

NSTX Weekly Report (Jan. 19, 2007)

FY 2007 NSTX plasma operations

Planned: TBD

Completed: 0 weeks

- The NSTX Program Advisory Committee (PAC) held its 21st meeting during January 17-19, 2007 at PPPL and heard the draft Program and Project plans for FY 2007-2009. The present members of the PAC are: Jim Van Dam (UT-Austin, Chair of this meeting), Mike Mael (Columbia U, Chair beginning in PAC-22nd meeting), Riccardo Betti (U. of Rochester), Jeff Brooks (ANL), Ron Cohen (LLNL), Don Hillis (ORNL UT-Battelle), Haruyuki Kimura (JAEA-Japan), Jiangang Li (ASIPP, China), Bruce Lipschultz (MIT), Brian Lloyd (EURATOM Culham), Dick Majeski (PPPL), T. K. Mau (UCSD), John Sarff (U Wisconsin), Paul Terry (U. Wisconsin), Mickey Wade (GA), Hartmut Zohm (IPP, Germany). (M. Peng, ORNL)

- To support NSTX for preparing its next five year plan covering the period FY09-13, a diagnostic mini-workshop will be held on 1:00-4:00 on Tuesday, February 27 in LSB-318 to have a discussion that is more directly focused on possible diagnostic upgrades for the period. The meeting was chosen late in February so that most of the mini-workshops in the physics topical areas will have been held and we can benefit from their discussions. If you have ideas for diagnostics that you feel should be part of the FY09-13 plan, please come to this meeting and make a short presentation (1-2 vugraphs, 10 minutes). I would also like the leaders of the physics topical area mini-workshops to present a one-page summary of the diagnostic needs that emerged from their discussions. A folder on diagnostics has been placed in the DragNDrop folder for the next five-year plan:

[http://nstx.pppl.gov/DragNDrop/Five%20Year%20Plan%20\(FY09-13\)/Diagnostics/](http://nstx.pppl.gov/DragNDrop/Five%20Year%20Plan%20(FY09-13)/Diagnostics/)

Please place your presentation in this folder before the meeting. To help people start thinking, I have attached a document called "Possible Diagnostics Upgrades for FY09-13.ppt" to this message. (I will also place it in the DragNDrop folder.) It is a list of possible diagnostic upgrades that I presented at the five-year plan kickoff meeting in December. It is not meant to be exhaustive or to exclude other ideas, so all ideas are fair game for the February meeting.

At this point, ideas should not be constrained by anticipated budgets (within reason). Following the meeting, we will develop a list of diagnostics that fit the needs of the draft research program and we will make estimates to help make selections. I have sent this message to the NSTX Team mailing list, which should include existing NSTX collaborators. Please pass it along to anyone else that you think may be interested. (B. Stratton)

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

NSTX start-up activities continued this week with the completion of the power tests of the individual coils and initial calibration of the magnetic sensors. Combined field shots and magnetic calibrations will be performed after the bake-out of the vacuum vessel. Preparations for the vessel bake continued this week, as well as the calibration of the MPTS diagnostic. Also this week, testing/calibrations of the Lithium Pellet Injector, the Supersonic Gas Injector, and the Tangential Soft X-Ray systems were performed, and the installation of the new Hypervelocity Dust Injector (HDI) continued. Operation of the neutral beam helium refrigerator to clean-up the process gas is in progress. The bake of the vacuum

vessel is scheduled to begin next week.

The NSTX test cell will be in restricted access through most of next week. There will be access available from 6AM to 8:30 AM early in the week before the start of the vessel bake.

Research Operations (M. Bell)

Boundary Physics Operations (H. Kugel)

- A column of boron powder 76 mm long by 2 mm diameter was accelerated in an off-line test injector to a velocity of 9 m/s onto a piezoelectric target detector at a distance of 36 cm with an efficiency of 100%. The dispersal region at the detector was about 60 mm diameter which extrapolates to about 76 mm diameter at the plasma scrape-off-layer (SOL). Experiments are in progress to determine the temporal spread in the incident powder (D. K. Mansfield)
- All 3 IR cameras (upper div., center stack, and lower div.) are ready for calibration during the vessel bake. (R. Maingi, ORNL)

Diagnostic Operations (R. Kaita)

- Preparations of diagnostics for bakeout are continuing. They include the removal of the heat-sensitive components of the Johns Hopkins University tangential optical X-ray array, and the instrumentation of one of the thermocouples to measure the temperature in the vicinity of the proposed mirror drive for the high-k microwave scattering turbulence diagnostic.
- Initial checks of the magnetic sensors were performed during power tests of the individual magnetic field coils.
- Maintenance work was performed by on the multipoint Thomson scattering (MPTS) lasers by the vendor. Alignment of the system was also performed, in preparation for the Rayleigh and Raman scattering calibrations with a gas-filled vacuum vessel.