

Abstract Submitted  
for the DPP09 Meeting of  
The American Physical Society

**Study of Thermo-electrically Driven Scrape-Off-Layer Current (SOLC) in NSTX Tokamak**<sup>1</sup> HIRO TAKAHASHI, ERIC FREDRICKSON, JOSH KALLMAN, STEFAN GERHARDT, ROBERT KAITA, DENNIS MANSFIELD, STUART ZWEBEN, Princeton Plasma Physics Laboratory, RAJESH MAINGI, Oak Ridge National Laboratory — SOLC flow in ELMing discharges in NSTX has been found qualitatively similar to that in DIII-D [1], with steady small amplitude during a quiescent period leading to a rapid change to much larger values, abruptly beginning just before ELM onset (as detected by D-alpha signal). Current density (spatially averaged normal to divertor plate) in NSTX is comparable to that in DIII-D during the main ELM event, but is much smaller during the quiescent period. The possible thermo-electric origin of the current in the quiescent period will be investigated using flush-mounted Langmuir probes and halo current sensors to see whether observed SOLC distributions can be quantitatively related to sheath parameters at divertor plates. Effect on SOLC of Lithium coating of plasma facing surfaces will also be examined.

[1] H. Takahashi, et al., Paper TP6.00033, 50<sup>th</sup> Ann. Mtg. of APS-DPP, Dallas, TX, Nov., '08.

<sup>1</sup>Supported by the US DOE under DE-AC02-09CH11466.

Hiro Takahashi  
Princeton Plasma Physics Laboratory

Date submitted: 16 Jul 2009

Electronic form version 1.4