



# Update on Delphes

Kenny Jia



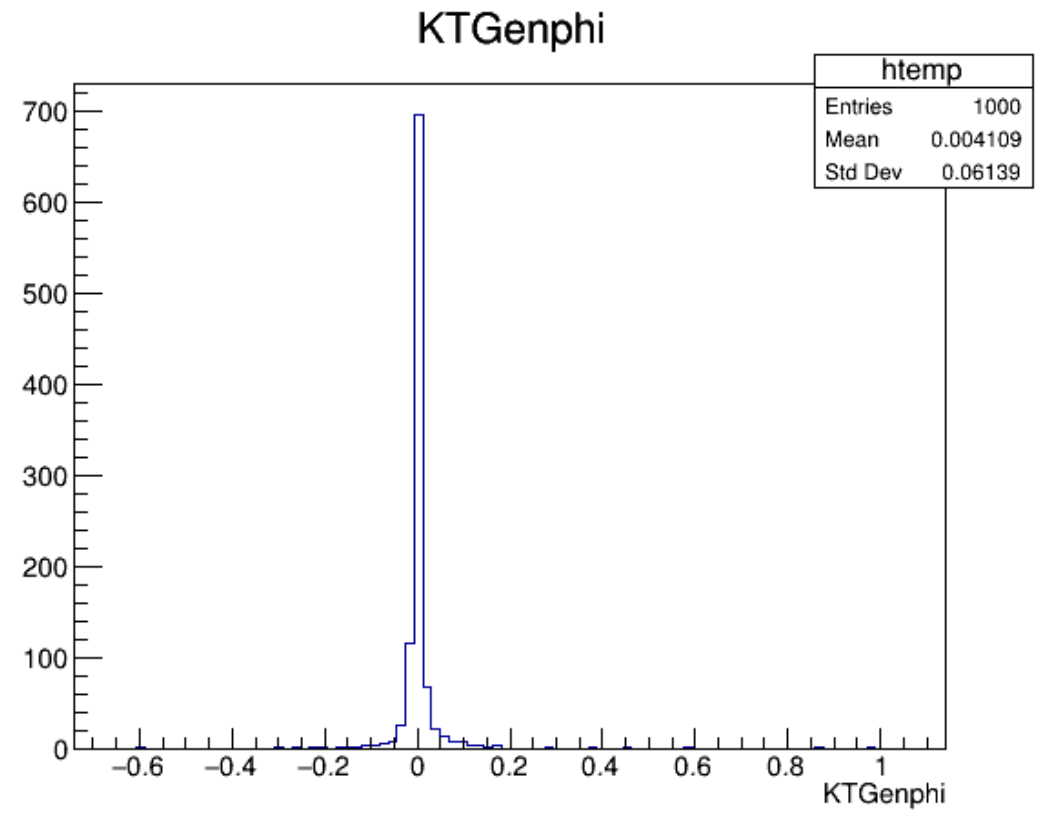
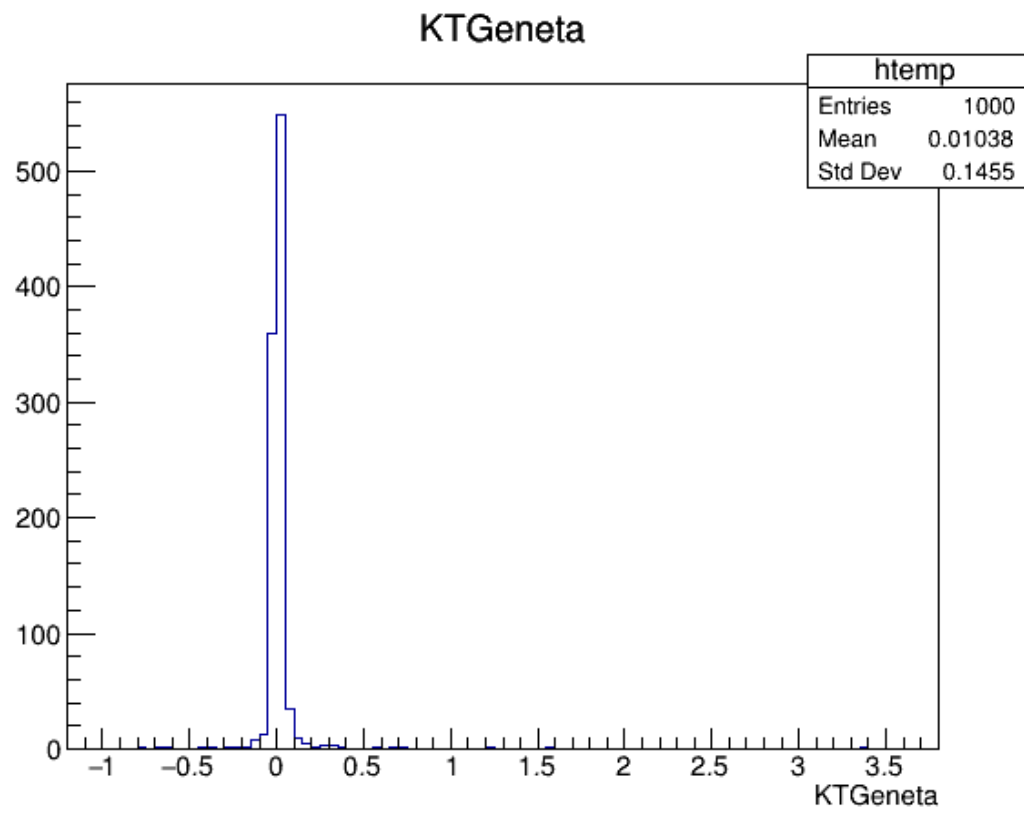


