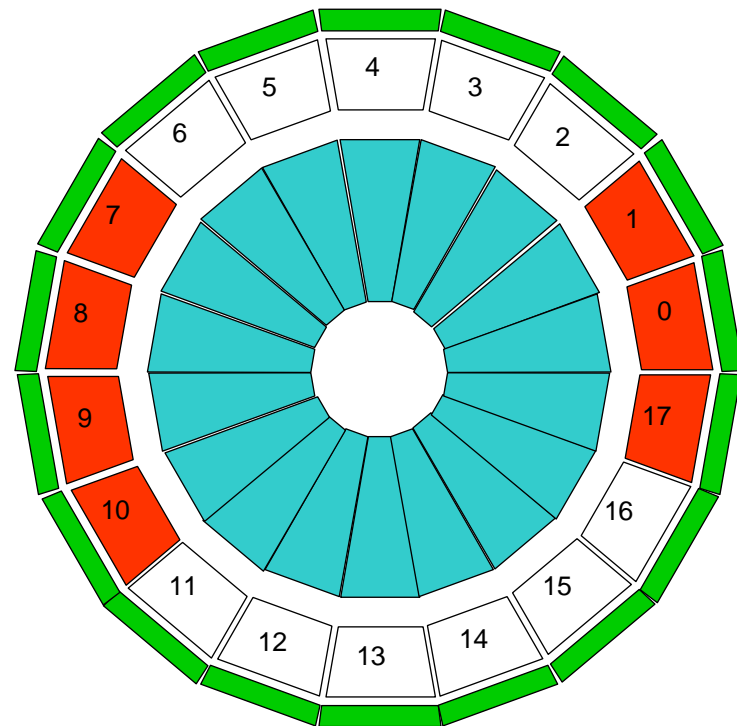


TRD: offline analysis of cosmics 2009

Yvonne

- 🌐 monitoring detector performance
- 🌐 online calibration
- 🌐 reconstruction

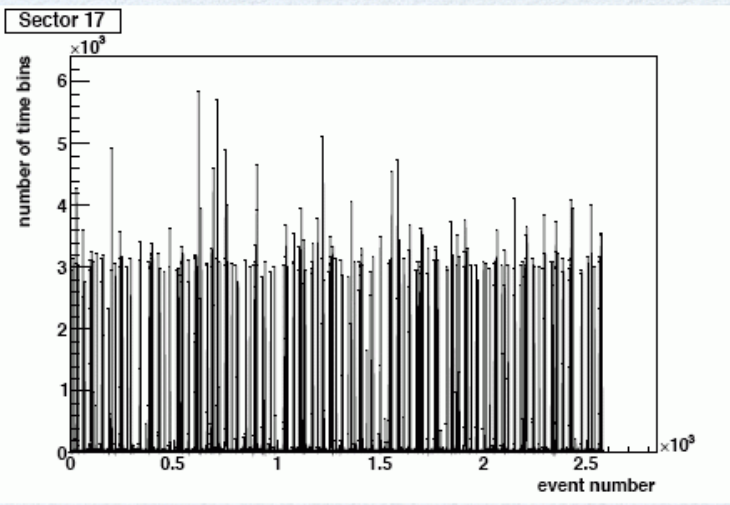
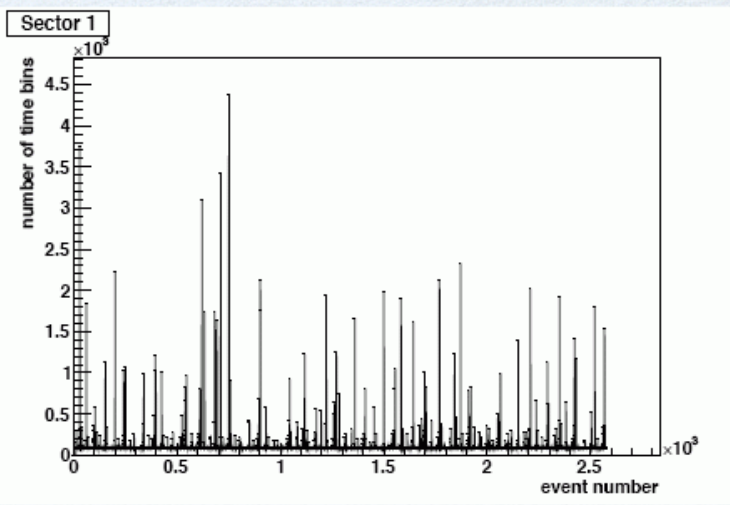
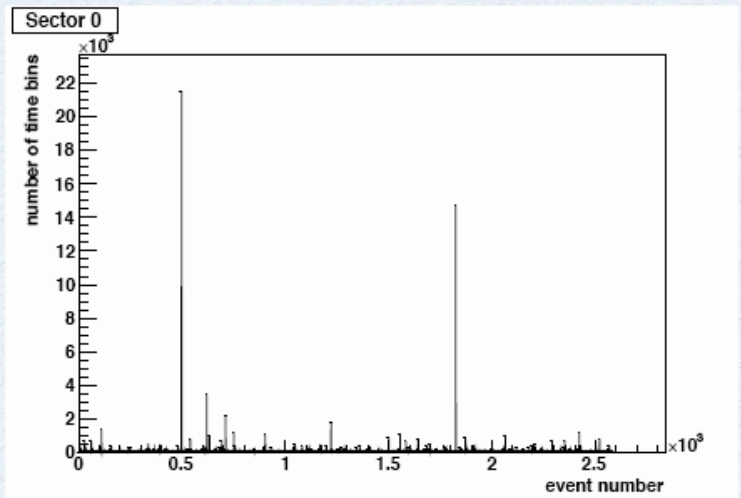


