Internal alignment with new version (v2) – work in progress part 2

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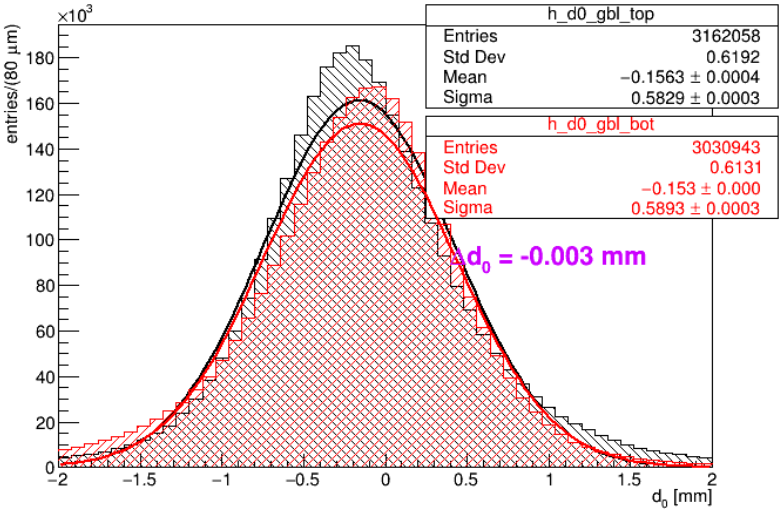
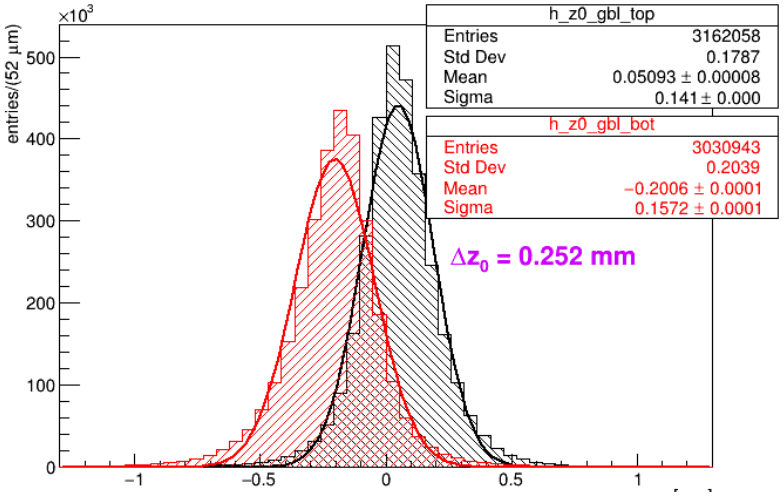
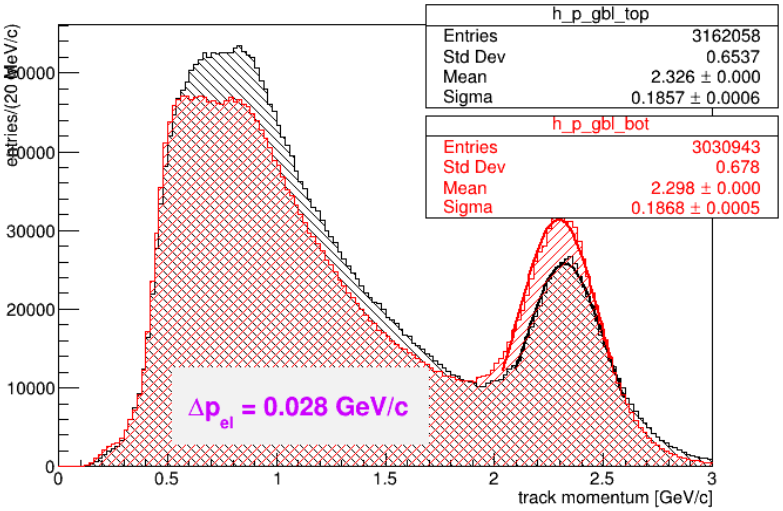
START

