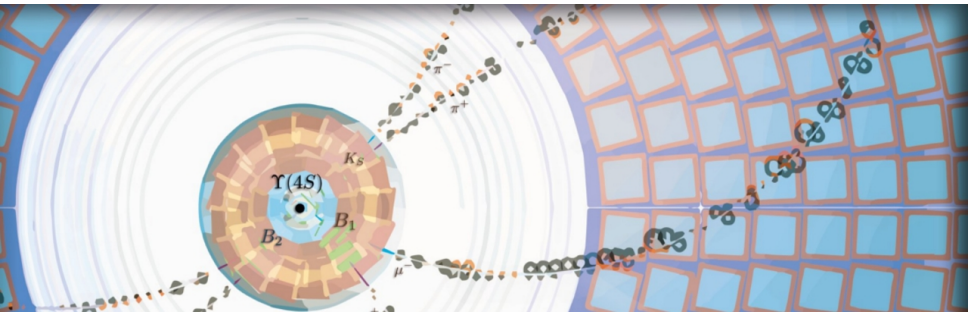


Cosmics finding with the cellular automaton track finder.

Online developers meeting.



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HELMHOLTZ
ASSOCIATION



Work to be done

- > Use the geometry of the cosmics test run?
 - > No test with the proper cosmics test run geometry.
- > Fix the track orientation to top-down for cosmics?
 - > Fixed to top-down for now!
- > Merging the two arms:
 - > Is a dump merging algorithm sufficient? - Started to work on that.
- > Recheck if the fitting with Genfit works.
 - > Rechecked fitting -> worked without segmentation violation / assertion error.

Until this week

Everything looked fine, but . . .

Drop in the reconstruction quality

From the official **validation page** (see Cosmics* plots)

Efficiency 0.9998 (was 0.9989)

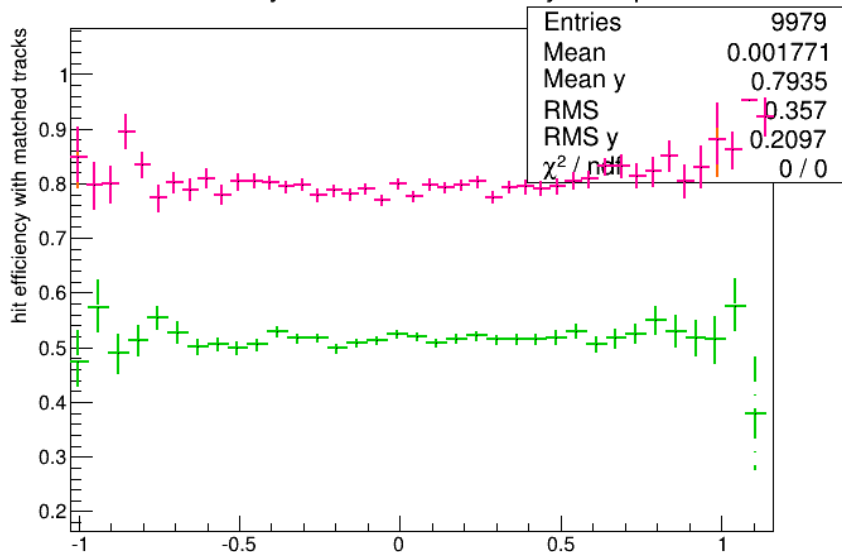
Hit efficiency **0.5153** (was **0.7954**)

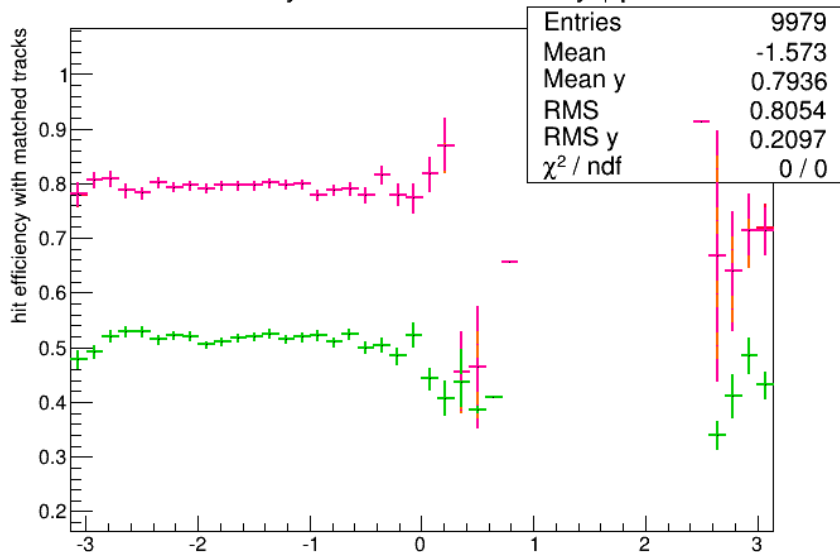
Clone rate **0.5119** (was **0.2345**)

Fake rate 0.0020 (was 0.0016)

- > Change happened after the transition to the RealisticTDCCountTranslator.
- > Reasons must be investigated.

hit efficiency with matched tracks by $\tan \lambda$ profile

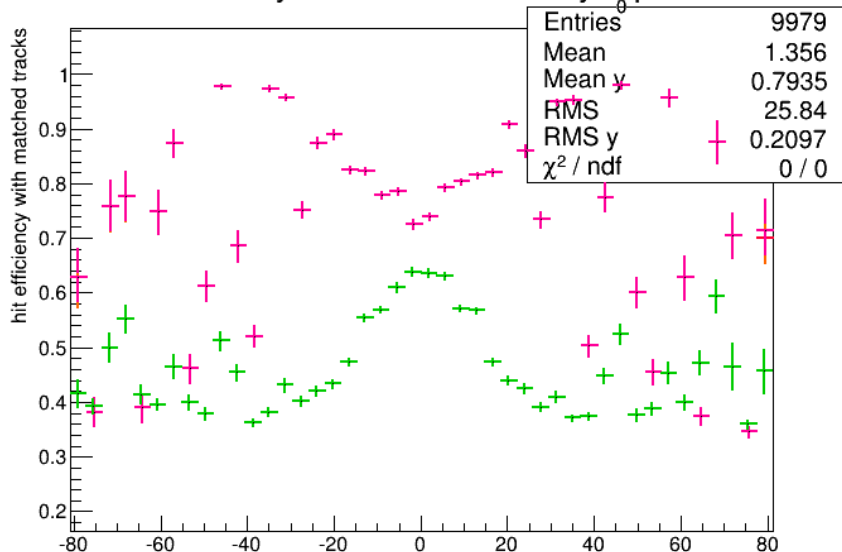


hit efficiency with matched tracks by ϕ profile

Rather surprising d_0 dependence



hit efficiency with matched tracks by d_0 profile



Observations so far

- > Hit efficiency drop is homogeneous in almost all variables.
- > For d_0 in the high statistics region -40 cm to 40 cm a inhomogeneous effect can be observed:
 - > The further away the track is from the IP the lower its hit efficiency.
 - > What feature of the drift time can be responsible for that?

Working assumption

- > I suspect not a single source, but slightly off filter cuts through out the various stages.
- > Which means that all filter cuts have to be re-evaluated.

Meaning for the release

- > 2-3 weeks needed to readjust.