

## **NSTX Weekly Report (Nov. 23, 2005)**

FY2006 weeks of research operations

Planned: TBD

Completed: 0 weeks

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

• As announced in a recent email, the NSTX Research Forum for FY 2006 research on NSTX will be held at PPPL on **December 14, 2005 through December 16, 2005** following the NSTX Results Review which will be held on December 12 -13, 2005. The Research Forum is intended to provide interested researchers the opportunity to present ideas for experiments to be conducted on NSTX in the forthcoming run. Both well-developed and new proposals in the early stages of development are welcomed. For the 2006 NSTX Run, proposals for experiments on NSTX will be discussed within the six established Experimental Task (ET) Groups, each focusing on a specific research area. We are now pleased to announce the leadership and deputy leadership for these ET groups for the 2006 experiments, namely:

1. Integrated Scenario Development: Dave Gates (PPPL), Stan Kaye (PPPL)
2. MHD: Jon Menard (PPPL), Aaron Sontag (Columbia)
3. Transport and Turbulence: Michael Bell (PPPL), Kevin Tritz (JHU)
4. Wave-Particles: Gary Taylor (PPPL), Phil Ryan (ORNL)
5. Solenoid-free Start-up: Dennis Mueller (PPPL), Brian Nelson (U. Washington)
6. Edge Physics: Rajesh Maingi (ORNL), Bob Kaita (PPPL)

The Integrated Scenario Development group will have a portion of its effort during this 2006 run devoted to operating with the plasma current reversed to explore counter-injection of the neutral beams.

At the Research Forum, there will be breakout sessions during which these ET groups will discuss, evaluate and prioritize proposals made by team members for experiments in their areas of interest. To assist in planning the forum, please submit a brief (1-page or less) description of each experiment you are proposing and indicate in which of the above groups you would like to present it for consideration. To facilitate organization of the breakout sessions, please include as much of the following information as appropriate.

- Title
- Names, affiliations, email addresses of proponents
- NSTX contacts (if appropriate)
- ET area and sub-area
- Description of proposed experiment, including background and approach
- The status of any collaborative component of the experiment, if appropriate
- Required NSTX run time
- Required NSTX capabilities (current, field, heating, configuration, gas)
- Required NSTX diagnostics

Please send this abstract to Roger Raman ([raman@aa.washington.edu](mailto:raman@aa.washington.edu)) and

Michael Bell ([MBell@pppl.gov](mailto:MBell@pppl.gov)) and to the leadership of the most relevant ET group(s), if possible by November 30. For those who are unable to attend the Forum, remote participation will be available for viewing and making the presentations and participating in the discussion. For additional information regarding the laboratory visit, please contact Joanne Savino [jsavino@pppl.gov](mailto:jsavino@pppl.gov) or visit the NSTX web page [http://nstx.pppl.gov/DragNDrop/Research\\_Forum\\_06/2005%20Forum%20Announcement.pdf](http://nstx.pppl.gov/DragNDrop/Research_Forum_06/2005%20Forum%20Announcement.pdf). (M. Bell, R. Raman)

- Because of preparations for various meetings coming up, there will be no NSTX Physics Meeting on Monday, 11/28. (S. Kaye)
- As a heads up, the extended abstracts for the 2006 IAEA conference (Cheng-Du, China, Oct. 16-21, 2006) will be due sometime in January (that info is not out yet). Please start thinking of suggestions for oral and poster talks (for yourself or others), and send the suggestions to me. We will start group discussions of the suggestions probably starting right after the first of the year (short presentations followed by discussion) for final decisions on what will get submitted. We will aim to submit as many viable abstracts as possible. (S. Kaye)

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

The NSTX outage continued this past week with the repair of the OH coil water leak using the procedure developed and tested on coil conductor mock-ups. A new vacuum window was installed for MPTS, and the installation of diagnostics on the bay G port cover continued. The new power supplies for LITER-1 (the lithium evaporator) are now on site, allowing work to start on that system's control and monitoring system. The reinstallation of the TF/OH bundle on NSTX is scheduled for late next week. 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)**

- Center stack tiles were removed to troubleshoot a faulty halo current Rogowski coil. The coil itself was determined to have the right resistance. Locating where the break in the wiring might be between the coil and its vacuum feedthrough is in progress.
- A new viewing window was installed for the multipoint Thomson scattering diagnostic. Laser windows are also being replaced, and an optical alignment with a low power helium-neon laser will be performed next week.
- Initial calibration measurements were made for the high-k scattering diagnostic. An alignment laser was used to check both the inboard and

outboard launch configurations. The data are being assessed to determine if there might be any sightline restrictions due to interferences with the neutral beam armor.

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

- The Lithium Evaporator (LITER)-1 modular power supplies were received this week, which was much earlier than expected. Their evaluation was started, and their control with a PC was demonstrated. A requisition was initiated for computer control hardware. The fabrication of the Cartridge heaters continued. The design of the feed-throughs and utilities section of the probe assembly was initiated. The initial version of the interlock logic was completed. Drawings for the alignment jig for positioning the probe on the umbrella structure were completed. A candidate layout for the offline test facility was reviewed and suggested changes were adopted. (W. Blanchard)
- The test assembly of parts for the Movable Glow Probe (MGP) maintenance was successful, the thermocouples were installed, and the final welding was scheduled. (T. Provost)

#### Physics Analysis (S. Kaye)

The TRANSP runs for the 2005 dataset have been completed. TRANSP has been run on 185 discharges (both L-mode and H-mode), with the fast ion diffusivity non-zero (typically 0.5 to 2 m<sup>2</sup>/s) in approximately half the runs in order to bring the measured and calculated neutron flux into agreement to within a few percent. The thermal confinement and transport trends of the 2005 dataset will be studied, and after the results of this study are presented to the NSTX group, the data will be submitted to the international confinement database.