

NSTX-U Weekly Report (March 22, 2013)

NSTX-U is in the Upgrade Project outage in FY 2013

The following several enhancements and updates were added to the H-mode pedestal analysis software for NSTX-U by Tom Osborne (General Atomics):

- The rotation profiles were more accurately extrapolated beyond the separatrix to allow better determination of the zero crossing for the radial electric field.
- A provision was added to allow reconstruction of the impurity density profile from the carbon density rather than the Zeff profile. And
- An overall scale factor for the bootstrap current was added to the kinetic EFIT tool.

(Rob La Haye, General Atomics)

D. Darrow (PPPL) from the NSTX-U group visited MAST over the period March 11 to 19. During this interval, he and collaborators from Florida International University were able to test the susceptibility of a fast proton detector to electromagnetic noise from the MAST magnetic field coils and neutral beam injectors. These tests were made in preparation for planned use of the diagnostic in MAST experiments in July. Although no plasmas were made during this visit, data acquired during the operation of individual magnetic field coils and beam injectors showed noise levels well below the signals produced by alpha particles from an americium source, which mimic the fast protons from the plasma. This gives confidence that good measurements can be made during the experiments in July, in which measurements of the fusion source rate spatial profile from this diagnostic can be compared with those taken by MAST's neutron camera. Favorable results from those experiments would allow design of a compact fusion source rate profile diagnostic for NSTX-U. (D. Darrow)

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

NSTX Upgrade construction activities continued this week with the loading of conductors into the mold for the second TF inner quadrant. The full set of conductors are in place and aligned, and the mold is being prepped for the upcoming epoxy impregnation. On the NSTX vessel, the new bay J-K cap and port assembly for the second neutral beam (NB2) interface was successfully vacuum leak-checked

Preparations for plasma operations in the NSTX-U configuration also continued with a successful conceptual design review of the proposed compliant center conductor for the High Harmonic Fast Wave (HHFW) system vacuum feed-throughs. The assembly and testing of the new firing generators for the field coil power conversion (FCPC) system rectifiers continues.

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