**monitoring
detector
performance**

detector performance: events with noise

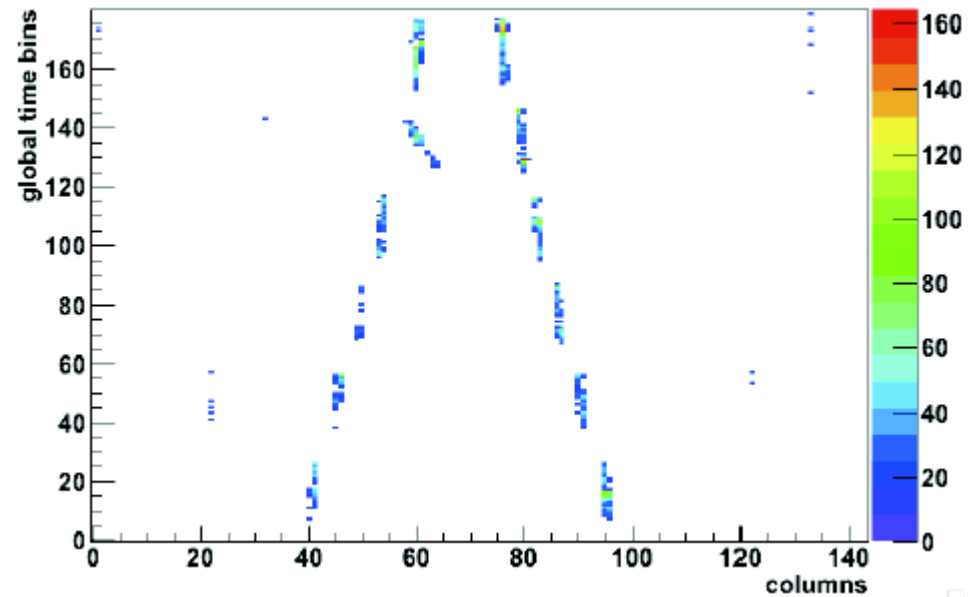
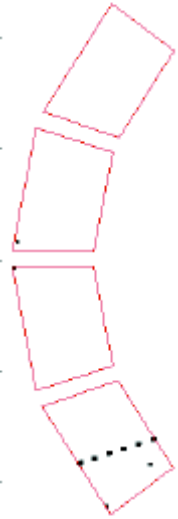
Sylwester Radomski

noise in sectors



simple raw data event display (in preparation)