## Cross section

- $\mu^+ \mu^- \rightarrow \nu_\mu \bar{\nu}_\mu h h$ :  $0.0008252 \pm 6.7e-06$
- $\mu^+ \mu^- \rightarrow \nu_\mu \bar{\nu}_\mu b \bar{b} b \bar{b}$ :  $0.0009234 \pm 7e-06$
- $\mu^+ \mu^- \rightarrow \nu_\mu \bar{\nu}_\mu b \bar{b} h$ :  $0.003722 \pm 2.7e-05$
- $\mu^+ \mu^- \rightarrow \nu_\mu \bar{\nu}_\mu b \bar{b} z$ :  $0.03168 \pm 2.7e-04$

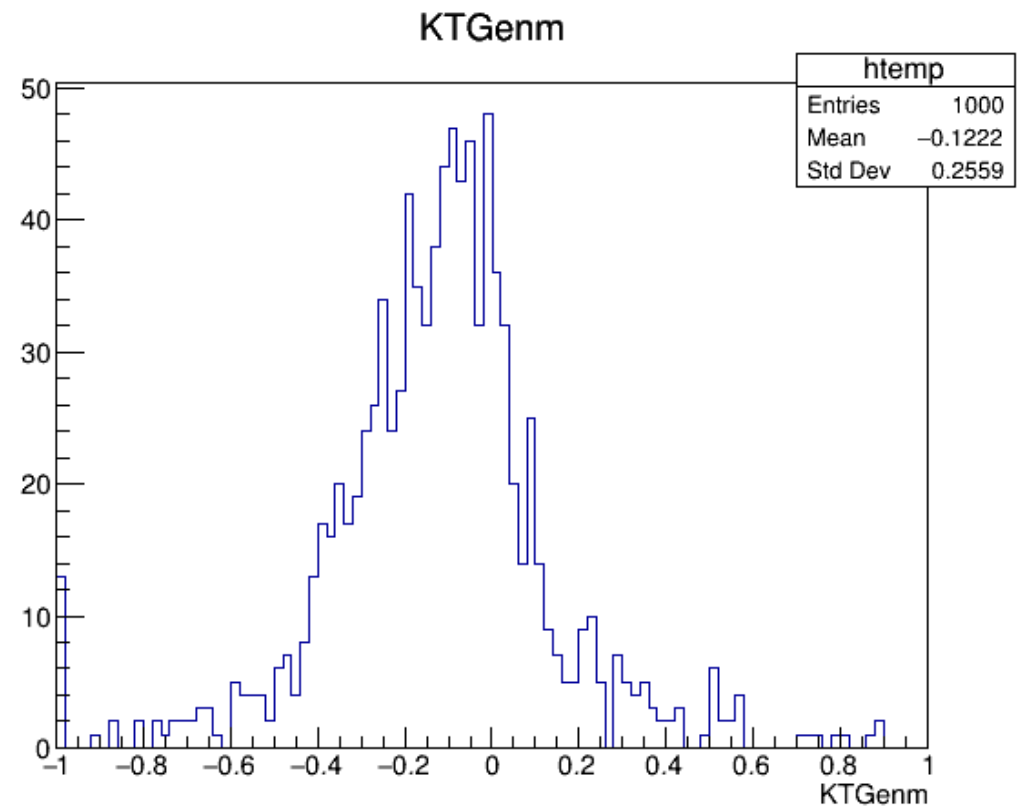
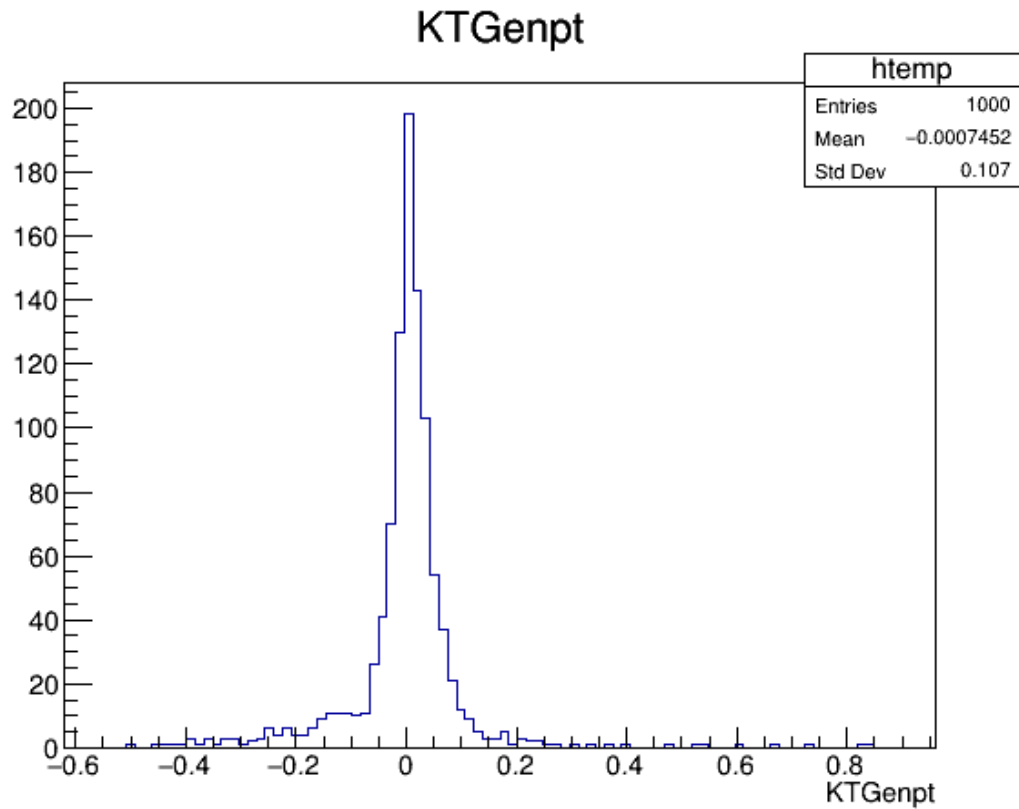


