

NSTX Weekly Report (May 20, 2011)

FY 2011 NSTX plasma operations started on October 4, 2010

FY 2011 NSTX Outage started on October 25, 2010

Planned Run Weeks: TBD

Run Weeks Completed: 4.21 run weeks and 839 plasma shots

The paper "Comparison of small ELM characteristics and regimes in Alcator C-Mod, MAST, and NSTX" by R. Maingi (ORNL), A.E. Hubbard (MIT), H. Meyer (Culham, UK), et. al., was published in Nucl. Fusion 51 (2011) 063036. This paper documents the results of an ITPA-coordinated experiment on small ELM regimes, i.e. those with negligible drops in stored energy associated with individual ELMs. A common small ELM regime was found and discussed in all three devices, with a common operating point of pedestal beta normalized to the poloidal field being $\sim 10\text{-}15\%$. However the upper and lower operating boundaries in beta ped_poloidal of these ELMs differed in the three devices. Based on the observed characteristics, the ELMs were classified as Type II. In NSTX, this Type II regime was differentiated from the more common Type V ELM regime. (R. Maingi)

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

Preparations for upcoming NSTX operations are in progress with the on-going vacuum leak checking of the vacuum vessel. A small internal water leak was detected in the neutral beam ion source in the "A" position, and that source was replaced with a fresh spare. Our first round of field coil electrical insulation tests (HiPots) were successfully performed, and TF joint resistances measured and documented in a 200 Amp test. The NSTX upper umbrella cover has now been reinstalled, and the upper cooling water hoses connected. Machine area "scrubs" are in progress.

Access to the NSTX test cell will be available this coming week.

Research Operations (M. Bell)

Boundary Physics Operations (H. Kugel)

- Materials Analysis Particle Probe (MAPP)
 - The fabrication of the probe support stand, probe head, and internal components started.
 - The Purdue Univ. team (J.P. Allain, et al.) was nearing completion of electronic equipment rack installations and starting preparations for its shipping to NSTX.

- Lithium Evaporators (LITERS)
 - Refurbishment and adjustment of the bellows motion drive limit switches on 3 of the LITER 2010 units was in progress.

- Lithium Diagnostics
 - Work was in progress using a fast Phantom camera to view a lithiated graphite sample under vacuum conditions versus substrate temperature to obtain calibration data applicable to the NSTX 2011 experimental campaign.

- Lithium Centrifugal Granule Injector
 - A prompt and successful evacuation of the candidate lithium granules indicated that the as-received material was relatively free of hydrocarbon coatings.
 - The rendering of final drawings for fabrication of the Injector was in progress