Comparison of best geo v1.2 (+ uT + wR) and geo v3.2 for fee tracks

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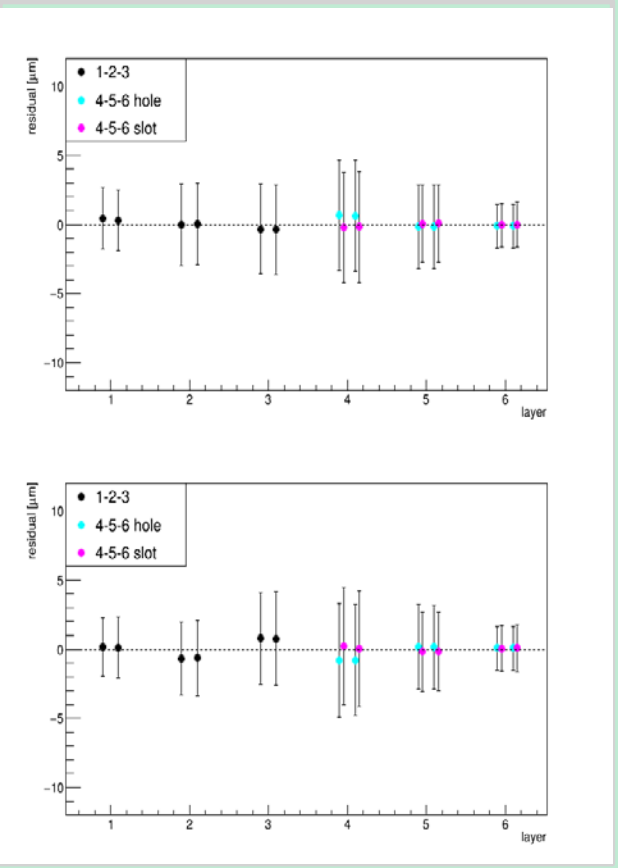
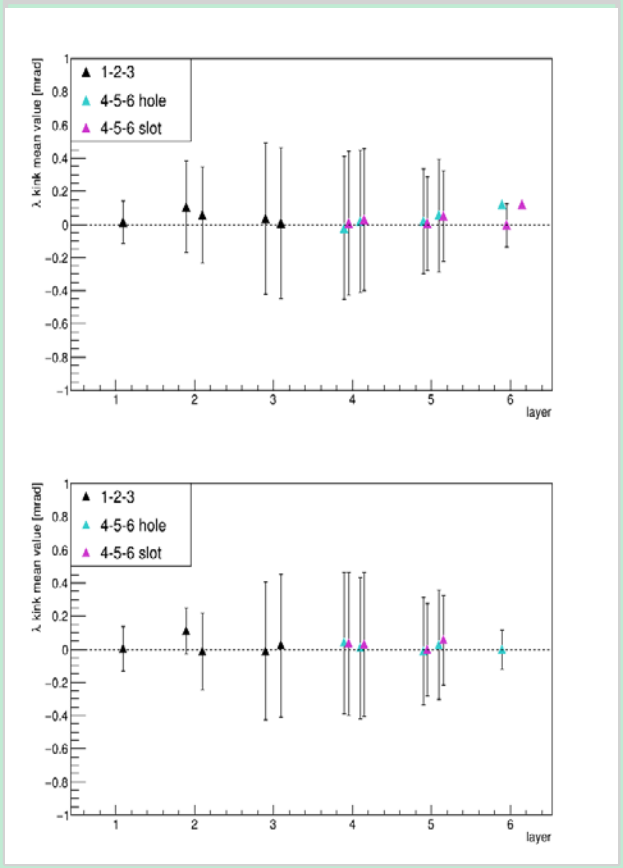
Compare two best geometries

- Use of fee tracks (bot/top), run 5772, selection by Norman
- Use of “top” file for top, “bottom” for bot (but there can be multiple tracks per event)
- Geometry v 1.2 + u translations and w rotations of sensors 3,4,5 vs geometry v 3.2 (with magnetic field)
- Purpose: understand if an absolute minimum has been reached and in which of the two cases (both?)

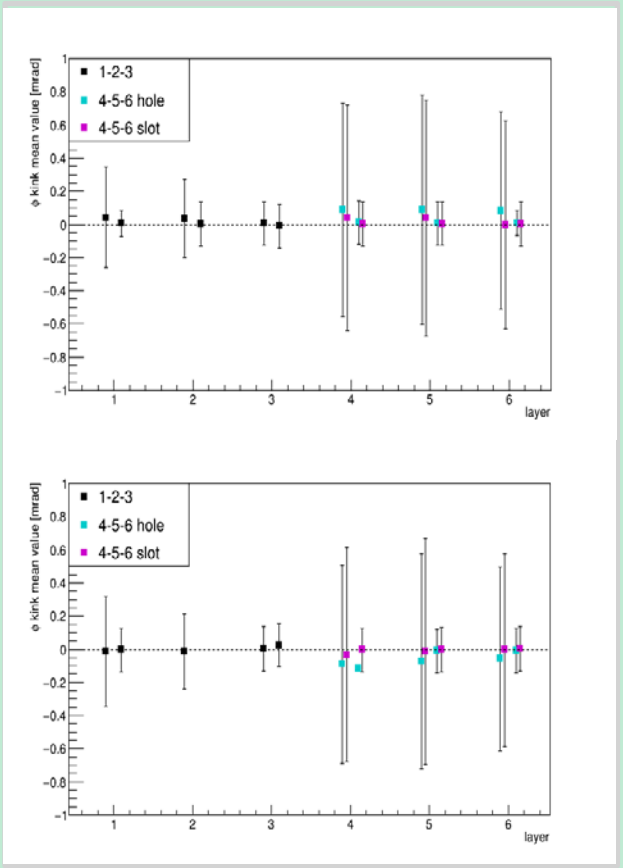
Try #9 v1.2 (3+4+5 tu+rw), mean values of residuals after GBL



