NSTX Weekly Report (Feb. 9, 2007)

FY 2007 NSTX plasma operations
Planned: TBD
Completed: 0 weeks

• Steve Sabbagh (Columbia University) visited University of Wisconsin at Madison, and gave a talk entitled "Resistive Wall Mode Research on NSTX". (S. Sabbagh)

• Dave Gates gave the plasma physics colloquium at Columbia University, where he presented an overview of NSTX results from 2006 with an emphasis on Steady State operations. He also the met with the Columbia University plasma physics faculty. (D. Gates)

• NSTX Team Meeting was held on Wed. Feb. 7. An update was given on the NSTX operations status and plan, and the latest budget information. The presentation material is available on the NSTX web.

• The NSTX Research Team is starting to prepare a new 5 year plan for the period FY09-FY13. In the spirit of our national team effort on NSTX, several open topical meetings will be held starting next week to discuss important physics issues, experimentation, machine hardware and diagnostic upgrades, etc. that will define the next 5 year plan. This is your opportunity to have a direct voice in defining this plan. The MHD topical group meeting for this new 5 year planning effort will be held next week on Wednesday, Feb. 14th in room B318 at PPPL. Remote connection to this venue will be made available. I strongly encourage anyone who desires to help define the MHD research effort on NSTX for the next five years to attend. Pass this announcement to colleagues that you believe may be interested.
Anyone who would like to make a short presentation of their ideas is welcomed to do so. Please inform me ASAP if you would like to make a presentation. I ask this so that I can formulate an agenda and define the meeting duration. I will make all efforts to give everyone ample time to present and discuss ideas. To support this aim, I am willing to conduct the meeting for the *entire day* if needed. So, in order to evaluate how much time we will need, RSVP ASAP and let me know with a brief reply what general ideas you will cover (e.g. NTM research, expanded MHD diagnostics, etc.) and the amount of time you desire to present your ideas.
Please send your request to make brief presentations at this meeting by COB Friday, Feb. 9th.
To help you prepare, I have posted the following documents on a new website. The URL for the website is:
http://nstx.pppl.gov/DragNDrop/Five%20Year%20Plan%20(FY09-13)/MHD/Supporting%20Douments/
The documents are:
1) NSTX-MHD-DOE-MTR-06-v18.pdf: NSTX Mid-term review 2006 – MHD presentation
2) NSTX-PAC-21-MHD-V14.pdf: NSTX PAC 21 presentation - MHD
3) NSTX-5Yr-kickoff-Mtg-MHD-v10.pdf: MHD presentation at our initial meeting
4) NSTX-5Yr-kickoff-mtg-MHD-notes-v10.pdf: Very brief notes from our initial meeting
I will send a final agenda for the meeting, along with remote connection information, on Monday, Feb. 12th. (S. Sabbagh, Columbia University)

• Mini-workshops for the next NSTX Five Year Plan schedule: All meetings to be held in LSB 318.
- Boundary Physics: Feb. 12, 9:00 – 5:00, RMaingi@pppl.gov.
- Waves and Energetic Particles: Feb. 13, 9:00 – noon, GTaylor@pppl.gov.

- MHD: Feb. 14 (Time to be announced), SSabbagh@pppl.gov.
- Transport and Turbulences, Feb. 15, 1:00 – 4:00, SKaye@pppl.gov.
- Integrated Scenarios: Feb. 16, 1:00 – 5:00, JMenard@pppl.gov.
- Advanced Diagnostics: Feb. 27, 1:00 – 4:00, BStratton@pppl.gov.

Please send your ideas for a presentation or any questions to the respective meeting organizers. The remote connection will be available for the meetings. For more information, please visit our NSTX website: http://nstx.pppl.gov/DragNDrop/Five%20Year%20Plan%20(FY09-13)/

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

NSTX start-up activities continued this week with the completion of the vessel bake which included a "hot" boronization where ~ 10 grams of trimethylboron (TMB) was deposited in-vessel at bake-out temperatures. Preparations continued for combined field testing and plasma operations with neutral beam conditioning and HHFW, MPTS and Emergency Stop system interlock testing. Post-Bake diagnostic calibrations were performed during the latter part of the week, and a scrub of the machine areas will be performed over the weekend. Combined field testing is scheduled for this coming week.

The NSTX test cell will be in restricted access during the 1st shift this coming week. Test cell access will be available from 5PM to 10PM during the week.

Research Operations (M. Bell)

Boundary Physics Operations (H. Kugel)

• A mockup of the LITER-1d canister using the candidate heaters was thermally tested successfully in vacuum to 750°C. Assembly of the prototype unit was started. A replacement shaft encoder part was received for the LITER-1d probe drive maintenance. Assembly of parts in preparation for thermal testing of LITER-1d in L245 was started.

• A train of boron microparticles was injected at a special diagnostic which measured the temporal duration of the train to be 20-25 ms. (D. K. Mansfield)

• The Supersonice Gas Injector (SGI) upgrade work was completed at the SGI level and testing will begin next week after upper vessel connections are completed. (T. Provost, V. Soukhanovskii, LLNL)

• Charles Skinner has accepted an invitation to participate in the ITER Design Review as a member of the working group on In-Vessel Components. The first meeting is a teleconference set for 5:00 AM, Monday morning, 12th February to allow members across the world to participate.

Diagnostic Operations (R. Kaita)

• The major diagnostic operations activity during the past week was the reinstallation of diagnostics removed for machine bakeout. Most of this work has been completed, including the mounting of the antennas for the electron Bernstein wave (EBW) system.

• Getting ready for the assessment next week of the recent bakeout has the highest priority for diagnostic preparations. Computer problems related to the SPRED and XEUS X-ray systems and the VIPS visible

light spectrometer were solved, and these diagnostics are available for impurity measurements.

• A test fit was made of the support plate for the SWIFT 2-D flow diagnostic. Based on the measurements made on NSTX, the plate is being trimmed and holes are being drilled for mounting optical components.

• An order has been placed for a new fast camera. Visible light measurements will be performed with the camera during NSTX operations, and it will also used for 2D imaging of plasmas in facilities at various colleges and universities around the country.