NSTX Weekly Report (July 21, 2006)

FY 2006 NSTX plasma operations completed on June 23, 2006.
Joule Milestone: 11 weeks
Achieved: 12.66 weeks

Rajesh Maingi (ORNL) visited MAST for two weeks, and participated in two ITPA sponsored experiments: the aspect ratio dependence of the H-mode pedestal (DIII-D/MAST/NSTX) and a small ELM similarity experiment (C-MOD/MAST/NSTX). In addition, a seminar was presented at MAST titled "Characteristics of Small ELMs in NSTX". (R. Maingi)

Fred Kelly visited PPPL this week to discuss modeling of the observed MARFE/ELM cycle in NSTX, and presented a seminar: "Comparison of Thermal Instability Theory with MARFE Density Limit Experiments." (R. Maingi).

The paper "Divertor Heat Flux Scaling with Heating Power and Plasma Current in H-mode Discharges in the National Spherical Torus Experiment" by R. Maingi et. al. was accepted for publication in J. Nucl. Materials. (R. Maingi)

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

Post-run NSTX diagnostic calibrations continued this past week with MPTS laser alignments and a white plate calibration of CHERS. The machine shops are making progress on parts for the Poloidal CHERS diagnostic upgrade, and the neutral beam shop has almost completed the assembly of a spare ion source.

The test cell will remain in free (card reader) access through the coming week.

Research Operations (M. Bell)

Diagnostic Operations (R. Kaita)

• Post-run calibrations are continuing. “Burn pattern” measurements were made to determine the alignment of the laser for the multipoint Thomson scattering diagnostic, and a “white plate” calibration to check the uniformity of the response of its detectors was also performed. A “white plate” calibration was completed as well for the Johns Hopkins University “optical” soft X-ray array.

• A peer review was held on July 18 to discuss an improvement to the high-k fluctuation diagnostic. A new design that improves the reliability and versatility of the steering mechanism for the launching mirror was presented.

Bounary Physics Operations (H. Kugel)

Robert Hensley, National Undergraduate Fellow (NUF) in the Department of Energy Program in Plasma Physics & Fusion Energy Sciences has obtained the first results from a novel high sensitivity detector of dust particles for application to next-step tokamaks and spherical tokamaks. (C. H. Skinner)