Signal:  $\mu^+ \mu^- \rightarrow \nu \mu \bar{\nu} h h$





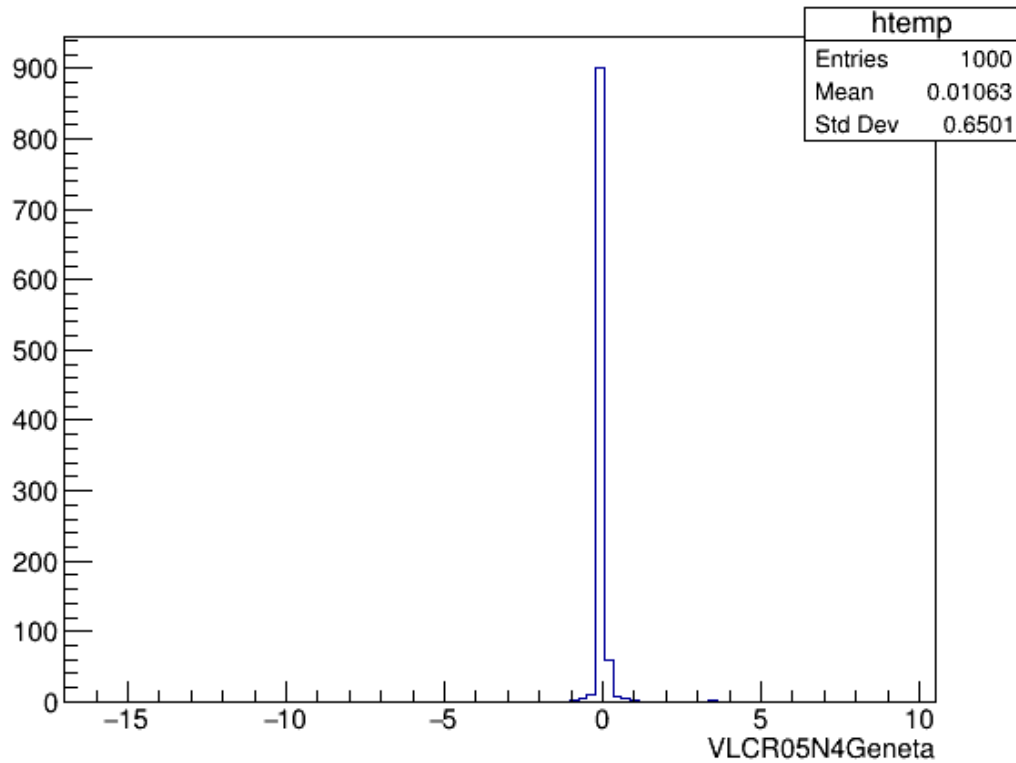
Signal:  $\mu^+ \mu^- \rightarrow \nu_\mu \bar{\nu}_\mu h h$



