On the Alignment

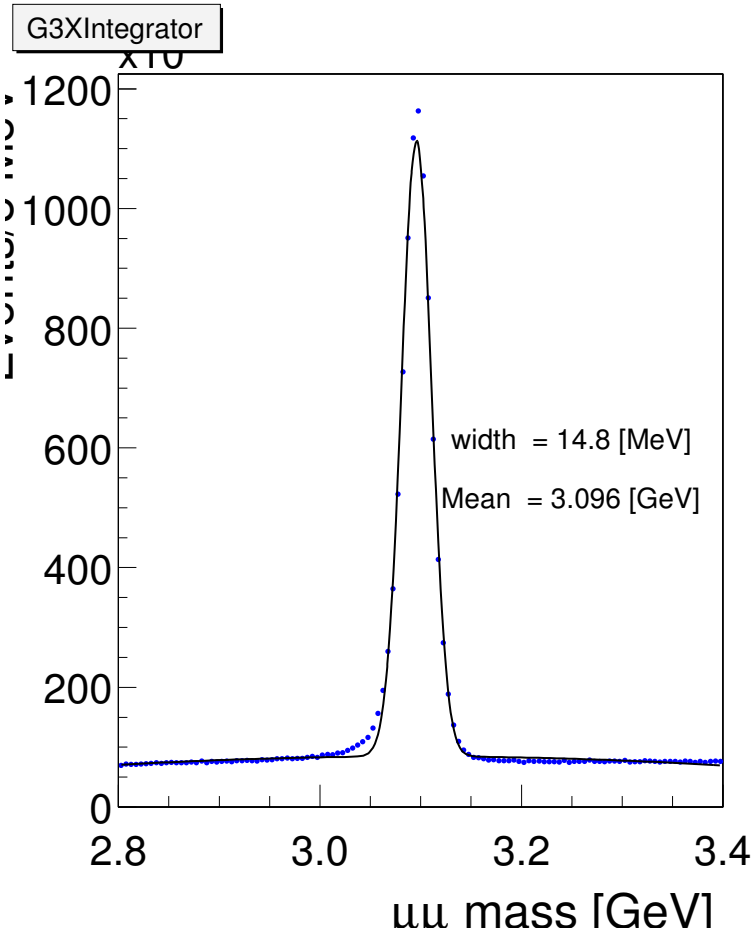
Andreas Korn

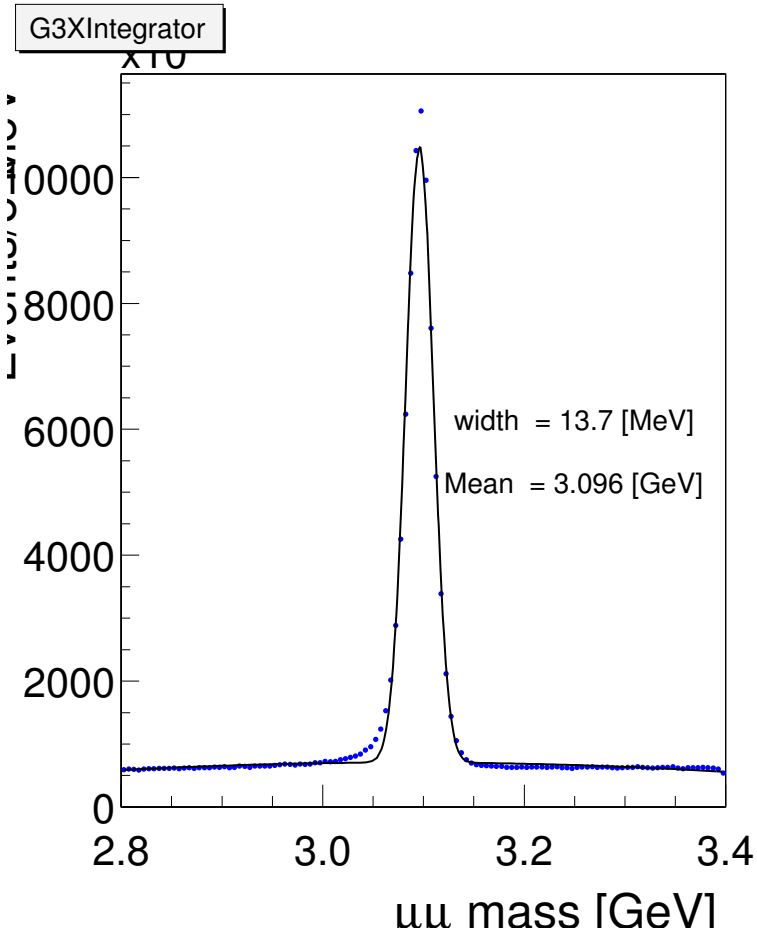
Massachusetts Institute of Technology
akorn@mit.edu