u residuals

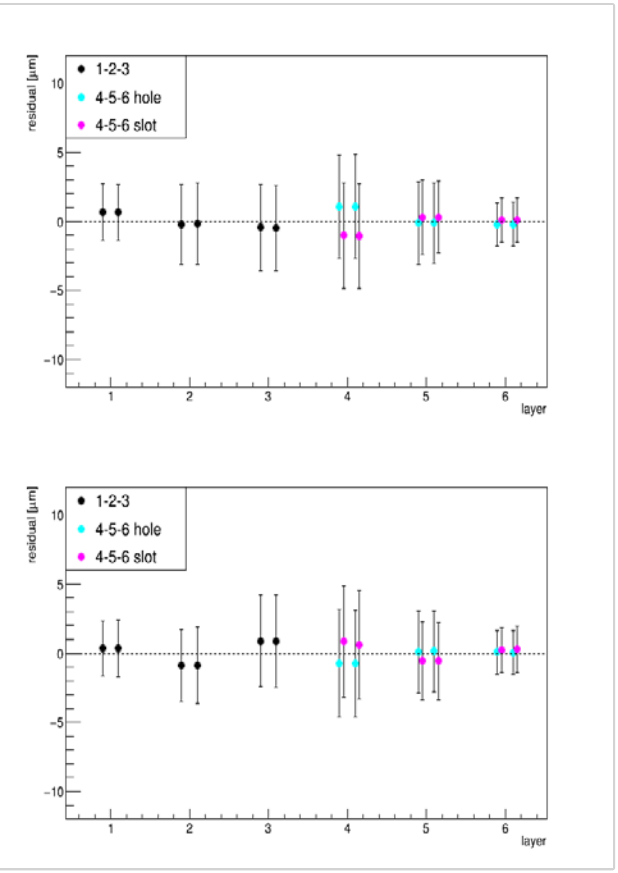


λ kinks

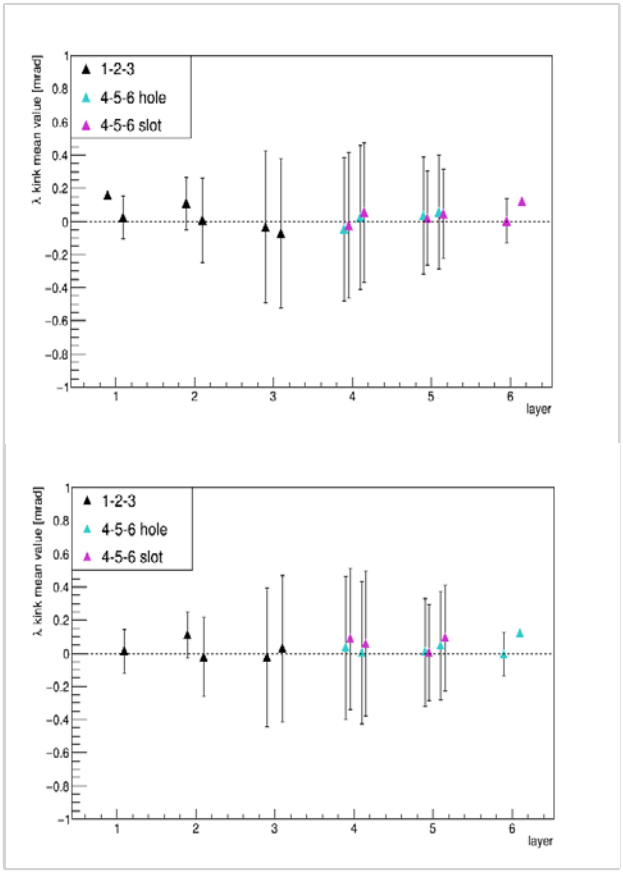


φ kinks

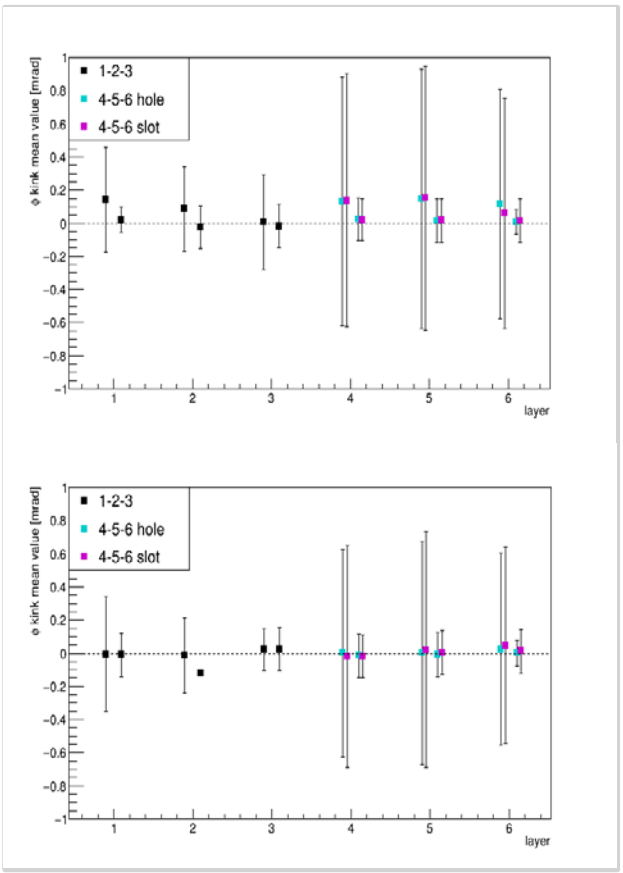
V 3.2 with magnetic field mean values



u residuals



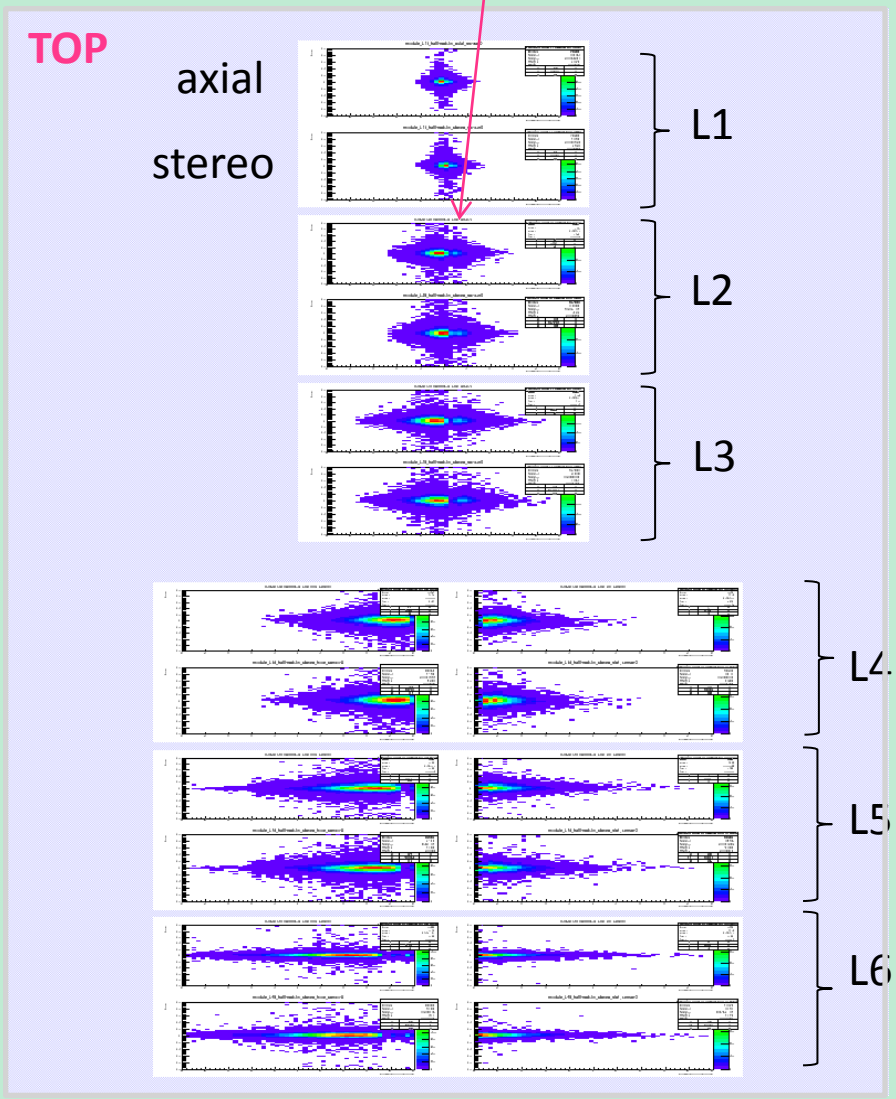
