

## **NSTX-U Weekly Report (September 5, 2014)**

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

The paper "Taming the plasma-material interface with the 'snowflake' divertor in NSTX" by V. A. Soukhanovskii (LLNL) et al. Nucl. Fusion (2011) 51 012001. doi:[10.1088/0029-5515/51/1/012001](https://doi.org/10.1088/0029-5515/51/1/012001) has been selected for the shortlist for the 2014 Nuclear Fusion Award. The winning paper will be determined by a secret ballot of the journal's Board of Editors, and will be announced at this year's IAEA Fusion Energy Conference. The 'short list' consists of 11 papers judged to be of the highest scientific standard, selected from the journal volume published two years previous to the award year. Nominations are based on citation record and recommendation by the Board of Editors. The snowflake divertor configuration was proposed by D. D. Ryutov in 2007 as a possible solution for the plasma-material interface problem in magnetically confined fusion plasma devices (tokamaks). (V.A. Soukhanovskii)

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

NSTX Upgrade activities continued with the assembly of the upper and lower crowns on the completed TF/OH coil assembly. Work is on track to move the TF/OH assembly to the South High Bay early in October to be installed in the center-stack casing. The assembly of the center-stack casing continues with the installation of plasma facing tiles. All tiles have now been installed on the center section, including tiles instrumented with diagnostics such as Langmuir probes or Mirnov coils, as well as a tile containing the port for the mid-plane gas injection system (see attached photo). In the NSTX-U test cell, all mechanical installations associated with the Torus Vacuum Pumping System (TVPS) have now been completed, and electrical/control work packages are in progress.

Development of the new Digital Coil Protection System (DCPS) continued with the installation and testing of the DCPS interconnection hardware in its permanent location in the Field Coil Power Conversion (FCPC) junction area. Exercising of the DCPS computer and software via its Autotester function has been completed, and the DCPS computer is being prepared to be moved to the FCPC Junction Area for pre-operational testing in conjunction with the interconnection hardware.

Preparations for plasma operations in the NSTX-U configuration also continued. The new FCPC firing generator communication links are undergoing pre-operational testing in preparation for open circuit power testing of the rectifiers. The analog link receiver chassis for the new plasma current ( $I_p$ ) Calculator are being installed in the FCPC Junction Area, and are also undergoing pre-operational tests.

## **CS Casing inboard tile installation complete (September 2014)**

