

## **NSTX-U Weekly Report (October 31, 2014)**

### **NSTX-U is in the Upgrade Project outage in FY 2014**

NSTX-U physicists attended the 56th Annual APS-DPP meeting held in New Orleans, Louisiana on Oct. 27-31, 2014. There were an ST review talk and five NSTX/NSTX-U related Invited Talks: M. Ono (PPPL) – “Recent progress on spherical torus research and implications for fusion energy development path”, Joon-Wook Ahn (ORNL) – “Broadening of the divertor heat flux footprint with increasing number of ELM filaments in NSTX”, Jeremy Lore (ORNL) – “Simulation of 3D effects on partially detached divertor conditions in NSTX and Alcator C-Mod”, Z.R. Wang (PPPL) – “Drift Kinetic Effects on 3D Plasma Response in High-beta Tokamak Resonant Field Amplification Experiments”, S.A. Sabbagh (Columbia U.) – “Unification of Kinetic Resistive Wall Mode Stabilization Physics in Tokamaks”, and Elena Belova (PPPL) – “Energy Channeling and Coupling of Neutral-beam-driven Compressional Alfvén Eigenmodes to Kinetic Alfvén Waves in NSTX”. In addition, there were six NSTX/NSTX-U related oral contributed talks and 38 contributed posters. (M. Ono)

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

NSTX Upgrade activities continued with the installation of the upper ceramic break/PF1C coil assembly on the centerstack in the NSTX-U vessel. Final adjustments on the elevation of the centerstack are in progress in preparation for installing the in-vessel upper and lower row 1 tiles. The Vacuum Prep Lab is preparing the last items to go on the vessel to complete the vacuum boundary for pumpdown.

The Digital Coil Protection System (DCPS) and the Power Supply Real Time Control (PSRTC) development efforts are working towards the start of Field Coil Power Conversion System dummy load testing. Dry runs of integrated hardware and software DCPS pre-operational testing have been completed, and the updated procedure is in final review. Final details in the PSRTC software specification have been worked out, and pre-operational test procedures are being developed.

Preparations for plasma operations in the NSTX-U configuration also continued. RF transmission line re-installation/testing continues, and the NSTX-U neutron detectors are being installed in their permanent locations in the test cell. A dynamic end-to-end calibration of the neutron detectors with a known source will be performed this coming week. Preparations are underway for the in-vessel alignments of the Multi-pulse Thompson Scattering diagnostic (MPTS) which is scheduled to occur immediately following the neutron detector calibrations. Testing the Magnetic Integrators and the optical links for the IP Calculator are in progress.

Access to the NSTX test cell will be available only through previous arrangement with the Upgrade Work Control Center.