

## **NSTX Weekly Report (September 7, 2007)**

**FY 2007 NSTX plasma operations completed on June 22, 2007.**

**Planned: 12 weeks**

Completed: 12.63 weeks with 1,879 plasma discharges.

- There will be no Monday Physics meeting on September 10, 2007. (S. Kaye)

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

Elemental analysis of NSTX tile surface samples was completed in the Scanning Electron Microscope on main campus this past week to evaluate the nature of contaminants introduced during the last run, and to compare proposed cleaning methods. Cleaning of the lower divertor tiles previously removed from the vessel is now in progress, and the in-situ cleaning of the remaining vessel tiles will begin next week. Also this week, the Movable Glow probe was removed from the vessel, and the Faro measuring arm was used to measure the position on the Fast Reciprocating Probe. Electricians are installing upgrades to the bakeout system to provide remote control, new diagnostic ground bus, and tray-work for new FIDA and PCHERS diagnostic optical fibers.

The NSTX test cell will be in unrestricted (card reader) access this coming week.

### **Research Operations (M. Bell)**

#### **Boundary Physics Operations (H. Kugel)**

- R. A. Ellis III visited SNL, Albuquerque, and met with R. Nygren and staff members to discuss the LLD development schedule, plans, and thermal simulations.
- Core samples from the outer upper and lower divertors and an upper passive plate were analyzed at the main campus Imaging and Analysis Center of the Princeton University Materials Institute (PRISM). Bay I-J midplane silicon coupons from 2006 and 2007 were also analyzed. It was found that metals (e.g. Fe, Cr) appear distributed comparably top and bottom in the graphite tiles; Coupon-IJ 2006 showed no metals, and Coupon-IJ 2007 showed metals. (J. R. Timberlake, C.H. Skinner, H. Kugel, L. Guttadora, L. Roquemore)
- All engineering documentation was completed for cleaning outside the vessel those tiles presently removed from the vessel, and cleaning inside the vessel (i.e., in situ) all tiles presently installed in the vessel. A special tool has been developed and is under test for removing dust from the tile cleaning operation as it is produced.

#### **Diagnostic Operations (R. Kaita)**

- A concept has been proposed for the remote control of the spatial coverage for the high-k turbulence diagnostic. Since the approach relies solely on commercial positioning hardware already in use on NSTX,

the decision has been made to develop the details for its implementation.

- “White plate” measurements have been made with the Hiroshima University fast visible camera and the optics for the SWIFT plasma flow. The information obtained on the uniformity of the camera response is being used to interpret the test data obtained during the last NSTX run period.