λ kinks

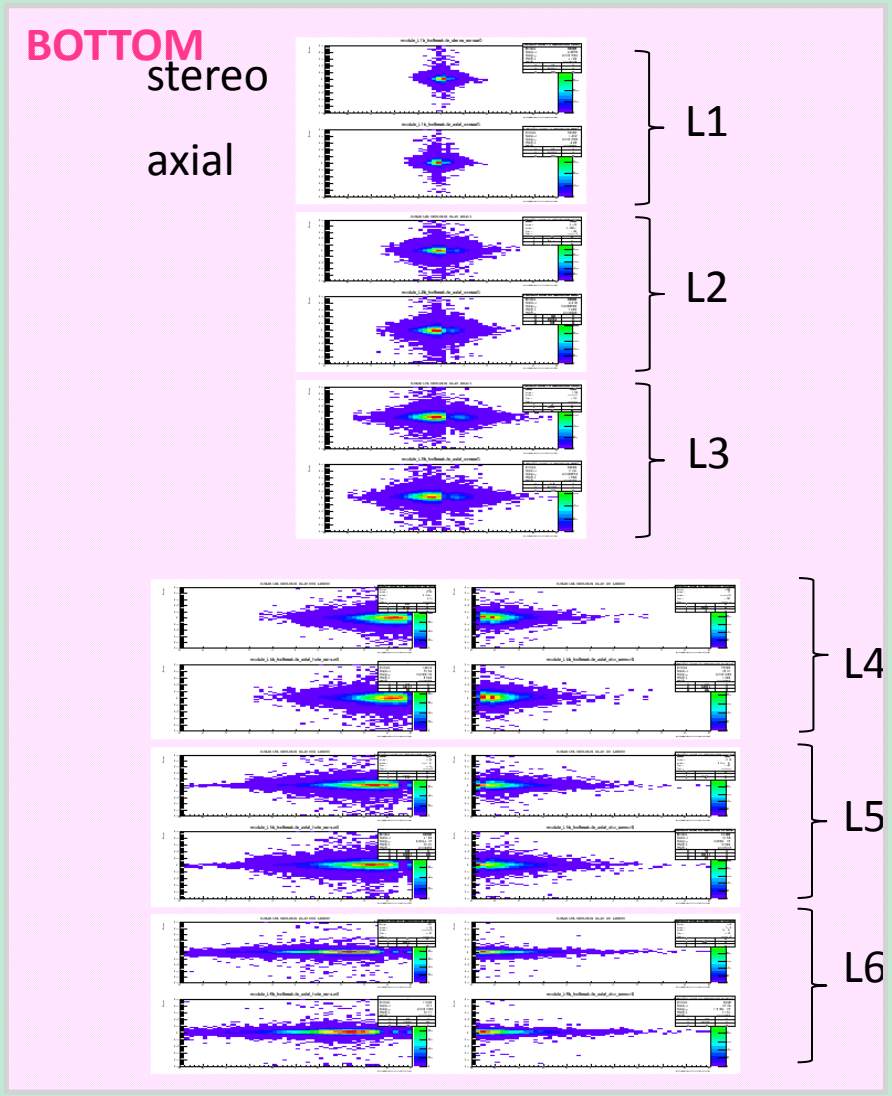


φ kinks

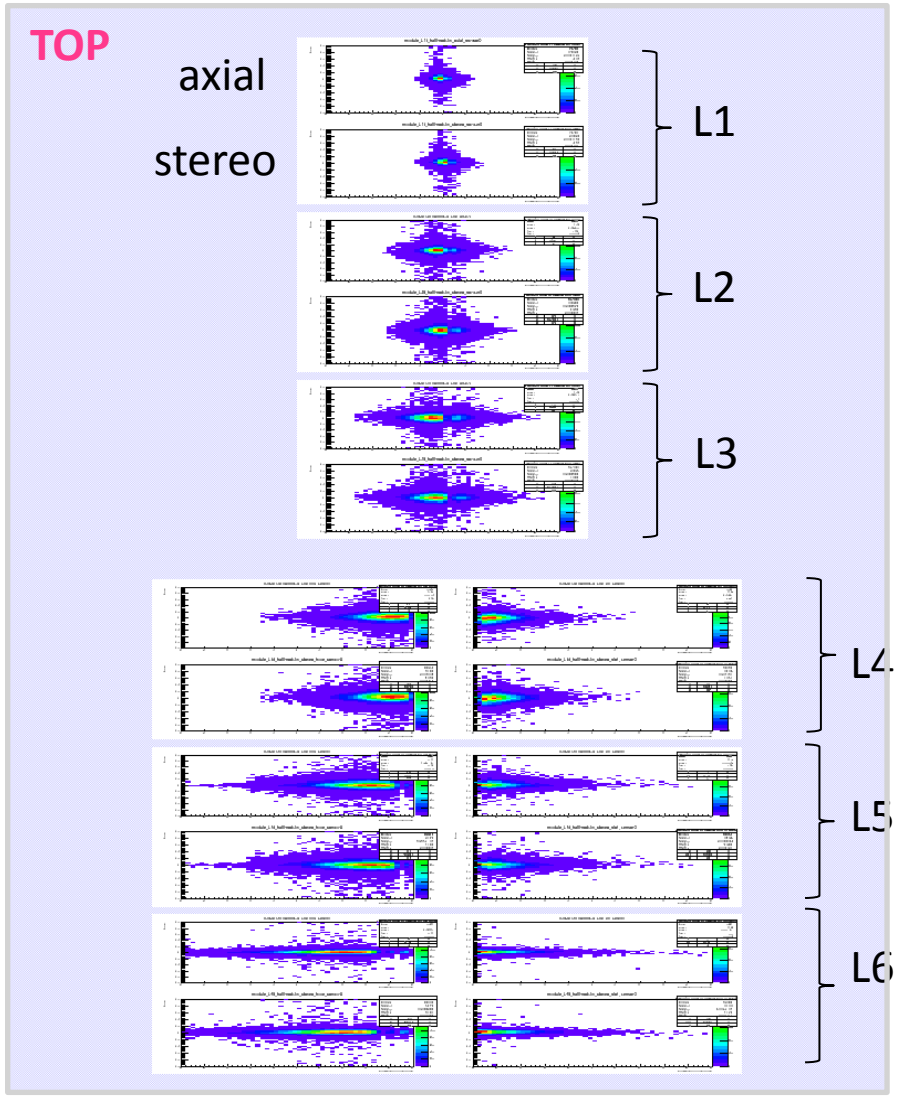
u residuals vs v, 3+4+5 tu+rw, v1.2

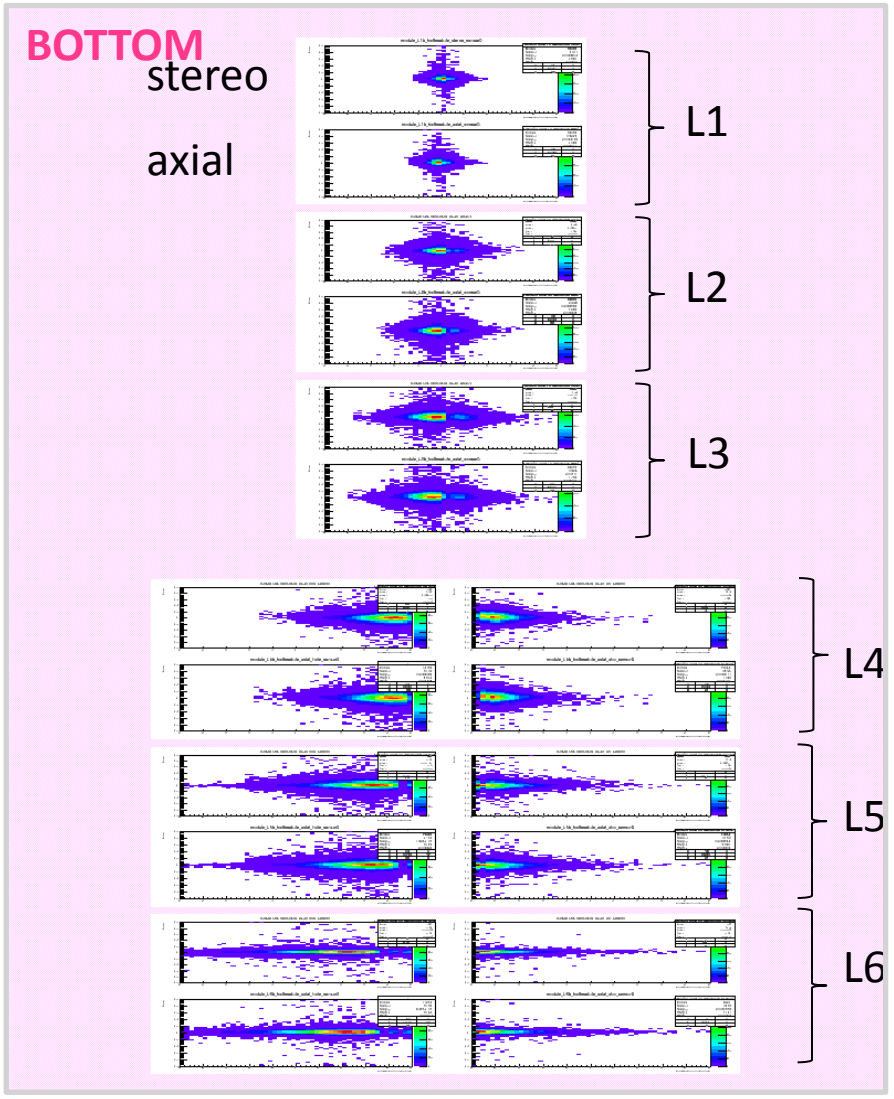
is there a depletion? It looks like an inefficiency in u





