Straight Track Alignment

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Straight Line Fits

Fit strips to straight lines in L1-3 and L4-6, compare slopes and intercepts at z=400 (roughly midway between layer 3 & 4.

Slopes and Intercepts



-0.010 -0.009 -0.008 -0.007 -0.006 -0.005 -0.004 -0.003 -0.002 -0.001 0.000 0.001 0.002 0.003 0.004 0.005 0.006 0.007 0.008 0.009 0.010

top dY at z = 400.0 chisq < 25.0 Entries: 115073 Mean : -0.058293 Rms: 0.061417 OutOfRange: 63 dY 0--0.25 -0.20 -0.15 -0.10 -0.05 0.00 0.05 0.10 0.15 0.20 0.25 top ddYdZ at z = 400.0 chisq < 25.0 Entries: 115074



-0.0010-0.0009-0.0008-0.0007-0.0006-0.0005-0.0004-0.0003-0.0002-0.0001 0.0000 0.0001 0.0002 0.0003 0.0004 0.0005 0.0006 0.0007 0.0008 0.0009

Straight Track Vertexing

- Instead of simply projecting back in z and plotting x-y, wrote code to vertex the straight tracks.
- Take ensembles of tracks from top, and separately from the bottom, and vertex them.
- Test on MC, apply on data from run 8100





Vertexing (data top L13/L46)



8100 top L13 L14 vertex z





8100 top L13 L14 vertex y

Note change in slope top vs bottom

Vertexing (data top/bottom)







Both top and bottom appear to vertex to same z position with offsets in X & Y.

Status

- Most of the tools and data are now in place.
 Proceeding deliberately to understand and correct the field-off straight tracks.
- Implementing corrections to SVT angles around X and Y axes to get L13/L46 slopes and intercepts to agree and also top/bottom vertices to agree.
- Will then test on FEE to check momentum calibration, alignment and target position.
- Working on documentation.
- Working on run requirements to make sure we have sufficient quantity and types of calibration/alignment data early on.