

# Research Operations Division

## Boundary Physics

- ◆ Dual LITER system has operated well and reliably
  - ▶ Initial XP-827 exhausted both reservoirs after 2<sup>1</sup>/<sub>2</sub> days (May 6–8)
  - ▶ Produced suppression of ELMs and improvements in confinement
- ◆ Reloaded LITER reservoirs in NTC during following maintenance week
  - ▶ Used again on 3 days (XP-827, XP-818, XP-829)
- ◆ Preliminary results are being presented at 18th PSI this week
- ◆ Li powder “shaker”
  - ▶ Lab tests have gone well
  - ▶ Plan to install in maintenance week June 9 - 13
- ◆ Liquid lithium divertor module
  - ▶ Successful FDR held on Apr 22 with participation of collaborators
  - ▶ Now proceeding with procurement of material, components

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## Diagnostics (*R. Kaita, B. Stratton*)

### ◆ TCHERS/PCHERS

- ▶ Discovered a problem with timing of TCHERS background data
  - Corrected hardware *but*
  - Need to develop and apply reanalysis for  $T_i$ ,  $v_\theta$  from beginning of run
- ▶ All six PCHERS spectrometer/CCD camera systems are taking data
  - Need white-plate calibration for final two at end of run
  - Software development continues – slowed by TCHERS timing issue
- ▶ Gratings for lithium measurement have arrived

### ◆ MPTS

- ▶ Laser #2 suffered failure of rod on 4/22
  - Continued 30Hz operation
- ▶ Repaired during maintenance week and resumed 60Hz on 5/19
  - Performed final beam alignment using TS yesterday 5/27

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## Diagnostics (*cont.*)

### ◆ High-k Scattering

- ▶ Completed calibration of detector response with new  $\mu$ -wave source
- ▶ Used in dedicated T&T experiments (XP-821, XP-829)
- ▶ Seeing evidence of lithium coating on part of collection mirror
- ▶ Plan to complete installation of remote control for mirrors during next maintenance week

### ◆ BES – collaboration with G. McKee (UWisc)

- ▶ CDR on 4/24
- ▶ Plan to install ports for viewing optics during next opening

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### RF Systems (*J. Hosea*)

- ◆ Arc over of rectifier terminals of HVPS for source #1 repaired
- ◆ Operated for several experiments
  - ▶ >3 MW in helium and deuterium in heating and CD phasing
  - ▶ Observed good  $T_e(0)$  increase at  $n_e(0) > 3 \times 10^{19} \text{ m}^{-3}$ .
  - ▶ Produced high  $T_e(0)$  and steep gradient needed for high-k scattering experiment.

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

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- ◆ Operating reliably with the new real-time computer
  - ▶ Occasional problems with increased signal “latency” have occurred
  - ▶ Traced to abnormal operation of Systran communication modules
- ◆ Good progress on using error-field compensation to extend pulse length

## Run Coordination (*M. Bell*)

- ◆ ~52 days of experiments performed (after initial shakedown period)
- ◆ 35 XPs and 5 XMPs conducted
  - ▶ Including Startup, HHFW conditioning, MSE XMPs
- ◆ Run-day distributions (and XPs performed) by Topical Science Group:
  - ▶ Transport & Turbulence: 8.5 (7)
  - ▶ Boundary Physics: 12.5 (8.5) (1 XP joint with MS)
  - ▶ Macroscopic Stability: 8.5 (7.5) (1 XP joint with BP)
  - ▶ Solenoid-free Startup: 5 (1)
  - ▶ Wave-Particle Interactions: 3.75 (5)
  - ▶ Advanced scenarios & Control: 3.75 (4)
  - ▶ Cross-cutting and enabling: 10 (5) (includes ELM XP 4.5 days)
- ◆ TSG Leaders must plan for completing outstanding experiments
  - ▶ In this market, “past performance” will be a significant determinant of future returns