

## NSTX Weekly Report (October 19, 2007)

### FY 2008 NSTX plasma operations

**Planned: TBD**

**Completed: 0 weeks**

J. Menard visited the MAST group last week in Culham, UK. He participated in discussions on MAST-upgrade operational scenarios, and discussed and compared pulse-limiting MHD behavior on MAST vs. NSTX. He gave a seminar entitled "Physics of sustained high performance in NSTX", and presented the NSTX draft five year plan for integrated scenario research. He also participated in the first MAST program advisory committee (PAC) meeting representing NSTX.

On Monday October 15th, D. Gates presented a talk entitled "Recent Results from NSTX" at the Naka Fusion Institute of the Japan Atomic Energy Authority (JAEA). The talk was attended by researchers from the JT60 and JT60SA projects.

M. Ono visited Institute for National Fusion Energy Science in Toki, Japan on Tuesday the 16th October and gave a talk entitled "NSTX Recent Results and Plans". He also visited Kyoto University and the University of Tokyo during the week, and he gave an NSTX overview talk catered to the graduate students at each university.

There will be an NSTX Physics Meeting today, Monday, 10/22 at 1:30 pm in LSB318. This will be a combined NSTX/Theory meeting. The presentation is "Gyrokinetic Theory and Simulation of Momentum Transport and Energy Exchange" by R.E. Waltz, General Atomics.

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

The NSTX outage continued this past week with the completion of the majority of in-vessel installations, and the shift of efforts to diagnostic calibrations. All plasma facing tiles, including the ones returned after testing at Sandia National Laboratory, have been re-installed with the exception of those affected by the ongoing divertor bolometer installation and work on the new Bay E gas injector. The control pages for the torus interface valves and shutters have been updated for the upcoming run, including the controls for the new PCHERS diagnostic shutters. Also this week, a refurbished 1-meter torus interface valve for the neutral beam line was installed and tested. The three neutral beam auto-transformers were drained, inspected, the coil jack bolts re-torqued, refilled and tested.

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

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

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

Analysis, design and fabrication of components for the LITER system proposed for use in the 2008 experiments (LITER-08) continues. A Final Design Review has been scheduled for Monday October 22. Preparations for offline testing of a lithium shutter were in progress. An assembly drawing was received from the Bellows Motion Drive vendor and approved.

R. Nygren, SNL manager for the LLD, reported in a teleconference on his recent useful visit to the ENEA laboratory in Frascati Italy to discuss the FTU Lithium Limiter design, and associated technologies and procedures. Results of this visit pertinent to LLD design activities included confirmation that with a sufficient molybdenum mesh density, flat wetted surfaces of liquid lithium without dimpling between mesh elements were always obtained. SNL expects shipping of the requisitioned LLD CVD molybdenum mesh on 10/29/07.

#### Diagnostic Operations (R. Kaita)

Diagnostic calibrations have begun. Completed activities include the white plate calibration of the Edge Neutral Density Diagnostic (ENDD) and the spatial calibration of the fiberoptic array located on Bay C of the NSTX vacuum vessel.

Luis Delgado-Aparicio defended his doctoral dissertation at the Johns Hopkins University. His thesis research focused on impurity transport, using measurements with the novel tangential soft X-ray (tOSXR) diagnostic he built and installed on NSTX.