

NSTX-U Weekly Report (October 27, 2017)

FY 2018 status: NSTX-U is in a maintenance and repair outage.

Recovery

In the magnet area, the design for the prototype winding mandrel mounting beam has been completed. Once drawings have been completed fabrication of the beam will begin in the PPPL Technical Shop. The third and final subcontract to fabricate a prototype PF coil was awarded this week and a kick-off meeting was completed. Weekly technical meetings with the other two coil vendors have begun. Prototypes are expected to be completed in the spring of 2018.

In the Vacuum Vessel and Internal Hardware area, changes to the latest IBDH tile design are being reviewed to determine if the Cooling Plate inner cooling channel is needed now that the current IBDH tile design is a one-piece part on each 12 degree section. Seismic evaluation of the horizontal support stand for the centerstack casing is being completed.

A planning activity to optimize the timeline of upcoming individual PDRs and FDRs to support project-level cost/schedule baseline and execution reviews has been initiated.

Research

NSTX-U team members had three Invited talks and one Tutorial talk at the 59th Annual APS-DPP meeting held on Oct. 23-27, 2017 in Milwaukee, WI. They were:

Tutorial:

F. Poli: Integrated Tokamak Modeling: When Physics Informs Engineering and Research Planning

Invited talks:

A. Diallo: Energy Exchange Dynamics across L-H transitions in NSTX

E. Fredrickson: Suppression of Alfvénic modes through modification of the fast ion distribution

R. Goldston: A New Scaling for Divertor Detachment

Eight NSTX/NSTX-U contributed orals were also given:

J. Menard: Status and Plans for NSTX-U Recovery

L. Morton (GA): A first look at resistive MHD stability differences between NSTX and NSTX-U high beta discharges

G. Hao (UC Irvine): Simulation of the internal kink-like mode driven by the toroidal rotation in spherical tokamak

J. Ruiz Ruiz (MIT): Electron Scale Turbulence and Transport in an NSTX H-mode Plasma Using a Synthetic Diagnostic for High-k Scattering Measurements

F. Scotti (LLNL): Divertor-localized fluctuations in NSTX-U L-mode discharges

F. Bedoya (U. Illinois): Characterization of boronized graphite in NSTX-U and its effect on plasma performance

C. Skinner: Elemental and topographical imaging of microscopic variations in deposition on NSTX-U and DIII-D samples

In addition, there were 30 NSTX/NSTX-U posters presented in the ST and in other sessions.