

## **NSTX-U Weekly Report (October 2, 2015)**

### **NSTX-U is in the Upgrade Project outage in FY 2015**

A number of NSTX-U researchers from PPPL attended the Fourth International Symposium on Lithium Applications to Fusion (ISLA-4) held in Granada, Spain on September 28 – 30, 2015. The NSTX-U related oral presentations were “Liquid Lithium Applications for Solving Challenging Fusion Reactor Issues and NSTX-U Contributions” by M. Ono, “Incremental upgrades toward high-heat flux, liquid lithium PFCs in the NSTX-U” by MA Jaworski, “Lithium granule ablation and penetration during ELM pacing experiments at DIII-D” by R. Lunsford, “The effect of progressively increasing lithium conditioning on edge transport and stability in high triangularity NSTX H-mode discharges” by R. Maingi, “In Vacuo Analysis of LTX Wall Samples Exposed to Lithium and Implications for High-Z Plasma-Facing Components in NSTX-U” by R. Kaita, “Lithium Vapor Box Divertor” by R.J. Goldston (presented by M. Jaworski) and “Peer Review of Lithium safety at Princeton Plasma Physics Laboratory and implications of Present and Future Lithium Research” by R. Kaita. (M. Ono)

Several NSTX-U-related talks were given at the Second IAEA Technical Meeting on Divertor Concepts, Sept. 29-Oct. 2 in Vienna, Austria. R. Goldston (PPPL) presented "The Lithium Vapor Box Divertor", V. Soukhanovskii (LLNL) presented "Developing Snowflake Divertor Physics Basis in the DIII-D, NSTX and NSTX-U Tokamaks Aimed at the Divertor Power Exhaust Solution", and R. Maingi (PPPL) presented, "Lithium and liquid metal studies at PPPL." In addition, D. Majeski (PPPL) presented "Concepts for fast flowing liquid lithium walls and divertors." (R. Maingi)

### **Engineering Operations (A. von Halle, P. Titus)**

The NSTX-U vessel bake was put on hold this week to address a problem with the roots blower on the hot helium supply skid. The blower has been taken out of service and brought to the manufacturer for repair. The modest expected repair (bearing and seal replacements) could be accomplished in two days. A more extensive repair (gears or lobes) would take longer, and a spare blower is on order if a more lengthy repair is required. We are using this break to continue diagnostic system installations. Also this week, a review of Field Coil Power Conversion System Fault Detector and Digital Coil Protection System settings for the upcoming run was held, and will be incorporated into Integrated System Test planning. Neutral beam ion sources are in place on both beam-lines and pre-operational system testing continues.

The NSTX-U Test Cell will be in restricted access this coming week with the resumption of the vessel bake.