u residuals vs v, v3.2 with magnetic field



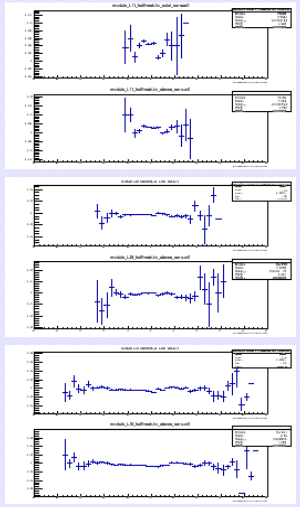


u residuals vs v profiles, 3+4+5 tu+rw v1.2

TOP

axial

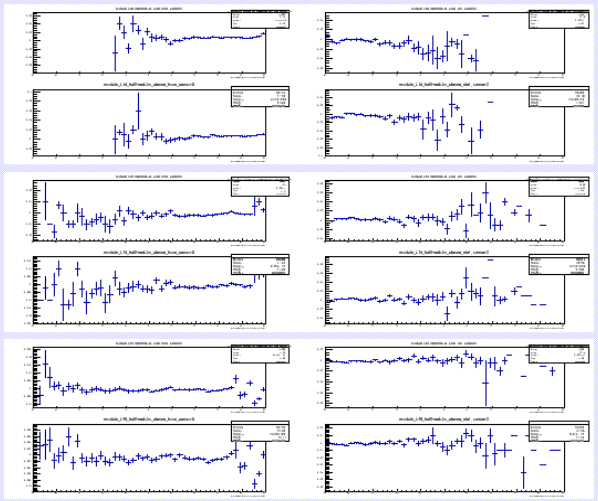
stereo



L1

L2

L3



L4

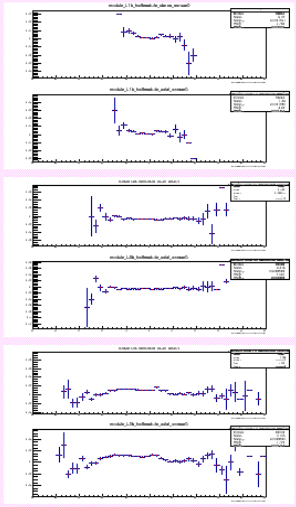
L5

L6

BOTTOM

stereo

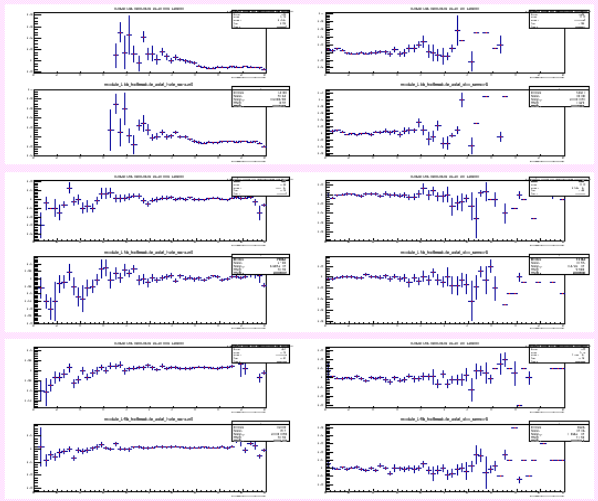
axial



L1

L2

L3

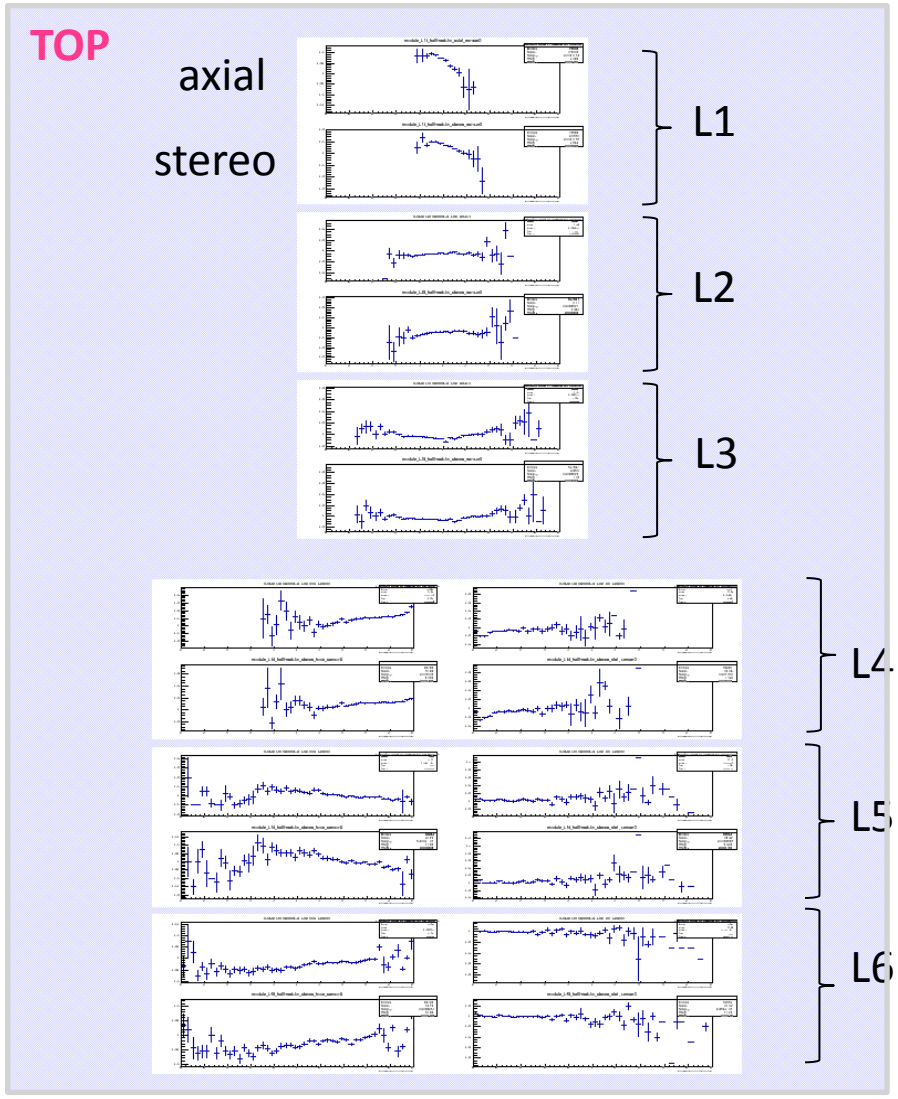


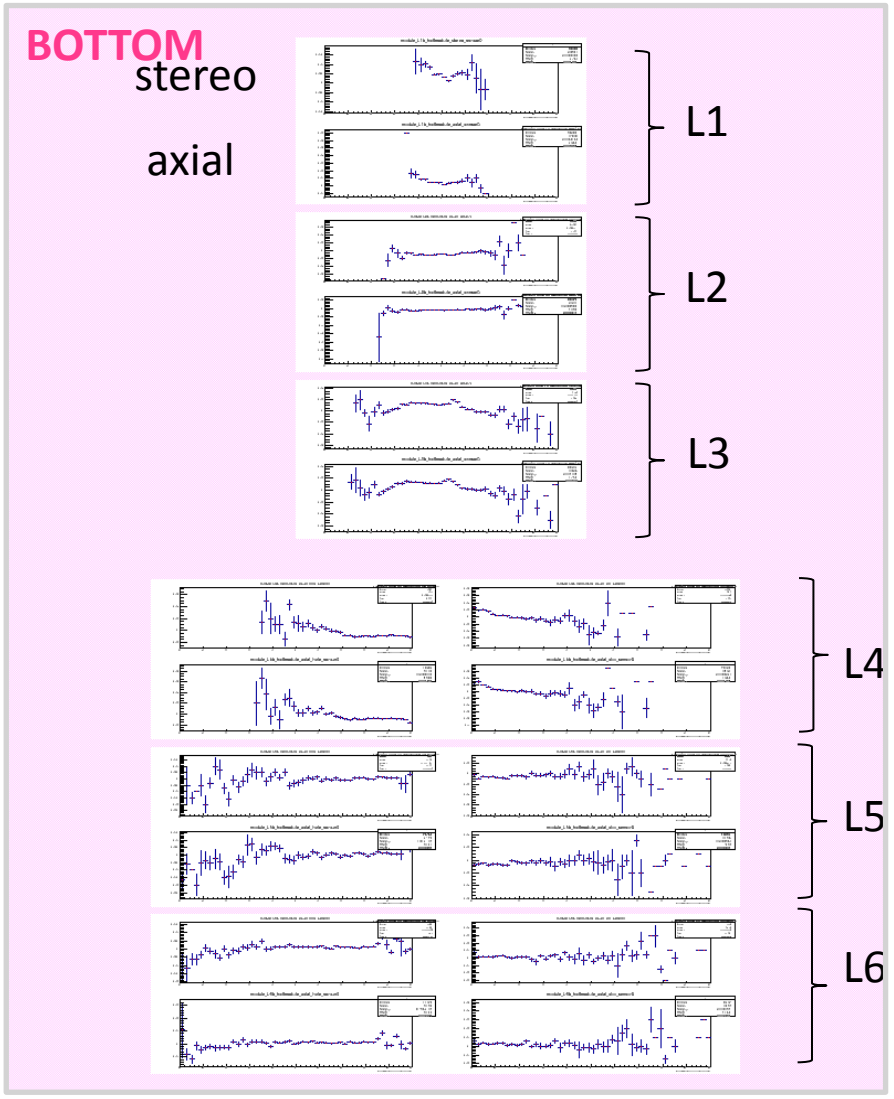
L4

L5

L6

u residuals vs v profiles, v3.2 with magnetic field



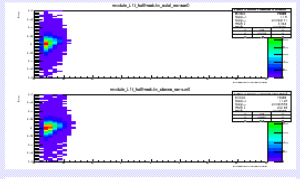


u residuals vs u, 3+4+5 tu+rw, v1.2

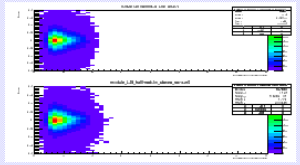
TOP

axial

stereo



L1