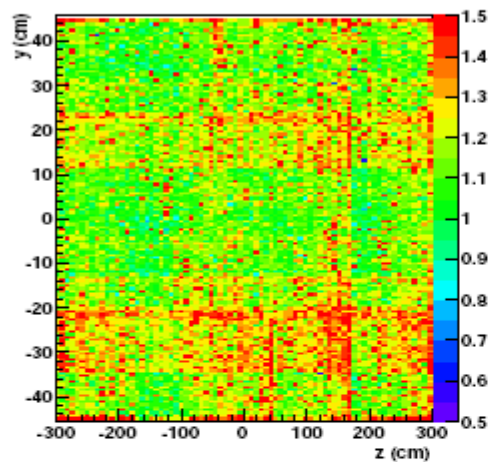
Sylwester Radomski



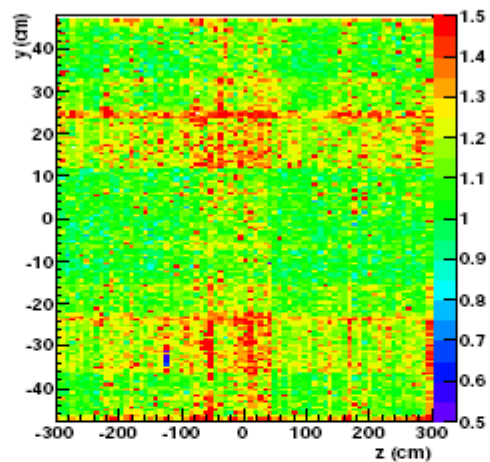
online calibration

Supermodule 0: noise

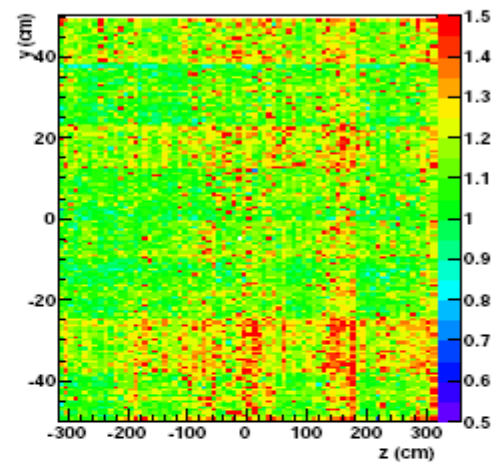
testnoise Pad 2D sm 0 pl 0



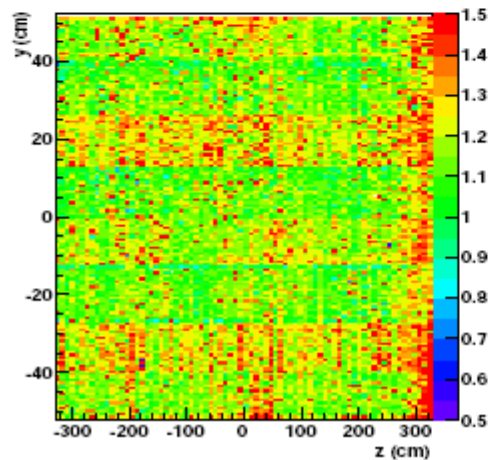
testnoise Pad 2D sm 0 pl 1



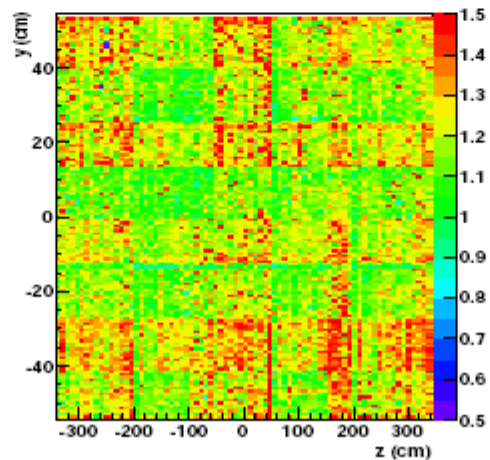
testnoise Pad 2D sm 0 pl 2



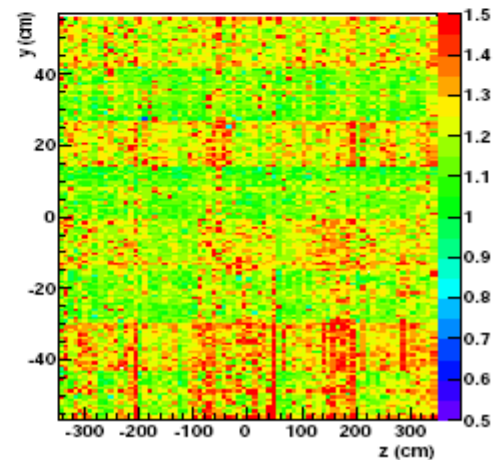
testnoise Pad 2D sm 0 pl 3



testnoise Pad 2D sm 0 pl 4

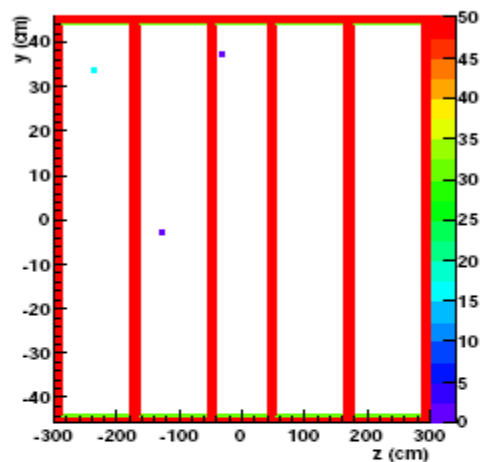


testnoise Pad 2D sm 0 pl 5

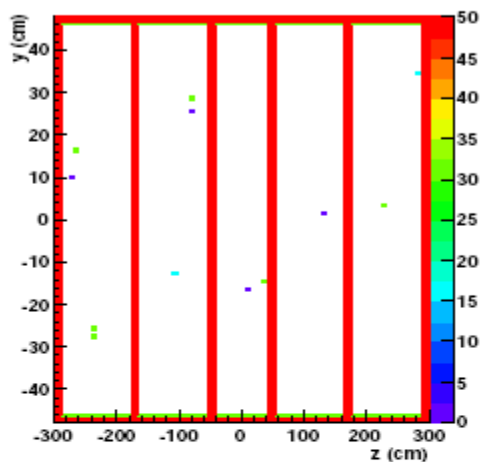


Supermodule 0: pad status

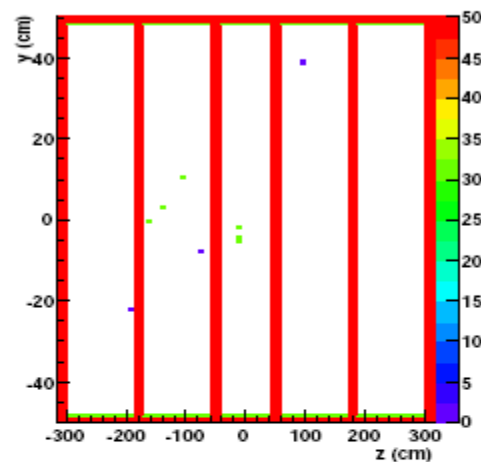
padstatus Pad 2D sm 0 pl 0



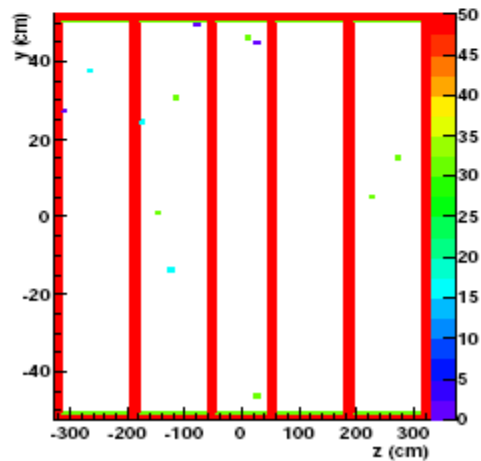
padstatus Pad 2D sm 0 pl 1



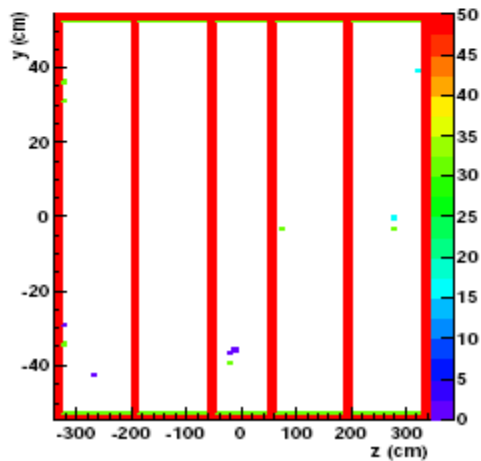