Overview

- use release 5.0.0int4 (new default COT Alignment)
- use Alignment "100034 13 TEST" and "150034 13 TEST"
- adjust beamlines by move in global
- rerun Production on the Fly
- dataset: jbot0h ($J/\psi \rightarrow \mu\mu$)

Mass Resolution

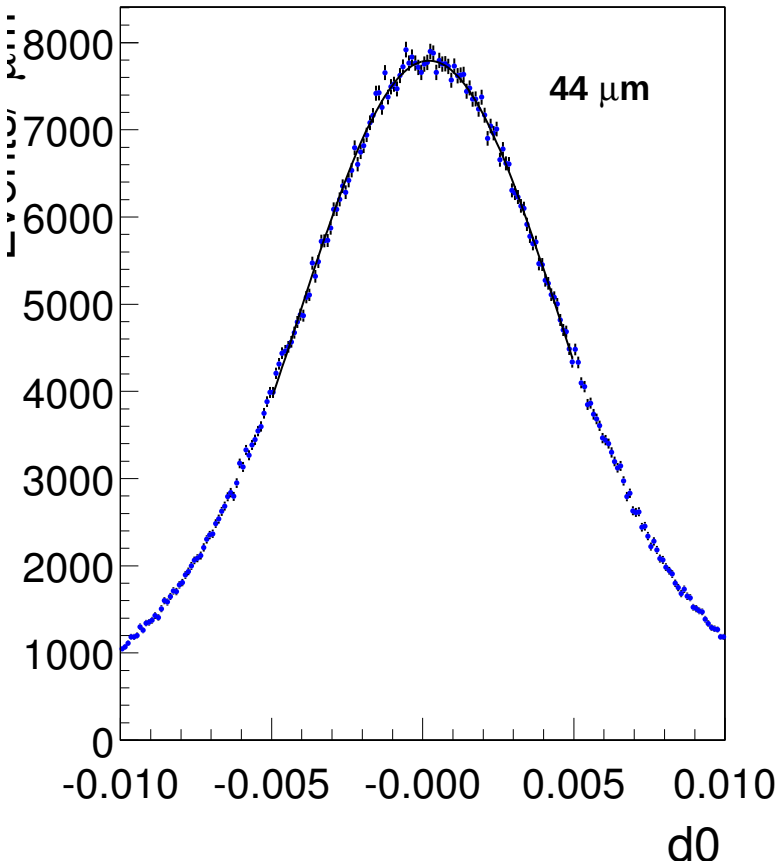




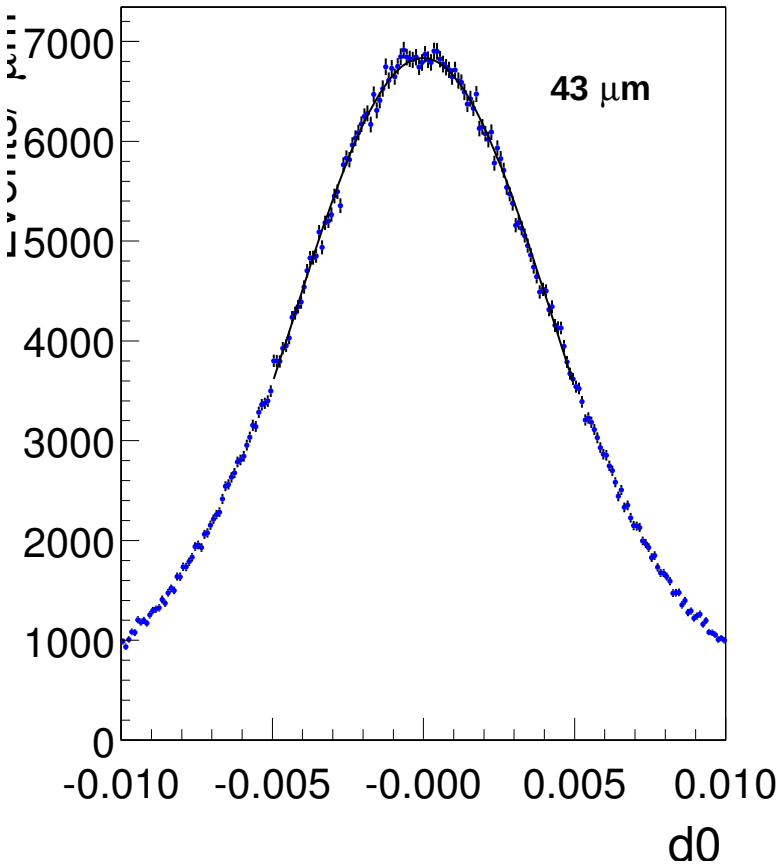
before after

$B^+ \to \mathrm{J}/\psi \mathrm{K}^+$ width improves from 14.9 to 12.4 MeV.