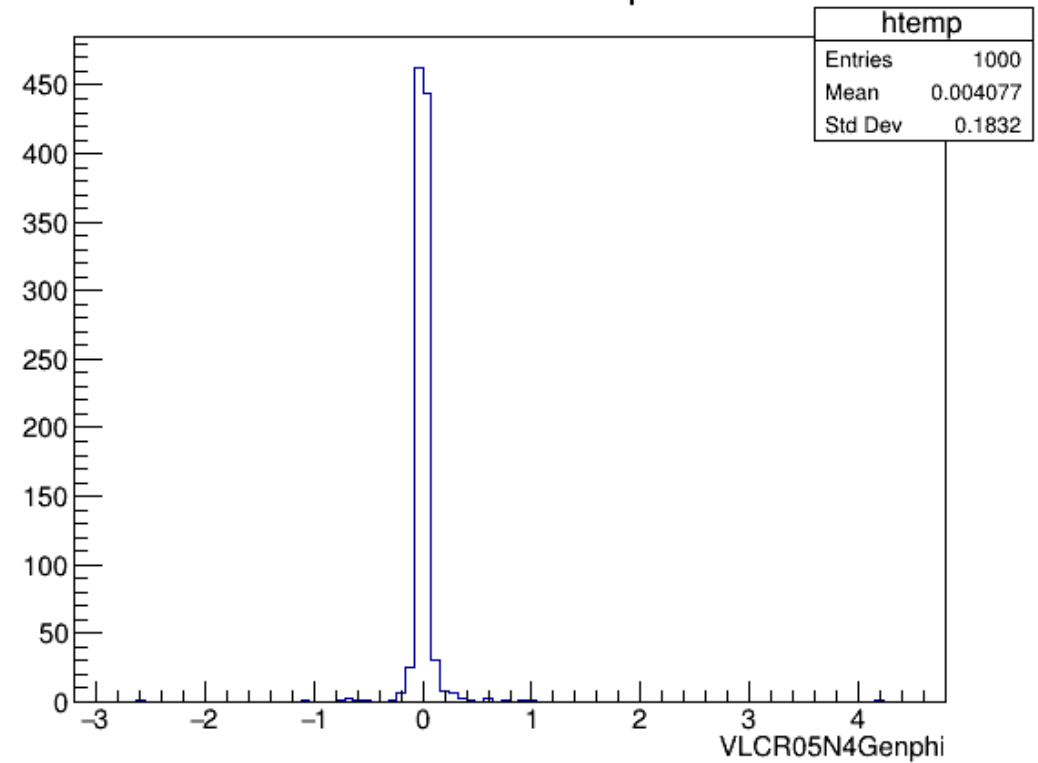


Signal:  $\mu^+ \mu^- \rightarrow \nu_\mu \bar{\nu}_\mu h h$

VLCR05N4Geneta



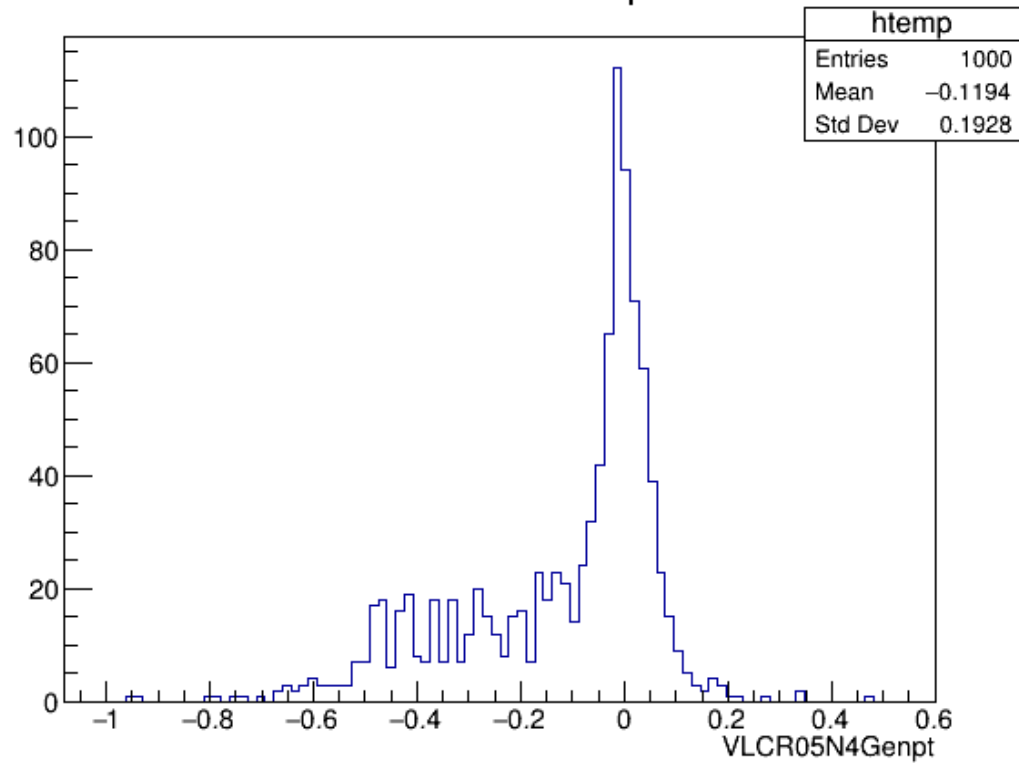
VLCR05N4Genphi



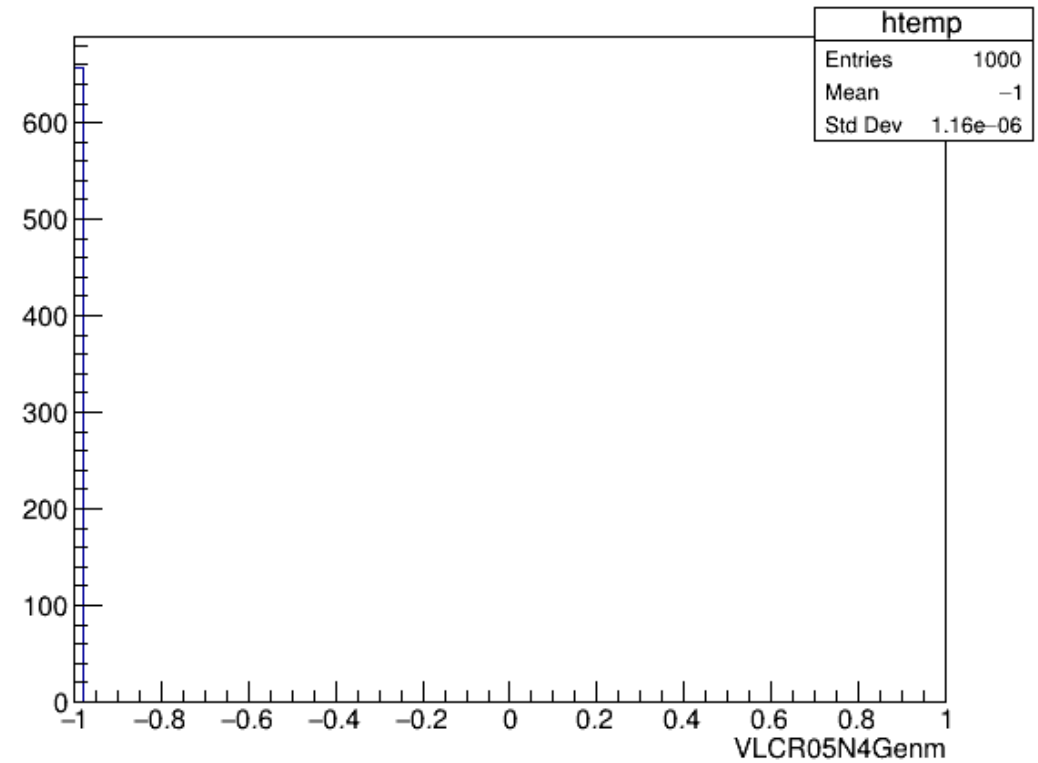


