

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

- ◆ Much progress on design, fabrication, testing and approval of LITER-1: Retractable lithium evaporator aimed at centerstack and lower divertor
 - ▶ Complete assembly of oven on drive and connect cables: Friday 2/10
 - ▶ Start testing & calibration off-line (L-245): Monday 2/13
 - ▶ Complete controls & cabling installation: Wednesday 2/15
 - ▶ Move loaded LITER-1 from L-245 to NSTX: Thursday 2/23
 - ▶ Necessary reviews (FDR, ACC *etc.*) are proceeding
- ◆ Movable-anode GDC cooling upgraded
 - ▶ Reinstalled at Bay K and used for boronization during bakeout
- ◆ LPI installed and ready for loading: controls and propellant valves tested
 - ▶ Will be available for TESPEL collaboration: March, May
- ◆ Many boundary physics XPs/XMPs in review
- ◆ Presentations made at ITPA and accepted for 17th PSI (May)

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Diagnostics (*D. Johnson, R. Kaita*)

◆ MPTS

- ▶ Took data on 30 channels through most of 2005 run
- ▶ Rayleigh/Raman scattering calibrations at end of run
- ▶ Full spectroscopic calibration underway to enable analysis of 2005 data
- ▶ Installed new viewing and laser windows
- ▶ Now realigning lasers to prepare for R/R calibration later this week

◆ Good progress on completing High-k Microwave Scattering system

- ▶ Optically aligned input and output beams
- ▶ Need plasma shots to complete final adjustments
 - Need ~3 similar shots each day (OH helium) possibly with access
 - Run “piggyback” during first T&T XPs
 - Then proceed to dedicated experiment

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Diagnostics [2]

- ◆ Many repair, maintenance tasks during opening
 - ▶ Repaired damaged magnetic sensors
 - ▶ Repaired CCD detector, chiller, ion pump for SPRED
 - ▶ Replaced detectors for divertor bolometer
- ◆ Calibrated many systems prior to VV close
 - ▶ CHERS, ERD, EIES filterscopes, cameras, VIPS2, VB, SXR arrays, XR telescope, new CCD for H_{α} , reciprocating probe
- ◆ Final diagnostic work prior to experiments next week 2/13-17
 - ▶ Checkout fast reciprocating probe (UCSD)
 - ▶ Install new electron Bernstein wave antenna (ORNL)
 - ▶ Reinstall “optical” X-ray array (JHU)
- ◆ Moving ahead with design, procurements for PCHERS (FY’07)

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RF Systems (*J. Hosea*)

- ◆ ECH-PI system operational
- ◆ HHFW Sources being prepared for plasma operation
 - ▶ Kirk-key & E-Stop procedures completed (including D-Site E-Stops)
 - ▶ Water pump failure delayed start-up of sources and RF Leakage Survey
 - Re-configured to accommodate this: start-up procedure now more complicated, but manageable
- ◆ Started a project to monitor the RF leakage from CHI gaps
 - ▶ Connect signals through breaks into existing data acquisition: *mid-Feb*
 - ▶ Similar monitoring for RF probe signals: *March*
- ◆ Good progress on the new antenna-voltage limiting controls: *March*
 - ▶ Antenna voltage signals to the RFE via fiber, C-Site via cabling
 - ▶ Working to connect voltage signals into feedback controllers for RF amplitude and phase of each source

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Physics Operations (*D. Mueller, D. Gates, R. Raman*)

- ◆ Moved SkyBolt computer to Control Room for faster response to crashes
 - ▶ 352 input channels and outputs to FCPC and SPA working after some communication problems and hardware failure
 - ▶ Used for ISTP and initial plasma operation (in Day 1 mode) 2/7
 - ▶ rtEFIT should be available for control when magnetics debugged
- ◆ Software to control SPAs based upon RWM signals tested in simulation
 - ▶ Need to test in normal operation mode before ready for experiments
- ◆ Adapting gas system for higher flow if needed for Li experiments
 - ▶ Raising plenum pressure will give 3 – 4 times typical flow rate
 - ▶ Ordered new piezo-valves to be installed in parallel with existing valve
 - Potentially >10 times typical flow
 - ▶ Increasing plenum for CS valve should increase flow rate proportionally

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Physics Operations [2]

- ◆ Working towards 2kV capability for CHI experiments
 - ▶ New protection MOVs on order – delivery late Feb
 - ▶ Will resume with 1.5kV capability initially