

Abstract Submitted  
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**Overview of Results from the NSTX FY09 Run** ROGER RAMAN, University of Washington, for the NSTX Research Team — NSTX research in toroidal magnetic confinement at low aspect ratio has made extensive use this year of both lithium coatings for wall conditioning and external non-axisymmetric field correction to reliably produce high-performance discharges extending to 1.7s in duration. Toroidal beta above 25% has been sustained for up to 0.4s. The error-field correction coils have been used to trigger ELMs for controlled ELM pace-making and have also contributed to an improved understanding of both neoclassical tearing mode and resistive wall mode physics. The supersonic gas injector has been used to fuel long-pulse high-performance discharges without reliance on the high field side fueling previously employed. The edge pedestal of ELM-free H-mode plasmas has been studied using transient edge probes, fast infrared cameras and divertor bolometers. A reduction in the required central solenoid flux has been realized in NSTX when discharges initiated by coaxial helicity injection were ramped in current using induction. Other experiments have been conducted to address research of high priority to the ITPA and ITER. This work supported by U.S. DOE Contracts DE-AC02-09CH11466 and DE-FG02-99ER54519 AM08.

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