Abstract Submitted
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NSTX Facility Highlight and Upgrade Plan[1] MASAAYUKI ONO, PPPL, Princeton University, THE NSTX TEAM — The new NSTX facility additions included dual lithium (li) dropper to inject li powder directly into the plasma discharge complementing the dual li evaporators for between-shots li coverage of divertor region. Li evaporator together with EF/RWM feedback control enabled the record pulse length, stored energy, and confinement in NSTX. An edge sample probe allowing in-situ surface thermal desorption spectroscopy was introduced. The high harmonic fast wave heating system upgrade was implemented to double the power handling capability to support the current ramp-up and sustainment research. The Coaxial Helicity Injection (CHI) absorber coil was also introduced to form the field null to reduce the absorber arc. The CHI was able to increase the start-up plasma current by 100 kA above the ohmic induction. For the 2010 run, new upgrades are planned including a liquid-li divertor target to achieve lower collisionality and a Beam Emission Spectroscopy diagnostic to extend the localized ion gyro-radius scale turbulence measurements to complement the electron gyro-radius scale high-k scattering system. For the longer term, a new center stack and second NBI system are planned to access lower collisionality, full non-inductive operation, and current profile control.

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