

Report of the weekly coordinator: W07/W08

July 20th - 27th

Markéta Pešková

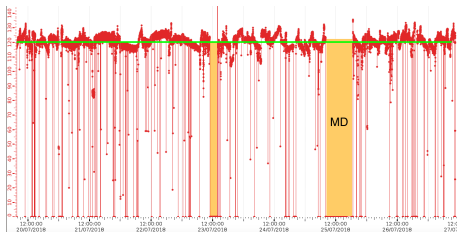
Charles University

July 27, 2018



Beam conditions

- All the week we had mainly stable beam with the intensity on T6 holding on around 120×10^{11}
- Exceptionally efficient weekend till Sunday 22th, 20:46
- No beam for just few short periods not exceeding 1 hour (except Monday 11:00 - 14:00)
- Now we have no beam for 30 min - intervention on beam loss monitors
- During the working days LHC MD - often switches long SC with 1 spill



Collected spills

Good spills delivered from SPS and recorded at COMPASS for every day:

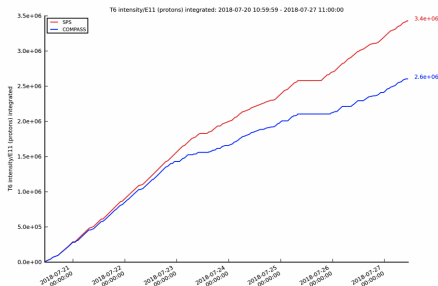
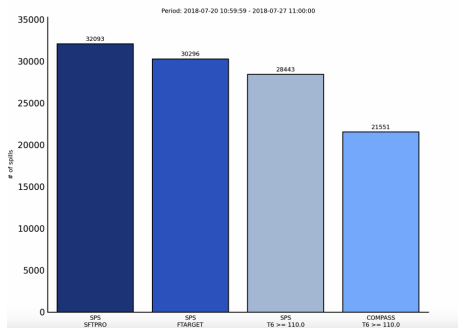
Delivered	5535	5205	2721	2938	1977	1952	2502
Recorded	5497	5183	1332	1938	793	1311	1650

- Good spills over the whole week:
 - Delivered: **22829**
 - Recorded: **17825**
 - COMPASS efficiency: **78%**

Collected spills

On the left figure:

- What SPS tries to give us
- What SPS actually delivers
- SPS good spills with intensity higher then 110×10^{11}
- Collected spills at COMPASS (all runs) \rightarrow efficiency $3^{\text{rd}}/4^{\text{th}} = \mathbf{76\%}$



Target

- Sunday at 20:46 target dipole went off on its own, no indication from the MSS → loss of polarisation
- 00:21 After the diagnosis from the first line piquet and Yves Thurrel → one of the power convertors for dipole is broken (hypothesis: overheating?)
- Wednesday 00:10 Dipole slow discharge, the polarisation LOST again
- This time there were alarms in MSS
- Both of the power convertors were OFF, the power switch with an internal alarm ("internal overtemperature")



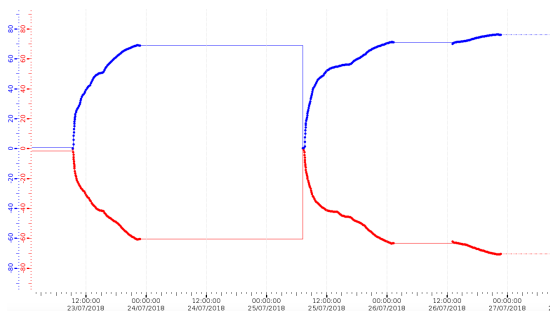
Target

- The temperature of the power convertor was high
- Benoit found that during full current, both the PC and PS are very warm – the cooling system given the hall temperature, overheated? (even though we have bigger rack than in 2015)
- Removed back door, side plate. [Better air flow or A/C needed](#)

Polarisation

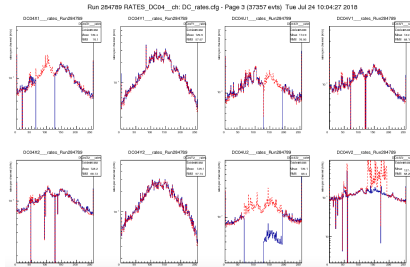
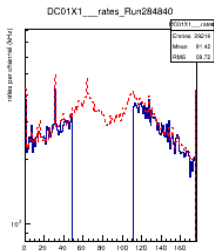
- Lost polarisation twice (Sunday 20:46 and Wednesday 00:10)
- Reached polarisation after both of repolarising procedures:

UP	-63.2%	-70.5%
DOWN	+71.2%	+76.2%



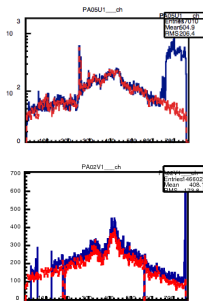
Detector problems

- STRAWs: Thu 4:20 connection to all HV modules lost, intervention was needed
 - **Access:** after investigation Karolina and Vincent found out the crate is the problem and exchanged it for the spare one from ST05, **now OK**
- DC01: SrcID 256, Fri 1:30, 100% LOADING, powercycling neither rebooting pccofe08 didn't help, port 1 excluded
- DC04: SrcID 259 port 1, 10, SrcID 260 port 10 faulty, ports excluded



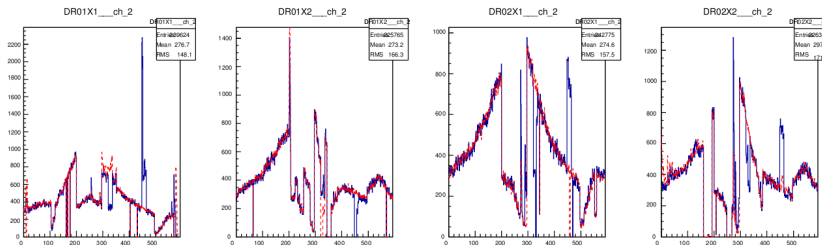
Detector problems

- ECAL1 (SrcID 627, 628, 629) errors, Vladimir Kolosov tried to solve them for the whole week, but after the yesterday's access the LV crate couldn't stay switched on for longer than 30 min, the fans tray will have to be exchanged
- MWPC: Problems with ports 6 and 7 (PA05U1) on SrcID 454, **now OK**, now only part of the plane PA02V1 is missing
- Thu 11:25 PA02V1 part of the port missing!
- often PMMs errors (SrcID 380, 381, 382), LOAD or power-cycle LV, or rebooting the pccofe15 solves it



Detector problems

- RichWall: faulty port 0, now OK, now some noise appeared



Thanks to all the shifters and experts, and Vincent!
Good luck to Gerd!

SPARES

Report of the weekly coordinator: W07

Friday 11:00 - Monday 16:00

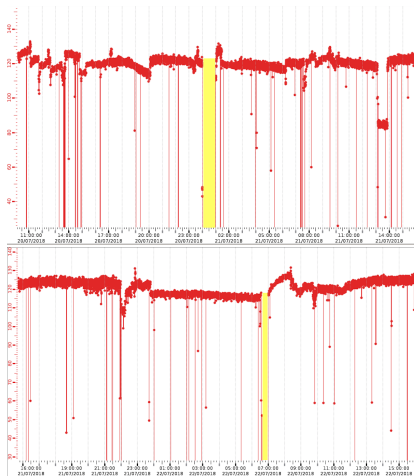
Markéta Pešková

Charles University

23.7.2018

Beam conditions

- Stable data-taking till Sunday 22th, 20:46
- Intensity on T6 holding around 120×10^{11}
- No beam for short periods in the night, and Monday 11:00 – 14:00

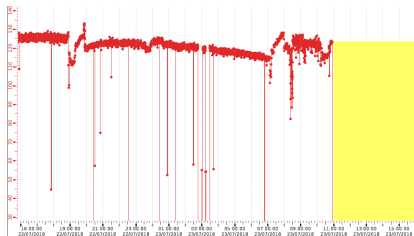


Beam conditions

- Stable data-taking till Sunday 22th, 20:46
- Intensity on T6 holding around 120×10^{11}
- Good spills since Friday 20th, 11:00 till Sunday 22th, 20:46:

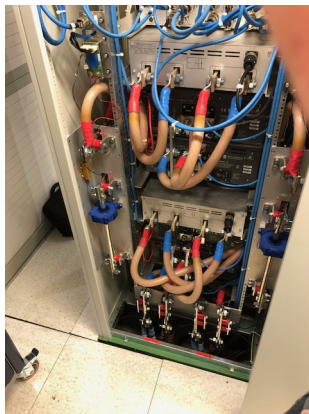
■ 11716

- 1:15 – 6:52 trigger efficiency test
- 6:52 – 9:42 alignment with muon beam with magnets off, then with solenoid on



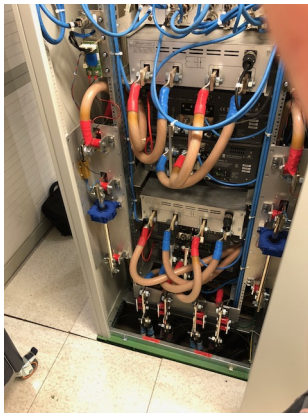
Target

- 20:46 target dipole went off on its own, no indication from the MSS → loss of polarisation
- Power convertor experts called (Edwin Rohrich, Yves Thurel) → investigation from remote
- After resetting and test of field rotation (solenoid to dipole) when dipole current reached 350A it went off again



Target

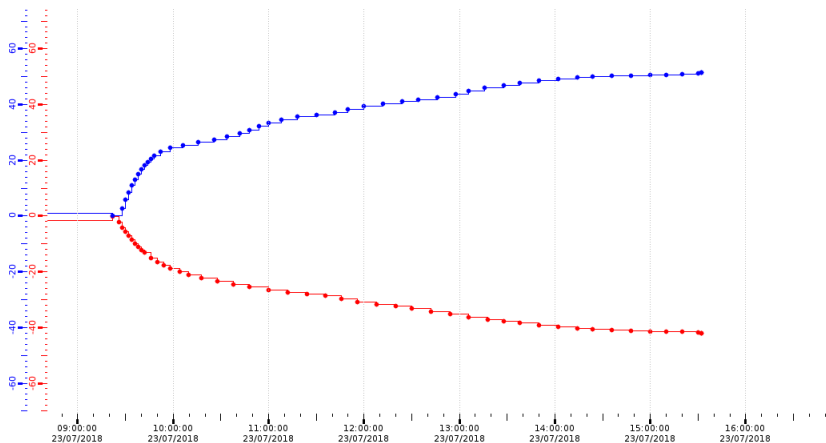
- 00:21 Finally the diagnosis from the first line piquet and Yves showed that one of the power convertors for dipole is broken (cause being investigated)
- Spare was in the swiss side (actually not true) and expert for exchange available since the morning
- 8:00-9:42 Intervention on the power convertor exchange
- Since then we started repolarisation



Polarisation

Polarisation level:

- UP -43
- DOWN 52



Magnets

- Sunday 13:00: bend 9 tripped
- Saturday 13:00, 23:54: SM1 network switch stuck, loss of communication with several detectors (HV switched off) and SM2
- SM2 NMR teslameter test, still not working

Detector problems

- Persistent problems with PMMs (loading or LV powercycle solved it)
- DC00 errors, solved by loading
- DC04 port 1 problem since today 5:00, access this morning, not yet solved (?)
- power switch for Inxpool25 now works
- ECAL1 problems (solved), RICH problems
- CEDAR read out errors

Report of the weekly coordinator: W07

Monday 16:00 - Tuesday 16:00

Markéta Pešková

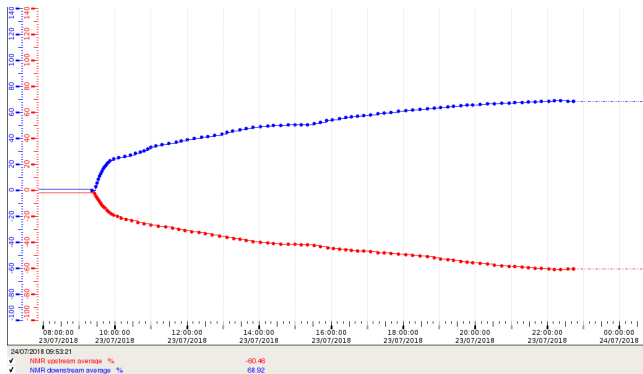
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24.7.2018