2016 v2 w fieldmap, 0.5mm curved tracks only, NO alignment - START





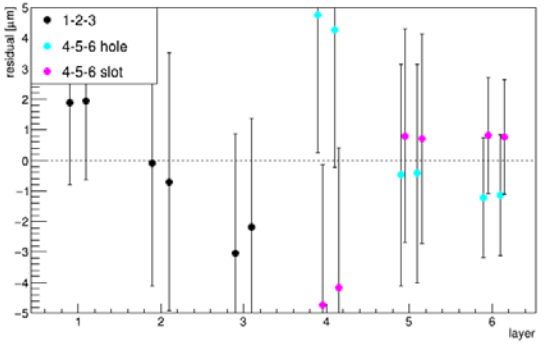
Good alignment top/bottom d_0 BUT they are not zero: ~150 μm

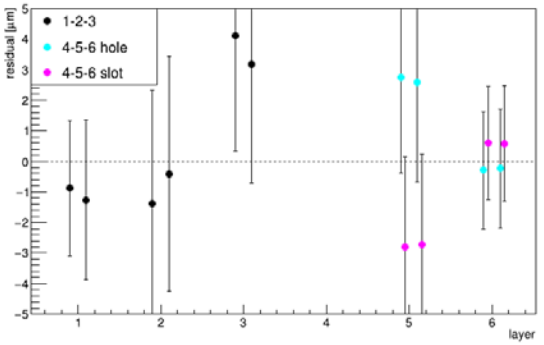


T/B diff
Δd_0 = 3 μm
Δz_0 = 252 μm
Δp = 28 MeV/c

p_{top} = 2.326 MeV/c
p_{bot} = 2.298 MeV/c

The elastic peak momentum is **not** underestimated!

