

Abstract Submitted  
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**Diagnostics for Evaluating Performance of NSTX Liquid Lithium Divertor**<sup>1</sup> R. KAITA, H. KUGEL, J. KALLMAN, B. LEBLANC, S. PAUL, A.L. ROQUEMORE, C. SKINNER, PPPL, V. SOUKHANOVSKII, LLNL, R. MAINGI, J.-W. AHN, J. WILGEN, ORNL, J.-P. ALLAIN, C. TAYLOR, Purdue U. — A Liquid Lithium Divertor (LLD) is being installed on NSTX to investigate particle control and power handling with liquid lithium as plasma-facing component (PFC). The LLD is expected to provide a low-recycling plasma-facing component (PFC). To study the effects of such a PFC on plasma performance, a variety of edge measurements are required. Since its surface is highly reflective at visible wavelengths, a Lyman-alpha detector array will be used to monitor the recycling. To understand changes in edge transport, electron temperature and density measurements will be made with Langmuir probes mounted in PFC's near the LLD, and the edge sight-lines of a multipoint Thomson scattering system. A frequency-scanning reflectometer will also provide scrapeoff layer electron density profiles. The LLD response to heat loads will be examined with infrared cameras and thermocouples. Diagnostics are also needed to measure the erosion and codeposition of lithium. They include quartz deposition monitors and a retractable probe for exposing samples to the plasma.

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