

## **NSTX Weekly Report (Oct. 9, 2009)**

### **FY 2010 NSTX plasma operations**

**Planned: Total - TBD run weeks**

**Completed: 0 run weeks**

- The IAEA Technical Committee meeting on H-mode physics was held at PPPL on Sept. 30 – Oct. 2, 2009. Oral and poster presentations of NSTX results were given by R. Maingi, J. Canik, S. Gerhardt, H. Yuh, J.K. Park, K.C. Lee, W. Wang, S. Kubota and S. Zweben. (S. Kaye)
- The 3<sup>rd</sup> Transport and Confinement ITPA meeting was held at PPPL on Oct. 5 to 7, 2009 in conjunction with the Pedestal group meeting during the same time. The two groups met jointly for one day to review the status of Joint Experiments and Activities related to L-H transition physics. One of the sessions in the Transport and Confinement group focused on electron transport issues, and talks were given by King-Lap Wong on microtearing, Weixing Wang on ETG and Kevin Tritz on Global Alfvén Eigenmode induced electron transport. Stan Kaye gave a summary of work done with the ASIPP visitor, Siye Ding, on NSTX plasma transport properties with and without Lithium evaporation. He also summarized the results of the beta scaling experiment performed on NSTX during the past run. John Canik and Stefan Gerhardt summarized results of ELM pacing experiments on NSTX in the Pedestal sessions. Results of L-H experiments performed on NSTX, including those examining the species dependence of the threshold, the dependence on applied  $n=3$  fields and plasma current, and hysteresis properties were presented in overview talks during the Joint L-H session. (S. Kaye)
- Michael Bell visited the Plasma Science and Fusion Center at MIT on Friday October 2 to present a seminar on "Plasma response to Lithium-coated plasma-facing components in NSTX". He also held discussions with the staff on various topics of mutual interest. (M. Bell)
- Masa Ono visited the National Institute for Fusion Science, the home of LHD, under the US-Japan Personnel Exchange Program on Sept. 28 - 29, 2009. The collaboration discussions include lithium, turbulence transport, high harmonic fast wave and electron Bernstein wave physics. He gave a colloquium entitled "Recent Results of NSTX." He also visited Japanese Atomic Energy Agency Naka-site as well as the Rokkasho-mura site on Sept. 30 - Oct. 2, 2009.

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

The NSTX outage continued this week with the completion of in-vessel preparations to install the first Liquid Lithium Divertor (LLD) tray segment. The FARO measuring arm was installed in the vessel during evenings this week for SGI and edge diagnostics spatial calibrations. Inspections of TF buswork and joints continued, and video inspections of the outer TF water cooling paths were performed.

The NSTX test cell will be in free (card reader) access this coming week.

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

## Boundary Physics Operations (H. Kugel)

- Liquid Lithium Divertor (LLD)
  - A trial fitup was performed in the vessel using an aluminum plate.
  - The installation of heaters and thermocouples in the 2nd plate was completed.
  - The installation of heaters and thermocouples in the 3rd plate was started.
  - The welding of the cooling lines on the 1st plate was completed.
  - An installation pre-job brief was held with the DARM assemblers, the 1st and 2nd shift installation teams, and the lift team.
  
- LLD Diagnostics
  - Optical and mechanical parts for the fast camera assemblies were received.
  - A 1D CCD camera for the LLD viewing divertor spectrometer was received.
  - A Peer Review for ORNL proposed fast thermocouples for LLD gap tiles was successful.
  
- Lithium Evaporator (LITER2009)
  - The analysis of the lithium shutter performance was completed.
  - The cleaning of the lithium shutters was completed.
  
- Lithium Evaporator (LITER2010)
  - An oven connectorization design was adopted from the sample probe design.
  - Job Requests were submitted for machining parts for the assembly of two spare units.
  
- Edge Sample Probe
  - The spatial calibration of the Sample Probe was completed.
  - The probe was removed from Bay-J to allow installation of the LLD electrical feedthroughs.

## Diagnostic Operations (R. Kaita)

The post-run calibrations of diagnostics have been completed. Measurements were performed for the charge-exchange recombination spectroscopy (CHERS) systems and various diagnostics for visible spectroscopy (Lawrence Livermore National Laboratory collaboration). The positioning mechanism for the sample probe (Purdue University collaboration) was also calibrated.