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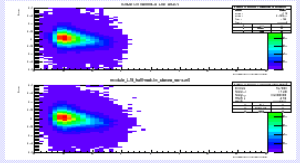

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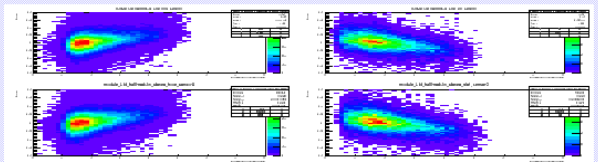

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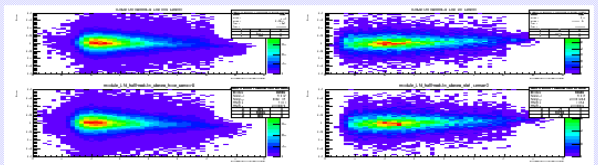
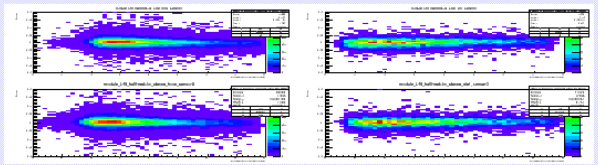


L5

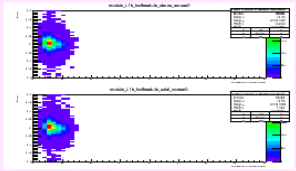


L6

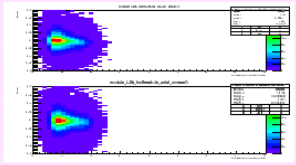
BOTTOM

stereo

axial



L1



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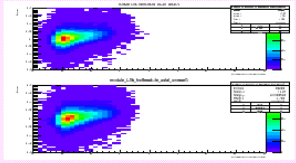

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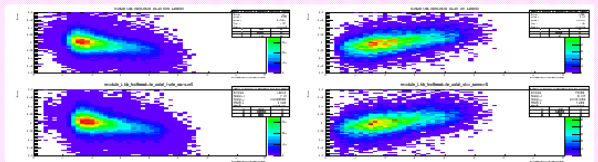

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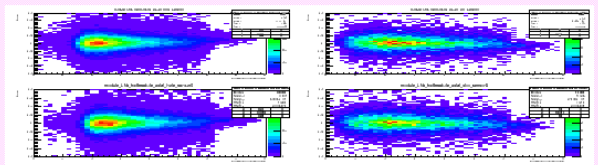