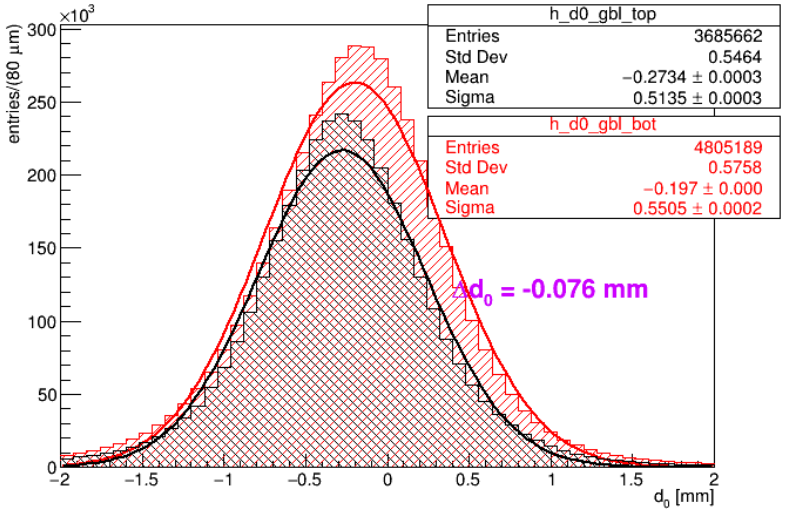


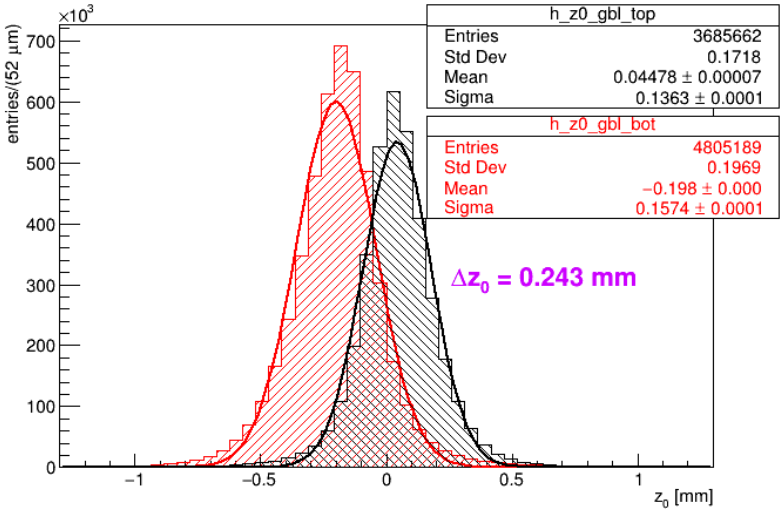


#12

2016 v2-1 w fieldmap, 0.5mm - all curved tracks

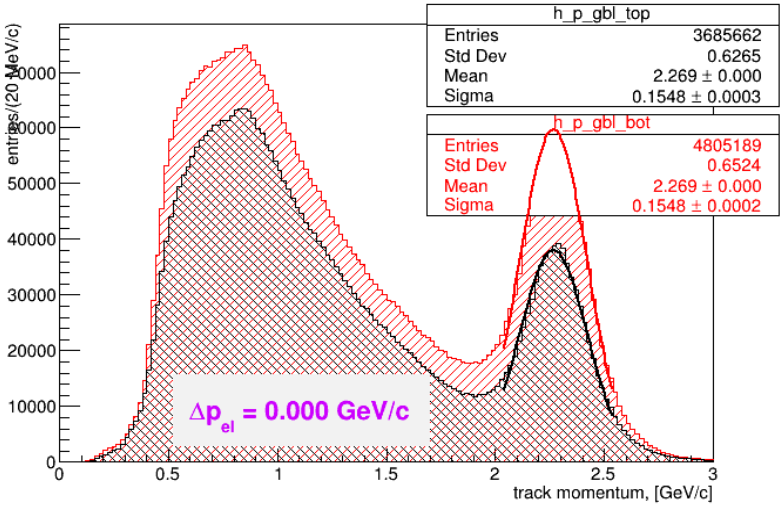
(different statistics with previous tests, don't compare)





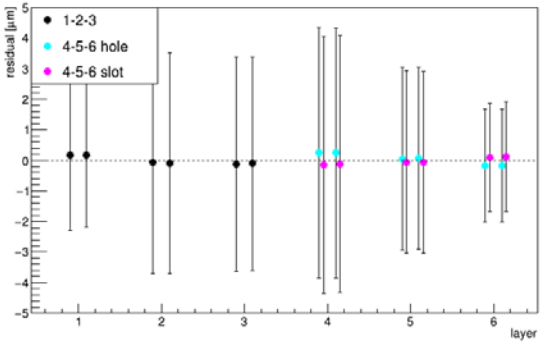
d_0 t/b are no more aligned (top moves away, about twice the distance)

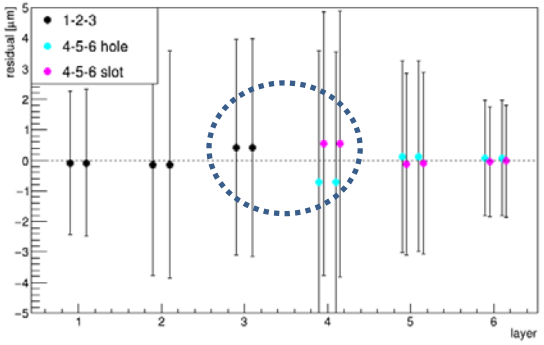
T/B diff
Δd_0 = 76 μm
Δz_0 = 243 μm
Δp = 0 MeV/c