Impact Parameter Resolution

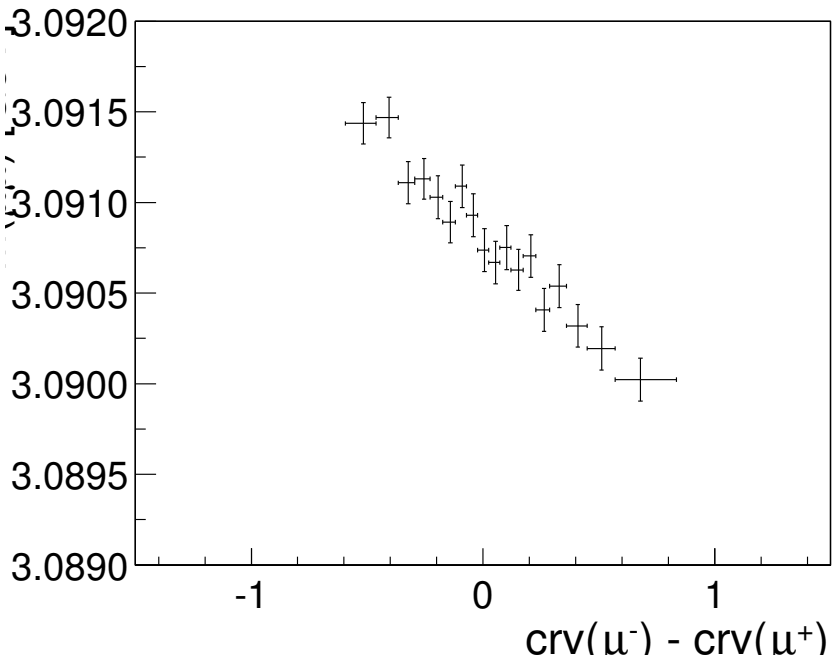


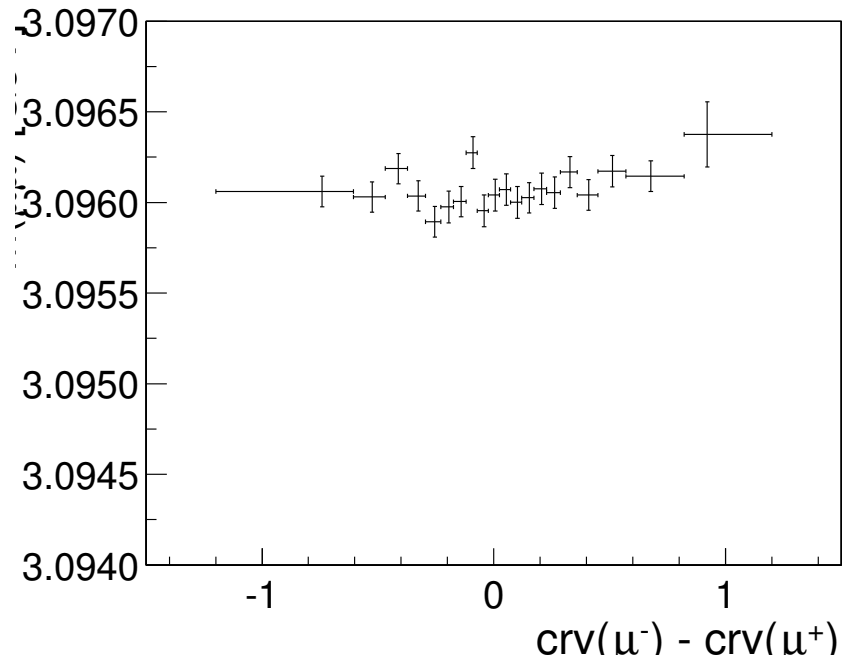
before



