

Week 33 (August 11 – 18), 2006 in COMPASS

Week coordinator report

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- 1 General overview
- 2 Beam
- 3 Detector and systems status at the end of the week
- 4 To be done

1 General overview

2 Beam

3 Detector and systems status at the end of the week

4 To be done

- Only 2-3 hrs without beam; 9 hrs lost due to Q14 fault...
- Target polarisation build-up @ 2.5 T.
On 15.VIII. 2.5 T \longrightarrow 1 T, frozen mode
- Tue., 15.VIII.: beam tuning \longrightarrow 2004 running conditions
- Wed., 16.VIII.: veto on first 200 ms of the spill cured most of the DAQ problems \longrightarrow stable running conditions since then.
- Thu., 17.VIII.: 40 GeV electron beam set up (with troubles) for ECAL2 calibrations.

Outline

1 General overview

2 Beam

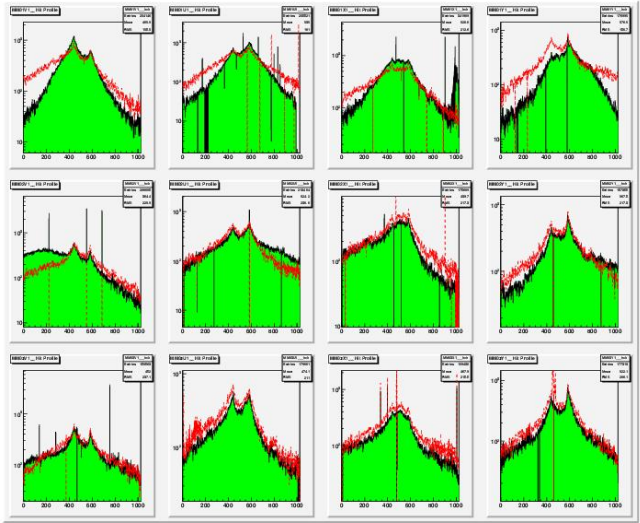
3 Detector and systems status at the end of the week

4 To be done

- At the beginning of the week beam was slightly shifted towards Jura; corrected by about 3 mm through changing B7 (-14 A → -89 A) and B9 (+17 → +95A) on Fri. 11.VIII.
- T6, 500 mm target on Sat. 12.VIII. but detectors were revolting → back to 100 mm target. Several exchanges 100 mm ↔ 500 mm until Wed. 16.VIII.
- Sat. 12.VIII.: beam studies with ION2, SciFi1, SciFi2, IV, OV showed that ION2 readings might be wrong by factor of 2 → confirmed on Mon.14.VIII.
- Sun., 13.VIII.: do we run @ different beam conditions than in 2004 (MWPC, Straws,...)??? Trigger ratios 2006/2004 quite dramatic ($\gtrsim 2$).
- Tue., 15.VIII.: beam tuned ($SC_2 - SC_6$; $\approx 20\%$ loss in intensity, halo trigger 2.8 times smaller)
- Wed., 16.VIII.: veto on first 200 ms of the spill → cf. next pages.

Beam...cont'd

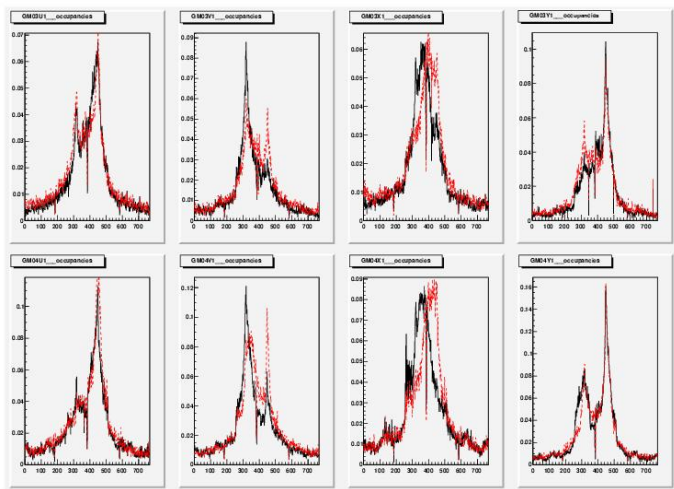
Run 49 917 (HI, after beam tuning)



(From A.M., 16.VIII.)

