

## **NSTX Weekly Report (Feb. 17, 2006)**

FY2006 weeks of research operations

Planned: 11 weeks

Completed: 0 weeks

- J. Menard presented MHD and energetic particle physics results from NSTX at the US/Japan MHD workshop in Naka, Japan, and results (from NSTX and other tokamaks) and future plans for the ITPA disruption database were discussed at the ITPA meeting that followed the workshop. (J. Menard)
- There will be no NSTX Physics Meeting on Monday, 2/20. (S. Kaye)
- The 19<sup>th</sup> meeting of the NSTX Program Advisory Committee will be held at PPPL on Feb. 22 – 24, 2006. The PAC Charge and Agenda are attached below.

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

Preparations for the upcoming NSTX run continued this past week with high power magnetic calibration operations and plasma test shots to evaluate vessel wall conditions. UCSD Research and engineering staff were at PPPL this week to restore operations of the reciprocating fast probe, and work continued on the commissioning of the new lithium evaporator system (LITER 1). A bake-out of the vacuum vessel began on Friday and is scheduled to continue until Tuesday of this coming week.

Access to the NSTX test cell will be restricted during the vessel bake. Test Cell access will be available on Thursday and Friday this week. Test cell areas will be "scrubbed" next weekend in preparation for the scheduled start of plasma operations on Monday, February 27th. (A. von Halle)

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

#### **Diagnostic Operations (R. Kaita)**

- The Rayleigh and Raman scattering calibrations for the multipoint Thomson scattering (MPTS) electron temperature diagnostic were performed. This required a gas-filled NSTX vacuum vessel, which was prepared last weekend.
- Test shots were performed for the calibration of magnetic sensors during the last week. Plasma shots were also conducted, and diagnostics were available to obtain baseline data prior to the bakeout planned for the end of the week.
- A preliminary installation of a new electron Bernstein wave antenna was performed with personnel from the Oak Ridge National Laboratory and PPPL at the beginning of the week. The mounting hardware on the NSTX vacuum vessel was removed for the upcoming bakeout, and will be restored after modifications required for the final installation are made.

## Boundary Physics Operations (H. Kugel)

- The LITER probe leak checking of the series of captured flanges and feedthroughs was completed. The connecting of the oven power and thermocouple cables was started and is in progress. All major preparations for off-line testing were completed. The installation of the interlock and control panels, and the associated rack wiring were completed, and the control system is now on the computer network. The installation of cables between the controls rack and LITER was started and will be completed after the Bakeout.
- The UCSD fast probe team arrived and completed all planned mechanical and electrical work on the probe, including items required for supporting CHI experiments. (J. Boedo, L. Chousal, R. Hernandez, UCSD)

National Spherical Torus Experiment  
Program Advisory Committee  
19th Meeting

Princeton Plasma Physics Laboratory  
Conference Room LSB-318  
February 22-24, 2006

## CHARGE

**There has been substantial progress towards an international Joint Implementing Agreement for ITER, resulting in the formation of the US Burning Plasma Organization and increased focus on ITPA Joint Experiments. The recent FESAC Facilities Panel Report identified key areas in which NSTX can make unique, important contributions to the science basis for ITER. The report also identified unique, important information that NSTX can provide in support of a compact U.S. Component Test Facility. It is critical that NSTX research plans support both burning plasma physics and the development of the ST configuration. Fortunately there is very substantial overlap between these goals.**

**NSTX has recently added critical new capability, including a unique system for highly localized high-k scattering measurements, active control of RWM coils in a configuration similar to that proposed for ITER, and intense lithium coating.**

- 1) **Do the proposed research plans for FY2006-08 take appropriate advantage of the new capabilities of NSTX to address both burning-plasma and ST-specific scientific goals?**
- 2) **Do the proposed facility and diagnostics upgrades for the FY2006-08 time frame position NSTX to maximize its contributions, given financial constraints?**

## AGENDA

Wednesday, February 22, 2006

**1:00** Coffee & Donuts, PAC Executive Session  
**1:15** Rob Goldston Welcome and Charge to the PAC  
**1:25** Steve Eckstrand Comments from DOE  
**1:30** Jim VanDam Agenda and Plan of Meeting  
**1:35** Jon Menard FY05 Campaign and Milestone  
Accomplishments  
**2:35** Martin Peng Strategic Goals & Research Priorities  
(**3:00** Coffee)  
**3:20** Masa Ono Facility Plans  
**4:05** PAC Executive Session  
**6:05** Adjourn  
**7:00** PAC Dinner TBD

Thursday, February 23, 2006

**8:00** Coffee & Donuts  
**8:30** Jim VanDam Feedback and Questions  
**8:40** Stan Kaye Confinement Scaling and ITER Relevance  
**9:10** Mike Bell Turbulence and Transport  
**9:40** Aaron Sontag Macro-stability  
**10:20** Coffee  
**10:30** Eric Fredrickson Super-Alfvénic Ion Driven  
Instabilities and Transport  
**11:10** Gary Taylor EBW and HHFW (include Pegasus)  
**11:50** Lunch  
**12:50** Dennis Mueller Transient CHI  
**1:20** Henry Kugel Lithium Wall Coating and Recycling  
Control  
**1:45** Rajesh Maingi Boundary Physics  
**2:30** Dave Gates Toward Stable Steady State Operation  
(include rampup)  
**3:10** Coffee  
**3:20** Roger Raman Run Plan for FY06  
**4:00** PAC Executive Session  
**6:00** Adjourn

Friday, February 24, 2006

**8:30** Coffee & Donuts  
**8:40** Jim VanDam Feedback and Questions  
**8:50** PAC Executive Session  
(**10:00** Coffee)  
(**12:00** Lunch)  
**1:00** Jim VanDam Debriefing  
**1:30** Adjourn