Polarisation

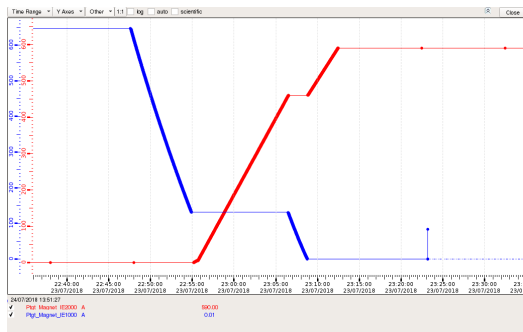
- We polarised till 22:30
- Reached polarisation:

UP	-60.5
DOWN	+68.9



Target

- 22:48 Ramped down the solenoid and switched to the dipole mode
- When the sudden drop of current happens again, the target experts will get a text message



Beam conditions

- In the afternoon - alignment with μ^- with the solenoid and SM1, SM2 ON till 16:30
- Till 22:15 trigger efficiency test with π^- beam
- 23:48 we started to take Drell-Yan data
- Intensity on T6 around 120×10^{11}
- Mainly 1 spill per SC
- Good spills since Monday, 23:48, till now:

■ 1932



Magnets

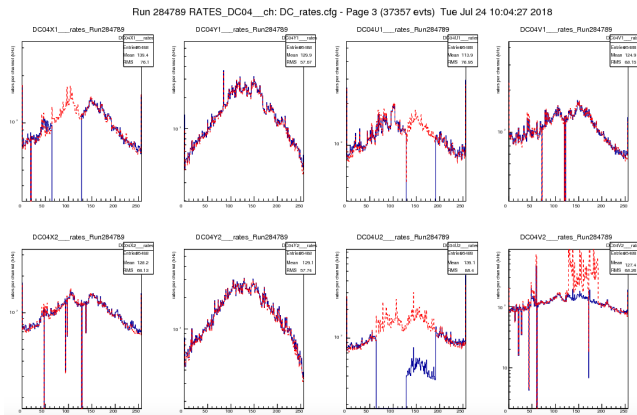
- 14:54 SM1 tripped → water cooling issue in the North Area, SM2 switched off, danger of additional magnets tripping with CT fault
- We go for alignment data with the dipole (for having all the combinations)

Veto dead time measurement

- LAS and LASLAS Veto dead time measurement performed by Moritz this morning
 - Mean LAS dead time: 25%
 - Mean LASLAS dead time: 26%
- Script for the measurement is available, DAQ has to be in the configured state for using (details in the Logbook)

Detector problems

- DC04 problems: SrcID 259 port 1, 10 (now excluded); SrcID 260 port 9 and 10 (port 9 repaired during the intervention yesterday around 23:00)



Detector problems

- 19:00 RichWall showed error on port 0, now gone (?)
- HCAL1: no LED monitoring readout, repaired by Vladimir Frolov
- CEDAR news: 2 faulty PMTs, no signal, investigation during tomorrow's MD OR whenever no beam

Report of the weekly coordinator: W07

Tuesday 16:00 - Wednesday 16:00

Markéta Pešková

Charles University

25.7.2018

Beam conditions

- After the SM1 trip, the investigation was ongoing, while we took additional alignment data with dipole on till 18:21
- SM1 → faulty circuit breaker, exchanged, magnets switched ON
- Alignment run (284795, 19 spills) with dipole, SM1, SM2 on
- **18:55** we started to take Drell-Yan data
- Intensity on T6 around 120×10^{11}
- No beam from 19:36 to 20:31 due to cooling problems on SPS
- Good spills since Monday, 23:48, till now:

