

## **NSTX Weekly Report (Mar. 16, 2007)**

**FY 2007 NSTX plasma operations started on Feb. 19, 2007.**

**Planned: 10 weeks**

**Completed: 1.96 weeks (through Mar. 2, 2007)**

- Members of the NSTX Research Team attended the 7th Symposium on Current Trends in International Fusion Research: A Review, held in Washington, DC, 5-9 March 2007, and gave four invited talks. Dennis Mueller (PPPL) gave a talk in which he summarized the NSTX 2006 Experimental Results. Richard Majeski (PPPL) described the application of Lithium coatings to STs and tokamaks. Brian Nelson (U-Washington) described results of Transient CHI solenoid-free plasma start-up experiments in NSTX. Roger Raman (U-Washington) described results of Transient CHI experiments in the HIT-II concept exploration device. There were several questions following each of these talks, which indicated considerable interest in these presentations."

- Members of the NSTX Research Team attended the East Coast TTF meeting on Momentum Transport and Rotation in a Toroidal Plasma at Courant Institute of Mathematical Sciences, NYU on March 5, 2007. Steve Sabbagh gave a talk entitled "Observation of Plasma Toroidal Momentum Dissipation by Neoclassical Toroidal Viscosity" and Stan Kaye gave a talk entitled "Rotation & Momentum Confinement in NSTX, and areas for Collaboration." A number of theory presentations were also made with NSTX contributions.

- Stan Kaye gave seminars on "Recent Physics Results from NSTX" at Lawrence Livermore National Laboratory on March 7 and UCLA Dept of Physics and Astronomy on March 8. On Friday March 9th, Dave Gates gave a colloquium at MIT entitled "Recent results from NSTX". He also visited with several C-mod researchers.

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

The NSTX maintenance period, extended to provide time to replace a leaking bellows, continued this past week. The new calorimeter bellows have been installed, and leak checking/system alignment tests are in progress. The re-installation of the calorimeter this coming week will be followed by a short vacuum vessel bake. Also this week, commissioning of the new LITER 1d lithium evaporator continued, and Naoki Tamura of NIFS, Japan returns to PPPL to prepare for TESPEL experiments utilizing the Lithium Pellet Injector.

The NSTX test cell will be in restricted access this coming week during the neutral beam calorimeter lift and the vacuum vessel bake.

Ben Penaflor and Bob Johnson of General Atomics visited PPPL this past two weeks to help develop the upgraded plasma control system for NSTX. Their visit has given the NSTX PCS Upgrade Project a tremendous boost. Their detailed PCS knowledge and comprehension of real-time issues has made their time working here with the PPPL team very productive and highly appreciated. (P. Sichta)

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

### Boundary Physics Operations (H. Kugel)

- LITER-1d, unit-1 was completed and vacuum baked to 930°C. Preparations for thermal testing of unit-1 are in progress. Assembly of unit-2 was started.
- Offline characterization of lithium powder acceleration using the LPI-prototype was started. Other preparations using the actual LPI offline are in progress for velocity calibrations of special sabots suitable for powder experiments. (D. Mansfield)

### Diagnostic Operations (R. Kaita)

- The high voltage connection to the phosphor on the SPRED vacuum ultraviolet survey spectrometer was repaired. An “end-to-end” check of the system with illumination from a mercury lamp indicated that the instrument is operational.