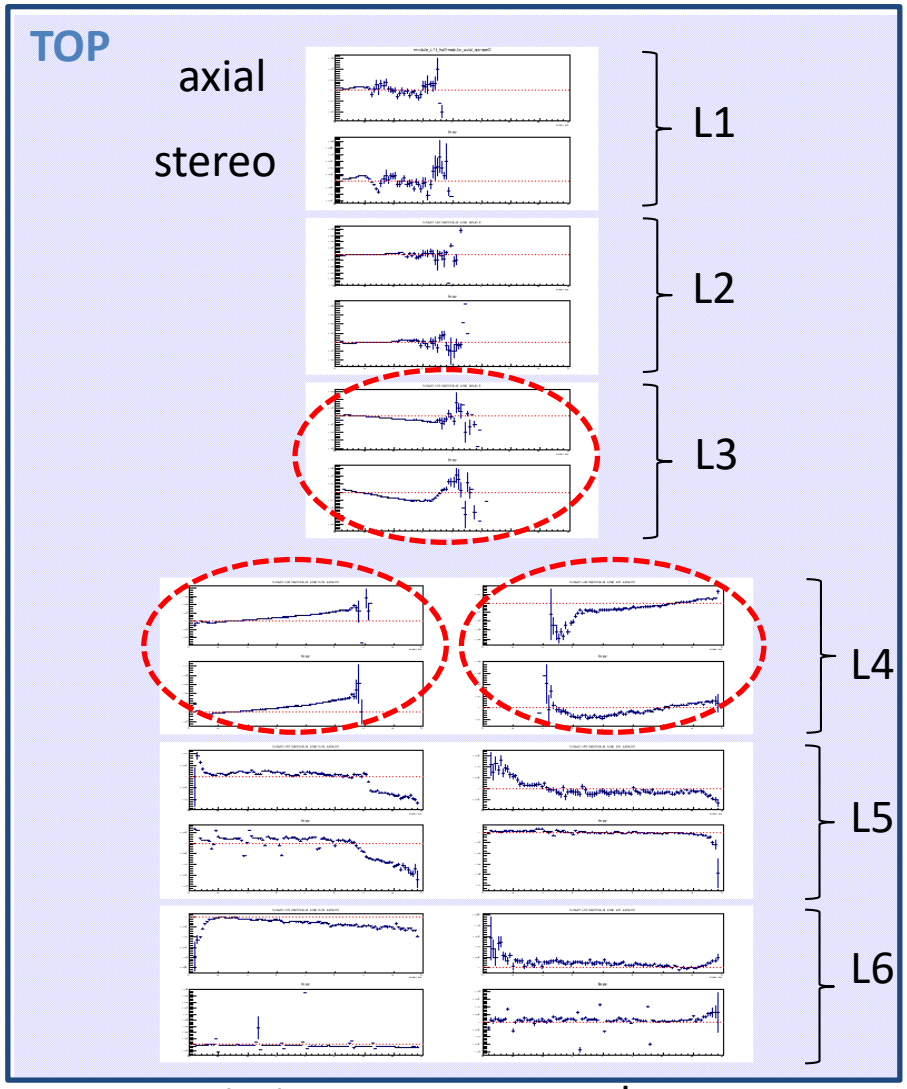
p_{top} = 2.269 MeV/c
p_{bot} = 2.269 MeV/c

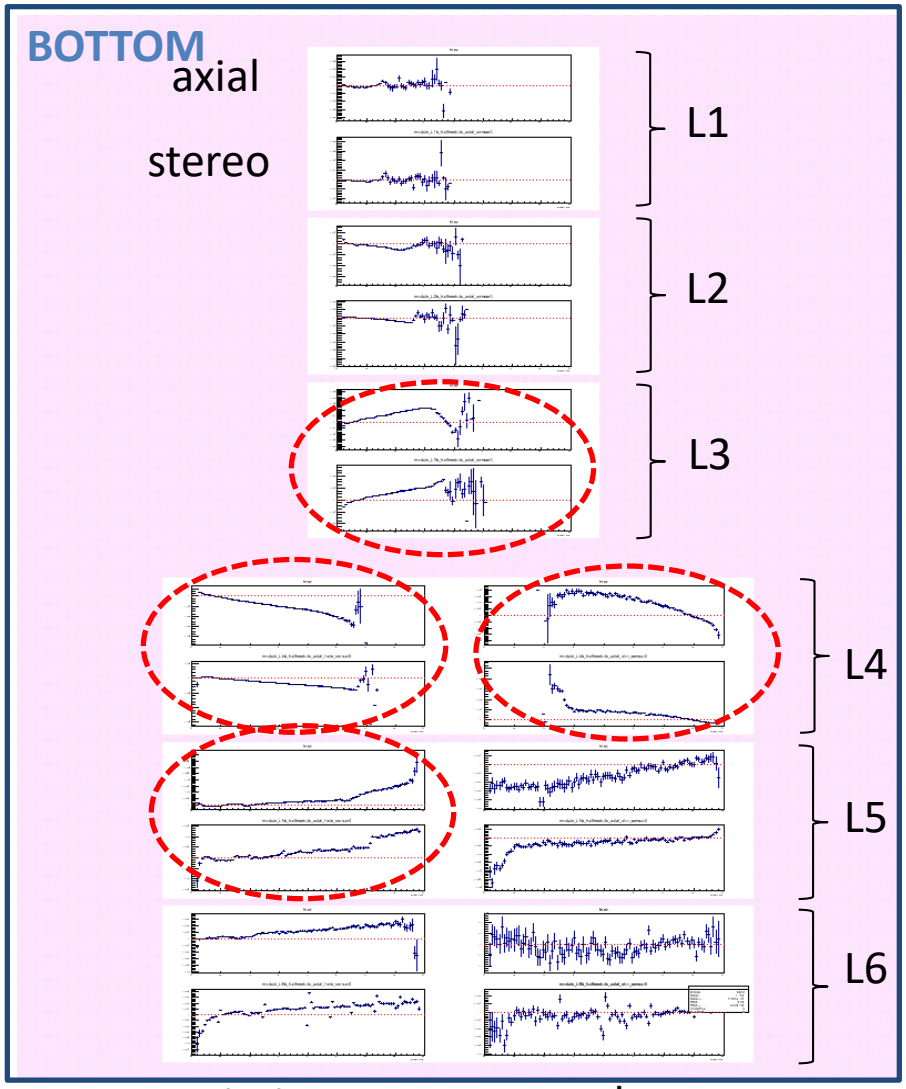
The elastic peak momentum is aligned, but slightly lowered