after

Δcurv





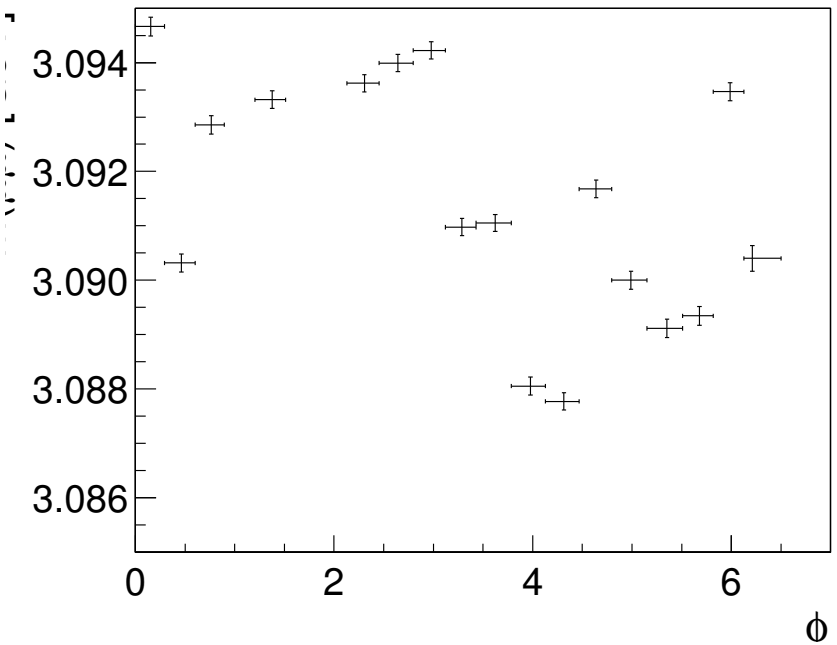
before

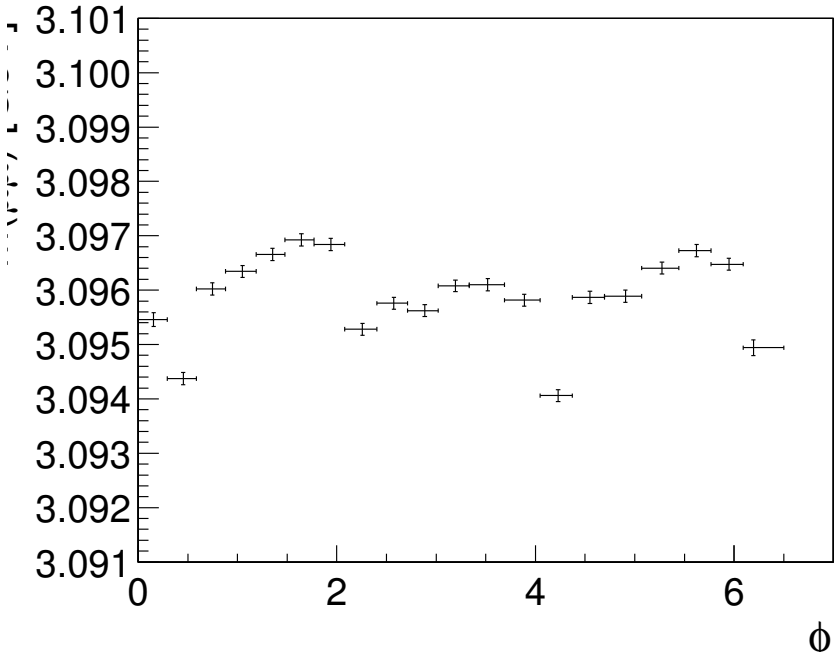
after

defTracks.

