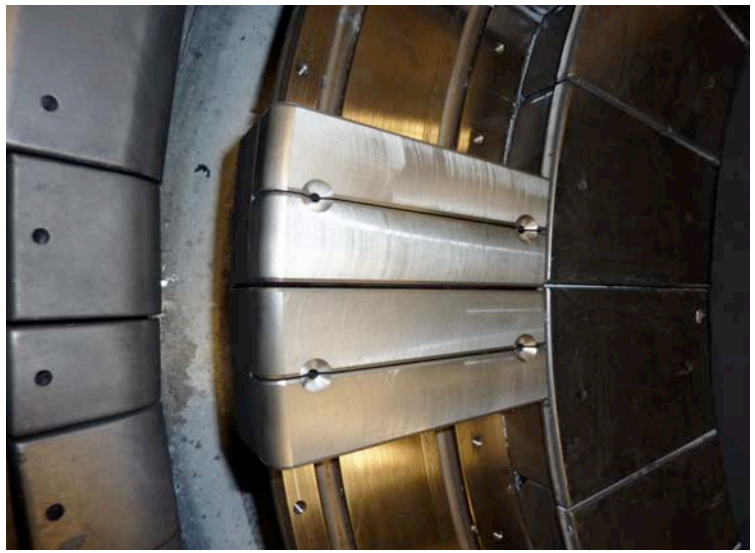
Research Operations Division
Boundary Physics *(H. Kugel)*

- LLD
  - ***After last Team Meeting, decided to reinstall LLD plates***
  - Redesigned hinged corner supports, center locating pin and grounding
  - Eliminated active heating and cooling – rely on plasma heating
  - Cleaned surfaces in vinegar without mechanical scrubbing
    - Removed most surface deposits but some discolored areas remain
  - Added fast thermocouples to Bay H LLD gap tile to measure heat flux
- Installed molybdenum tiles on outer row of inner divertor
  - Vary divertor carbon source
  - Characterize lithium on high-Z substrate
  - Investigate molybdenum for NSTX-U
  - Magnetic sensors, Langmuir probes and thermocouples in special moly tiles



Research Operations Division
Boundary Physics *[2]*

- Lithium Evaporators (LITERs)
  - Four new units are being fabricated for 2011-2 experimental run
  - Upgraded with thermocouple liquid lithium level indicators
  - Reviewing operational procedures to reduce accumulation on shutters
- Materials Analysis Particle Probe (MAPP – Purdue U)
  - Bellows Motion Drive received after mechanical Design Review
  - Instrumentation rack built at Purdue scheduled for delivery in early July
  - 2 Purdue students will visit for ~1 month during final integration
- FDR 6/23 for the Centrifugal Lithium Granule Injector (D. Mansfield)
- Installed “massive gas injectors” at lower divertor and mid-plane for disruption mitigation studies
- Summer student working on tungsten dust detector

Research Operations Division
Diagnostics *(R. Kaita, B. Stratton)*

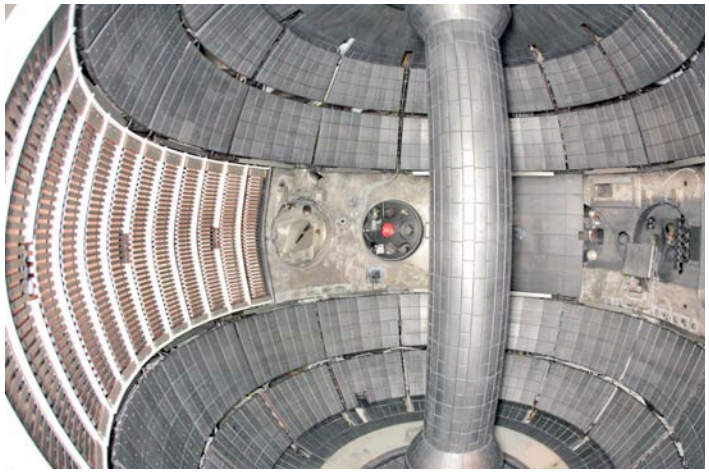
- MPTS Upgrade (PPPL)
  - 12 new spatial channels installed and operational
  - Rayleigh/Raman, QT and fast/slow calibration data being processed
  - Expect to be ready to support initial experiments after ISTP
- MSE-LIF (Nova Photonics)
  - DNB installed and fired into vacuum vessel
  - Laser and remote control/monitoring will be installed after bakeout
  - Expect to start commissioning with plasma in July
- Tangential FIDA (UC-Irvine)
  - Two new tangential views installed
  - Expect to take initial data in July after completing work in DARM
- Real-time velocity measurement - rtCHERS (PPPL)
  - Installed hardware for transferring data to Plasma Control System

Research Operations Division
Diagnostics *[2]*

- ME-SXR Array (Bay I) (JHU) will be ready to support experiments in July
  - Now assessing whether SPA noise remains an issue
- Wide-Angle IR Camera (ORNL) expected to be ready in July
  - CVD diamond window installed on Bay H top
  - Assembling ex-vessel hardware and awaiting dichroic beamsplitter
- Realigned and calibrated inboard (R = 130cm) BES view (UWisc)
- Conducted full calibrations of >20 diagnostic systems before pumpdown
- To be installed this summer/fall:
  - IR camera view of RF antennas (Bay B)
  - Prototype fusion product detector array (W. Boeglin, FIU)
  - Fast interferometer/polarimeter (UCLA)
  - Image intensifier for sFLIP to provide higher time resolution
  - Divertor-viewing SPRED spectrometer (LLNL)

Research Operations Division
RF systems *(J. Hosea)*

- HHFW antenna has been cleaned
  - Removed rather thick layer of lithium
  - Removed antenna thermocouples and cables as well as the Langmuir probes at Bay C to prevent arcing to them
  - Cleaning of other regions of VV should help to keep antenna components free of particulates
- Should give best possible chance to increase the antenna voltage for higher power operation
- Rory Perkins has joined the NSTX RF team
  - He will participate in physics studies and operating the HHFW system



Research Operations Division
Physics Operations *(D. Mueller, D. Gates)*

- All “basic” modifications for second SPA complete and ready for ISTP
  - New communication hardware and software developed/installed
  - Power supply control code (psrtc) modified and successfully tested
    - Integrated system testing to be done just prior to ISTP
  - PCS SPA current control algorithm modified and successfully tested to support basic operation of the second SPA
- Now modifying SPA feedback and control algorithms
  - New mode feedback and error field control algorithms being tested
  - Ready to start work on LQG algorithm
- Ongoing PCS development work
  - Implementing improved methods for phase transitions, dZ_p/dt measurements
  - Developed offline snowflake tracking algorithm
  - Hardware in place for real-time rotation measurement