NSTX-U Weekly Report (July 29, 2016)

FY 2016 NSTX plasma operations completed
Completed: 10.06 run weeks and 1066 plasma shots

The NSTX-U Team Meeting was held on July 29, 2016 at PPPL. The NSTX-U team was updated on the on-going PF 1A related issues and the near and longer term plans. The meeting material is available on the web at:
http://nstx.pppl.gov/DragNDrop/NSTX_Meetings/Team_Meetings/2016/2016-07-29/. (M. Ono, J. Menard, PPPL)

Steve Sabbagh (Columbia University) made the presentation "Disruption Event Characterization of Global MHD Modes in NSTX and Plans for Instability Avoidance in NSTX-U" at the recent IEA Workshop on the Theory and Simulation of Disruptions (sponsored by the PPPL Theory Division) conducted July 20-22, 2016. Clayton Myers (PPPL) presented a poster entitled, "A multi-machine analysis of non-axisymmetric and rotating halo currents," which is a progress report on an ITPA activity to understand the scaling of halo current dynamics across various devices in preparation for ITER. (S. Sabbagh, C. Myers)

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

Plasma operations has concluded for FY16 after the determination that there is at least one shorted turn in the PF1aU coil. Based on detailed analysis of the magnetics data, it appears that the PF1AU coil self inductance has been slowly degrading over the last few months, and had its lowest values just prior to the PF1AU water flow blockage. NSTX-U diagnostic calibrations are now in progress in preparation for the machine outage to analyze and replace the PF1aU coil, as well as to complete work scope planned for the FY17 run. The Switching Power Amplifiers (SPA's) were operated at varying frequencies this past week to calibrate the Resistive Wall Mode (RWM) sensors. All six neutral beam ion sources injected into a gas filled torus for a spectrometer calibration which also provided a beam species mix measurement, as well as a full verification of vessel armor thermocouples. All six neutral beam ion sources operated well at the rated 90kV, and in Voltage scans down to 60kV. A calibration of the Materials Analysis Particle Probe (MAPP) was performed utilizing a vacuum vessel boronization. Also this week, testing and recommissioning of the MG#2 Cycloconverter was successful completed.

The NSTX-U Test cell will be in restricted access this coming week during diagnostic calibrations and field coil measurements. Limited access is expected to be available for approved work on second shift.

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

A three-level optical table to house the lasers for UC Davis diagnostics was installed in the enclosure ("cage") in the gallery outside the west wall of the NSTX-U Test Cell. The table will first be used for a 100 W, 9.695 micron carbon dioxide pump laser and three 100 mW, 118.8 micron methanol lasers that are part of the FIReTIP plasma density diagnostic. A high-power carbon dioxide laser and far infrared laser will be added later to the table for the high-k turbulence diagnostic. (R. Kaita, PPPL)