Signal:  $\mu^+ \mu^- \rightarrow \nu_\mu \bar{\nu}_\mu h h$

VLCR05N4Genpt



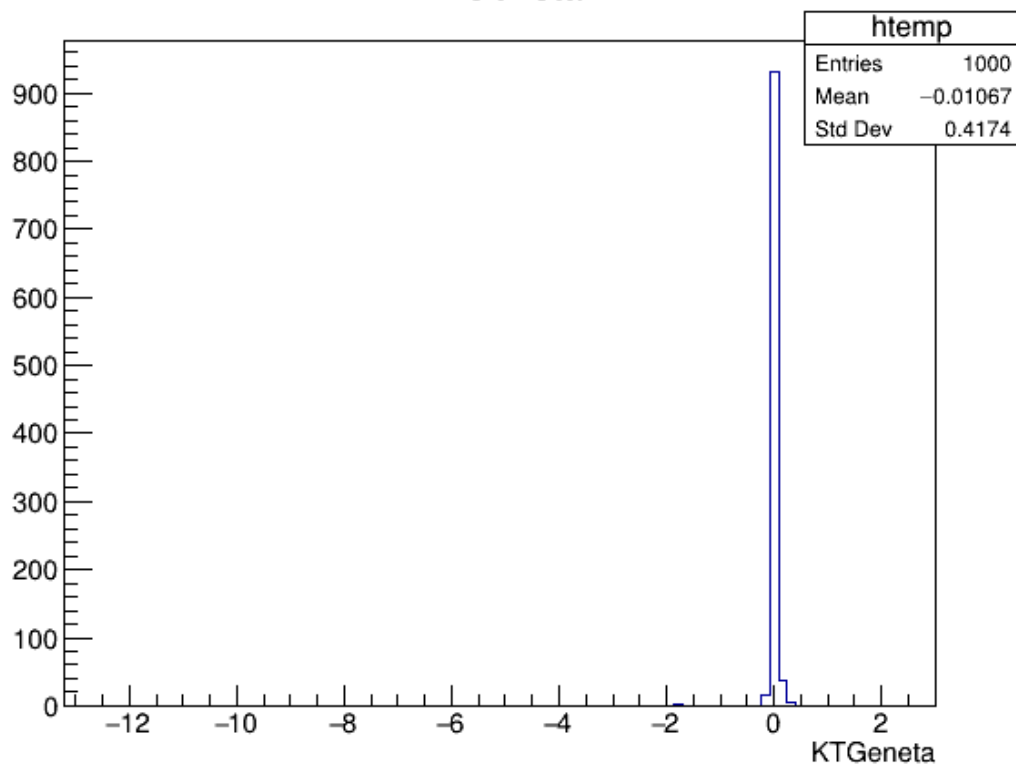
VLCR05N4Genm



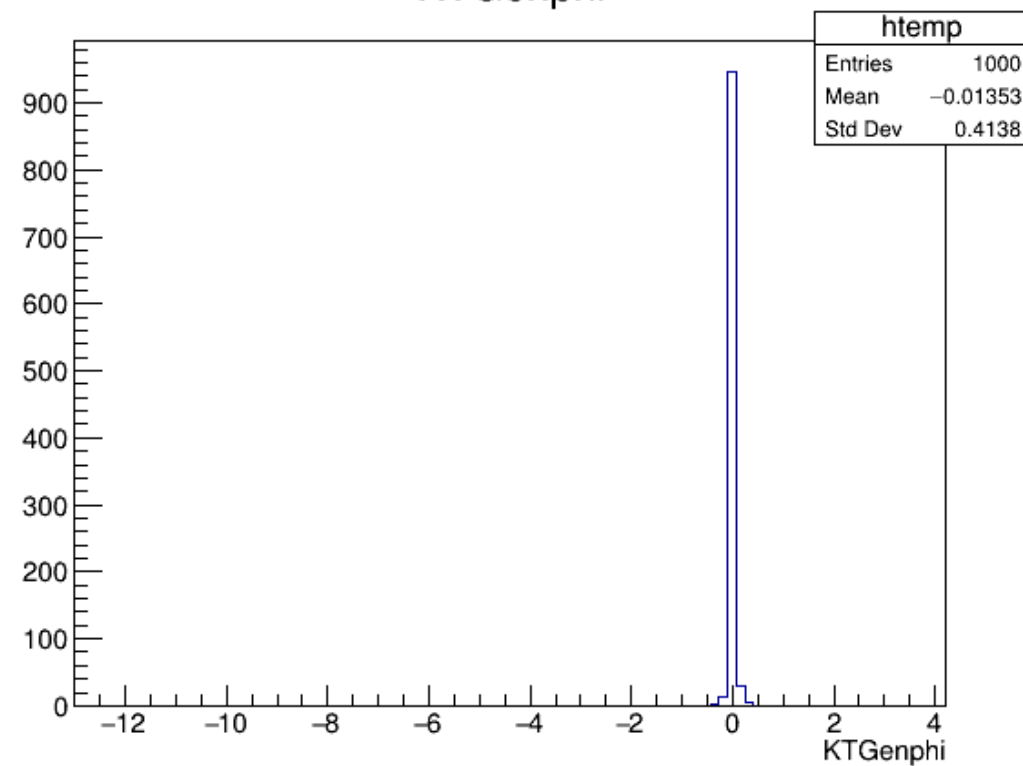
Background:  $\mu^+ \mu^- \rightarrow \nu_m \bar{\nu}_m b \bar{b}$