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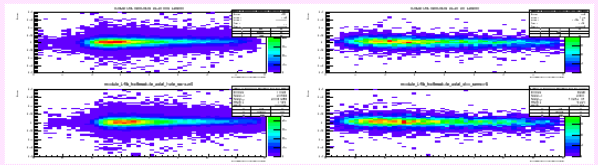
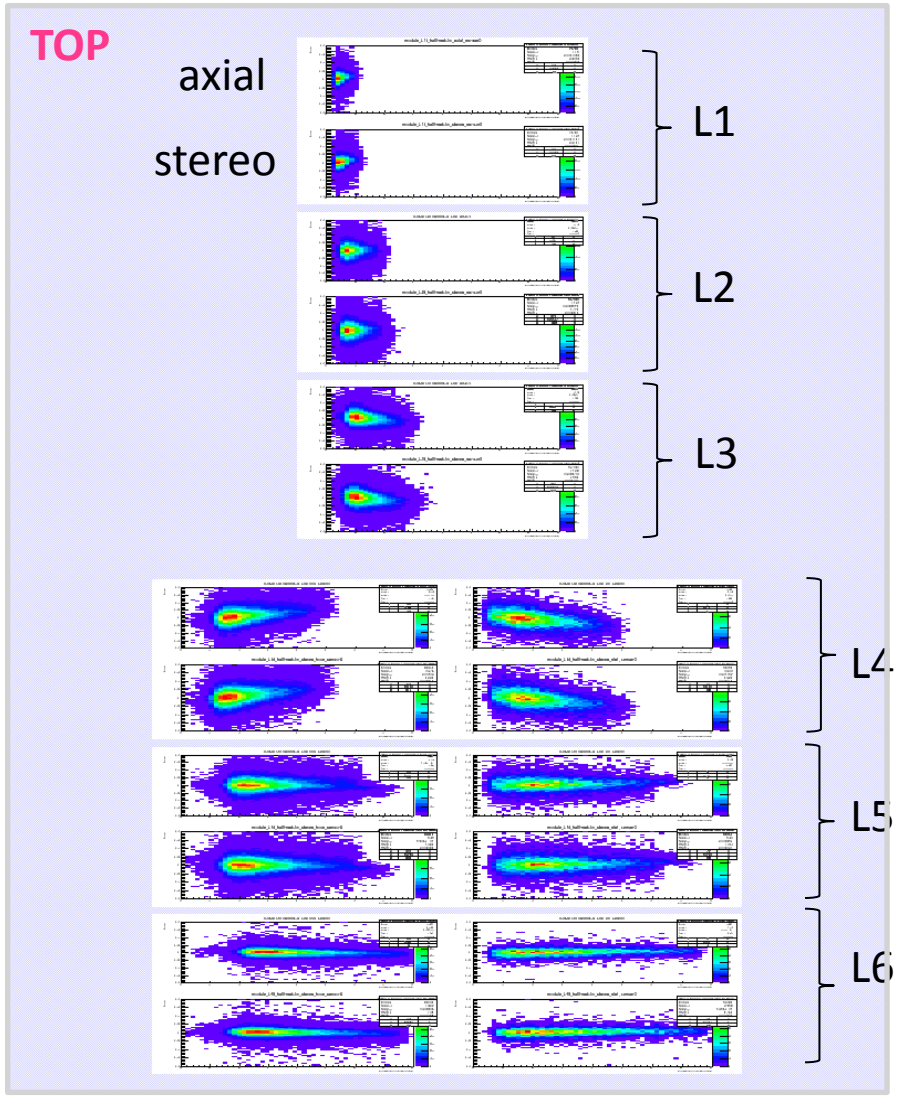
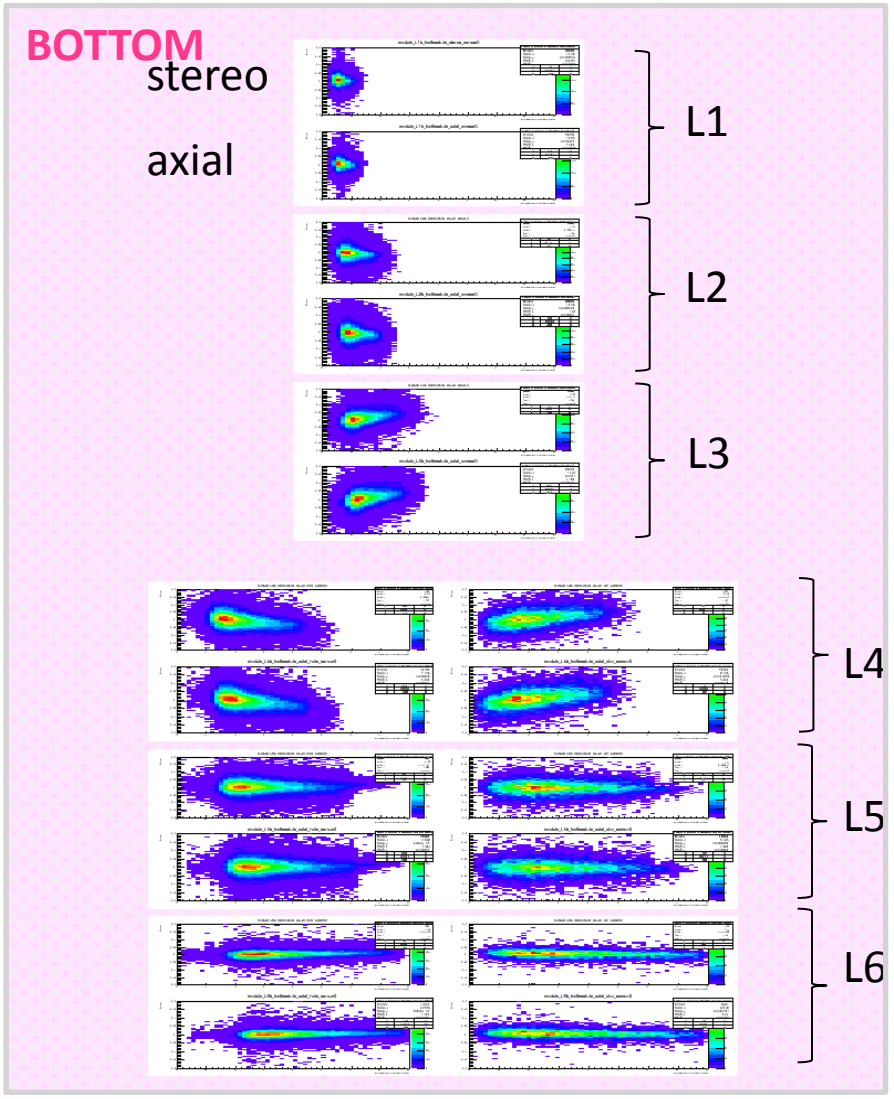


L6

u residuals vs u, v3.2 with magnetic field



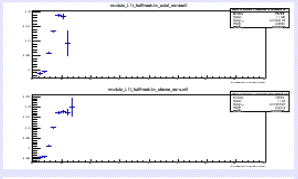


u residuals vs u profiles, 3+4+5 tu+rw v1.2

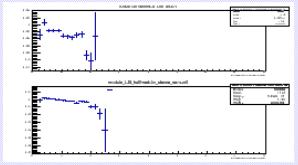
TOP

axial

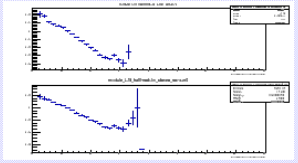
stereo



L1



L2



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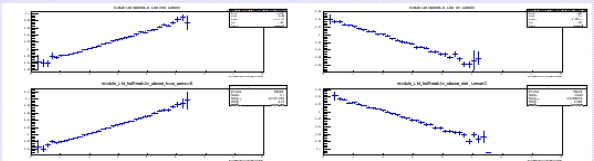

