

## **NSTX Weekly Report (January 18, 2008)**

### **FY 2008 NSTX plasma operations**

**Planned: TBD**

**Completed: 0 weeks**

- David Mikkelsen visited General Atomics to work with Ron Waltz and Jeff Candy on GYRO simulations of ETG turbulence in NSTX. We are establishing what is required to produce converged simulations of mixed-scale (electron and ion) turbulence that is driven by ETG modes and limited by background ExB shear.
  - Stanley Kaye visited General Atomics during 1/14-1/17/08. He gave a seminar entitled “Recent Physics Results from NSTX” to the DIII-D and Theory groups on Monday, 1/14. On Tuesday-Thursday, 1/15-17/08, he participated as a member of the DIII-D PAC, whose charge it was to comment on DIII-D’s Five Year plan. After the PAC meeting ended, Stan Kaye had discussions with GA physicists (Staebler, Kinsey and Greenfield) on running TGLF and XPTOR on NSTX discharges as part of a GA-Culham-PPPL analysis collaboration. In addition, he visited with Pat Diamond of UCSD to discuss TTF issues. (S. Kaye)
  - There will be an NSTX Physics Meeting on Monday, 1/21 at 1:30 PM in LSB318. A talk on “Recent DIII-D Results and Plans” will be given by Mickey Wade, General Atomics
- Upcoming Talks:
- Tues, 1/22, 10 AM, B318: Hartmut Zohm of MPI will give a talk entitled “The W-Programme in ASDEX Upgrade: A Plasma Physicist's View”
- Thurs, 1/24, 1 PM, B318: Brian Lloyd of Culham Laboratory, UK, will give a talk on recent MAST results and plans.
- David Gates will run the meeting, so please contact him if there are issues. (S. Kaye)

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

The return to NSTX operations is in progress with the power testing of individual magnet field coils as part of integrated system testing this week with the new plasma control system. Conditioning of the neutral beam ion sources continued in parallel with the testing of the field coils, and beam operating levels are approaching values needed to support experimental proposals. Also this week, the installation of sensors to monitor RWM error field coil polarities was completed, and the preparation of a test stand to use the lithium evaporator (LITER) to evaluate test coatings on a proposed Liquid Lithium Divertor plate continued.

The NSTX test Cell will be in restricted access throughout next week during combined field testing and experimental operations. Test cell access will be available from 5PM to ~10PM each evening, with the possibility of locking up one evening to perform a vacuum vessel boronization.

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

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

- Diagnostic reinstallations in preparation for the upcoming NSTX run continued during the past week. They included remounting the transmission grating spectrometer by personnel from Johns Hopkins University, where the instrument was developed.
- Initial measurements have been made with the new illumination probe installed for the multipoint Thomson scattering (MPTS) system. Window transmission data are being obtained prior to NSTX plasma operations.

#### Boundary Physics (H. Kugel)

- The assembly of LITER FY08 Bay K continued. The Thermionics bellows support tube was modified for joining to the LITER coupler and vacuum cleaned. The internal power cables were installed in the bellows support tube. Preparations for baking the thermocouple cables and their installation started. The design of a support mechanism for holding the LITER assembly rigidly during crane lifts was completed.
- A LLD design meeting was held. Progress toward the CDR and communications from the SNL development effort were reviewed. In the Lithium Test Facility, the pumping system on the LLD test chamber was reconfigured to allow installation of a special probe on a nearby port. The final vacuum cleanup of the inside of the test chamber was performed. Closure of the remaining open ports is ready to start.