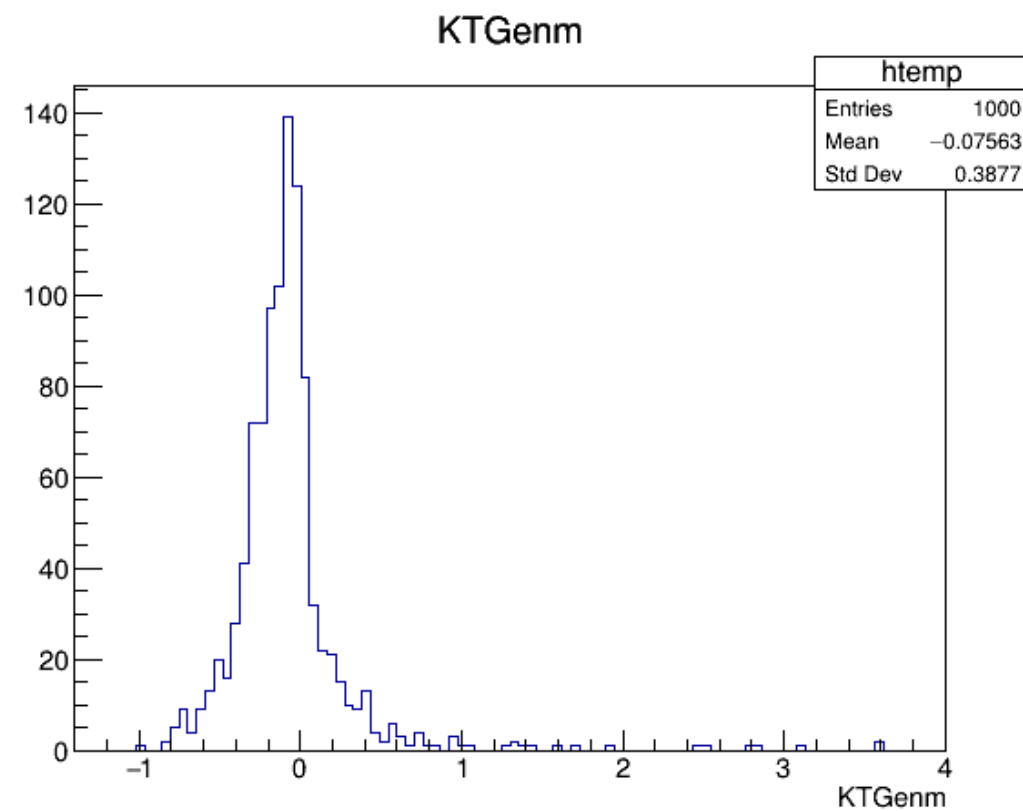
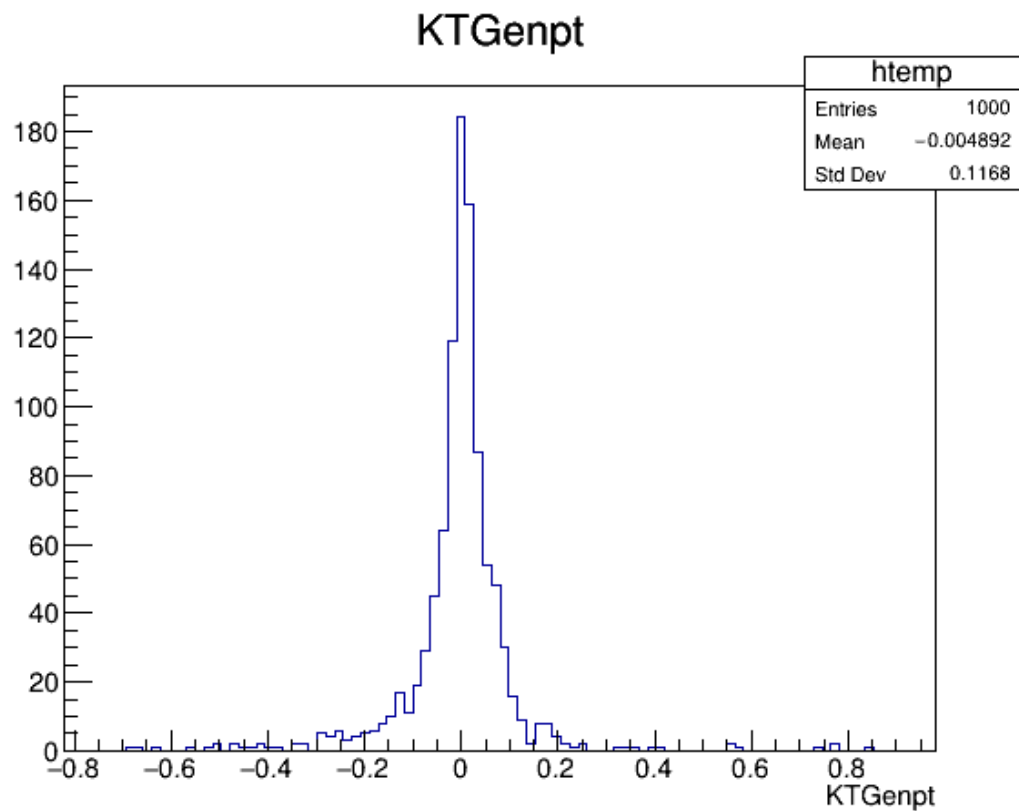
KTGeneta