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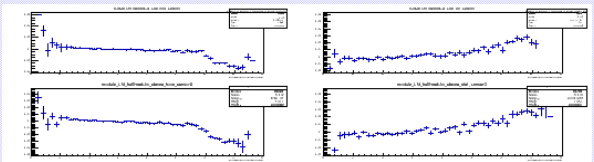

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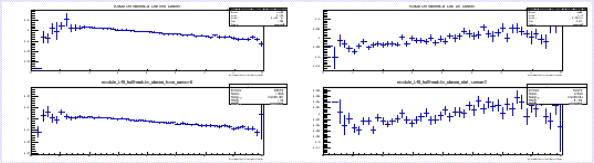
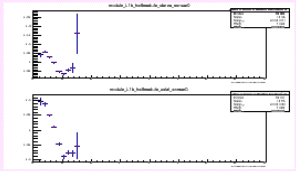


L6

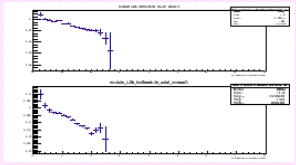
BOTTOM

stereo

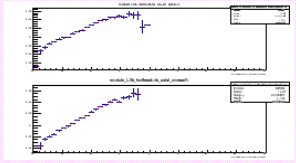
axial



L1



L2



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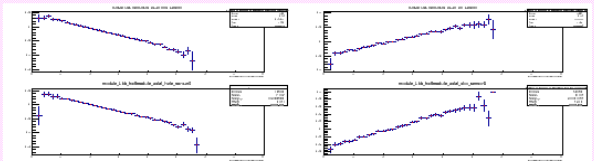

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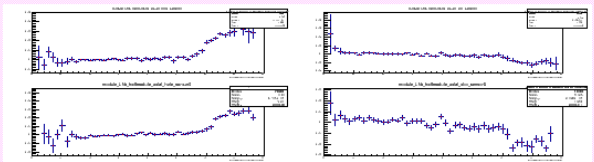
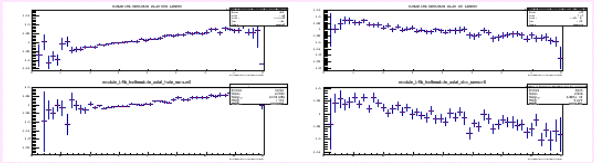
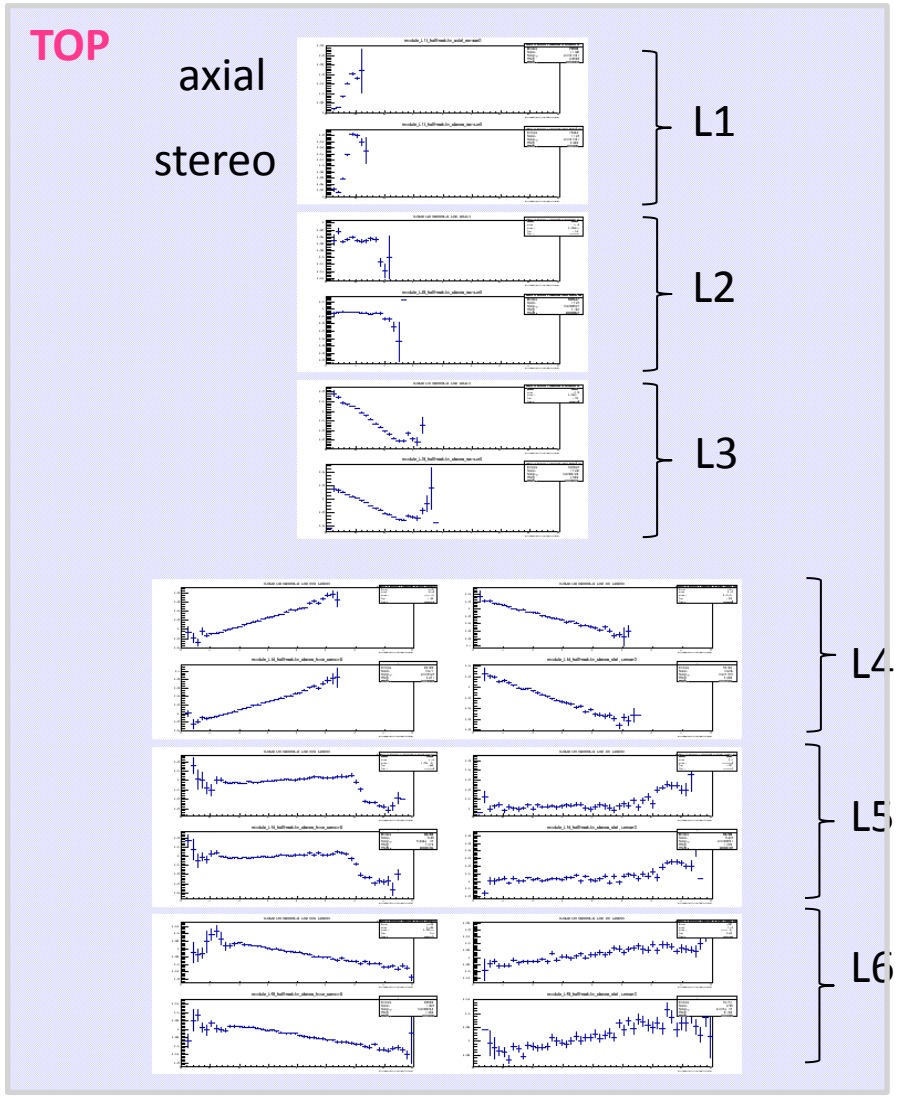