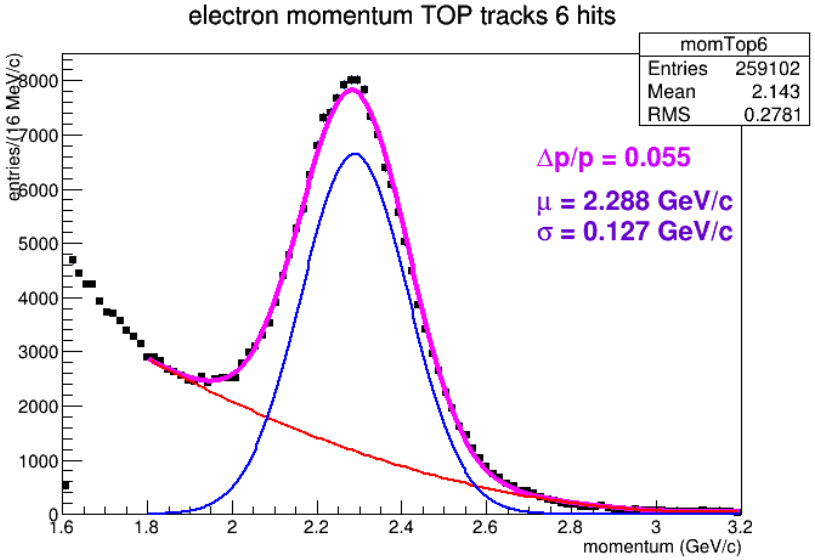


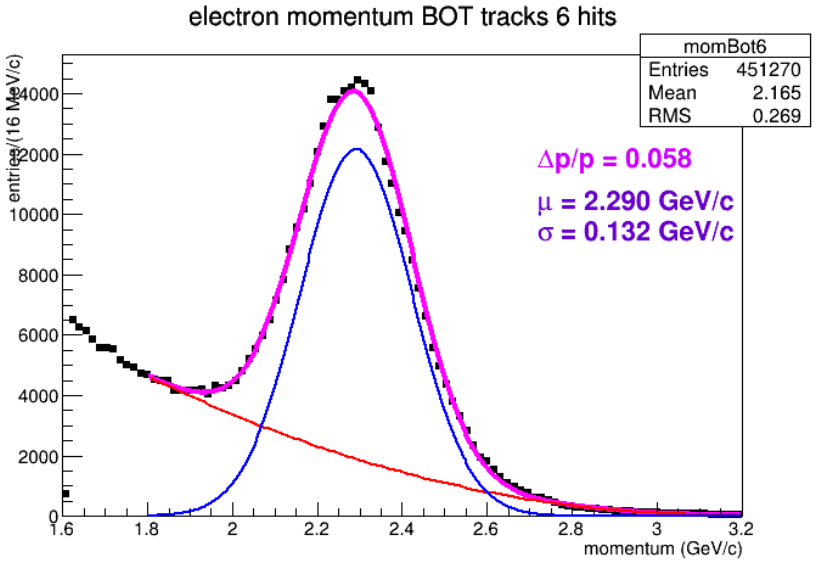
GBL u residuals vs u position, curved tracks
more tuning on rotations still needed

