

NSTX-U Weekly Report (July 28, 2017)

FY 2017 status: NSTX-U is in a maintenance and repair outage.

NSTX-U Research (J. Menard)

J. Menard (PPPL), D. Maurer (Auburn University and University Fusion Association), and Mickey Wade (General Atomics) co-chaired the US Magnetic Fusion Research Strategic Directions Workshop held at the University of Wisconsin – Madison during July 24 – 28, 2017. J. Menard presented the “Overview of Goals and Organization of the Workshop” and a plenary presentation “Increase Emphasis on Physics and Technology Innovations for Compact Tokamak Fusion”, S. Sabbagh presented “Accelerated Fusion Development and Predictive Capability Utilizing Spherical Tokamaks + Initiative on Disruption Elimination”, D. Gates presented “An Invigorated US domestic Quasi-symmetric Stellarator Program”, A. Bhattacharjee presented “Strategic Role of Exascale Computing in US Magnetic Fusion Research”, M. Jaworski presented “An Applied Energy Program to Achieve Economical Fusion Energy”, and C. Kessel presented “The Fusion Nuclear Science Facility, the Break-In to the Fusion Nuclear and Ultra-Long Pulse Plasma Regime”. The next community workshop is planned for the week of December 11 in Austin, TX.

Gary Taylor is visited the QUEST spherical tokamak at Kyushu University from July 18 to July 28 to collaborate on the first current drive experiments with the newly installed 28 GHz gyrotron. On the final days of this collaboration, plasma currents of up to 86 kA were obtained using 230kW of ECH/EBW injection for 1.25s. Plasma current decreases were sometimes observed during the current ramp-up with rapid increases of the OII line intensity. These events prevented further increases in the plasma current and will be investigated in more detail during future run campaigns.

NSTX-U Recovery Project (R. Hawryluk)

Several rounds of metrology of the in-vessel passive plate supports have been successfully completed and reviewed by Engineering. This concludes an activity in support of recommendations made during the Extent of Condition review. More routine metrology of the vessel interior is now in progress.

The fabrication of the FCPC coil test stand has been completed.

A total of 40 presentations were prepared and uploaded to the web site for early review by participants in the upcoming NSTX-U Conceptual Design Review.