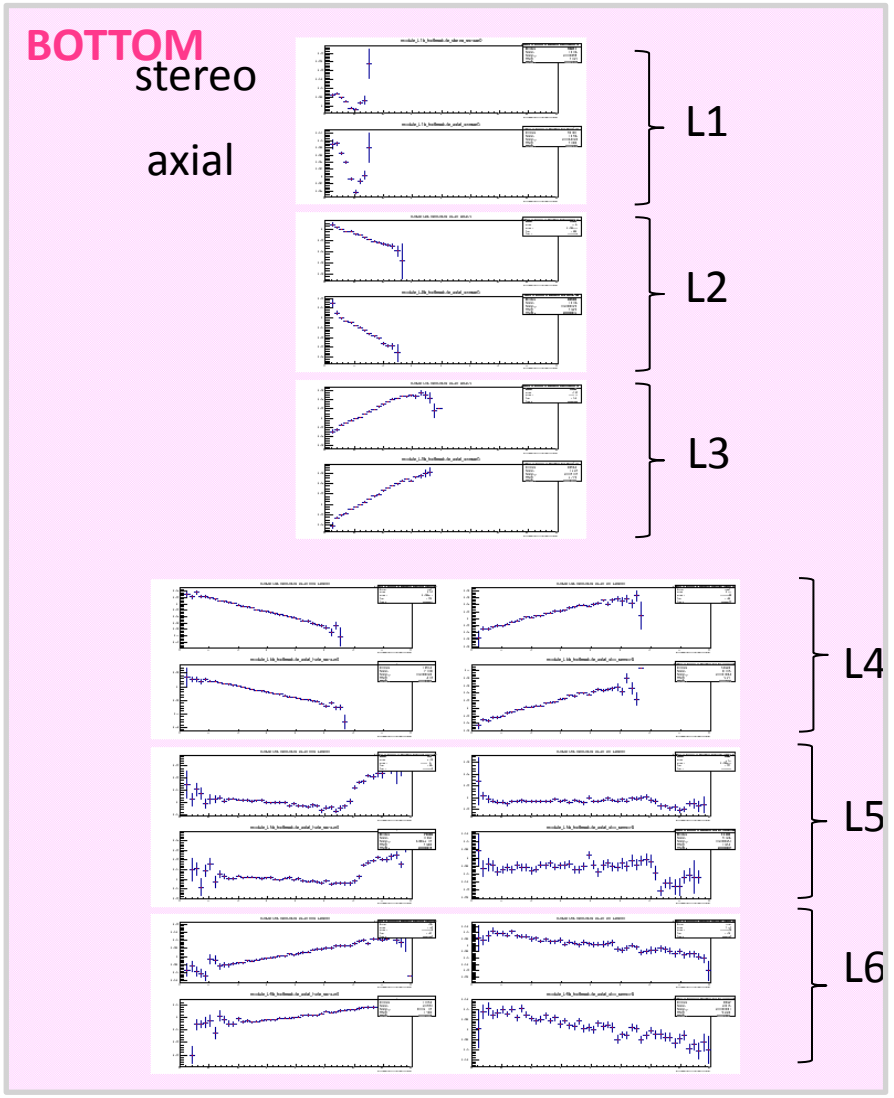
L5



L6

u residuals vs u profiles, v3.2 with magnetic field

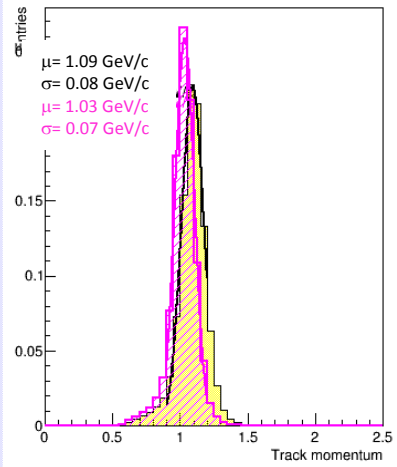


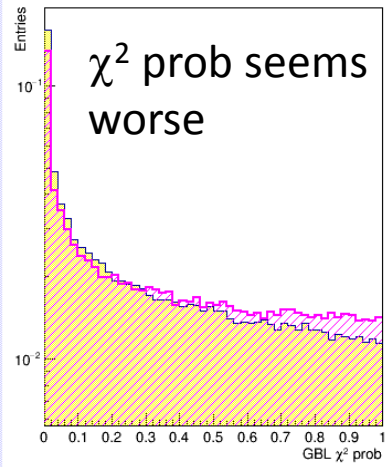


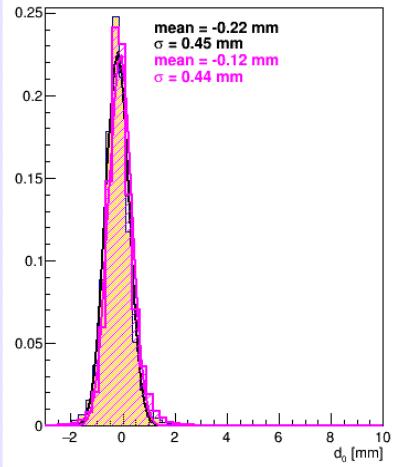
Momentum, prob, d0 and z0 comparison

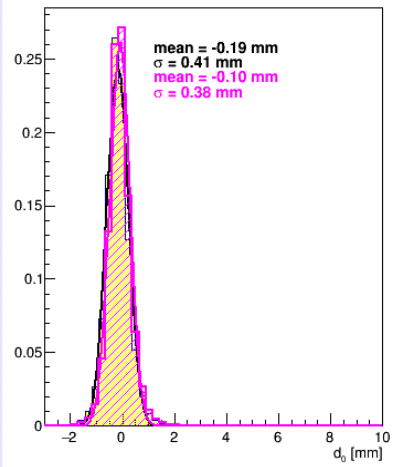
TOP: v3.2 mean value lower by 60 MeV/c narrower peak (10 MeV/c)

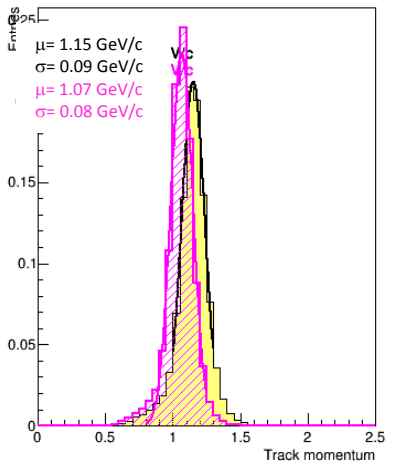
BOTTOM: v3.2 mean value lower by 70 MeV/c broader peak (20 MeV/c)

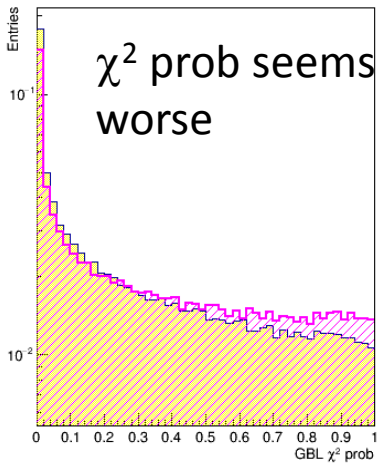


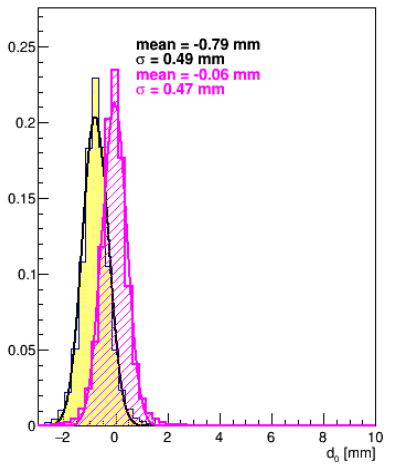


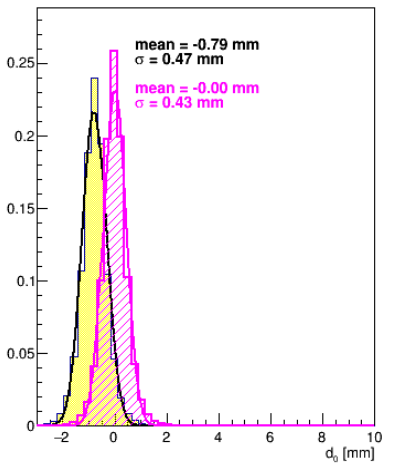












v3.2 d0 is approaching 0.

v3.2 z0 as well

Some notes

- If we compare with the reconstruction with all tracks, the alignment of this looks better
  - One should probably have a round with Millepede just on fee selected tracks
- Hard to tell which geometry is better – almost equivalent
- Which limit do we want to reach?
- Which is the momentum we are satisfied with?
- There is something related to rotations (probably) around v axis
    - Some improvement would be desireable in distribution of u residuals vs u coordinate for sensors 3, 4, 5
    - Some trials to float the v rotation parameter, unsuccessful (partial track reconstruction)
    - Working with MC (old reconstruction a few months ago), but not with real data