

NSTX Weekly Report (Jan. 16, 2009)

FY 2009 NSTX plasma operations

Planned: TBD

Completed: 0 run weeks

- The following papers have been accepted for publication in Fusion Engineering and Design: "Physics Design Requirements for the National Spherical Torus Experiment Liquid Lithium Divertor" by H. W. Kugel, et al., and "Thermal Control of the Liquid Lithium Divertor for NSTX" by R. E. Nygren (SNL), et al. An abstract "Preparation of the Liquid Lithium Divertor Plates for NSTX", R.E. Nygren (SNL), et al. has been submitted to the 14th International Conference on Fusion Reactor Materials, 7-12 Sept. 2009, Sapporo, Japan. (H. Kugel)
- Emil Ruskov and Bill Heidbrink from UC Irvine visited PPPL during the week of 1/12-1/16 to hold discussions with software engineers and CPPG personnel on developing faster algorithms for analysis of FIDA data. A good deal of progress on identifying areas of the analysis code that could be sped up, along with implementing tools for assessing which algorithms would yield the most benefit if sped up. Approaches on how to parallelize the code for further speed up were also discussed. (S. Kaye)

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

Start-up activities for the NSTX FY09 run continued this week with the completion of Laser alignments and Rayleigh/Raman scattering calibrations of the Multi-pulse Thomson Scattering (MPTS) diagnostic. Pre-operational testing of the vacuum vessel bake-out systems has been completed in preparation for a two week vessel bake scheduled to start early this coming week. Cool-down of the neutral beam cryogenic systems is in progress, with plans to start neutral beam ion source conditioning by the end of the week. The NSTX test cell will be in restricted access this coming week during the vessel bake.

Research Operations (M. Bell)

Boundary Physics Operations (H. Kugel)

- Liquid Lithium Divertor (LLD)
 - Brazing starting at SNL vendor. QA on braze segments will be performed at braze facility using ultra sound to check for voids.
 - SNL placed order for molybdenum flame spraying.
 - Molybdenum flame spray samples will be evaluated at PPPL before final flame spraying.
 - SNL ordering of parts for Control Rack started.
 - Preparations in progress to water jet cut PPPL-style brazed-plates for step-bending.
 - Layout for the feedthrus completed.
 - Prototype for Langmuir Probe Array electrodes completed and adopted. Work proceeding toward a Peer Review of the design.
 - Prototype for electrical isolation of tile thermocouples from vessel ground completed and adopted.

- Lithium Dropper
 - A meeting was held to review that status of dropper collaborations, remaining development, fabrication, controls, and schedule.
- Edge Sample Probe
 - A meeting was held to work on sample holder design options.
- Graphite Tile Analysis
 - An NSTX lithium coated graphite tile previously cored for analysis at Purdue University (J. P. Allain) was sent to Purdue for additional measurements.