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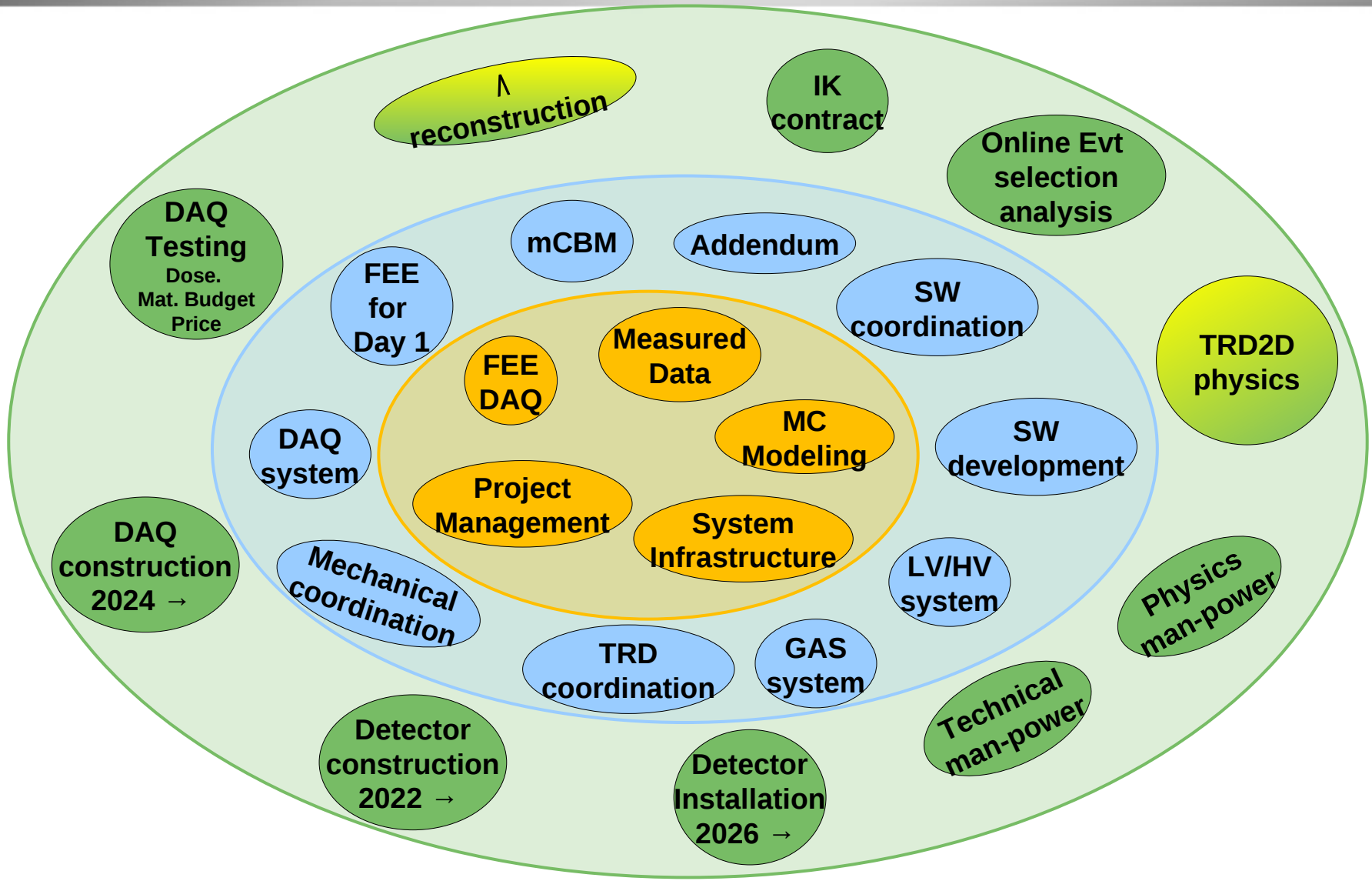
TRD2D PROJECT

STATUS (1st half of 2022)

