

NSTX Weekly Report (Oct. 1, 2004)

**FY2004 Joule milestone: 18 weeks; Programmatic goal: 20 weeks;
Completed: 21.1 weeks producing 2460 plasmas (Aug. 5, 2004).**

Department, Project, Program (M. Ono, M. Peng, M. Williams, E. Synakowski)

Drs. M. Ono, M. Peng, D. Gates, R. Raman (U. Washington) and N. Nishino (Hiroshima University) attended the Joint Spherical Torus Workshop and US-Japan Exchange Meetings (STW2004) Sep. 29 – Oct. 1, 2004 at Kyoto University, Japan and presented, respectively, talks on tool development for high-performance steady-state operation in NSTX, an overview of ST research, MHD, confinement and scenario development in NSTX, coaxial helicity injection research, and results from the divertor fast camera.

Following the NSTX Results Review held on Sep. 20-21, several papers on NSTX results to be presented at the 20th IAEA Fusion Energy Conference are being prepared and circulated for internal discussion and review.

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

The NSTX outage activities continued this past week. The center stack casing and PF1a/PF1b coils were removed from the vacuum vessel for the upgrade to the PF1a coils. Initial heat runs of the autoclave to be used in the fabrication of the new PF1a coils have been completed and pressure testing is in progress. Inspection of the insulating break for CHI at the bottom of the vessel is underway.

The installation of the RWM error field coil at Bays K/L has been completed. Electrical insulation testing of completed error field coils is expected to start this coming week. The vacuum vessel entry port has been moved to Bay K to allow error field coil installation activities to start at Bays A/L

A Lexan replica of a TF flag box has been fabricated to refine and test on the bench the technique to be used for potting the TF flags with epoxy resin. The tests began on Friday and will continue into next week.

No restrictions on NSTX Test Cell access are expected in the next week.

Research Operations (M. Bell)

Boundary Physics Operations (H. Kugel)

Measurements have been made at Argonne National Laboratory to detect lithium compounds in the surface layers of NSTX center-stack tiles exposed to the plasma during the last period of operation. The tiles have been returned to PPPL and the data is now being analyzed (J.P. Allain).

Diagnostic Operations (R. Kaita)

Grooves for the return wires have been machined in all three teflon mandrels for the new plasma current Rogowski coils. Revisions to the statement of work and the fabrication drawing as requested by the company winding the coils have been completed and approved by PPPL. The mandrels will be sent out for winding as soon as the return wires are installed.

Modifications to the in-vessel magnetic pickup (B-z) coils have begun. They include repairs of the leads with improved shielding and strain relief, and the covering of openings in the coil enclosures for better protection against RF noise.