

BRAHMS

Overview

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- Welcome- Major Goal of Meeting
- RHIC startup Schedule
- Installation progress
 - Detectors , DAQ and Infrastructure
 - Software
- Brahms startup and shift planning
- Future experiments at 2 o'clock
- Talks, Publication Policies.

Welcome and Goals

- Practical
 - Meeting rooms.
 - Guest Id's, Training.
- Address critical detector issues.
 - TPC- key detector element
 - Discuss (prioritize) remaining installation
 - prioritize startup, initial Physics goals

RHIC Startup Schedule

- Time schedule
 - Cool-down start Jan 31, complete by end February.
 - Power supply installation February
 - March 1-15.. PS test and injection start.
- Beam conditions, plan
 - Inject 6 bunches each ring. 5×10^{11} inject per bunch (I.e. low luminosity)
 - inject, RF capture, circulate
 - Accelerate, collide at high energy. 70AGeV/c. Set by safe DX quenches seen.
- Key Dates
 - 2/28 guaranteed access to IR until then. (with ODH)
 - 4/1 likely start for acceleration and trying for collisions
 - 5/1 Start of physics priorities

Installation progress

- **Detectors ready for installation on BFS**
 - DC (T3,T4,T5) assembled in IR. Checkout done on one module in lab. Some modifications needed to electronics. Planned for Feb 6-13.
 - H2 will be installed and checked out within next week
 - RICH. Vessel in IR. Mirror checkout has been done in lab. Following mirror installation put on platform. . PMT and electronics checkout in progress and close to completion.
- **Multiplicity**
 - Si-pre amplifier electronics fabricated and tested.
 - Patch Panels here, cabling underway
 - Si-detectors arriving from UK.

Installation Progress (II)

- TOFW
 - Electronics in place - cabling in.
 - PMT mounting have also started
 - PMT checkout and DAQ connection yet to be done.
- BB, H1
 - minor fixes; checkout repairs completed
- Tiles
 - Tiles; Additional HV added. Cosmic ray runs done. Gain adjustments.
- C1
 - ok
- ZDC
 - -some cable re-routing is needed

Installation Progress(III).

- Calibration Wire Chambers .
 - Electronics checkout in lab, mounted on platforms.
 - Stand modification design started.
- TPC Drift velocity Monitors
 - Assembled. Gas fittings done
 - Needs mounting, readout.
- Shielding installed along T1, T2 on FFS.
 - Heavy-met, Pb respectively.

Installation (IV)

- The TPC saga.
 - Before and during commissioning run it was realized that T1, MTPC2 have problems holding anode voltage ($\sim 1300\text{V}$)
 - new T1 readout plane (NBI) investigated.
 - Old T1 readout chamber was investigated, and numerous fixes tried, and applied. \implies Works stable at 1250V (for a while)
 - Weeks of cosmic data has been taken; analysis in progress.
- The main concern is to have an operating detector with a good safety margin on Voltage settings, and understand what to do in case problems develop during run
- Continuing discussion today.
- Gating grid pulsing to be finalized/tested

Installation Progress (V)

- HV issues.
 - Have lost communication with L1458 many times, as well as modules- most likely due to power spikes.
 - LeCroy is putting some effort into modifying firmware, so at minimum some diagnostics is available
 - L4032 problems investigated; being re-solved (KO)
- L1458 Supports several crucial detectors
 - TPC's all voltages.
 - Mult-si detectors
 - DC
- Consider having a backup plan.
 - External HV for some crucial channels (anode, drift).
 - Move others to 1440, 4032 MF.

Installation Progress (VI)

- DAQ
 - Worked well with FB, camac during commissioning run
 - TPC readout added since. Remaining Camac in progress.
 - Some current problems, due to VxWorks update
 - Trigger integration done. Run info integration discussed and in progress.
- Trigger
 - Level0 setup ok during commissioning run
 - Layout re-organized
 - LV1 system to be added (?) as commissioning proceeds.