$m_{B^-} - m_{B^+}$ improves from 3.2 MeV to -0.03 MeV

ϕ dependence





before

COT only.

after

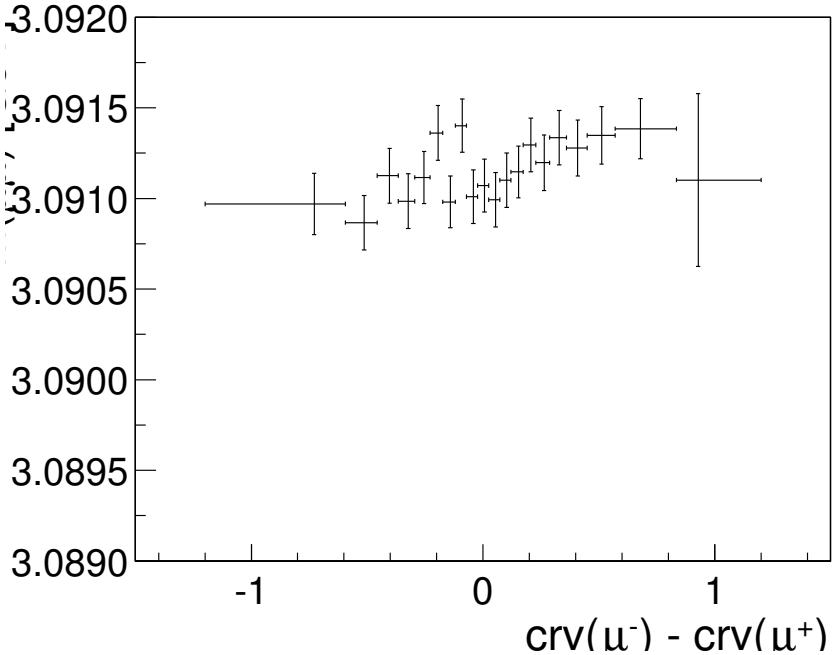
Recap

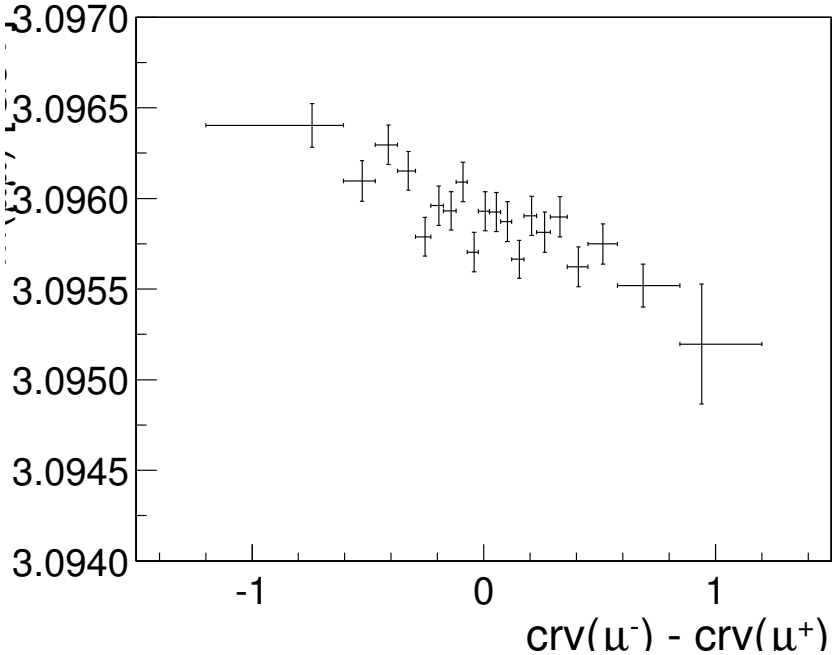
What we've learned so far

- resolutions improve
- some pathologies are reduced

Now for the interesting part ..

