

NSTX-U Weekly Report (August 7, 2015)

NSTX-U is in the Upgrade Project outage in FY 2015

Experimental Research Operations (S. Gerhardt, R. Kaita)

On Thursday August 6, the ECH-PI system was successfully operated into NSTX during low-level coil test shots. The system parameters were 9kW RF starting at -10mS and ending at +90mS. About 12 shots were taken. (N. Greenough, PPPL)

Preparation for Multi-Pulse Thomson Scattering (MPTS) continued this week with software development for IDS camera image analysis. Six realtime data acquisition shots were obtained, where the horizontal adjustment of mirror M6 was scanned in order to investigate the stray laser light behavior. The data acquisition worked well. The Struck electronics was tested during realtime laser shots. We connected the fast output of a preamplifier attached to the, innermost radial channel, 1064-nm spectral filter -- sensitive to stray laser light. The new electronics functioned properly on the first shot, measuring the temporal evolution with a resolution of 4 ns. Three shots were taken with the Struck configuration and one with the normal MPTS arrangement for reference. The Struck electronics consist of a set of four VME modules purchased with funds from Ahmed Diallo's DOE early career research program award. The current MPTS electronics is not fast enough to acquire the 10-kHz repetition-rate signal that the Pulsed Bursting Laser System (PBLS) will generate. For this reason this fast electronics was purchased. We have enough modules for ten radial channels. The idea is to instrument ten radial positions covering the pedestal region. The other 32 channels would continue on with the existing equipment. It is expected to install the PBLS during the next shutdown -- spring of 2016. (B. LeBlanc, PPPL)

Engineering Operations (A. von Halle, P. Titus)

NSTX-U power testing began this week after a comprehensive review by the NSTX-U Activity Certification Committee (ACC), and approval by the PPPL ES&H Executive Safety Board. Integrated system coil testing began after performing a full set of coil electrical insulation tests (Hi-Pots) from the field coil power conversion building. Current has been applied to all seven of the field coils required for the CD-4 plasma, and Digital Coil Protection System trip verifications are in progress. Magnetic diagnostics calibrations were performed in parallel with coil test shots yesterday, and proper operation of the Rogowski coils has been confirmed. EFIT field data has also been successfully recorded. The Ip Calculator is on-line and ready to support CD-4 Operations. After hours periods of vessel Glow Discharge Cleaning (GDC) has been performed. Remote control capability of vessel shutters is being commissioned, and we are now capable of performing between-shot GDC.

Access to the NSTX-U Test Cell is expected to be available this coming week. Access must be arranged through Work Permits approved by the D-Site Shift Supervisors.