padstatus Pad 2D sm 0 pl 2



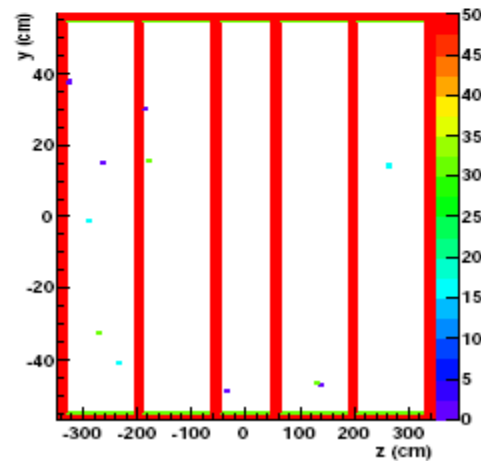
padstatus Pad 2D sm 0 pl 3



padstatus Pad 2D sm 0 pl 4



padstatus Pad 2D sm 0 pl 5

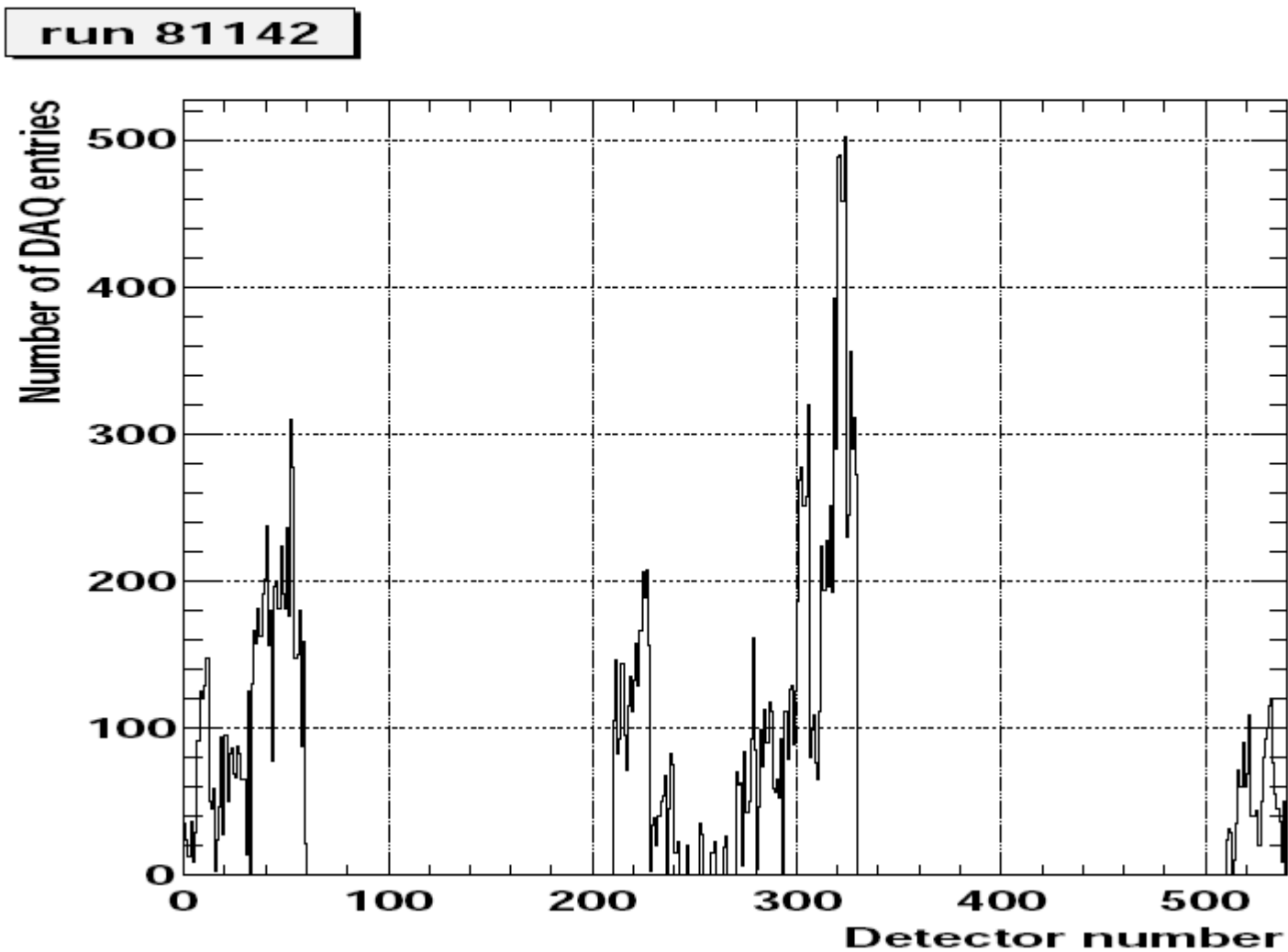


First drift velocity and timeoffset online calibration

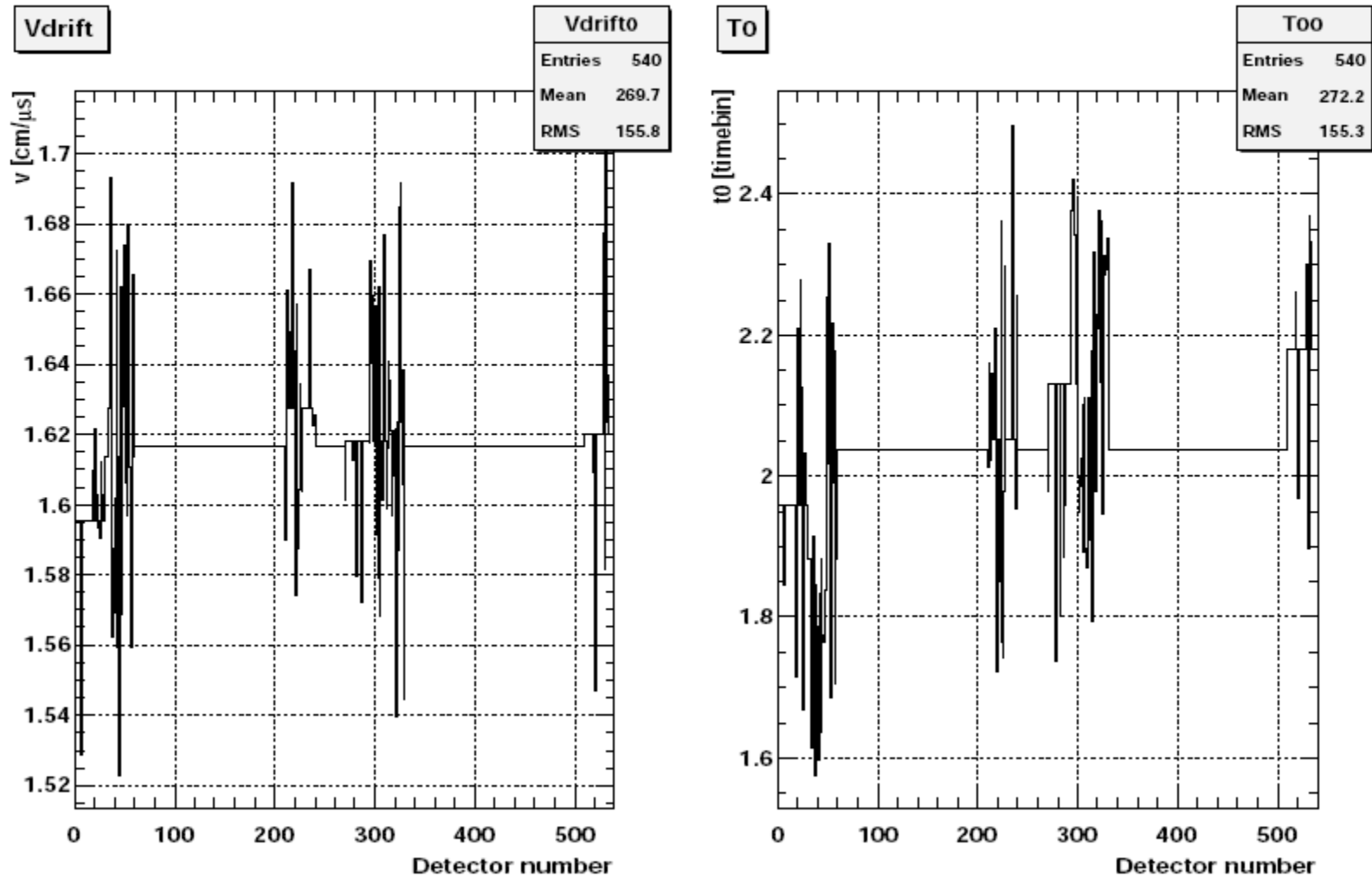
3 runs produced new sets of coefficients in the OCDB:
automatic procedures on DAQ and fit on the Shuttle

| run | duration | Nb of events | trigger |
|-------|-----------|--------------|----------------------|
| 80647 | 11h58m41s | 3 235 719 | 2 clusters (one TRD) |
| 80896 | 7h59m33s | 2 164 388 | 2 clusters (one TRD) |
| 81043 | 7h57m34s | 4 291 439 | 3 clusters (one TRD) |
| 81125 | 4h35m5s | 2 557 605 | 3 clusters (one TRD) |
| 81142 | 3h14m59s | 1 763 849 | 3 clusters (one TRD) |