Δcurv



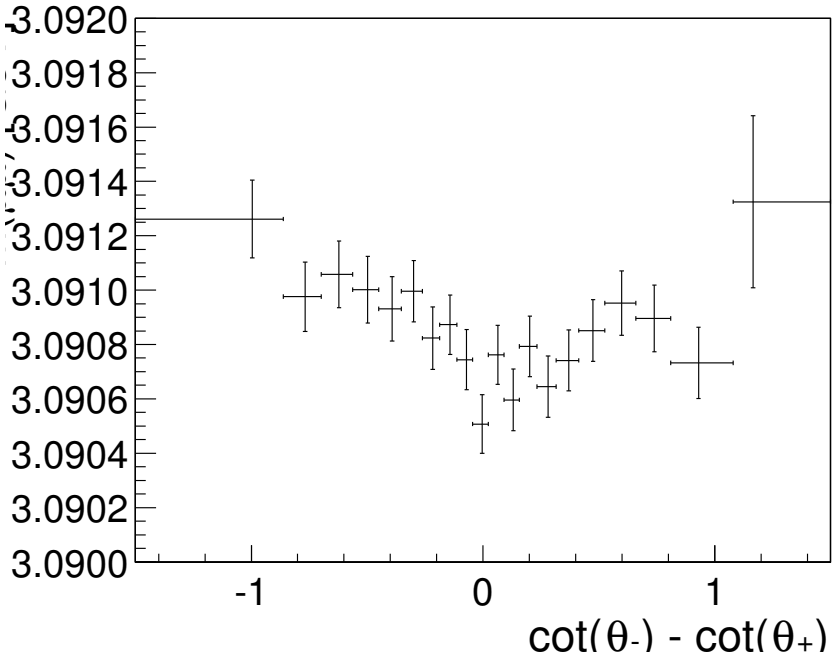


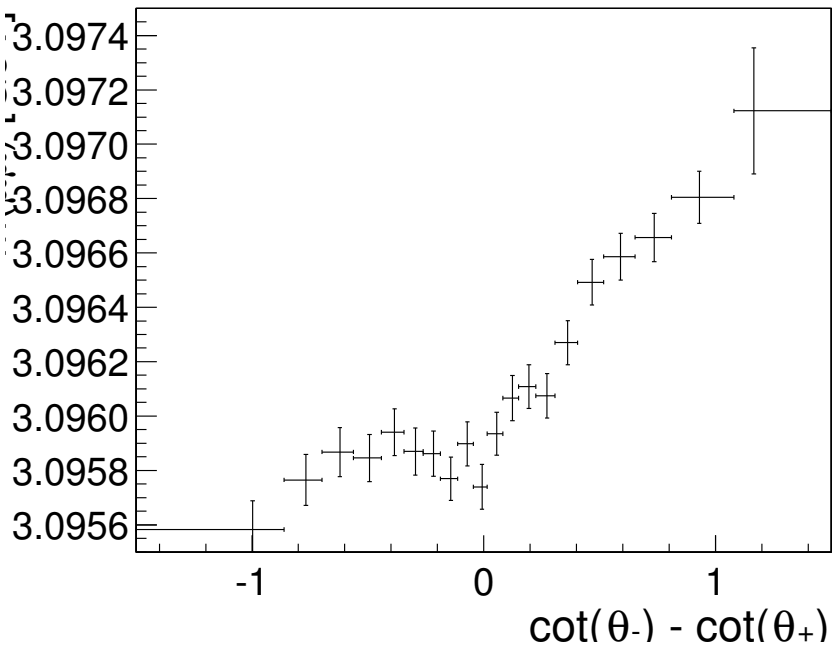
before

COT only

after

$\cot\theta_{\mu^-} - \cot\theta_{\mu^+}$



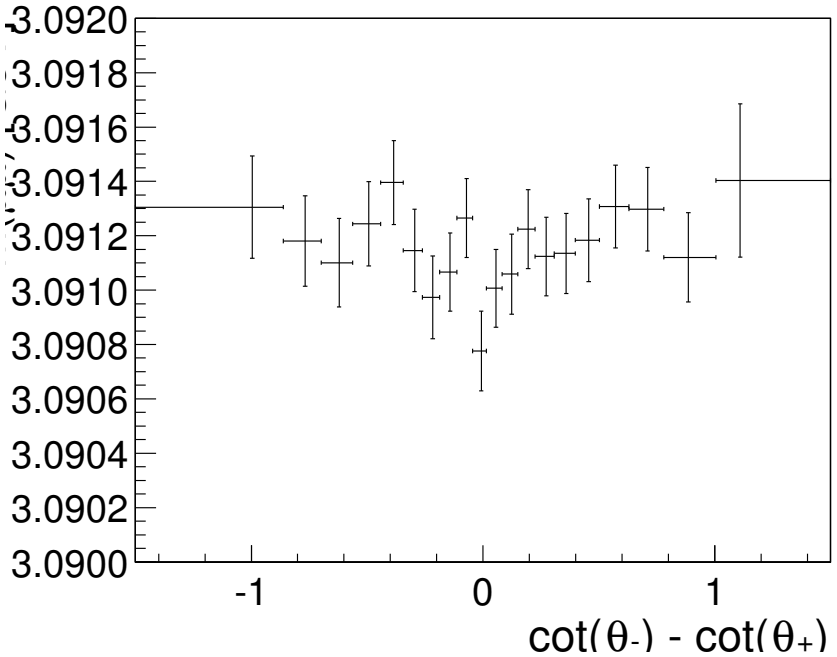


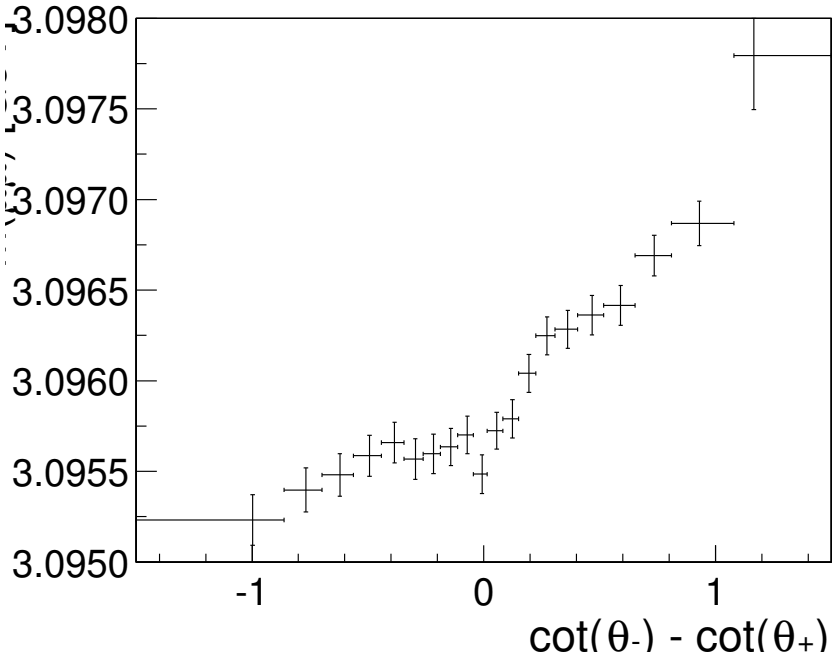
before

after

defTracks. $\Longrightarrow$???

