

NSTX Weekly Report (Apr. 15, 2005)

FY2005 Planned Operations: 17 weeks

Completed: 0 weeks producing 0 plasmas

Department, Project, Program (M. Ono, M. Peng, E. Synakowski)

- Jon Menard attended the Sherwood Fusion Theory Conference in Stateline, NV and presented a review talk entitled: "Unique MHD Properties of Spherical Torus Plasmas". (J. Menard)
- Several NSTX team members participated in the U.S-European Transport Task Force meeting in Napa, California, held April 6 - 9. A focus of the meeting was the topic of verification and validation of computer simulations. Daren Stotler gave a preview presentation and discussion on this topic based on his experience in neutral transport modeling. Ed Synakowski presented an overview of NSTX electron thermal transport results, including recent cold pulse measurements made by Dan Stutman and Kevin Tritz (JHU) and comparison to linear and nonlinear simulations. Charles Skinner made a presentation in the edge transport group regarding the implications of the choice of carbon as a divertor material for ITER. Martha Redi presented simulation results from an investigation of NSTX and C-Mod plasmas. Eric Fredrickson gave a presentation on NSTX fast ion losses induced by kinetic instabilities. David Mikkelsen described his efforts to find simple figures of merit for characterizing the uncertainties in nonlinear gyrokinetic simulations. Stewart Zweben's latest work on the imaging of edge turbulence during L-H transitions on NSTX. (E. Synakowski)
- There were four NSTX related presentations at the 16th Topical Conference on Radio Frequency power in plasmas April 11-13 in Park City, Utah. Posters were presented by Gary Taylor on "EBW Research on NSTX", Ben LeBlanc on "Investigation of HHFW and NBI Combined Heating in NSTX", Joel Hosea on "Electron Energy Confinement For HHFW Heating and Current Drive Phasing on NSTX". In addition, an invited talk on "Parametric Decay during HHFW Heating on NSTX" was given by J. R. Wilson. (J. R. Wilson)
- Josef Preinhaelter arrived from College of William & Mary on April 4, 2005, and will depart on April 29, 2005. Gary Taylor is the host. J. Preinhaelter will collaborate with NSTX Researchers on the Study of Modeling of EBW heating & Electron cyclotron emission on NSTX. Sang Gon Lee arrived from KBSI Korea on April 10, 2005, and will depart on April 23, 2005. Dave Johnson is Host. S.G. Lee will collaborate with NSTX Researchers on the X-Ray Crystal Spectrometer for NSTX. (J. Savino)
- NSTX Physics Meeting Schedule is as follows (S. Kaye):
 - Monday, April 18, 1:30 pm in LSB318: "Fast ion MHD and associated loss," by

Eric Fredrickson, "High Speed Imaging of the L-H Transition in NSTX" by Stewart Zweben.

- Monday, April 25, 1:30 pm in LSB318: "Multi-machine Comparison of H-mode Pedestals," Rajesh Maingi, "Steady-state Scenarios in NSTX," Chuck Kessel.

- Tuesday, April 26, 10 AM in LSB318: - Note special time – "New Fast Ion Diagnostic, Experiments on DIII-D and Possible Application to NSTX," by Bill Heidbrink (UCI)

- NSTX Team Meeting will be held on Wed., April 20, 1:30 in LSB 318. The TF ISTP results and the run plans will be presented. We will also update you on other new developments.

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

NSTX experimental operations began this past week after repairs to the insulation of an outer TF turn, and the completion of integrated system testing of the coil, power, and vacuum/gas systems. The neutral beam interlock and injection tests into the vessel armor were completed for sources A & C (the B source developed a vacuum leak during conditioning), with both sources subsequently used for injection into plasmas. The plasma current reached about 0.75MA on these initial shots, and both MPTS and CHERS gathered data. Magnetics calibration shots were completed, and EFIT was able to be run on several shots. At the end of the run week the vessel was back-filled to 50T of nitrogen to perform a Rayleigh scattering calibration of the MPTS system.

Over the weekend, the machine was configured for vacuum vessel bake-out operations, with a vessel bake and "hot" boronization scheduled for this week. Access to the NSTX vessel will be restricted during the bake, which is expected to last through Thursday. A spare ion source is ready, and will be installed in the neutral beam B position this week. Plasma operations are scheduled to resume on Monday, April 25th. (A. von Halle)

Research Operations (M. Bell)

Boundary Physics Operations (H. Kugel)

- Charles Skinner attended the workshop on "Dust in Fusion Plasmas" April 5, 2005, Napa, California, USA and presented recent results on "Detection of dust particles on remote surfaces; Dust in NSTX plasmas". The workshop was attended by representatives from space plasmas, low temperature plasmas, safety engineers and theorists. He also attended the Transport Task Force Meeting April 6-9th, 2005, at the same location and made a presentation entitled: 'Is carbon a realistic choice for ITER's divertor ?' (R. Kaita)

Diagnostic Operations (R. Kaita)

- The signals from the new flux loops on the center stack and new poloidal field coils and the new plasma current Rogowski coils were checked with calibration shots this week. They were sufficient for initial attempts at equilibrium reconstructions for discharges that were subsequently obtained.
- Magnetic calibration shots for NSTX equilibrium reconstructions were obtained and will be analyzed during bake-out week in preparation for plasma operations.
(J. Menard)