

NSTX Weekly Report (October 26, 2007)

FY 2008 NSTX plasma operations

Planned: TBD

Completed: 0 weeks

There is no NSTX Monday Physics meeting this week due to APS Invited Talk Dry Runs, Tues-Fri. (S. Kaye).

APS Invited Talks Dry Run Schedule

Tues, 10/30 LSB318

1 – 2:30 PM Kugel - Lithium Surface Coatings and Improved Plasma Performance in NSTX

2:30 – 4 PM Hosea - HHFW Heating Efficiency and Current Drive Enhancement at Longer Wavelengths on NSTX

Wed, 10/31 LSB252

1 – 2:30 PM Tritz - The Relationship between Type I ELM Severity and Perturbed Electron Transport in NSTX

2:30 – 4 PM Crocker - Alfvén Cascade modes at high beta in the National Spherical Torus Experiment--structure and suppression

Thurs, 11/1 LSB252

1 – 1:30 PM Diem (contributed oral) - Recent EBW Emission Results on NSTX

1:30 – 3 PM Soukhanovskii - Divertor Heat Flux Reduction and Detachment in the National Spherical Torus eXperiment

3 – 4:30 PM Wong (Mikkelsen) - A quantitative account of electron energy transport in an NSTX plasma

Fri, 11/2 LSB318

10:30 – Noon Menard - Progress in understanding error-field physics in NSTX spherical torus plasmas

The NSTX Team Meeting will be held on Friday, November 2, 2007 at 1:30 P.M., in B318. We will update you on the outage status, the preparation toward FY 2008 plasma operations, upcoming fall meetings, and the Next Five Year Planning.

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

The NSTX outage continued this past week with the ongoing calibration of in-vessel diagnostics, and the installation of the optics for the new PCHERS diagnostic. A new gas injector was installed at Bay E, and the machine's lower umbrella cover was installed this week. Final drawings for the new port covers and shutter mechanisms for the LITER upgrade have been reviewed and parts are being fabricated. Full operational testing of the LITER shutter system will begin in a test chamber this coming week. Also this week, hydrostatic testing of the third neutral beam ion source was successfully completed, and both the second and third ion sources are now undergoing final pre-operational testing in preparation for installation on the NSTX beam-line.

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

Research Operations (M. Bell)

Boundary Physics Operations (H. Kugel)

- A Final Design Review of the final drawings for the LITER-08 port covers and associated lithium shutters was held. Work is in progress on the fabrication of the port covers and shutters, and the assembly of a test chamber for off-line testing. Design details were resolved for the upgraded LITER-08 umbrella structure support mounts, and the revision of the drawings was started. A procedure was derived for performing an alignment calibration of the LITER-08 probe axis that will allow the welding of the umbrella mounts after vessel pump-down.
- L. Zakharov will be visiting SNL to discuss LLD thermal calculations and advanced concepts with R. Nygren and team.
- A teleconference to plan for modeling NSTX LLD edge characteristics was held with J. Brooks (ANL), J.P. Allain (Purdue Univ.), R. Maingi (ORNL), V. Soukhanovskii (LLNL), D. Stotler and H. Kugel (PPPL). Issues pertaining to LITER-07 data analysis were also discussed.

Diagnostic Operations (R. Kaita)

- The alignment of the components for the high-k microwave turbulence diagnostic was completed. This included making the appropriate adjustment for the “inboard” and “outboard” launch configurations, and the mirror position determination relative to the exit window axis. The modified collection mirror was also secured, and its position measured.
- Additional systems for which spatial calibrations were performed included the supersonic gas injector and the ultrasoft X-ray array that was mounted on a new modified flange.
- A successful final design review was held on October 24 for the multipoint Thomson scattering (MPTS) calibration probe. This will be used to provide illumination for monitoring changes in window transmission during NSTX plasma operations.

Diagnostic Upgrades (B. Stratton)

- Poloidal CHERS and Fast Ion D-alpha Camera flanges and optics have been installed on machine. Fibers have been installed on machine end and extra fiber pulled back into diagnostic room. Fibers are being installed in patch panel in diagnostic room. Spectrometer chopper parts have been made and assembly has started. System should be ready for alignment and spatial calibration early next week and for white plate calibration the following week.
- Successful FDR for the Divertor Bolometer upgrade was held on October 11. Parts for the Bay I lower port installation the Bay J midplane installation are being fabricated both at PPPL and an outside shop. The two detector units (4 channel each) and in-vacuum cables needed for the Bay I installation have arrived at PPPL. Assembly of the two systems will start as soon as parts are done.