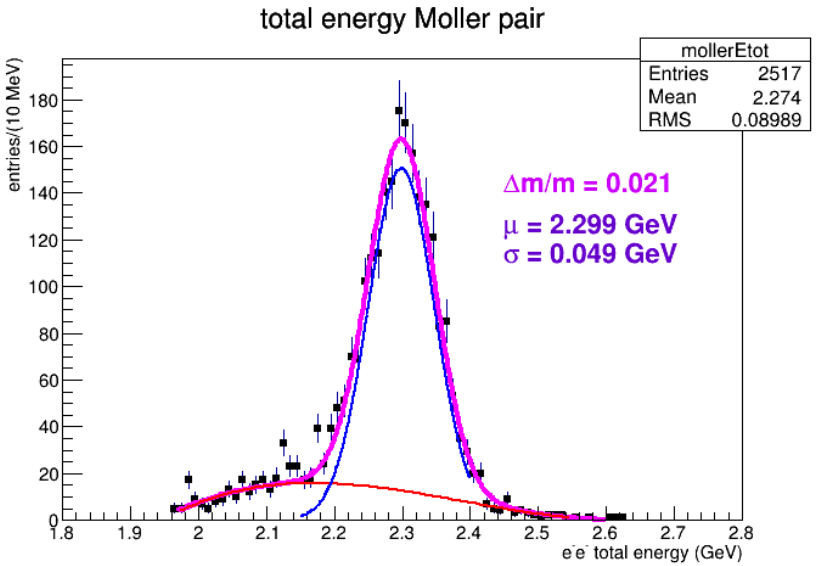


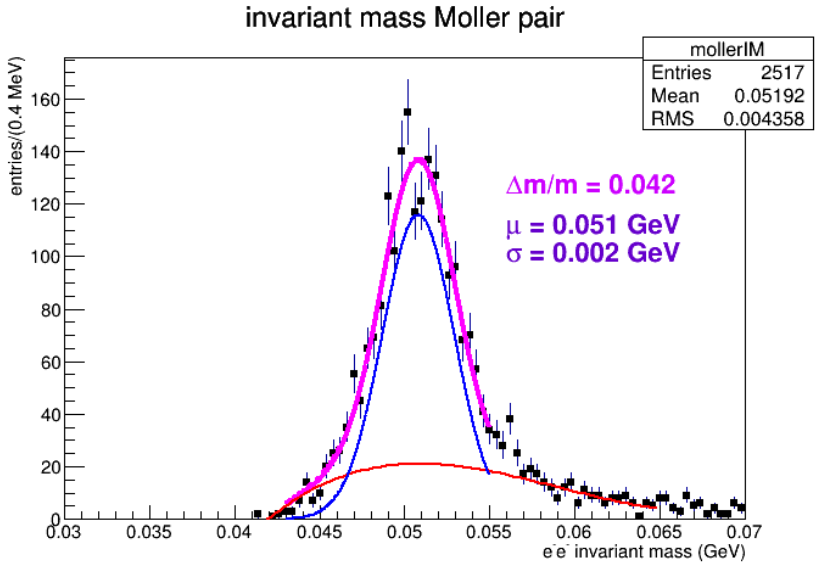


FEE/Moller resolutions



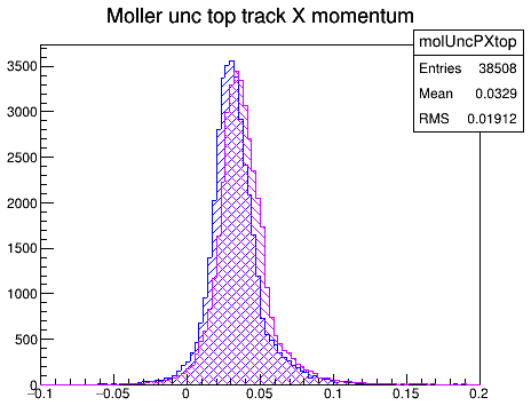


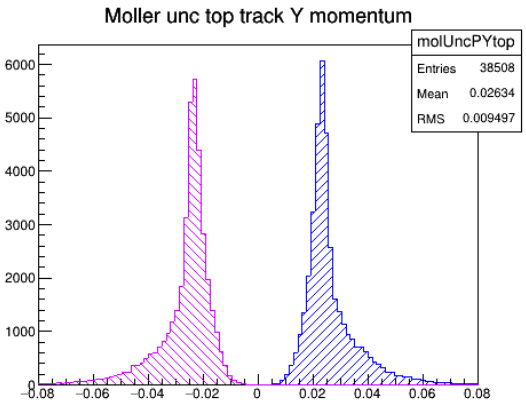




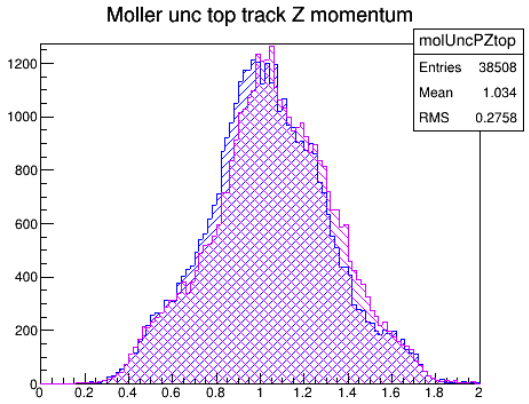
Momentum components, vertex position

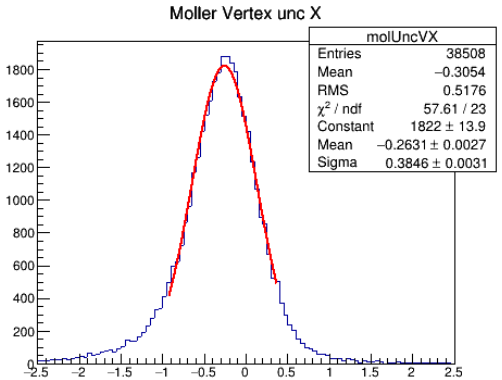
Moller events

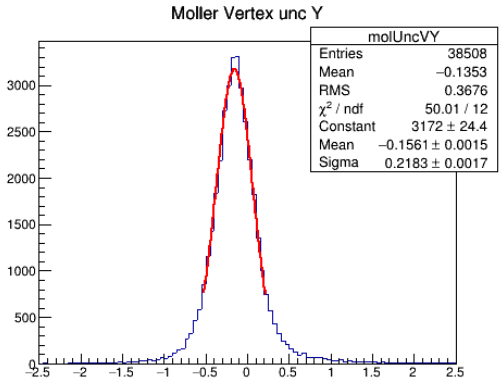


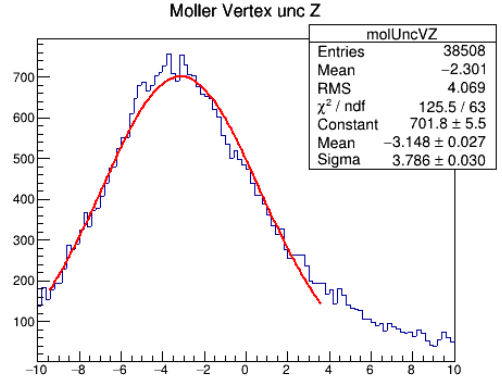


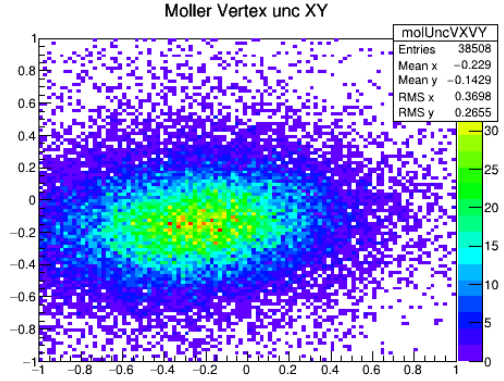
bottom spectra (violet) are slightly harder than the top ones











Z_{target} = -3.15 mm

X_{target} = -0.26 mm

Y_{target} = -0.16 mm

2nd week wrap-up

- Some time lost due to contingencies/computing problems (new queues, disk saturation over the weekend, …)

- Internal alignment almost ok
  - Some more tuning needed (a couple more attempts trying to float rotations)
- Attempt to introduce a global alignment to center the beam in (x,y) (impact parameters brought to zero) - ongoing
- Test of alignment with new magnetic field