

Abstract Submitted
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NSTX Strike Point Position Control¹ EGEMEN KOLEMEN, Princeton University, DAVID GATES, PPPL, CLARENCE W. ROWLEY, N. JEREMY KASDIN, Princeton University — This paper presents the new control algorithm for the inner and outer strike point position for NSTX and the performance analysis of the controller. A liquid lithium diverter (LLD) will be installed on NSTX which provides better pumping than lithium coatings on carbon PFCs. The shape of the plasma dictates the pumping rate of the lithium by channeling the plasma to LLD, where strike point location is the most important shape parameter. Simulations show that the density reduction depends on the proximity of strike point to LLD. Experiments were performed to study the dynamics of the strike point, design a new controller to change the location of the strike point to desired location and stabilize it. The most effective PF coil in changing the outer strike point is PF2L. Thus, we use this coil as the sole controller for the outer strike point. In the same way, PF1AL is used for inner strike point control. The PF coil inputs were changed in a step fashion between various set points and the step response of the strike point position was obtained. From the analysis of the step response, PID controllers for the strike points were obtained and the controller was tuned experimentally.

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