Infrastructure

- AC-Power to BFS Completed
- D3,D4 Magnet hookup (water, power) done and tested.
- Supporting platform for DC in construction
- DC gas system installation
- H2, RICH installation
- Safety reviews for detectors
- Survey for all detectors. Need to identify markers!!
- Signal cabling pulling (RICH) (partly done only)
- Platform positioning system

Software

- Good workshop in early December but still much work remains.
- Some of the major points are
 - Monitoring, online software
 - Database issues
 - Calibration code, (generation and application)
 - Analysis Code, in contract to reconstruction code
 - Data flow and information sharing

Brahms Startup

- Detector Operation and preparations.
 - RHIC operational aspects (training,...)
 - Brahms preparations
- Detecting Collisions
- Bringing Detectors Online

Detector Operation and preparations. (I)

- The status of the detector particular readiness for close-up of the IR,
 - what checkout procedures has been performed,
 - surveys done , to be done (if not your own measurements of initial geometry),
 - items that has not yet been done, your plans for completing this
 - resources needed.
- HV requirements and settings : Update , prepare a list of nominal operating values for channels, demand (set) values, current and trip limits.
- Document the operating procedures for the detector to be included in an operations book.
 - Turning on/off the detector
 - Operating parameters (HV, signal size, rates, gas flows)
 - Monitoring displays, panels. This last items will clearly have to be developed.
 - Checks that should be done during operations

Detector Operation and preparations. (II)

- Need to checkout as much as possible before close-up and beam-start so problems can be corrected.
- Operate detectors for extended periods.
 - HV on, Gas flow
 - Record data (when possible -cosmic, background , noise, pulser)
 - Get Monitoring Software running.
 - Checkout consistency of channels ...
 - Find and fix problems
- Magnet, and platform control and operation.

Detecting Collisions

- Expected Startup conditions
- RHIC luminosity workgroup
 - Review in early January
 - Establishing control signals (Scalers..) to identify signal/background
- Brahms working group
 - Review rates, evaluate triggers, possible coincidence

Bringing systems Online

- Once RHIC starts injecting and circulating beam; detectors, trigger, and DAQ commissioning should start.
- Establish work plan, shifts, priorities.
 - Plan on manning 3 shifts/day from April 1 - End July.
 - Commitments from all collaborating institutions
- The RHIC acceleration schedule is of course very uncertain, so this imposes a high degree of flexibility on our part, detailed planning is unlikely to hold.
- Establish Monthly planning-day(s) in addition to weekly local meetings
 - Collaboration wide (
 - Progress reports
 - Overall planing for next months activities.
 - Phone/Video conference

Thoughts on commissioning

- Get as rapidly as possible to a state where (first) data can be taken with subset of detectors, while commissioning others.e.g. global detectors, MTPC1,- alternate with BFS detectors.
 - ZDC, BB, Trigger, DAQ needed to establish collisions.
 - Preliminary timing can be done for system once injection and circulating beam get reasonable stable. (present for minutes at reasonable intervals.).
- Crucial that several people can operate - ie turn on, monitor, have access to information on detector specifics (e.g. timing req. for ADC,TDC signals). This should be part of what is documented.
- Propose mini-meeting/dry runs for zdc, bb, tiles, trigger, and DAQ (using pulser or cosmics) during February.
- Same for TPC, DC, Hodoscopes when ready
- Monitoring software as well as control software (HV,.. is needed).
- Assign a lead person (detector commissioner) for periods 2-3 wks
 - Responsible for planning of detector activities
 - The formal contact to CAD operations is (DB, FV)

Collaboration Issues

- Shift manning
 - training, shift leaders
 - commitment from all groups
- Startup meetings (Monthly, schedule now!)
- Representation at meetings.
- Publications
- Detector Upgrades, Future experiments, runs.

Talks

- Selection for talks
 - Personal invitations
 - Experiment invitation (to spokesperson.)
 - coordinate with institutions.
 - have standing, suggested list of candidates for talks.
 - Aim to distributed equitably in regards to
 - scope of invitations. (overview, young people, physics, detector..)
 - expertise, contributions to analysis
 - institutional, personal visibility needs

Publication policy

- Talks
 - local, seminars
 - conferences
- Conference proceedings.
- Refereed Journals;
 - Draft; reading/writing committee.
 - submission
- Thesis work.
- DOE & BNL requirements.
- Memos, Notes, Depository for presentations.

Future Plans

- Pp and pA running
 - Need upgrade to detector
 - Tof start
 - trigger, in-elasticity detector (shared with pp2pp?)
 - pp polarization exp - additional collaborators
- FY2001 running.
 - Another RBUP will have to be made before the startup (Fall?)

Other 2 o'clock activities

- Pp2pp (Guryn)
 - Needs some FEH,CH space otherwise independent (in-elasticity detector)
 - Little or no interference with our detector setup
 - Have positive interaction with pp2pp group.
- Axion search (Melissinos)
 - Have had one discussion with group.
 - They will submit proposal to March PAC.
 - Does not seem interested in collaboration with us.
 - Potential interference with exp (background, power, space FEH...)
- Inclusive Photon measurements
 - BaF crystal spectrometer measurements (Woody-Amlan, TAPS?)
 - Little progress during last year. May likely happen sometime