Abstract Submitted
for the DPP16 Meeting of
The American Physical Society

Development of the NSTX-U Advanced Divertor Control[1] PATRICK VAIL, EGEMEN KOLEMEN, Princeton University — Advanced magnetic divertor configurations such as the snowflake (SF) divertor are being investigated at NSTX-U for reducing the peak heat flux onto plasma-facing components. Initial efforts include development of plasma scenarios incorporating SF configurations using an upgraded set of divertor coils as well as implementation of a feedback control system for real-time detection and manipulation of two closely-spaced magnetic null points. Closed-loop plasma simulations are performed to demonstrate precise control of various SF configurations. The simulations are then used to demonstrate that the controller can be enhanced to regulate additional parameters such as strike point location and divertor flux expansion. The advanced divertor control will be used in the coming years to enable experiments investigating the physics of advanced divertors at NSTX-U.

[1]Supported by the US DOE under DE-AC02-09CH11466

Patrick Vail
Princeton University

Date submitted: 15 Jul 2016 Electronic form version 1.4