

NSTX Weekly Report (Oct. 30, 2009)

FY 2010 NSTX plasma operations

Planned: TBD run weeks

Completed: 0 run week and 0 plasma shot

• Members of the NSTX Research Team attended the 15th International Workshop on Spherical Torus 2009, Oct. 22 – 24, 2008 in Madison, Wisconsin and gave the following presentations: "Recent NSTX Research Highlights - Invited" by J. Menard, "Demonstration of 200 kA CHI Startup Current Coupling to Transformer Drive on NSTX" by B. Nelson (U. Washington), "Overview of L-H Power Threshold Studies in NSTX" by D. Battaglia (ORNL), "NSTX MHD Research and Recent Results" by S. Sabbagh (Columbia University), "Lithium Coatings and In-Situ PMI Diagnostic in NSTX" by J.P. Allain (Purdue University), "Integrated Approach to Modeling Impact of Plasma Instabilities on Liquid Lithium Surface in NSTX Device" by V. Sizyuk (Purdue University), "NSTX Upgrade Plan and Status" by M. Ono, "ST Research Thrust Report of the U.S. Fusion Research Needs Workshop (ReNeW) - Invited" by Steve Sabbagh, and "Prospect for a next step ST" by Jon Menard.

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

The NSTX outage continued this week with the in-vessel fit-ups of the second and third Liquid Lithium Divertor (LLD) trays. The fourth and final LLD tray is being prepared for initial fit-ups. The four LLD trunk lines are being routed to vessel feedthroughs as time in the vessel allows between the LLD tray fit-ups. Electricians continued with the installation and testing of the LLD electrical power supply lines. Also this week, the lithium evaporator (LITER) probes used during the last run have been moved to the lithium lab for post-run evaluations.

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)
 - The installation of the third LLD plate continues. The second and third plates will both require shimming in order to complete their installations. Fabrication of the required shims started.
 - The fourth LLD was checked with the FARO arm, and the results indicated that its installation will not require shims.
- LLD Diagnostics
 - A meeting was held to review the LLD-viewing camera installations and to plan near term work.
 - A specification for the LLD-viewing divertor spectroscopy output optics was achieved and submitted for review.
- Lithium Evaporator (LITER2009)
 - The Bay F and Bay K units (LITER F1 and LITER K1) were dismantled and dissected to

examine internal conditions.

- Lithium Evaporator (LITER2010)
- The Bellows Motion Drive vendor reported that fabrication is on schedule. The vendor has completed the main probe drive structures and is awaiting delivery of the bellows.