

## NSTX Weekly Report (Jan. 23, 2009)

### FY 2009 NSTX plasma operations

**Planned: TBD**

**Completed: 0 run weeks**

- A paper entitled "Gyrokinetic Studies on Turbulence-Driven and Neoclassical Nondiffusive Toroidal-Momentum Transport and the Effect of Residual Fluctuations in Strong  $E \times B$  Shear" by W. X. Wang, T. S. Hahm, S. Ethier, G. Rewoldt, W. W. Lee, W. M. Tang, S. M. Kaye, and P. H. Diamond was published in the January 12-23 issue of Physical Review Letters. It contains GTC-NEO model calculations of NSTX momentum transport experimental results. (S. Kaye)

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

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)
  - A joint SNL(NM), SNL(CA), PPPL weekly teleconference reviews project status and near term technical approaches.
  - SNL Status:
    - 3 plates machined; brazing to be done week of 1/20/09. Will ship first 2 of 6 plates for molybdenum coating 1/30/09. Arrival at PPPL 2/15/09-2/16/09.
    - Remaining 4 plates will be shipped for molybdenum coating 2/16/09. Arrival at PPPL 3/01-07/09. (total: 4 plates for installation + 2 spares).
  - PPPL Status:
    - Second aluminum prototype made by step-bending found to be accurate to 0.007".
    - 1 plate brazed and water jet cut, and ready for step-bending; 2nd plate brazed and awaiting water jet cutting; 3rd plate being prepared for brazing.
    - The REQ drafted, and Statement of Work (SOW) and Justification for Non Competitive Procurement (JNCP) approved for molybdenum coating a PPPL sample and PPPL LLD copper plates.
- Lithium Dropper
  - Off-line testing of the design is indicating improved reliability and robustness. Fabrication of reservoirs and crystal holders in progress.

- Edge Sample Probe

- A teleconference was held between NSTX and Purdue University team members to discuss sample holder designs, and sample planning.

Diagnostic Operations (R. Kaita)

- The Rayleigh and Raman scattering calibrations for the multipoint Thomson scattering diagnostic have been completed.