$\cot\theta_{\mu^-} - \cot\theta_{\mu^+}$



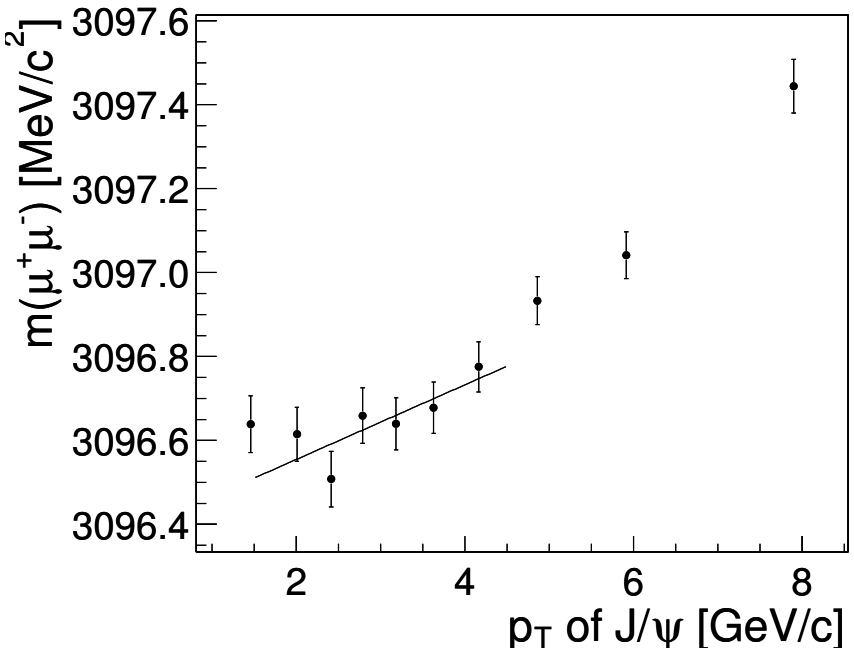


before

after

COT only $\Longrightarrow$???

m vs p_T



Pathology still present

Conclusion

- obvious improvements
- better resolutions
- less pathologies in defTracks
- some problems shifted
- understanding $\Delta \cot$