Beam...cont'd

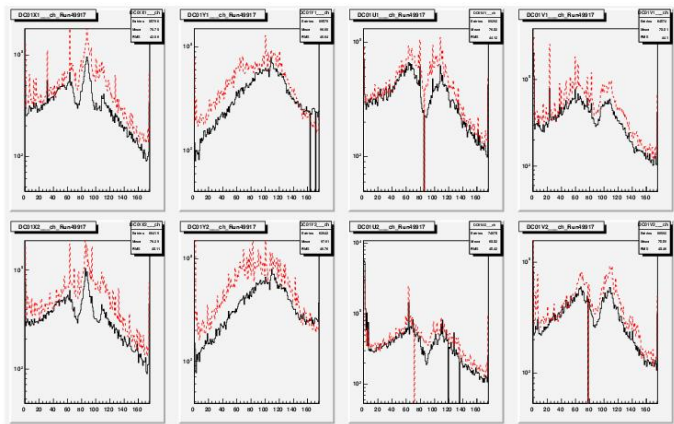
Run 49 917 (HI, after beam tuning)



(From A.M., 16.VIII.)

Beam...cont'd

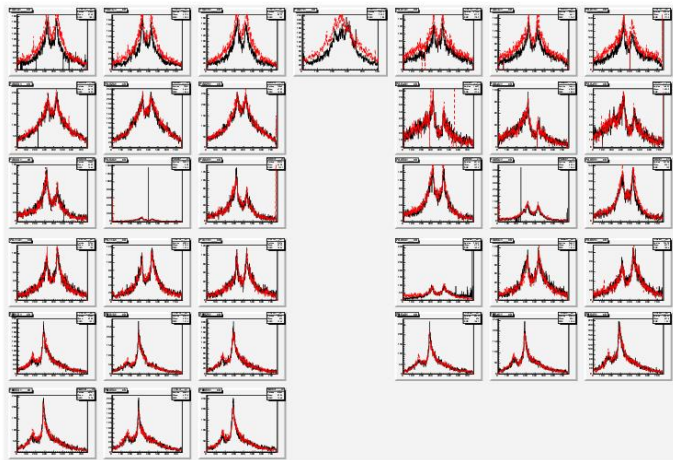
Run 49 917 (HI, after beam tuning)



(From A.M., 16.VIII.)

Beam...cont'd

Run 49 917 (HI, after beam tuning)



(From A.M., 16.VIII.)

B. Badelek (Warsaw)

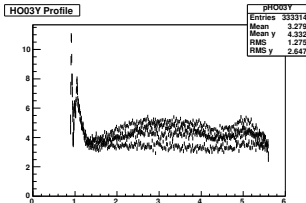
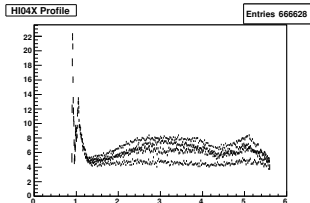
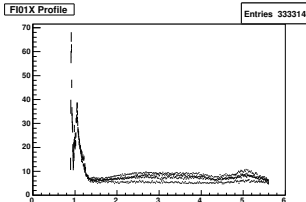
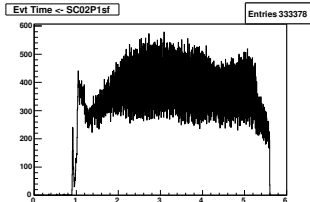
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CERN, 18.VIII. 2006

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Beam...cont'd

Run 49 812 (HI, before beam tuning and 200 ms cut)

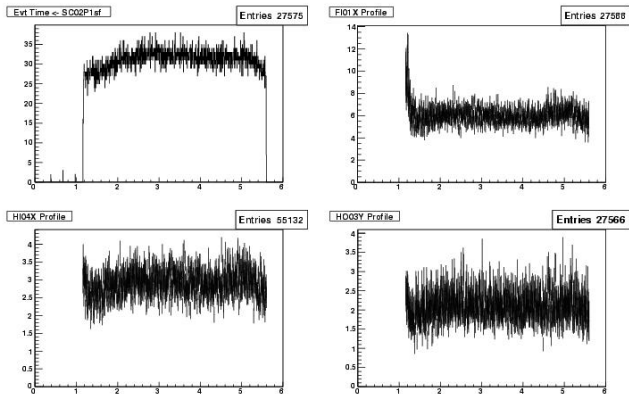


(From Y.B., 16.VIII.)

