

Abstract Submitted
for the DPP15 Meeting of
The American Physical Society

Spectroscopic Analysis of Wall Conditioning Methods in NSTX¹

ELEANOR FORBES, PPPL (SULI), VLAD SOUKHANOVSKII, LLNL — Plasma confinement and performance in NSTX are reliant upon well-conditioned plasma facing components (PFCs). Past conditioning techniques used in NSTX include hot and cold boronization, lithium pellet injection (LPI), and lithium evaporation. The influx of hydrogen-containing molecules and radicals can be studied through spectroscopic observation of the hydrogen to deuterium (H/D) intensity ratio in the edge plasma. A code to determine H/D ratios has been developed and tested on known light sources before being applied to data from prior NSTX experiments. In general, boronization was found to reduce the H/D ratio, with further H reduction seen from cold boronization when compared to hot boronization. No correlation between LPI and H/D ratio was observed. Lithium evaporation produced a significant H decrease. In the future this analysis will be applied immediately following NSTX-U pulses to provide data on plasma-surface interactions.

¹This work was made possible by funding from the Department of Energy for the Summer Undergraduate Laboratory Internship (SULI) program. This work is supported by the US DOE Contract No.DE-AC02-09CH11466 and DE-AC52-07NA27344.

Eleanor Forbes
Univ of Washington

Date submitted: 24 Jul 2015

Electronic form version 1.4