

## NSTX Weekly Report (July 15, 2011)

**FY 2011 NSTX plasma operations started on October 4, 2010**

**FY 2011 NSTX Outage started on October 25, 2010**

**Planned Run Weeks: 14 run weeks**

**Run Weeks Completed: 4.21 run weeks and 839 plasma shots**

V. A. Soukhanovskii (LLNL) traveled to LLNL, Livermore, CA, where he presented a seminar at LLNL Fusion Energy Sciences Program titled "Taming the tokamak plasma-material interface with the snowflake divertor". He also held discussion with LLNL theory and modeling staff on edge transport and pedestal MHD stability modeling for the snowflake divertor experiments in NSTX. A new LLNL postdoctoral staff member Alex Tronchin-James joined the on-site NSTX Research Team. The focus of Tronchin-James's experimental research will be on plasma-surface interaction studies with lithium coatings. (V. A. Soukhanovskii)

During July 6-8th, David Gates (PPPL) participated as a member of the review committee for the ITER Magnetics Diagnostics - Conceptual Design Review (CDR). Four measurement systems were reviewed - Flux loops, discrete inductive sensors, shunts and rogowskis, and the Fibre Optics Current Sensor (FOCS). Important chits were generated, but the review committee felt that the issues associated with developing magnetic diagnostics for use in the burning plasma environment were being addressed well. A report will be generated and submitted for consideration by the ITER Diagnostics group. (D. Gates)

Dr. S. B. Bhatt, Vacuum Division Head of Tokamak ADITYA, Institute for Plasma Research, Bhat, Gandhinagar, India, toured NSTX and LTX and associated lithium research facilities. He gave the Experimental Research Seminar talk "Wall Conditioning in Tokamak ADITYA"

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

Integrated system power testing of NSTX began this week with individual field coil test shots utilizing the Field Coil Power Conversion (FCPC) rectifiers. Combined field testing leading to NSTX plasma operations is scheduled for this coming week. Lithium evaporator probes (LITERs) for mounting at bays F and K have been assembled and tested, and moved to their test stands in the test cell high bay area to be out-gassed and filled with lithium before installation on NSTX next week. All three neutral beam ion sources have completed plasma chamber conditioning and are ready to start beam conditioning.

Access to the NSTX test cell will be restricted during 1st shift this coming week during integrated system power testing and subsequent plasma operations. Access to the test cell is expected to be available after 5PM each day.

### Research Operations (M. Bell)

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

- Lithium Evaporators (LITERs)
  - The LITER F1/2011 and K2/2011 units were mounted on their respective probe drives, and passed leak tests. They were transported to the High Bay, mounted on Lithium Fill

Stands, and evacuated. Power was applied to the heaters of each unit, and each unit was found to operate normally. Bakeout without lithium is in progress.

- Materials Analysis Particle Probe (MAPP)
  - MAPP system has arrived from Purdue University and is currently in the RF enclosure on D-site. Robert Ellis and Purdue affiliates Bryan Heim and Sean Gonderman are coordinating the installation and calibration of the MAPP system. Procedures and work permits are being generated for installation on NSTX.
- Lithium Centrifugal Granule Injector for ELM Pacing
  - Procurements were initiated for all required parts for assembly, testing, and installation.

#### Diagnostic Operations (R. Kaita)

- Tuesday, July 12, was dedicated to checking out NSTX diagnostics. Minor problems with computer control and data acquisition were identified and corrected. No major issues were found that might affect readiness for the upcoming run.