Run 81142: number of DAQ tracklets



Run 81142: calibration constants in the OCDB



reconstruction

central reconstruction

- 🚫 done with aliroot v4-17-Rev-05

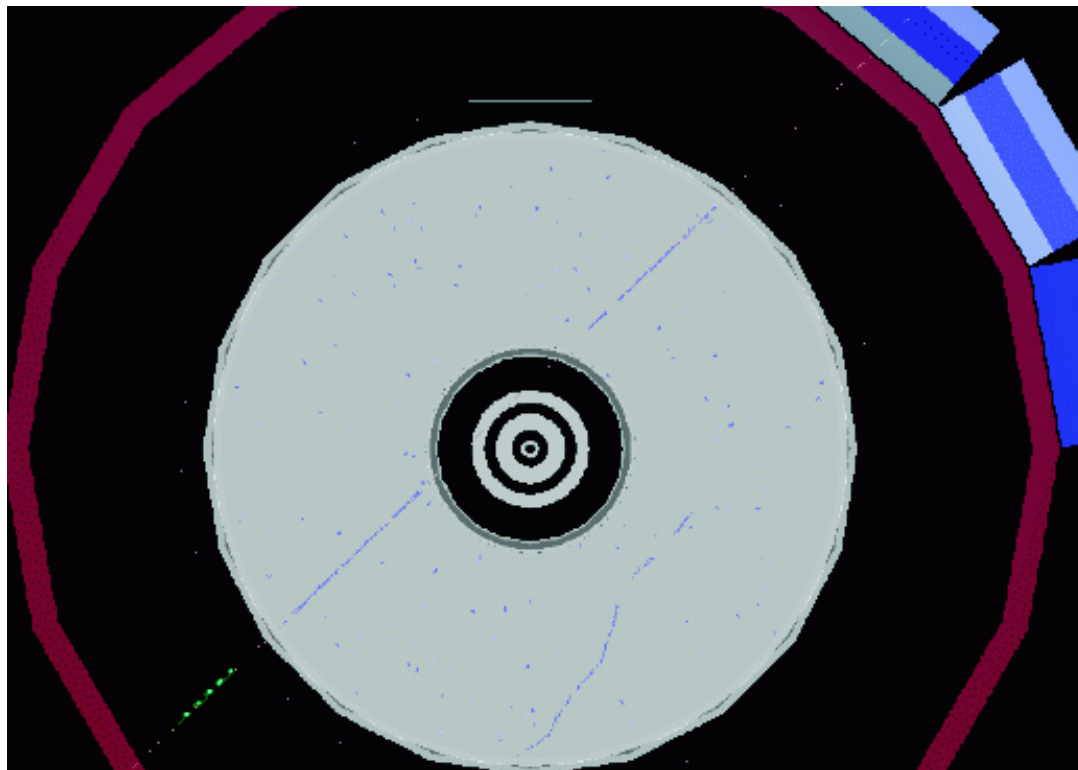
TRD specific problems in the central reconstruction

- 🚫 roads in xy too narrow to deal with TRD misalignment (1 cm)
- 🚫 roads in z too narrow to deal with TPC t0 miscalibration (15 cm)
- 🚫 wrong t0 (bug, not manifest when OCDB ideal)
- 🚫 last TRD layer getting lost (bug)
- 🚫 spurious track points on AliESDfriends (bug)

local reconstruction (at GSI) of run 81116

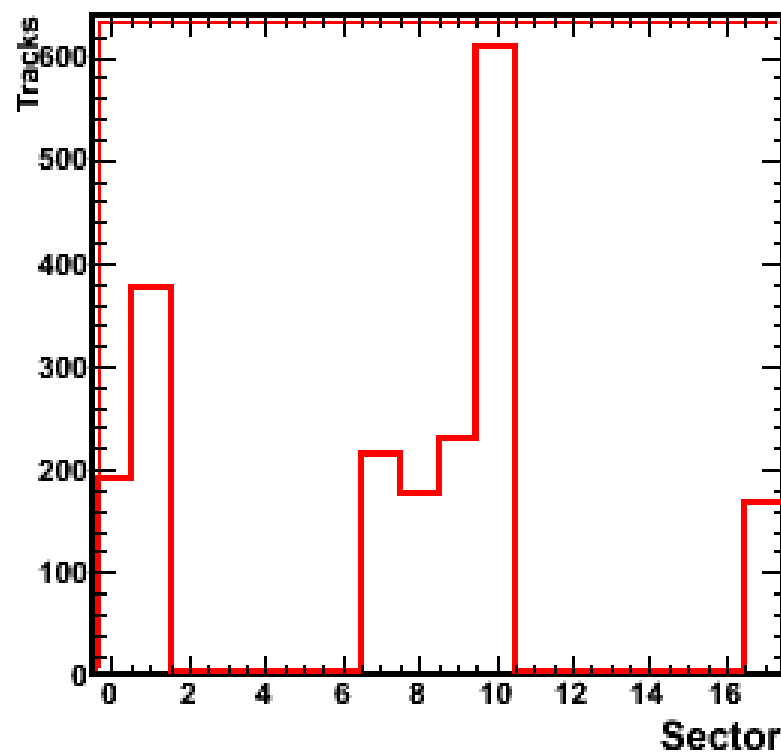
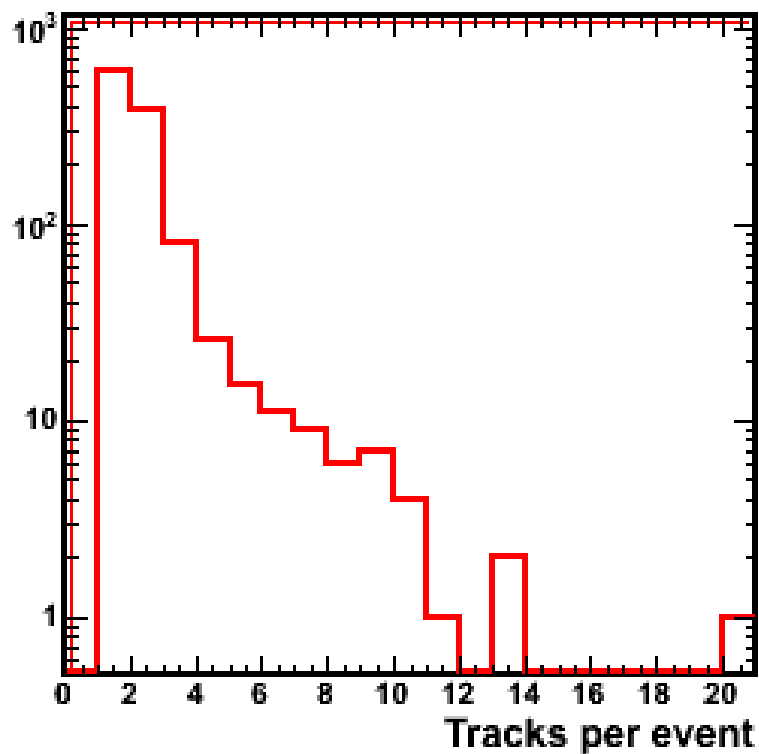
Markus Fasel