■ **789**



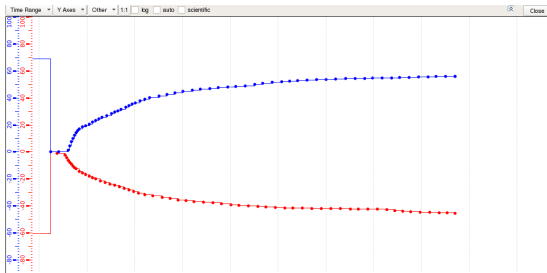
Target

- 00:10 **Dipole slow discharge, the polarisation LOST again**
- This time there were alarms in MSS
- Both of the power convertors were OFF, the power switch with an internal alarm ("internal overtemperature")
- Benoit Favre called, reseted MSS remotely, *except* the power switch (did not accept the cmd)
- Vincent and Nori removed the fuse and powercycled the module and it came back to nominal conditions, ramped up the dipole
- Investigation of the problem:
 - Difference between the input and output of the power switch, found the same values as before the exchange of the power convertor
 - The temperature of the power convertor was high
 - Benoit found that during full current, both the PC and PS are very warm – the cooling system given the hall temperature, overheated? (even though we have bigger rack than in 2015)
 - Removed back door, side plate. [Investigation ongoing](#)

Polarisation

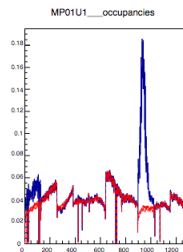
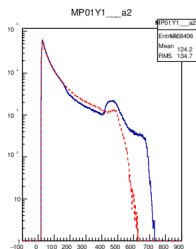
- During the investigation of the dipole discharge, additional LAS and LASLAS Veto dead time measurement with different intensities performed by Vincent at 5:15 - 6:45, and trigger efficiency tests
- We started repolarisation at around 6:50
- Reached polarisation at this moment:

UP	- 45.4
DOWN	+ 56.2



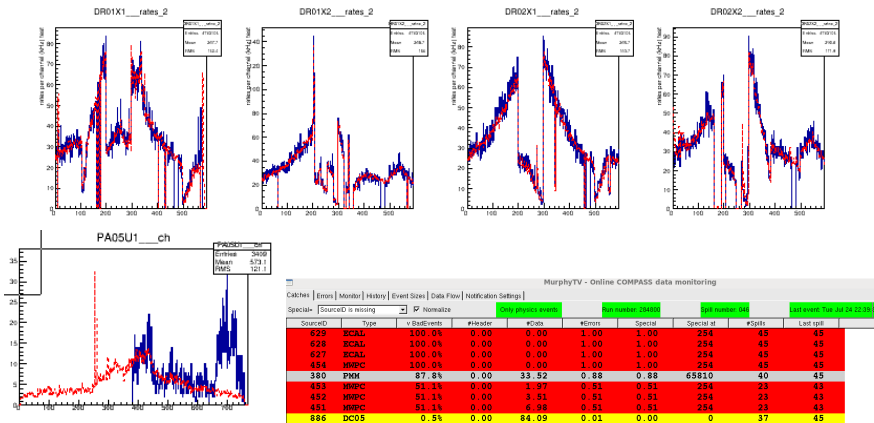
Detector problems

- DC04: SrcID 259 port 1, 10, SrcID 260 port 10 still faulty, ports excluded, can't be reached during no touch MD
- PMM: MP01U1 high noise, MP01Y1 and MP02V1 weird amplitudes
- MWPC: PA05U1 another port missing, then caused the MTV errors on the whole CATCH (port 7 excluded)
- RichWall port 0 error again (intervention ongoing)
- ECAL1 (SrcID 627, 628, 629) errors, intervention ongoing



Detector problems

- MWPC: PA05U1 another port missing, then caused the MTV errors on the whole CATCH, now port 7 excluded
- RichWall port 0 error again (intervention ongoing)



MD activity

- no touch MD for 8:00 to 18:00, key access
- 9:20 guy from Dalkia asked for access to PPE211 to check something, though he made free access
- 10:10 free access for PPE231 for SMB department to access blg. 883
- free access for PPE221 - SUSI experts apparently
- RichWall intervention ongoing
- CEDAR intervention now
- ECAL1 - exchange the power supply for VME crate

Report of the weekly coordinator: W08

Wednesday 16:00 - Thursday 16:00

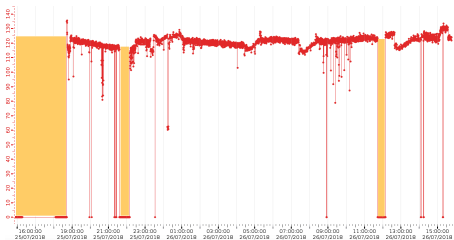
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Charles University

