

## **NSTX Weekly Report (Aug. 15, 2008)**

### **FY 2008 NSTX plasma operations**

**Planned: 15 run weeks**

**Completed: 16.62 run weeks, 2571 plasmas (run completed on July 14, 2008)**

- A research paper entitled “Short Scale Turbulent Fluctuations Driven by Electron Temperature Gradient in NSTX” by E. Mazzucato, D. R. Smith, R. E. Bell et al., has been published in the 11 August 2008 issue of Physical Review Letters (Vol.101, article 075001). The paper reports the results of measurements with coherent scattering of electromagnetic waves in NSTX plasmas showing the first conclusive evidence of the existence of turbulent fluctuations driven by the electron temperature gradient in tokamak plasmas. (E. Mazzucato)
- There will be no Monday Physics Meeting this coming week. (S. Kaye)

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

The NSTX outage continued this week with the ongoing in-vessel diagnostic calibrations. The Faro measuring arm has been installed in the vessel for spatial calibrations of the PCHERS and FIDA systems, and a calibration of the spectroscopic monitoring systems has been completed.

On Friday, August 8th, the annual NSTX run assessment was held, during which NSTX Research and Engineering staff met to propose and discuss opportunities to improve the NSTX operations and program. Discussions focused on possible improvements to the coordination of the research program, the support of collaborative efforts, run staffing and the allocation of resources for equipment and spare parts. A varied range of suggestions were recorded and have been distributed to the NSTX team for further comments. NSTX project management will then review these suggestions and prioritize plans to be implemented for upcoming run periods.

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 requisition for the graphite tiles that surround the LLD is being processed by Procurement.
  - A teleconference was held with R. Nygren (SNL) and NSTX to discuss the bid due-date extension for the LLD fabrication to August 14th, and follow-up plans for bid review.
- Sample Analysis (C.H. Skinner)
  - Preparations were completed for shipping the vessel coupon samples for analysis at Purdue Univ (J. P. Allain).
  - Preparations were completed for shipping 20 graphite tiles to SNL (W.R.Wampler) for Nuclear Reaction Analysis, as soon as surface core samples are obtained from selected graphite tiles for

analysis at Purdue Univ (J. P. Allain).

- Materials Surface Analysis Probe

- A teleconference was held with JP Allain (Purdue Univ) and NSTX team members to plan for a Final Design Review in November for a proposed Purdue /NSTX collaboration on a Materials Surface Analysis probe in support of the FY09 Joule Milestone.

- An inspection of the vessel was performed and the Bay J Lower Divertor port was tentatively identified as the candidate location that can best accommodate the installation of a Materials Surface Analysis probe for operation in FY09.

- A follow-up teleconference was held with JP Allain (Purdue Univ) and NSTX team members to discuss this candidate location, the load port, and sample holder concepts. It was concurred that Purdue now has all the information needed to proceed with developing the assembly design drawings, costs, and schedules needed for the FDR.

#### Diagnostic Operations (R. Kaita)

- The spatial calibrations for the CHERS system and FIDA fast ion diagnostic were completed.