Beam...cont'd

Run 49 966 (HI, after beam tuning and 200 ms cut)

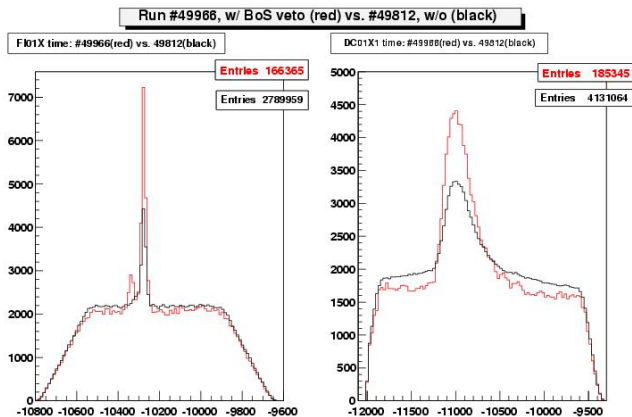
Run #49966, i.e. after BoS veto was installed



(From Y.B., 16.VIII.)

Beam...cont'd

Run 49 966 (HI, after beam tuning and 200 ms cut)



(From Y.B., 16.VIII.)

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● TARGET

- Presently: OK;
- after achieving (+53.5, -50.0, +54.9)% of polarisation @ 2.5 T and two magnetic field reversals → running @ 1 T, frozen mode (midnight, 15.VIII.) ;
- three magnetic field reversals @ 1 T; on Thu 17.VIII. commissioning of a new bit of a code protecting against spurious readings of the dipole current.

● DAQ

- Towards stable! Very smooth after cutting off 200 ms of the spill.
- Few small problems to clear; then → [filters](#)
- Rate now: 55 ktriggers/spill, event size: 36 kBytes, 19% dead time (2004: 60 ktriggers/spill)
- [run check_daq during the shift.](#)

● Trigger

Ratios 2006/2004 are (17.VIII., from A.M.):

Inner Trigger	1.02	
Middle Trigger	1.04	
Ladder Trigger	1.14	needs tuning
Outer Trigger	1.42	studies ongoing
Calo Trigger	0.91	remember: ECAL1 in 2006!
Inner Veto	0.97	
VO1 + H4O	1.39	???
Beam Trigger	8.6	scalars ???
Inclusive MT	0.83	???

● Other

- BMS, Si, W45, GEM, μ W 1/2, MWPC, HCAL1, HCAL2 OK
- SciFi 32 channels to repair, noise in 5X
- DC all operational on high flux, a card to be exchanged on DC04, calibration ongoing
- MM operational @ 1 T
- Straws ST03: card missing, trips of ST12
- RICH a serious problem with air being sucked in;
Csl nearly blind to photons!
Reason found; solution within \approx 10 days
- ECAL1 to be put into the trigger; certain channels not working
- ECAL2 calibration with 40 GeV e^- started yesterday
- Rich Wall readout problems, 3–5%
- DCS several bugs fixed: "trend" plots,
parameter CAEN HV "Trip time" of crates SY527,
restart of the control for GEM 11 HV in the DCS.

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To be done (not necessarily in the order of priority)

- Put ECAL1 into the trigger
- Set final thresholds in the ECAL1
- Finish calibration of ECAL2
- Finish Outer Trigger studies
- Survey DC04, DC00
- Recover up to 20% of the beam lost in the tuning
- Improve monitoring
 - Beam monitoring irritating: ill-responding system, beam elements down without alarm,...
 - BOOKY has a ref. file from 2004 (run 40 784)
 - e-logbook lacks info on the beam line, ...
 - empty histos in COOL
 - link general comments to runs
 - ...