

## **NSTX Weekly Report (Dec. 09, 2005)**

FY2006 weeks of research operations

Planned: TBD

Completed: 0 weeks

### **NSTX Department, Project, Program (M. Ono, M. Peng)**

- Members of the NSTX Team actively participated in the U.S. Burning Plasma Workshop held at Oak Ridge National Laboratory, Tennessee, Dec. 7 – 9, 2005. The presentation material from the BP Workshop can be quite helpful in thinking about how NSTX can contribute scientifically to ITER. It can be uploaded to [www.burningplasma.org](http://www.burningplasma.org), under "Agenda" for this meeting.

- Martin Peng (ORNL) visited the National Institute for Fusion Science of Japan and attended an All-Japan ST Program Steering Committee meeting on December 7, 2005. He also gave four invited lectures on "Fusion Energy Science Promises and Challenges" to select student groups from Super Science High Schools in Tokyo, Nagoya, and Kyoto, as part of an Educational Campaign on Fusion Energy organized by Y. Ogawa (Professor, the University of Tokyo). (M. Peng)

- The NSTX Results Review of FY 2005 run will be held at PPPL on December 12 – 13, 2005. The Results Review agenda has been updated, and it can be found in [http://nstx.pppl.gov/DragNDrop/Results\\_Review\\_2005/](http://nstx.pppl.gov/DragNDrop/Results_Review_2005/). The Results Review will commence at 8:30 AM in the MBG auditorium. Remote connections will be set up, and details of these connections will follow. If you are making a presentation, you can either copy your presentation into the appropriate session folder in the above area (session folders are named Monday AM, Monday PM, Tuesday AM and Tuesday PM), or you can put your presentation on a memory stick which you can plug into the laptop computer that will be available during the conference. Please name the presentation file starting with your last name (and then XP# if appropriate; i.e., Kaye\_525). Again, because of the fullness of the sessions, please limit your talks to ~ 10 min. (S. Kaye, J. Menard)

- The NSTX Research Forum for FY 2006 research will be held at PPPL on **December 14, 2005 through December 16, 2005**. The research forum material is available at [http://nstx.pppl.gov/DragNDrop/Research\\_Forum\\_2005/](http://nstx.pppl.gov/DragNDrop/Research_Forum_2005/). **The Research Forum will commence at 8:30 AM in the LSB 318. Remote connections will be set up.** (M. Bell, R. Raman)

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

The NSTX outage continued this past week with the reassembly of the lower TF hub, and the reconnection of the PF1A, PF1B, and OH coils. The installation of the TF L-connectors and flexible buses is in progress. Installation of diagnostics

on the vacuum vessel ports continues, and an alignment of the MPTS diagnostic has been completed. The UCSD team is on site this week to commission new power supplies for the fast reciprocating probe. Heat treatment and testing of the new NB duct shield is complete, vacuum prep of the NB drift duct is in progress, and the NB helium refrigerator cold box is back under vacuum. The NB drift duct is scheduled to be installed on NSTX late this coming week, and vessel pump-down is expected before the holiday break. Access to the NSTX test cell will be available via the card readers throughout this coming week. (A. von Halle)

### **Research Operations (M. Bell)**

#### Diagnostic Operations (R. Kaita)

- Calibrations of the Thomson scattering and fast reciprocating probe from the University of California at San Diego were completed. Calibrations were also performed for the re-entrant ultrasoft X-ray array, the “optical” X-ray array, and the X-ray “telescope” from the Johns Hopkins University.
- Tests of the high-k scattering fluctuation diagnostic continued. Comparisons were made with between the optical alignment of the system and the actual path of the microwave beam. Measurements and adjustments will be completed on Saturday, December 9, which will be the last day for in-vessel diagnostic calibrations.

#### Boundary Physics Operations (H. Kugel)

- The fabrication of MGP anode parts was completed. The MGP was reassembled, leak checked, and reinstalled. An in-vessel check of the resulting alignment found that the previous alignment was satisfactory and that no additional adjustments were required. The power and control cable connections will be made after vessel evacuation.
- The design, fabrication, and installation of an in-vessel mirror for monitoring the LITER-1 probe insertion into Bay-F was completed. The LITER-1 Bay-F Alignment Jig was installed. The resulting alignment was found to need no additional adjustments, and it was secured in preparation for later installations with the full probe assembly. Two brazing sequences in the assembly of Cartridge-A were completed. The reservoir heater was completed; work on the two snout heaters continued. Electric Discharge Machined (EDM) reservoir bodies were received and found to be of high quality. Details of the probe internal utility connections were resolved. Residual functions of the Interlock Logic design were defined. Work was initiated on specifying requisitions for the outboard feedthroughs and connections. Work was initiated on resolving CHIT documented issues identified at the Peer Review. Some CHITS were closed by already implemented design changes; the remaining CHITS were categorized for

inclusion and resolution in the Failure Effects and Modes Analysis (FMEA).