for the DPP10 Meeting of
The American Physical Society

Operational Characteristics of Liquid Lithium Divertor in NSTX¹

R. KAITA, H. KUGEL, T. ABRAMS, M.G. BELL, R.E. BELL, S. GERHARDT, M.A. JAWORSKI, J. KALLMAN, B. LEBLANC, D. MANSFIELD, D. MUELLER, S. PAUL, A.L. ROQUEMORE, F. SCOTTI, C.H. SKINNER, J. TIMBERLAKE, L. ZAKHAROV, PPPL, R. MAINGI, ORNL, R. NYGREN, SNL, R. RAMAN, U. of Washington, S. SABBAGH, Columbia U., V. SOUKHANOVSKII, LLNL, AND NSTX TEAM — Lithium coatings on plasma-facing components (PFC's) have resulted in improved plasma performance on NSTX in deuterium H-mode plasmas with neutral beam heating. Salient results included improved electron confinement and ELM suppression. In CDX-U, the use of lithium-coated PFC's and a large-area liquid lithium limiter resulted in a six-fold increase in global energy confinement time. A Liquid Lithium Divertor (LLD) has been installed in NSTX for the 2010 run campaign. The LLD PFC consists of a thin film of lithium on a temperature-controlled substrate to keep the lithium liquefied between shots, and handle heat loads during plasmas. This capability was demonstrated when the LLD withstood a strike point on its surface during discharges with up to 4 MW of neutral beam heating.

¹Supported by U.S. Department of Energy Contracts DE-AC02-09CH11466, DE-AC04-94AL85000, DE-AC52-07NA27344, and DE-AC05-00OR22725

Robert Kaita
Princeton Plasma Physics Laboratory

Date submitted: 07 Jul 2010

Electronic form version 1.4