

NSTX Weekly Report (Oct. 13, 2006)

FY 2007 NSTX plasma operations

Planned: TBD

Completed: 0 weeks

Four presentations from NSTX were made on behalf of the NSTX Team at the 12th International Workshop on Spherical Torus 2006, a Satellite Meeting of IAEA Fusion Energy Conference 2006 held in Chengdu, China, Oct. 11 – 13, 2006. The talks were “National Spherical Torus Experiment: Facilities and Select Science Topical Areas” by M. Ono, “Progress in MHD Science and the Development of Operational Scenarios on the National Spherical Torus Experiment (NSTX)” by D. Gates, “Plasma Start-up in NSTX Using Transient CHI” by Roger Raman (University of Washington), and “Progress toward Fusion Component Test Facility (CTF), and integrated test facility” by M. Peng (ORNL). The presentations were well received by the ST community.

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

The NSTX outage continued this past week with the installation of the lower secondary passive plates and the successful testing of the lower flux loops. The scaffolding has now been reinstalled in the vessel to install the upper secondary passive plates and flux loops. Fit-ups of the fiber-optic mounting system for the new Poloidal CHERS diagnostic are in progress, and a peer review of a proposal to add a Transmission Grating (TG) Imaging USXR Spectrometer diagnostic at Bay K was held this past week. Maintenance/testing of the neutral beam torus isolation valve was also completed this week. Electricians have completed work on the High K Scattering diagnostic racks and continue work on upgrades to the Switching Power Amplifier system and the EBW system.

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

Research Operations (M. Bell)

Boundary Physics Operations (H. Kugel)

Lithium evaporator simulations were completed for a two-snout embodiment, with snout angular separations ranging from 0° to 16°, with axis orientations toward the lower divertor of 12° and 22° from vertical, and for 2 snout diameters. (L. Zakharov)

Diagnostic Operations (R. Kaita)

- The new collection mirror for the “high-k” turbulence diagnostic has been received and checked optically. The laboratory testing of the hardware for the “acoustic cell” calibration has been completed, and the equipment is being moved to the NSTX Test Cell for measurements inside the vacuum vessel.
- The removal of the pulse height analysis (PHA) electron temperature diagnostic has been completed.

The electronics racks for this system are being reused for the “high-k” turbulence system and the electron Bernstein wave diagnostic.

- All of the flux loops on the lower secondary passive plates were successfully reconnected and tested. They were temporarily disconnected to accommodate modifications required for the new poloidal CHERS plasma rotation diagnostic.
- A peer review was held on Wednesday, October 11, for the installation of a “nipple” on the side of the Bay K port extension. This will accommodate a new transmission grating spectrometer from Johns Hopkins University. No technical difficulties were identified, and discussions are in progress to determine the optimum time for the vacuum vessel machining to occur.