

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

- ◆ Building LITER-1d for  $\times 60$  lithium deposition rate on lower divertor
  - ▶ Re-aim, larger “nostril”, higher temperature
  - ▶ Evaporation between/during shots in normal cycle
    - Provided passive shielding for MPTS and high-k windows
  - ▶ Tested mock-up cartridge with new radiant body heaters to  $\sim 750^\circ\text{C}$
  - ▶ Fabricate final cartridge, perform thermal testing in L-245, hold FDR, load with lithium ( $\sim 50\text{g}$ ) then install in first maintenance week 3/5-9
- ◆ Developing alternative methods for rapid lithium coating
  - ▶ Improving LPI reliability
  - ▶ Testing method for injecting stabilized lithium dust from a sabot
    - Promising results with boron powder
- ◆ Sandia Nat'l Lab proposal for liquid lithium module accepted by DOE
  - ▶ Install in FY'08 for experiments in FY'09
- ◆ SGI upgraded for higher pressure  $\Rightarrow$  higher Mach number

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

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- ◆ Poloidal-CHERS – *diagnostic milestone for FY'07*
  - ▶ Installation of hardware complete, sightlines calibrated
  - ▶ One camera has twice developed thermal leak: at vendor for repair
  - ▶ Much new software to be developed to perform complex analysis
- ◆ Installing SXR transmission grating spectrometer with tangential view across NBI for quantitative impurity profiles [JHU]
- ◆ Installed edge bias electrodes & probes at Bay B to study SOL structures
  - ▶ Now building power supplies and data acquisition
- ◆ MPTS
  - ▶ MPTS lasers serviced, optics aligned, Rayleigh/Raman calibration
  - ▶ Analyzed 30 channel data from 2005, 2006 runs
- ◆ New HF Mirnovs, segmented Rogowski; repaired bad sensors

# Research Operations Division

## Diagnostics [2]

- ◆ High-k scattering
  - ▶ Calibration with acoustic cell completed with original collection mirror
  - ▶ Installed new collection mirror and recalibrated sightlines
  - ▶ Modified launch mirror mount to avoid jamming
- ◆ Planning to install new reflectometers during early part of run [UCLA]
  - ▶ Staging critical with respect to delivery, installation and need
- ◆ Now reconfiguring diagnostics affected by bakeout
- ◆ Pre-run calibrations
  - ▶ Complete magnetics calibrations started during single-coil tests
  - ▶ MSE calibration needs 2+ days with full NB capability prior to run

# Research Operations Division

## RF Operations (*J. Hosea*)

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- ◆ HHFW and ECH-PI ready for operation
  - ▶ Addressed all maintenance issues at C-Site from FY'06 operation
    - Sources periodically run to maintain readiness
  - ▶ Completed startup procedures for HHFW sources and ECH-PI system
- ◆ RF probes
  - ▶ Three new probes fabricated for installation after bakeout
  - ▶ High-speed data acquisition ready for two existing, three new probes
- ◆ ECH/EBW 200 kW system (new project)
  - ▶ ORNL received approval to proceed with their preparation of hardware
  - ▶ Circulated sketches of proposed layout by ORNL/PPPL RF engineers
  - ▶ Aim to install for FY'08 run

# Research Operations Division

## Physics Operations (*D. Mueller*)

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- ◆ Skybolt control computer system ready for resumption of operation
- ◆ Upgrade to fast multi-processor servers
  - ▶ Plan to operate in parallel with Skybolt system
    - New gas system data acquisition installed and tested
    - PPPL-developed timing module and digital output module tested; analog output module in fabrication
    - Data acquired and calibrated during clock cycle
    - Power supply real-time control tested in simulation mode
    - Data output code under development
  - ▶ Data acquisition and PCS software are the critical path items
    - Hope to make up 3-4 week slippage with help from GA programmers
- ◆ CHI: Considering higher voltage MOVs to allow operating up to full 2kV
  - Installing new fast voltage monitoring to assess risk from spikes
  - Upgrade charging power supply