TRD-2D workgroup meeting
31st May 2022

The planetary system of the TRD2D project @ CBM



BACKUP

Technical prerequisite

Hi Alexandru,
1. I think, as a first step we need to fix all the issues with TRD-2D hits.
I wrote a qa task **CbmTrackerInputQaTrd** to verify the input and there is a redmine issue that describes how to run it:
https://redmine.cbm.gsi.de/issues/2351
I"ll prepare a macro to run the tracking too, but it won't produce anything reasonable until we will fix the input.
2. Sure, let"s meet a.s.a.p. I"ll be at GSI on **2nd May**.
Best Regards,
Sergey Gorbunov

The following open issues are to be solved:

→ correcting the TRD2D hit pulls for the parameters x, y, and t (see https://redmine.cbm.gsi.de/issues/2351) by further developing the CbmTrackerInputQaTrd task

→ run the global tracker using the position information for TRD(2D) from MC points.
→ run the global tracker using the position information for TRD(2D) from MC points matched by a reconstructed hit.
→ run the global tracker using the reconstructed hits from TRD(2D).

Responsible:

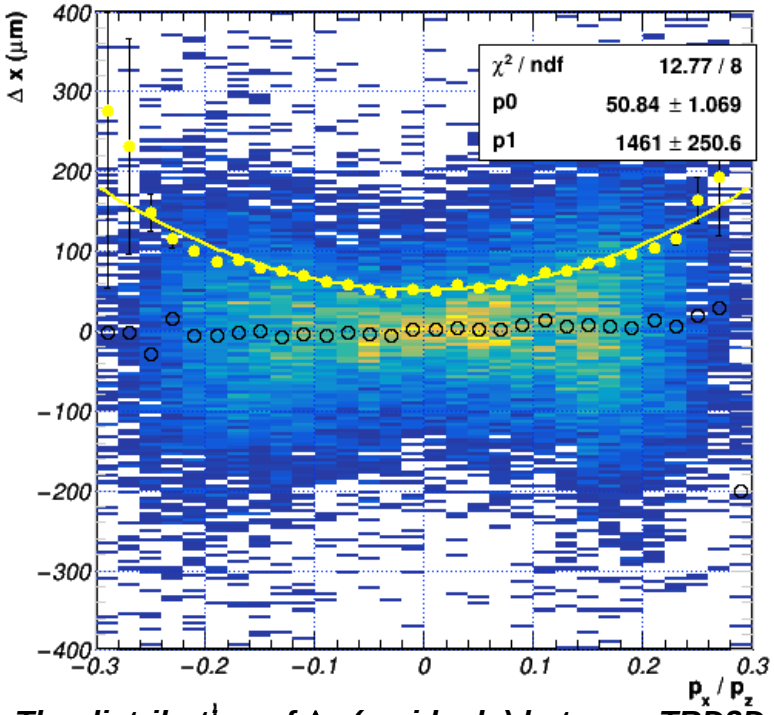
- @se.gorbunov
- @a.bercuci

https://git.cbm.gsi.de/computing/cbmroot/-/merge_requests/818

The X coordinate (PRF method)

Uncertainty parametrization

Noise was added to MC for hit position and FASP signal simulation. The characteristic parabolic dependence of errors can be recovered as function of the incident angle for each cluster size



The distribution of Δ_x (residuals) between TRD2D hits and MC points as function of $\varphi = p_x/p_z$. The shift (black symbols) and the resolution (yellow) of each vertical slice are superimposed.
The model is : $\sigma_x(\varphi) = p0 + p1 * \varphi^2$
Both p0 and p1 are expressed in μm