- ⦿ done with locally patched aliroot v4-17-Rev-05
- ⦿ roads wide open (2 cm in y, 24 cm in z)
- ⦿ ideal OCDB
- ⦿ 1500 events, 2000 tracks per 1 hour of data taking (with TOF pretrigger and TRD L1 trigger)



local reconstruction (at GSI) of run 81116

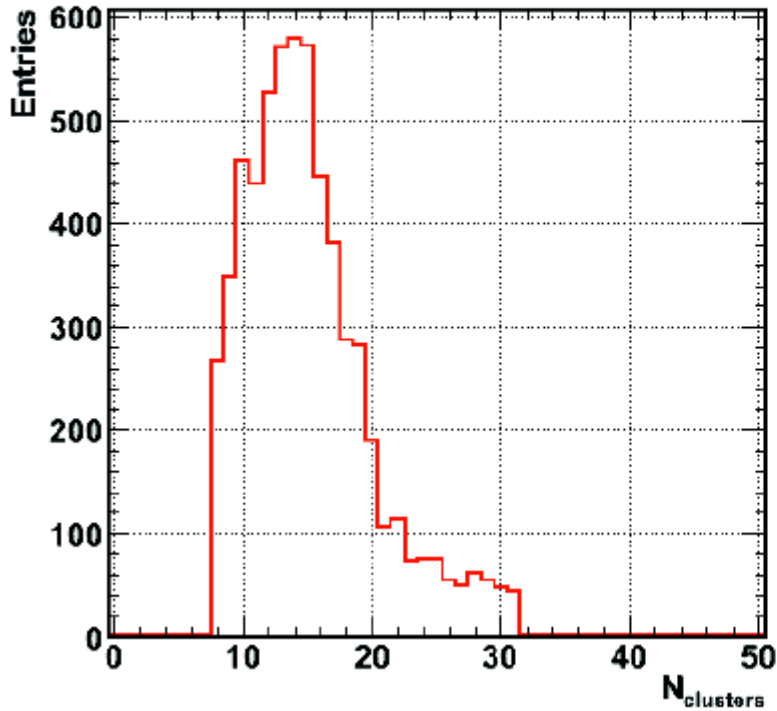
Markus Fasel



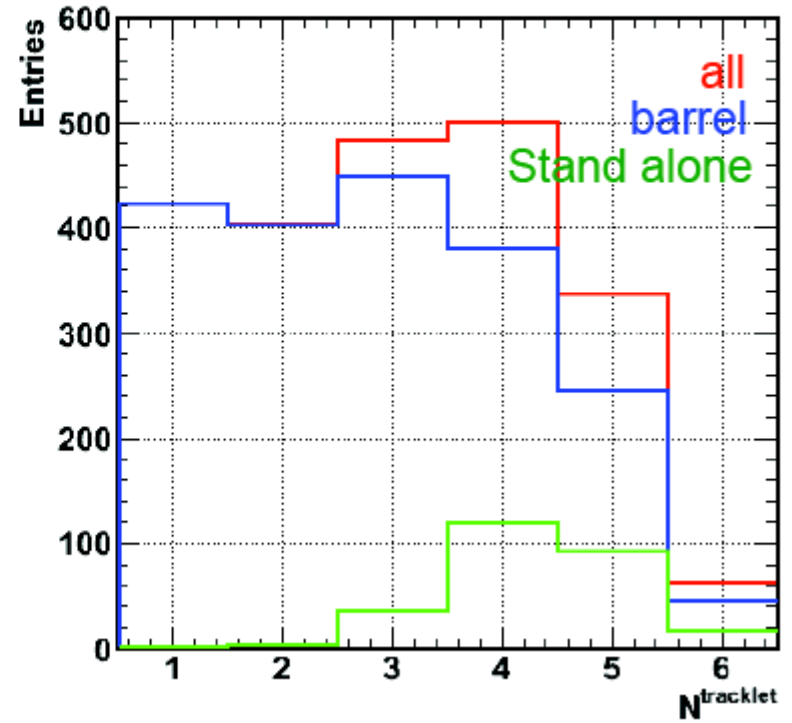
local reconstruction (at GSI) of run 81116

