

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

- ◆ Lithium Pellet Injector
 - ▶ Work underway in TC on gas lines, electrical and final assembly
 - ▶ Procedure for making pellets, revisions to SAD, FMEA approved
 - ▶ First injection scheduled for next run period
- ◆ Supersonic Gas Injector
 - ▶ Successful peer review for mounting – transport mechanism ordered
 - ▶ Setting up to measure flow characteristics on test stand
- ◆ Boronizations 20, 21 last week
- ◆ UCSD collaborators recommissioning fast reciprocating probe
 - ▶ Ready after next maintenance week
- ◆ Recommissioning deposition monitor
- ◆ 7 NSTX abstracts submitted for 16th PSI, May 04

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

- ◆ MSE prototype channel detected first CIF light
 - ▶ Intensities as expected but polarization fractions somewhat lower
 - ▶ Systematic scan of filter with constant NBI voltages needed soon
- ◆ Obtained initial data from solid-state neutral particle analyzer array
- ◆ Obtained images of H_{α} through tangential view of lower X-point region
- ◆ Commissioned scintillator-based, fast lost ion probe
 - ▶ Pitch angle-, energy- resolved measurements
- ◆ Imaged edge turbulence with the PSI-V camera
 - ▶ 300 frames at speeds up to 250,000 frames per second
- ◆ Ultra-fast tangential 2-D x-ray camera installed this week
 - ▶ Also using a PSI-V CCD camera

Research Operations Division Diagnostics [2]

- ◆ Investigating cause of and solution to coating of MPTS window
 - ▶ Affected n_e and possibly T_e calibration since Rayleigh scattering
- ◆ FReTIP operational after fixing data acquisition difficulties
- ◆ Installing conductance-limiter for Vertical XCS
- ◆ Horizontal XCS should be operational during next run period
- ◆ Plasma TV equipped with new wheel mechanism for changing filters
- ◆ All eight filterscope channels should be available for next run period
- ◆ D. Pacella, G. Pizzicaroli (ENEA) to visit March 9 – 17 to reinstall PIXCS 2D X-ray imaging
- ◆ N. Nishino (Hiroshima U) to visit March 12 – April 23 to operate divertor camera

Research Operations Division RF Systems (*R. Wilson*)

- ◆ Returned all 6 transmitters to service in January
 - ▶ Performed all pre-run system checks, controls, interlocks, leakage *etc.*
- ◆ Restored all remote control facilities
 - ▶ Began adding new ones and transitioning to more modern computers
- ◆ Operated sources in dummy load to full power for 1 s pulses
 - ▶ Tube failed in source #4 during extended heat run
 - Replaced with spare and conditioned to full power quickly
- ◆ Vacuum conditioned antennas to ~25 kV for 1 s pulses
- ◆ Ready for first plasma operation next Monday

Research Operations Division

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

- ◆ Returned to plasma operation on January 16
- ◆ Operating with reduced delays (0.74 ms *cf.* ~3 ms) in real-time feedback
 - ▶ PCLIM parallelizes output to power supplies
 - ▶ Testing/debugging of speedup is complete
- ◆ John Ferron (GA) visited to help develop rtEFIT/isoflux shape control
 - ▶ Now used to control both double and single null divertor plasmas
 - ▶ 150ms flat-top at $\kappa = 1.9$ with $I_i = 1.2$ (record $I_i \times \kappa$)
- ◆ Collaborating with GA on modelling and improving vertical control
 - ▶ Developing XP to measure frequency response of sensors and vertical instability growth rates
- ◆ Testing new real-time data acquisition for feedback control of RF loading
- ◆ Work on CHI capacitor bank proceeding for use in May