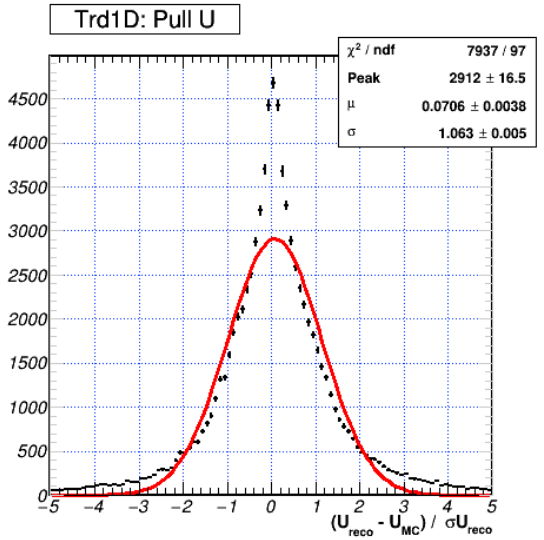
For tracking performance the value of reference is the ration:

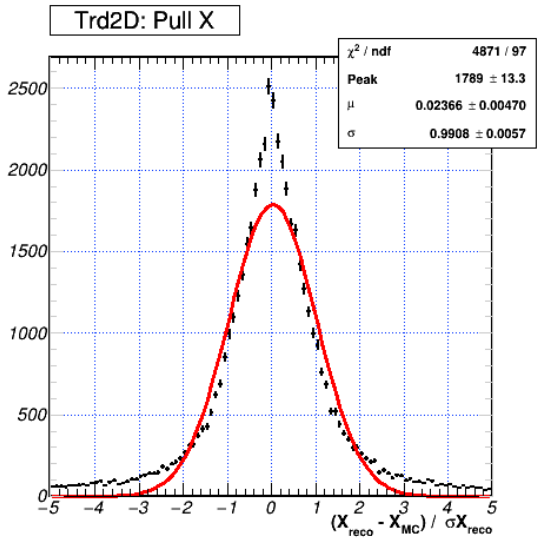
Pull = Δ_x / σ_x

The distribution of this observable has to be Gauss with mean 0 and sigma 1.

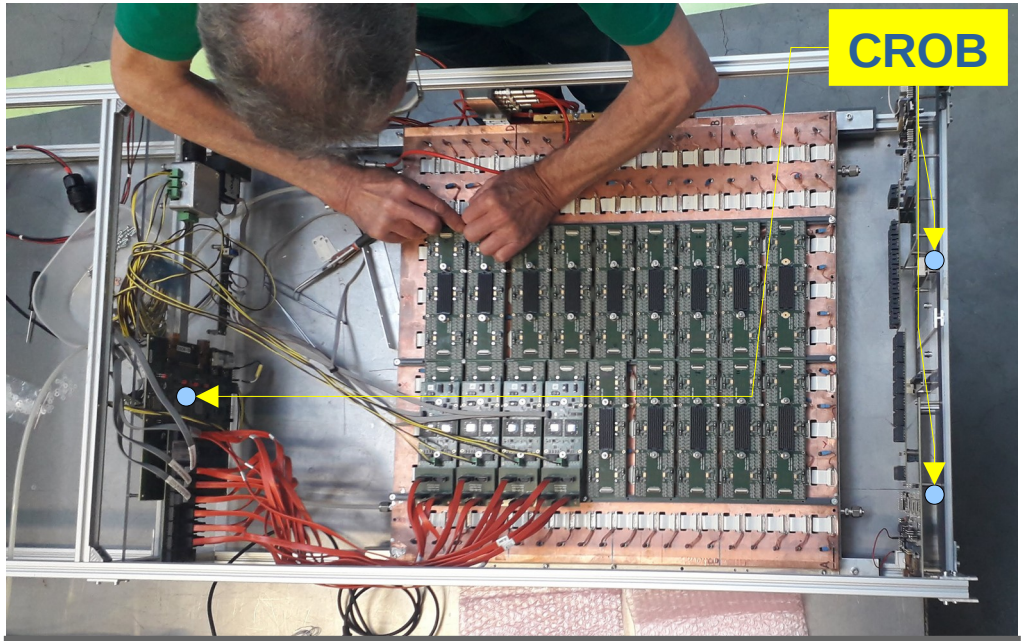
In the figure the pull$_x$ distribution is shown for TRD1D and TRD2D as they are produced by the CbmTrackerInputQaTrd task.

