

NSTX Weekly Report (Feb. 13, 2009)

FY 2009 NSTX plasma operations

Planned: TBD

Completed: 0 run weeks

- Steven A. Sabbagh (Columbia University) gave a Columbia University Plasma Physics Colloquium entitled "Macroscopic Stability Research on NSTX and a ReNeWed Future" on Feb. 6, 2009. (S. Sabbagh)
- Stanley Kaye attended the DIII-D Program Advisory Committee meeting held at General Atomics on Feb. 10-12, 2009. He also gave a Physics Dept. seminar at UC San Diego, entitled Transport and Turbulence Physics in NSTX on Feb. 12, 2009. (S. Kaye)

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

NSTX start-up activities continued this past week with the completion of the Hardwired Interlock, Kirk Key and Emergency Stop System testing of systems needed for initial operations, as well as the calibration/testing of the power supply protection systems. Insulation checks (HiPots) and power testing of individual field coils has been completed, and combined field testing is in progress. The neutral beam ion sources have been conditioned to operate reliably at levels needed to support NSTX experiments. The NSTX Test cell will be in restricted access this coming week during plasma operations. Limited access will be available after 5PM each evening.

Research Operations (M. Bell)

Boundary Physics Operations (H. Kugel)

• Liquid Lithium Divertor (LLD)

SNL Status:

- Photos of the first brazed plate were received and found to exhibit excellent workmanship.
- The final machining process for all six plates is expected to be completed by 2/23/09 and sent for molybdenum coating by 2/25/09.
- The completed plates are scheduled to be received at PPPL from the molybdenum coating vendor 4/10/09.
- The method of heater control was finalized.
- An updated report was received on the heater circuit controls and photos of the rack assembly.

PPPL Status:

- The final machining of a brazed copper plate prior to step-bending is in progress.
- Additional testing of a candidate TEMPCO heater was performed in air to compare the test plate thermal behavior with and without a boron nitride coupling compound.
- A brazed flat copper test unit with heaters and thermocouples installed was delivered to L-245

for installation in the vacuum test chamber.

- Edge Sample Probe

- A teleconference was held with the Purdue and NSTX teams to review the schedule and remaining tasks for installation of the Sample Probe during the first maintenance week.
- An update on Purdue sample preparation was received.
- The design for the heated sample holder was completed and adopted.

- Lithium Powder Dropper

- The machining for 2 dropper units was completed.
- The assembly of one dropper unit is in progress, and final testing offline prior to installation on NSTX will be performed next week.

Diagnostic Operations (R. Kaita)

- A successful peer review of a proposed “Lyman-alpha” diagnostic for recycling studies was held on February 13, 2009. V. Soukhanovskii of the Lawrence Livermore National Laboratory presented a concept that used an AXUV diode array to view the lower divertor region that included the location of the liquid lithium divertor.
- A successful peer review of the Langmuir probe array for the NSTX Liquid Lithium Divertor (LLD) diagnostic set was held on February 13, 2009. J. Kallman, a Princeton University graduate student, presented the details of a set of triple Langmuir probes that he intends to use in his thesis research. This diagnostic will enable electron temperature and density measurements with high spatial resolution in the vicinity of the LLD.