KTGenphi



Background:  $\mu^+ \mu^- \rightarrow \nu_m \bar{\nu}_m b \bar{b}$

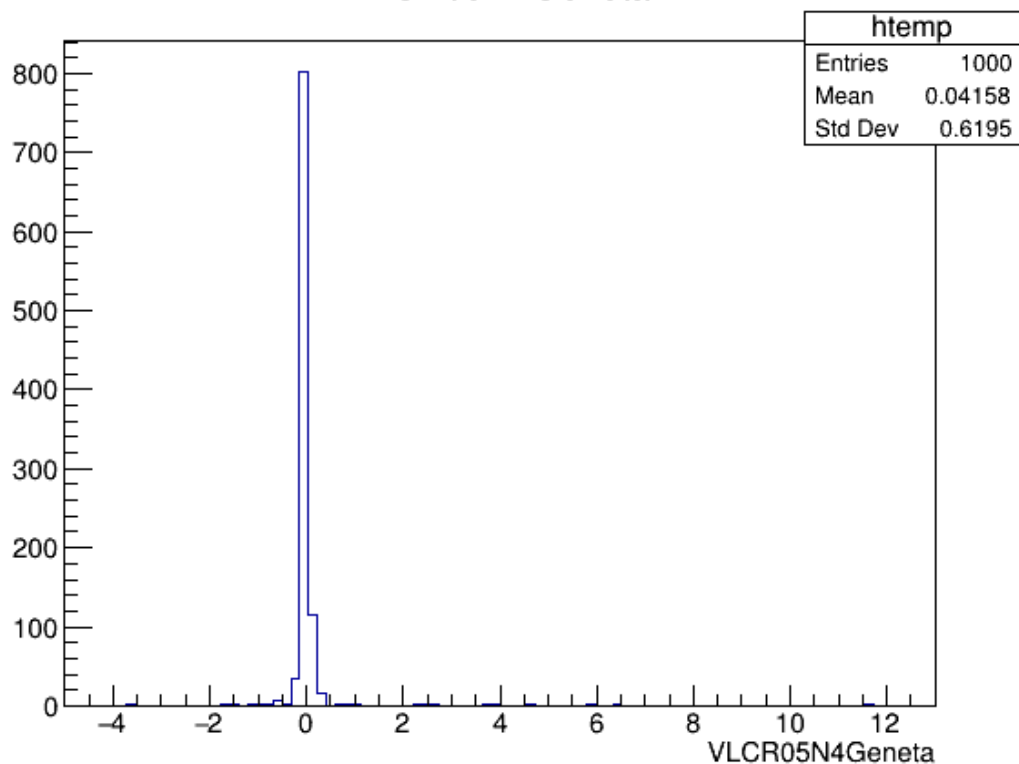




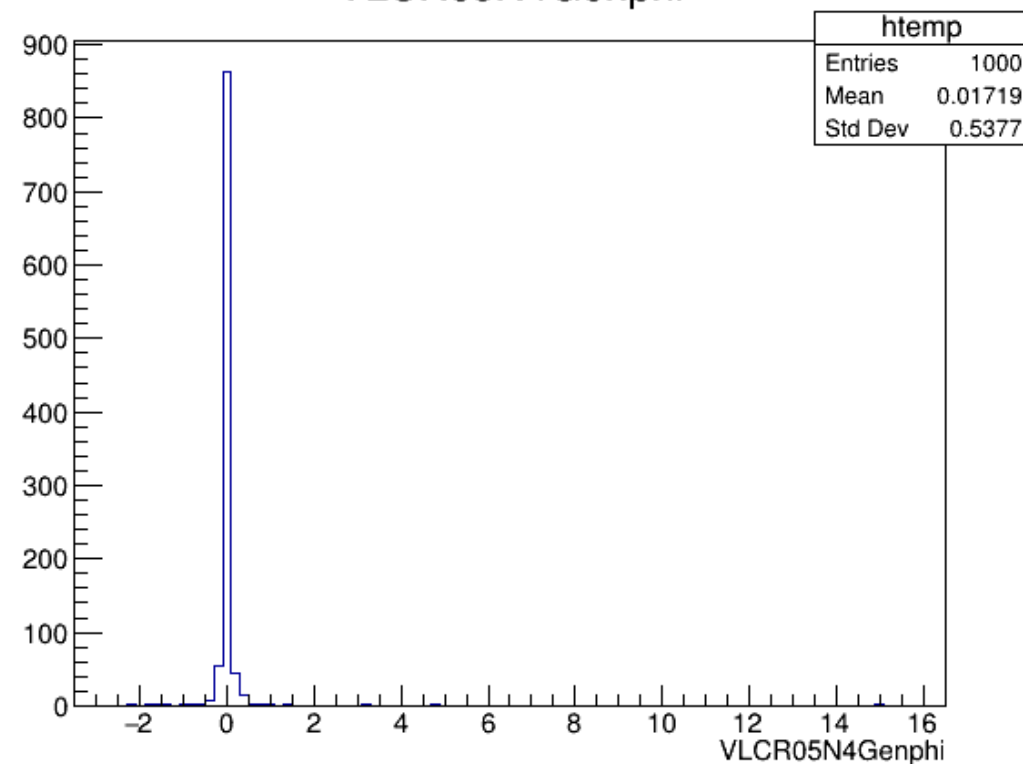
# Background: $\mu^+ \mu^- \rightarrow \nu_m \bar{\nu}_m b \bar{b} b \bar{b}$