26.7.2018

Beam conditions

- After 18:30 we got the beam back
- We had a long SC, 1 spill, used the time for polarising (next slide), in the mean while we were measuring trigger efficiency
- We started the new week **18W08** (run 284810)
- In the evening: SPS controls problems on NA power convertors, polarity switches don't work, intervention took place for several hours
- 1:00 filling of LHC ended, we stopped polarising



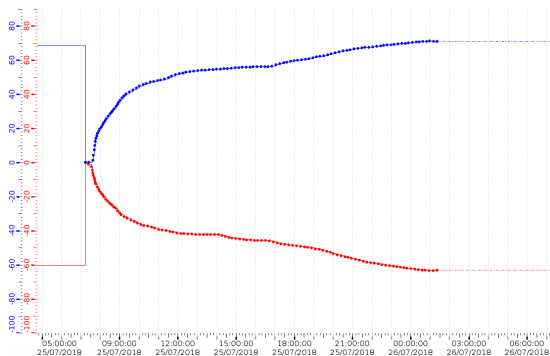
Beam conditions

- **2:00** we started to take Drell-Yan data
- Intensity on T6 around 120×10^{11}
- 4:07 Several errors on beam line magnets (quads, scraper, and trim) for about 5 min → current was changing sign for a few seconds (bad monitoring?)
- 4:20 - 8:30 access for STRAWs, exchange of the crate (more details will follow)
- No beam from 11:45 to 12:09 due to PS problems
- Good spills since the night, 1:59, till now:
 - **1286**

Polarisation

- Polarisation was continuing till **1:20**
- Reached polarisation at 1:20:

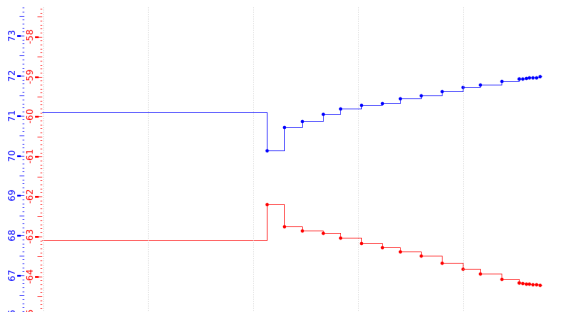
UP	- 63.2
DOWN	+ 71.2



Polarisation

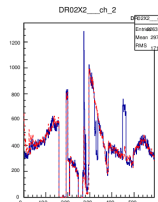
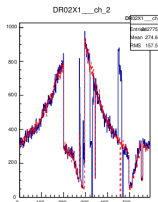
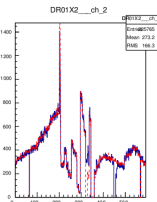
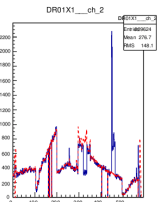
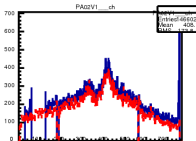
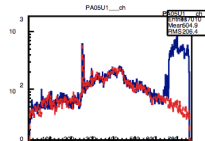
- At 12:09 after losing the beam (short after the long SC and LHC MD followed), we decided to switch to the solenoid mode and **top up the polarisation**
- Reached polarisation till now:

UP	- 64.3
DOWN	+ 72



Detector problems

- MWPC: During the MD Maxim exchanged (?) two cards (ports 6 and 7 on SrcID 454) and now they are working
- 11:25 PA02V1 part of the port missing!
- RichWall: Intervention on MD: Maxim tested a spare card for RW, also fixed the faulty port 0
- 2:40 But the error on port 0 reappeared, some missing channels, some high noise



Detector problems

- STRAWs: 4:20 connection to all HV modules lost, intervention was needed
 - **Access:** after investigation Karolina and Vincent found out the crate is the problem and exchanged it for the spare one from ST05, now OK
- ECAL1 (SrcID 627, 628, 629) errors fixed yesterday by changing the power supply for MSADC, but before midnight all of the errors reappeared, intervention since noon to 14:00
- MW1 SrcID 480 100% in MTV
- During yesterday's MD the GEM11 was returned to DCS and tests of GEM-ADCs were performed, haven't turned out as expected, switch back to normal configuration

