NSTX-U Weekly Report (March 15, 2013)

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

David Ruzic, Professor of Nuclear, Plasma, and Radiological Engineering and Director of the Center for Plasma-Material Interactions at the University of Illinois at Urbana-Champaign (UIUC) visited PPPL on Friday, March 15, 2013. He gave a seminar entitled "Recent Lithium Experiments at Illinois." He described the latest UIUC work using thermoelectric magnetohydrodynamics (TEMHD) for flowing liquid lithium with tokamak magnetic fields. The TEMHD-driven flows enable convective heat dissipation without external pumps, so they provide an attractive approach to high-power plasma-facing components (PFCs). The UIUC group uses TEMHD to direct the lithium through channels in PFCs in a design called Liquid-Metal Infused Trenches, or LIMIT. A LIMIT module has been successfully tested on the HT-7 tokamak in China, and could be a possibility for future high-power PFCs on NSTX-U. (R. Kaita, PPPL)

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

NSTX Upgrade construction activities continued this week with the successful electrical insulation testing of the first complete TF quadrant. The quadrant mold is being prepared for the loading of TF conductors for the second quadrant. The calorimeter (the last major component on the beam box) was installed in the second neutral beam this week. The latest areal view of the NSTX-U Test Cell is attached below.

Preparations of non-upgrade equipment for plasma operations in the NSTX-U configuration also continued with the ongoing assembly and testing of the new firing generators for the field coil power conversion (FCPC) system rectifiers. The third and fourth production firing generators successfully completed bench tests in the Electronics Shop.

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

2nd NB I in the NSTX-U Test Cell (Mar. 2013)