

Abstract Submitted  
for the DPP08 Meeting of  
The American Physical Society

**Asymmetric edge biasing for SOL control in NSTX** STEWART ZWEBEN, Princeton Plasma Physics Laboratory, RICARDO MAQUEDA, Nova Photonics, LANE ROQUEMORE, PPPL, CHARLES BUSH, ORNL, ROBERT KAITA, HENRY KUGEL, ROBERT MARSALA, YEVGENY RAITSES, PPPL, RONALD COHEN, RYUTOV DMITRI, LLNL — In theory, the SOL strike location at a divertor plate can be actively controlled using local convective cells created by electrostatic biasing. An experiment was done on NSTX to test this idea using a small set of electrodes in the far-SOL near the outer midplane. Significant changes were observed in the local density profile near these electrodes when they were positively (but not negatively) biased with respect to the vessel ground. This was expected from the theory, as was the observation that sign of these changes reversed with the direction of the local radial ExB drift. Biasing one electrode with respect to another drew a significantly lower current, as expected, but produced a smaller density change. The SOL turbulence motion was also viewed using the GPI diagnostic; however, little convective cell motion was detected  $\sim 1$  m along B from these electrodes. A planned upgrade to allow the biasing of small electrodes at the divertor plate of NSTX will be described. This work was supported by USDOE Contract DE-AC02-76CHO3073.

Stewart Zweben  
Princeton Plasma Physics Laboratory

Date submitted: 14 Jul 2008

Electronic form version 1.4