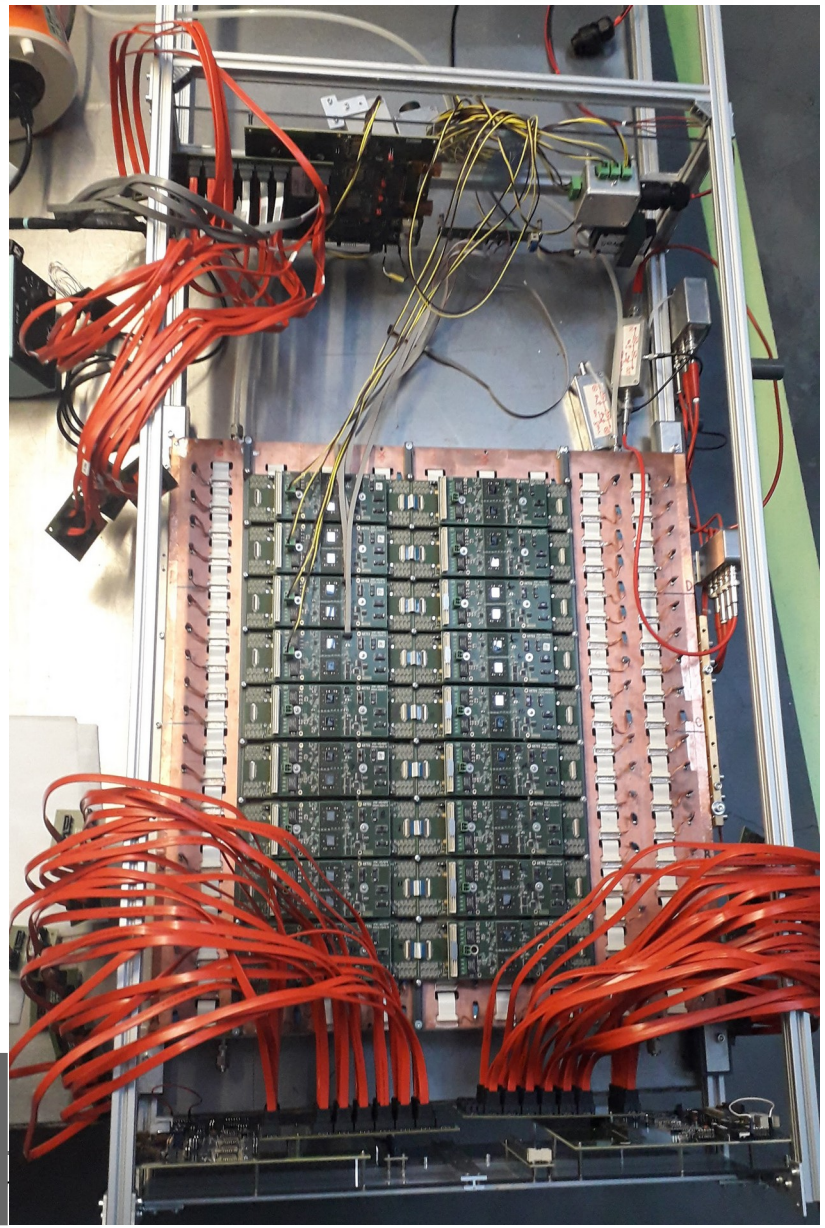
The performance can be improved in terms of χ^2 by improving the error parametrization.





FEE mounting





***Mounting the 14 new FASPRO boards on the TRD2D**. The operated region was modified wrt planning as follows (see picture, top to the right):*

- *from 3 → 2 FASPRO columns*
- *from 6 → 9 FASPRO rows*

→ similar read-out surface
→ more emphasis on low deflection angles (higher multiplicity)
→ matching better with ToF acceptance
→ easier to mount as the old 4 boards were kept in position

***Mounting the corresponding GETS boards**. The red cables left floating are the connections to the CROB. Due to topological reasons the allocation GETS→CROB will differ from previous runs which will impact the software mapping !*