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

- LITER-1B installed, tested, used in experiment XP-601 on 4/11–13
  - 4 evaporations (0.04, 0.15, 1.3, 4.0 μgcm^{-2} on QDM); reservoir to 550°C
  - Long deposition times and delay to first plasma shots
  - Observed no reduction density on subsequent reference discharges *but*
  - Long term reduction in oxygen radiation and good vacuum conditions
- LITER-1C fabricated and tested in L-245 chamber without shroud
  - Measured rate & angular distribution of deposition *vs.* temperature
  - Not successful in developing a “snout mode” free of dripping
- Experiments with LITER-1B again on 5/4–5
  - Evaporated with reservoir 625°C, snout 700°C: 2.5μgcm^{-2} on QDM
  - 30% reduction in $<n_e>$ on first shot only but low oxygen persisted
  - Snout heater failed on next attempt to evaporate
- Now installed LITER-1C without shroud on NSTX

Research Operations Division
Boundary Physics *[2]*

- Used SGI in XP-626 to produce H-modes with factor 9 less HFS gas
- Boronizations 53 (4/17), 54 (4/27), 55 (5/20), 56 (5/30) (each 5g DTMB)
- Remaining “TESPELS” (Li doped polystyrene pellets from NIFS) used in perturbative transport experiment (XP-612)
- LPI has been reloaded
  - Vitreous carbon pellets (0.22, 0.55 mg) for perturbation experiments
  - Large (3.5mg) lithium for coating experiments

Research Operations Division
Diagnostics *(R. Kaita, D. Johnson)*

- MPTS
  - Still dealing with problems analyzing data on 10 newest channels
    - Performed full checkout of hardware operation
    - Now performing an independent review of analysis codes
  - Laser 1 energy drooping and beam clipping but expect to complete run
- High-k scattering
  - Investigated sensitivity to beam alignment (XMP-44)
  - Developed new beam geometry for intermediate radius measurement
  - Preparing XPs for dedicated scans in “ERS” and H-mode plasmas
- “Optical” X-ray array (JHU) is ready for perturbative transport experiment
- Upgraded divertor tile Langmuir probe drivers
- Moving ahead with design, procurements for PCHERS (FY’07)

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

- HHFW conditioning to 2.2MW (XMP-26)
- XP-627 “Non-solenoidal I_p rampup” [Kessel]
  - Difficulties with plasma control at low I_p affected coupling
- XP-617 “HHFW Power Balance vs B at Constant q” [Hosea]
  - $T_e(0)$ increases with increasing $k_{||}$ ($3 \rightarrow 7 \rightarrow 14$ m^{-1})
  - Much better core heating at 0.55T than at 0.3T for all phases
  - Now analyzing measurements and data on parametric decay instability at edge

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

- Plasma Control
  - Error field correction with SPAs in programmed and feedback control
    - Successful lengthening pulse
  - Real-time mode identification & feedback used to suppress RWM growth
- Real-time data acquisition and other faults continue to impact run
  - Replacing commercial with local digitizers made no difference
  - Investigating lead on possible interaction of local and system software
- Successfully operated CHI capacitor bank to 1.85kV in recent experiment
  - New MOVs and snubber capacitors operated well
  - Need to raise charging supply voltage to reach full rating
  - Still having trouble with EMI on I_p measurement when CHI added to inductive plasma