Weighted residuals for V2 alignment

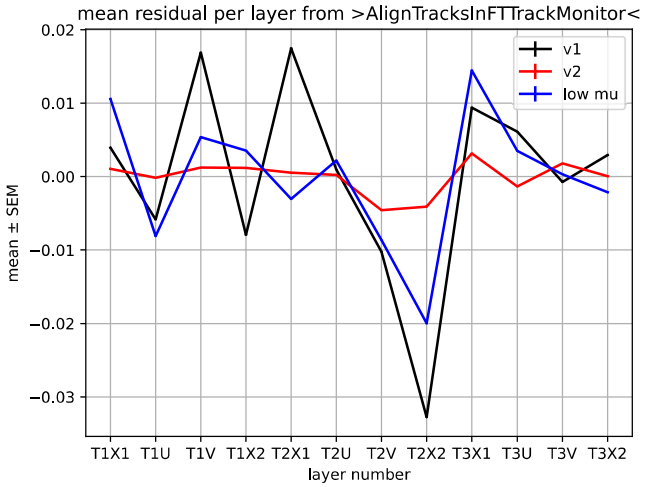


Abbildung: mean Residual per layer weighted with quarter hits.

mean residual per quarter weighted:

$$\bar{Res}_Q = \sum_{layer,quarter} \frac{\text{hits quarter of layer}}{\text{hits layer}}$$

goal: residual around 0 per layer

V2: quite good except second C-frame in T2

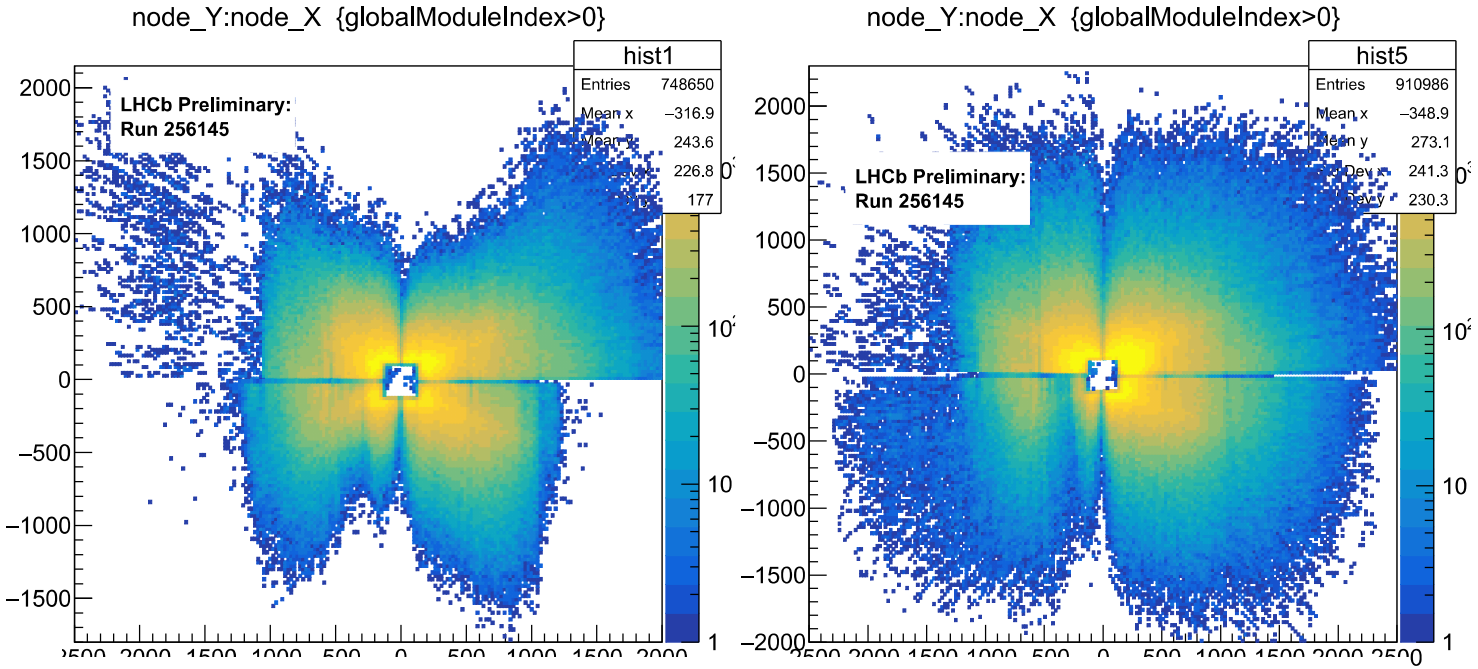
V1: everywhere worse than V2

low μ: quite ok except for back T2

→ V2 best performing alignment version for now, but still uses half modules → long modules as in the physical SciFi preferred in the long run

Track hits comparison of alignment versions

- V1: left, V2, right
- Hits on tracks as XY distribution resembling SciFi Layers
- C-side: negative x, A-side: positive x
- information of all layers are combined for each quarter → hard to see whats going on

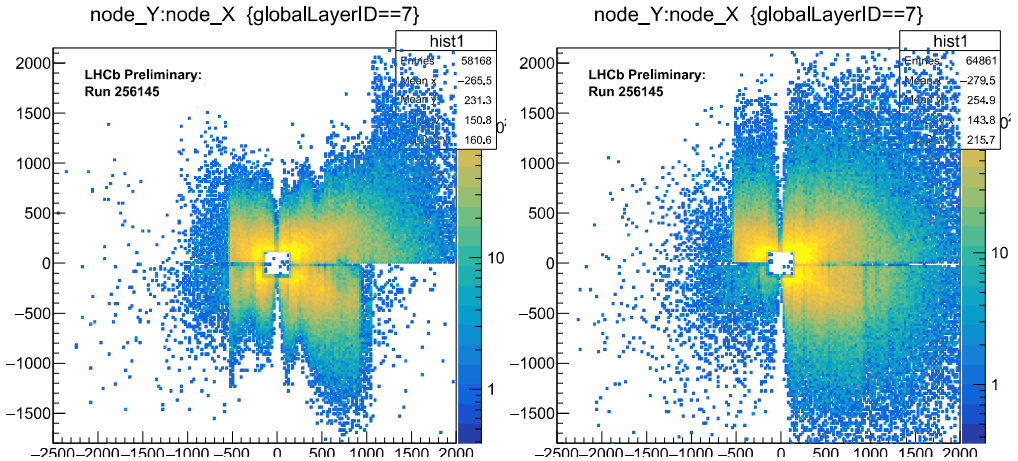


Track hits in V2 alignment

- T2X2 showed worst performance on C-side
- SciFi clusters and seed tracks are nicely distributed →the issue at the long tracks in the alignment
- hypothesis: some parts are out of alignment using the current survey

→ reduction in GoodLongTracks and hits for that part

→ Difference in Q0: some parts blocking tracks from going through a module and pushing them into a different ones.



New Q0 positions in T2X2 layer

- changes based on V2 alignment positions
- manually scan rotations/positions of T2X2Q0 and register alignment tracks
- Upcoming:
  - Test these starting condition in alignment + compare to current survey
  - More investigation for T2X2Q2 as well