NSTX Weekly Report (June 10, 2011)

FY 2011 NSTX plasma operations started on October 4, 2010
FY 2011 NSTX Outage started on October 25, 2010
Planned Run Weeks: TBD
Run Weeks Completed: 4.21 run weeks and 839 plasma shots

Several papers representing the NSTX high-harmonic fast wave (HHFW) research were presented at the biannual 19th Topical Conference on Radio Frequency Power in Plasmas that was held in Newport, Rhode Island, June 1-3. Gary Taylor (PPPL) presented an invited talk on "HHFW Heating and Current Drive Studies of NSTX H-Mode Plasmas", Joel Hosea (PPPL) presented a poster paper on "The Effect of ELMs on HHFW Heating of NBI Generated H-modes", Phil Ryan (ORNL) presented a poster paper on "Operating the Upgraded NSTX HHFW Antenna Array in an Environment with Li-coated Surfaces", and David Green (ORNL) presented a poster paper on "Predicting HHFW Heating Efficiency on NSTX via Whole-Device Full-Wave Simulation". In addition, Cynthia Phillips(PPPL) presented a poster on "Slow Wave Excitation in the ICRF and HHFW Regimes" which included some high spatial resolution numerical modeling of NSTX HHFW scenarios. (G. Taylor)

Jon Menard, Masa Ono, and Mike Zarnstorff traveled to DOE headquarters to participate in the midterm review of the C-Mod, DIII-D, and NSTX programs. During the NSTX session, J. Menard presented an overview of the NSTX research program progress and plans toward 5 year plan goals, and M. Ono described the NSTX facility achievements and plans toward 5 year plan goals. The NSTX topical science group leaders and other contributors to the 5 year plan participated from PPPL via videoconference and assisted in the question and answer discussions with the review panel. (J. Menard, PPPL)

R. Maingi (ORNL) presented a seminar at ORNL Fusion Energy Division titled "The continuous improvement of H-mode discharges with progressively increasing lithium coatings in NSTX." (R. Maingi)

Egemen Kolemen (PPPL) has been collaborating with General Atomics on NSTX Plasma Control System (PCS), with the goal to obtain a full closed loop simulation of the NSTX PCS, power supplies, and magnetic plasma response. This activity will enable designing and testing better controllers for NSTX. Progress was made on running the stand-alone simulations with a better match for the power supply model. The closed-loop simulation with the plasma model connected to the PCS is now working on the General Atomics computational cluster. Current work is focused on getting the closed-loop simulation to work on PPPL clusters and on validating the simulations with NSTX data. (R. La Haye, General Atomics, D. Gates, PPPL)

Engineering Operations (A. von Halle, C. Neumeyer)

Preparations for upcoming NSTX operations continued this week with the completion of the Multi-Pulse Thomson Scattering (MPTS) diagnostic scattering calibrations and laser alignments, and the start of a planned 3 week vacuum vessel bake. The NSTX vacuum vessel was vented briefly before the start of the bake to install the new CVD diamond window at bay H upper, and to replace the PHA diagnostic Torus Isolation Valve (TIV). Also this week, the TIV for the new

Diagnostic Neutral Beam (DNB) was opened , and the DNB successfully operated into the NSTX vessel to characterize performance and check alignments.

Access to the NSTX test cell will be restricted this coming week during the vessel bake.