Markus Fasel

$N_{\text{clusters}} / \text{tracklet}$

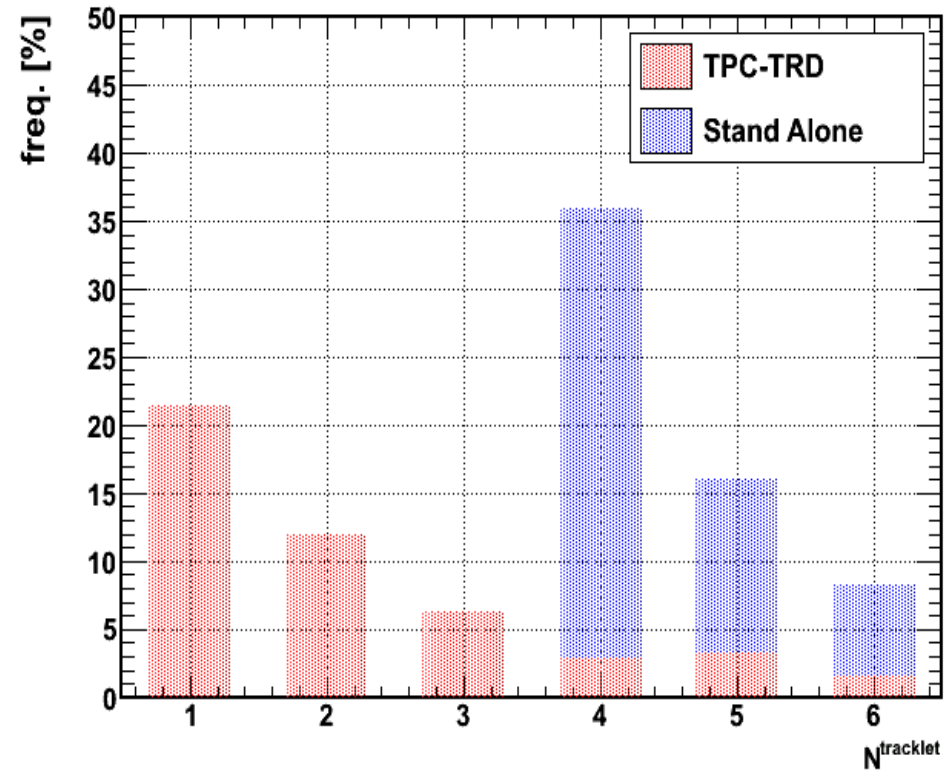


$N_{\text{tracklets}} / \text{track}$



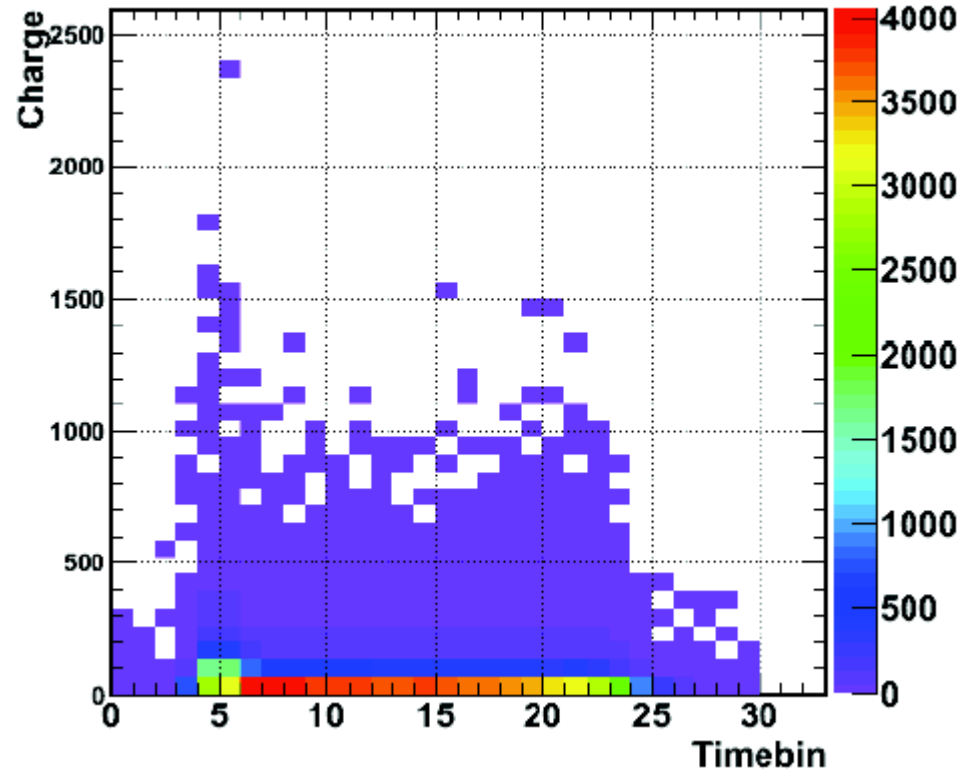
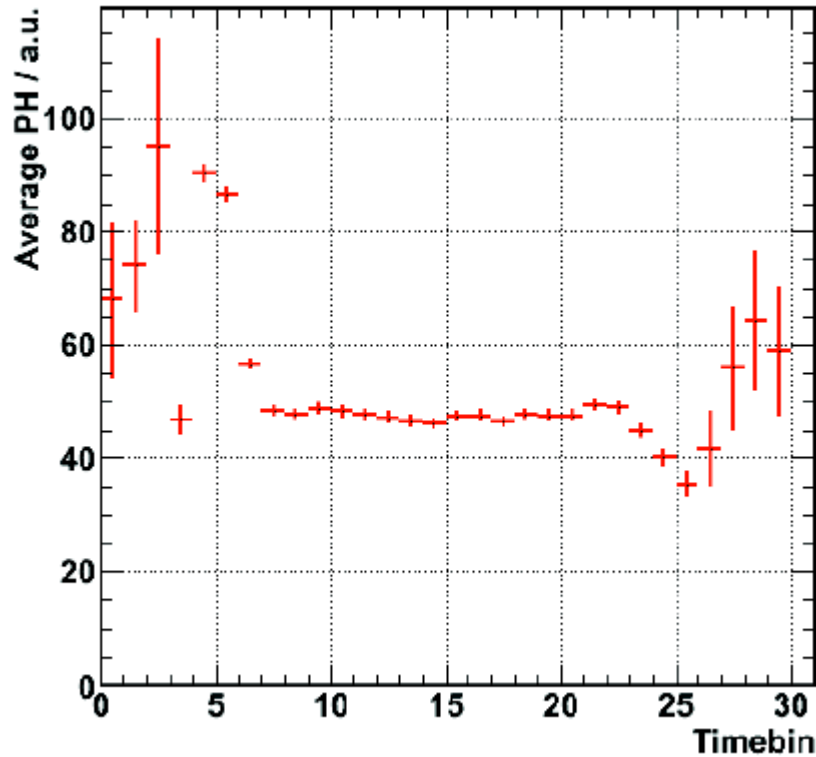
for comparison: cosmics 2008

Markus Fasel



local reconstruction (at GSI) of run 81116

Markus Fasel



- 🚫 goal: reco fixed in trunk, tested, fixes introduced in aliroot v4-17-Release by 4-Sep-2009.

