MINISTERUL CERCETĂRII, INOVĂRII ŞI DIGITALIZĂRII

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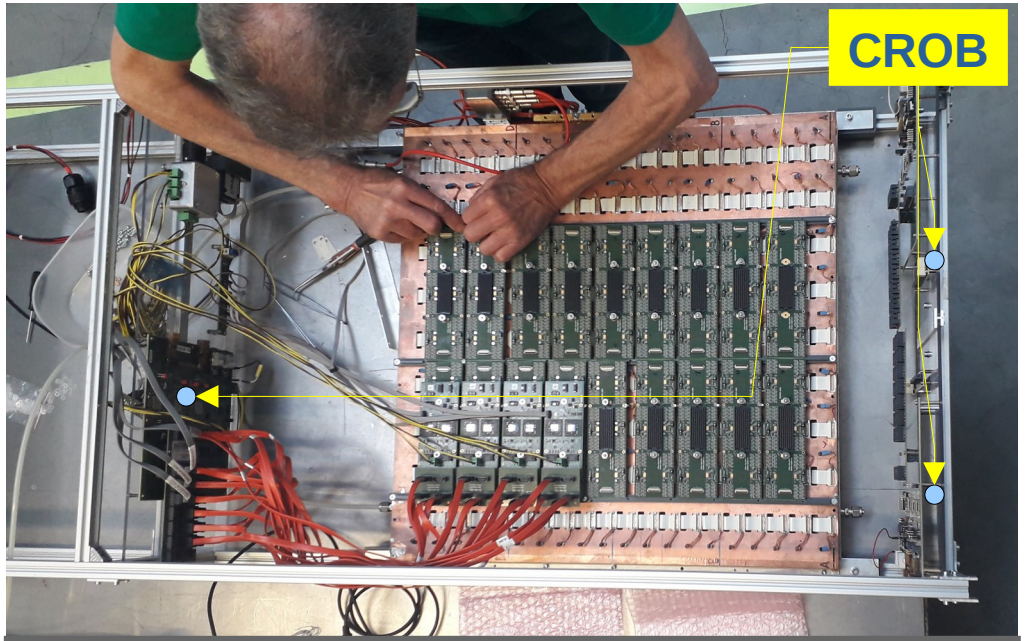
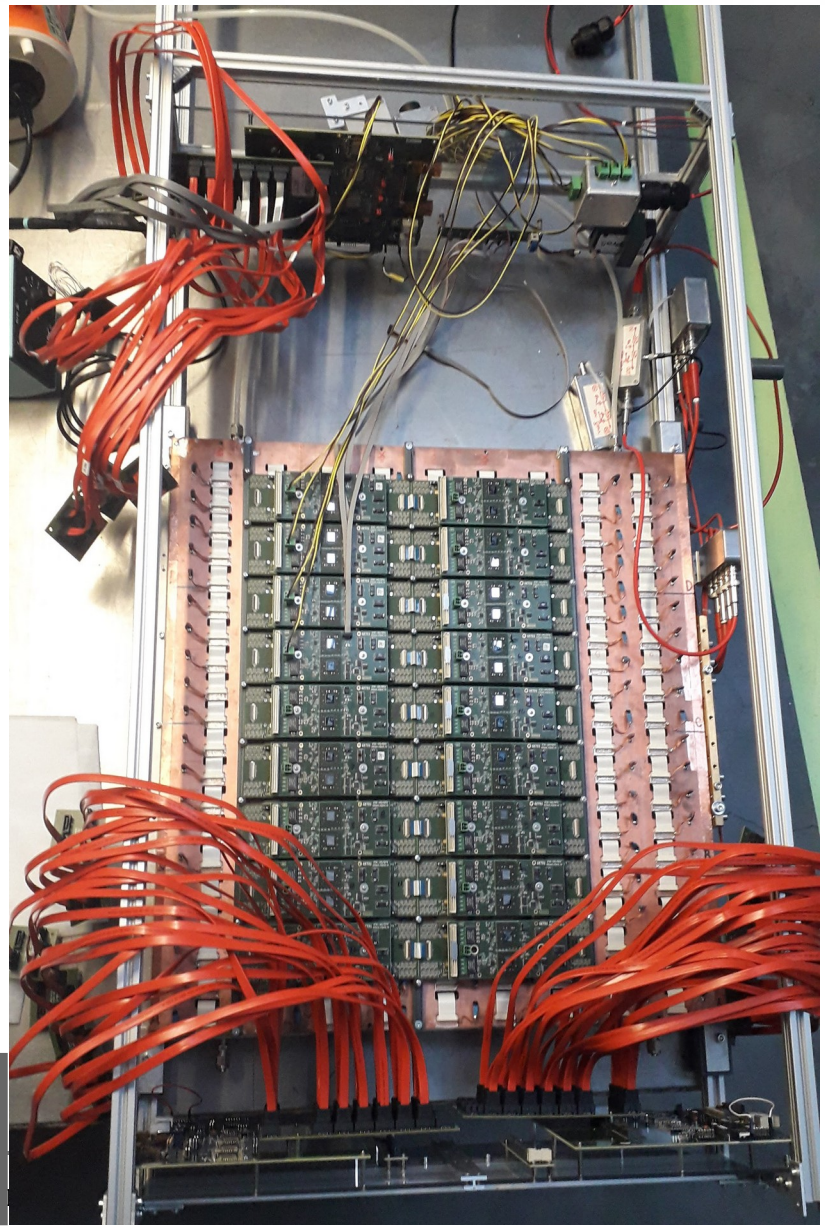
TRD2D upgrade
mCBM May 2022
Day 2

3rd May 2022

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*

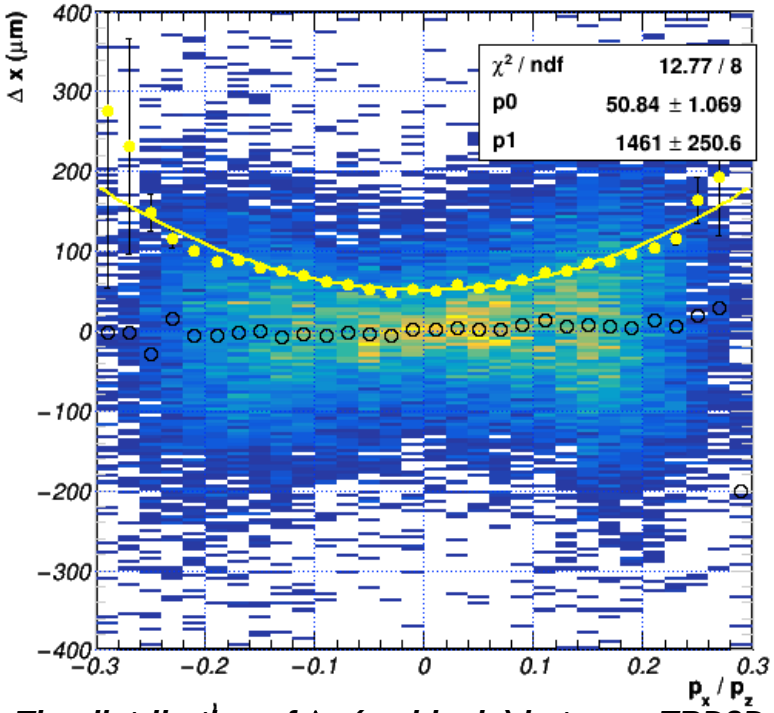
→ similar read-out surface
→ more emphasis on low deflection angles (higher multiplicity)
→ matching better with ToF acceptance
→ easier to mount as the old 4 boards were kept in position

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 !

TDR Addendum defending

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.