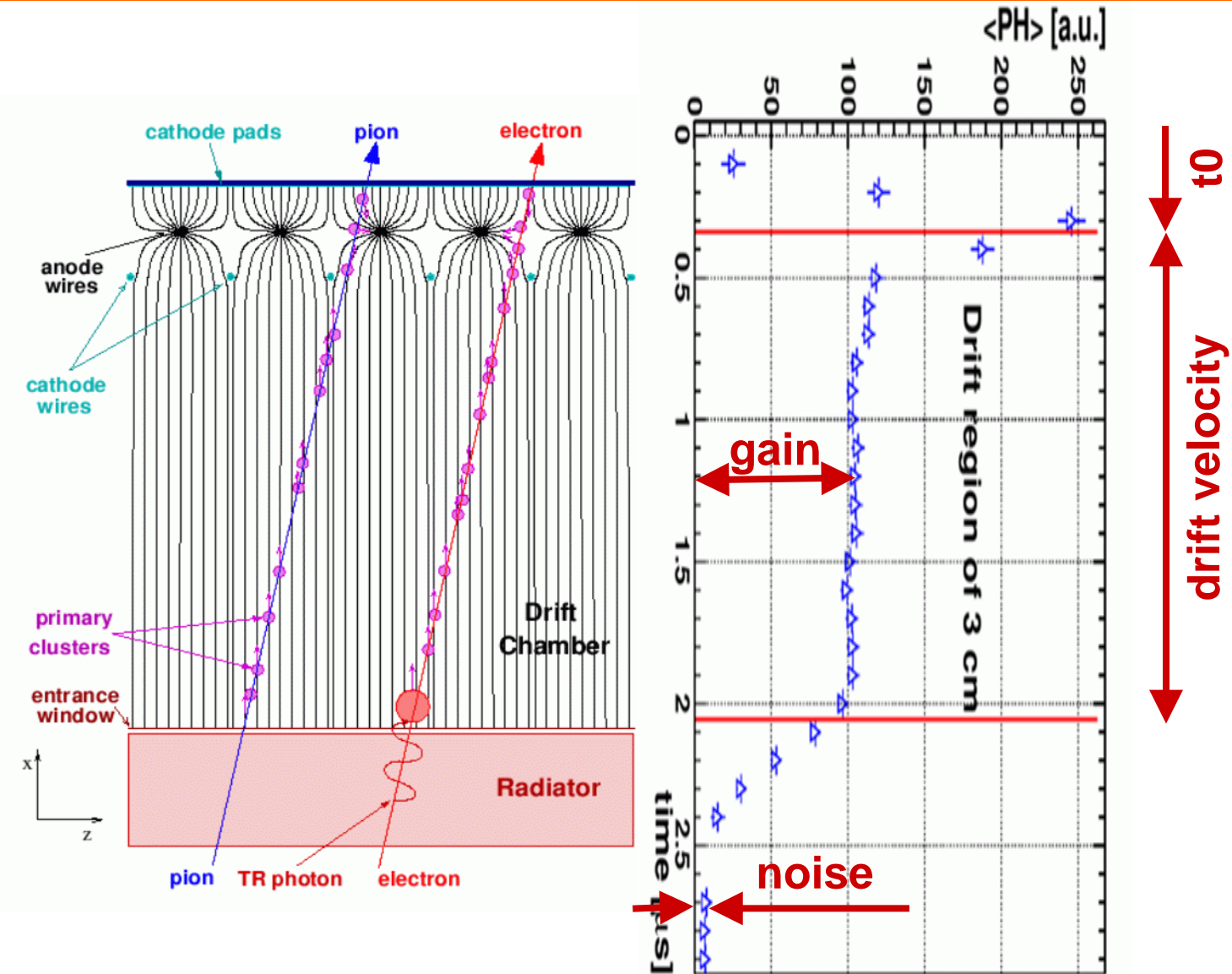
summary

summary

- 🌐 7 TRD supermodules working
- 🌐 global partition runs with TOF pretrigger and TRD L1 → 0.5 Hz
- 🌐 online calibration working as designed
- 🌐 software needs to be fixed
- 🌐 monitoring and QA being continuously improved

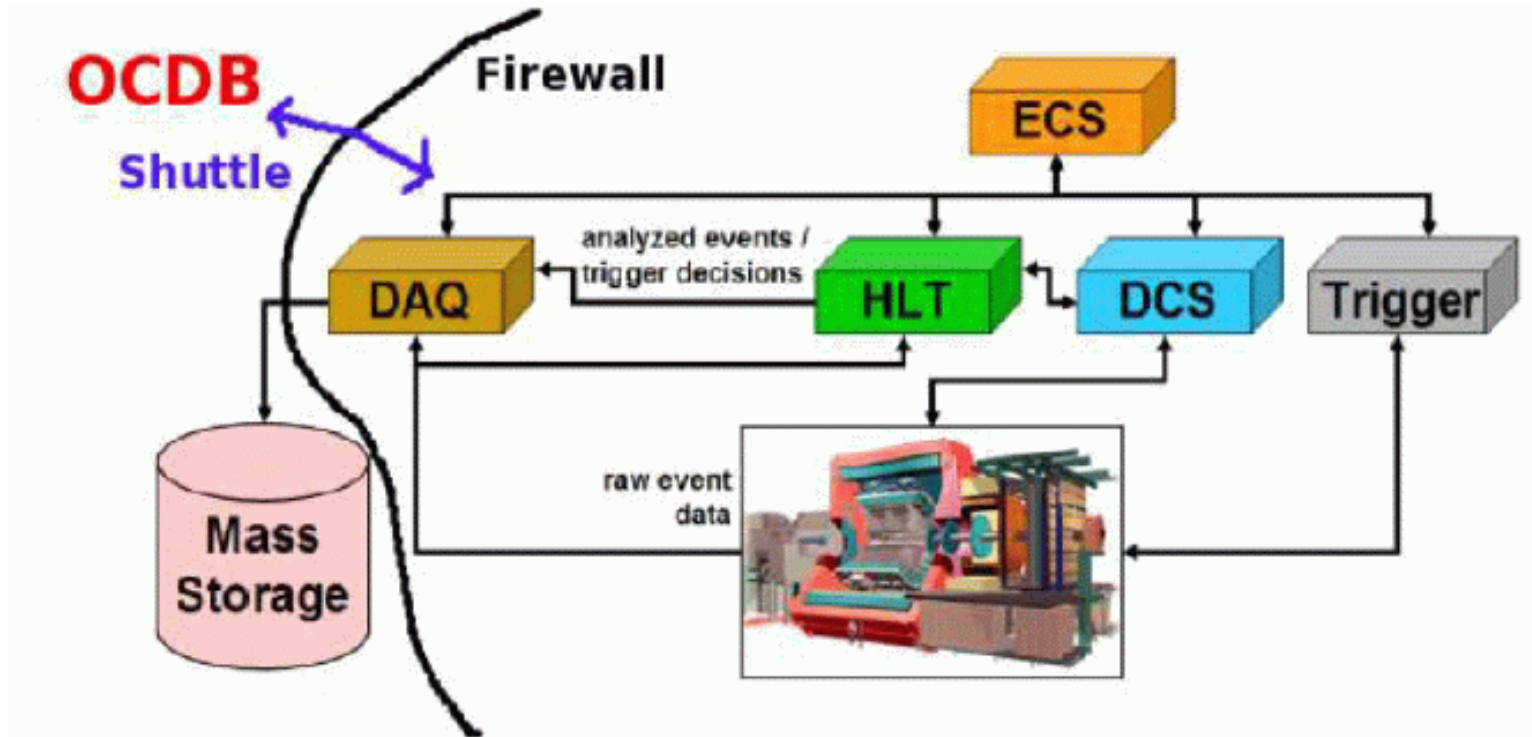
backup

TRD calibration parameters



TRD calibration methods

Raphaëlle Bailhache



- ☢ on DAQ machines:
- ☢ on HLT machines:
- ☢ offline:

drift velocity, time offset, noise (ped runs)
drift velocity, time offset, gain (not yet)
drift velocity, time offset, gain