VLCR05N4Geneta



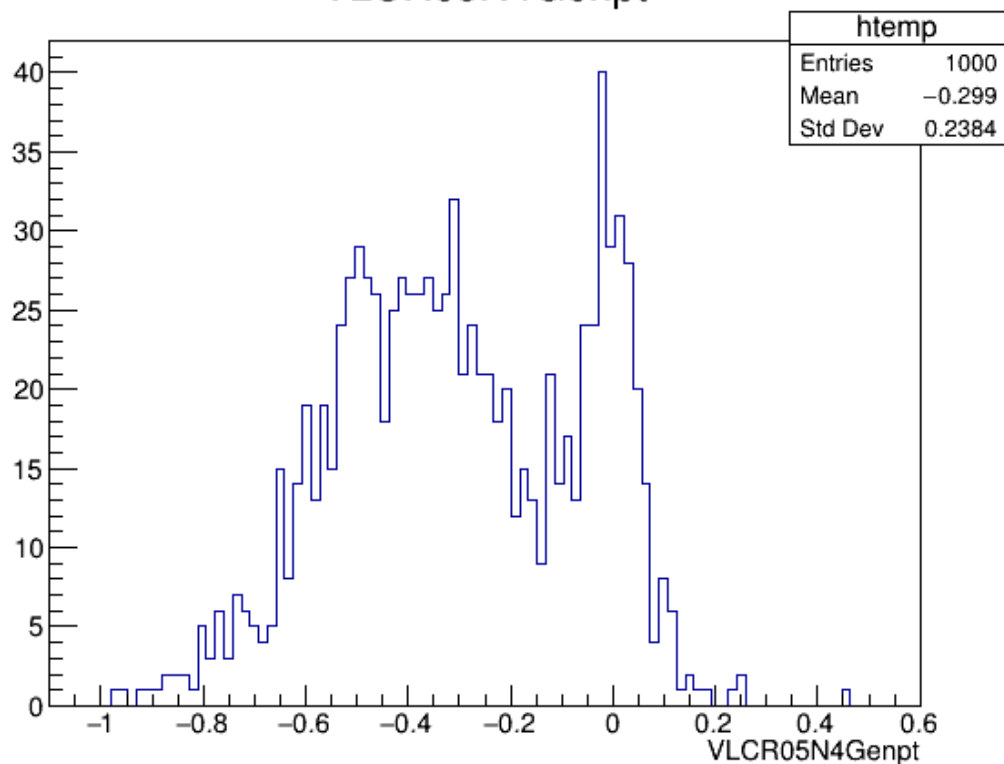
VLCR05N4Genphi



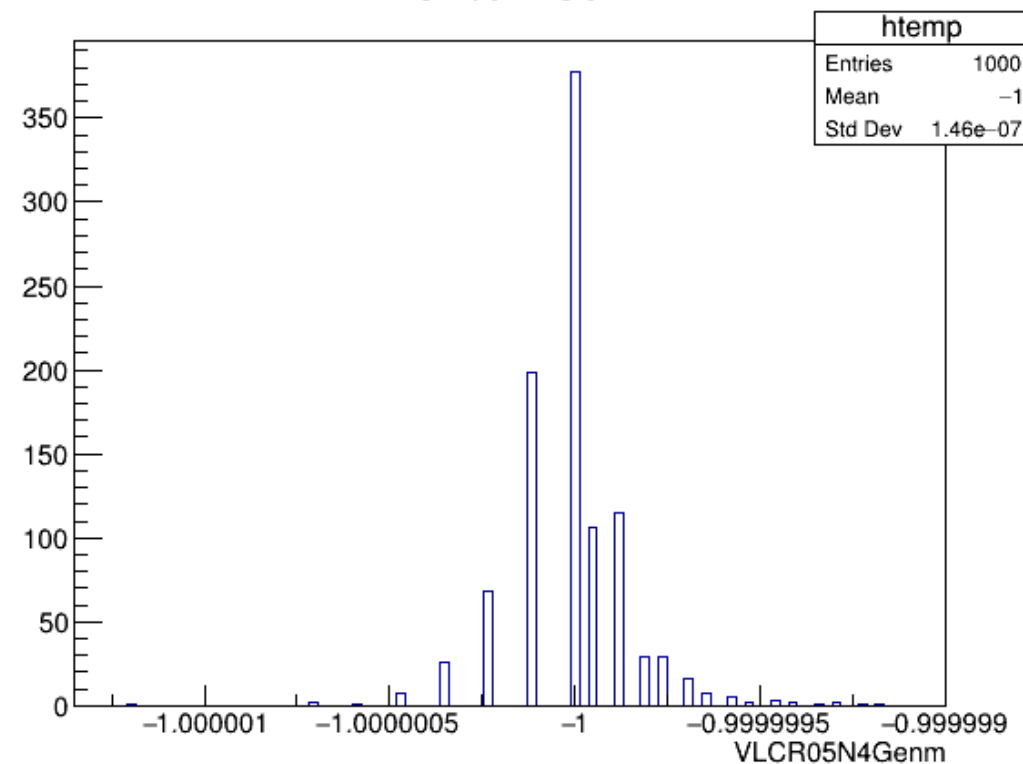
# Background: $\mu^+ \mu^- \rightarrow \nu_m \bar{\nu}_m b \bar{b} b \bar{b}$



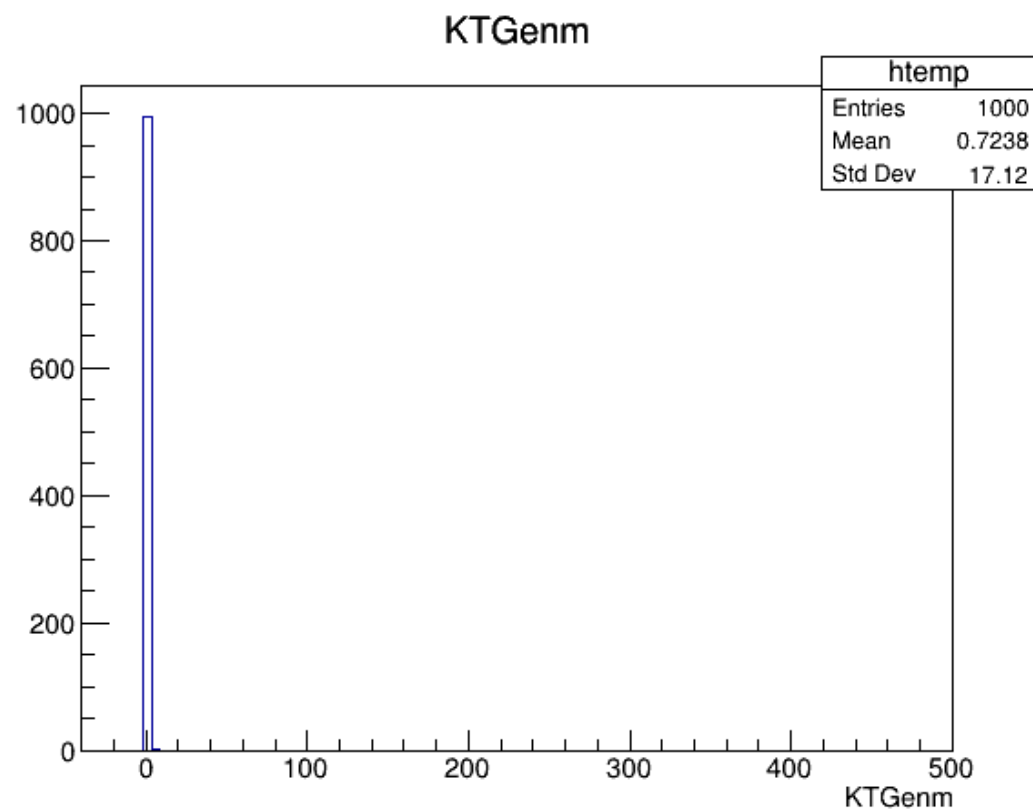
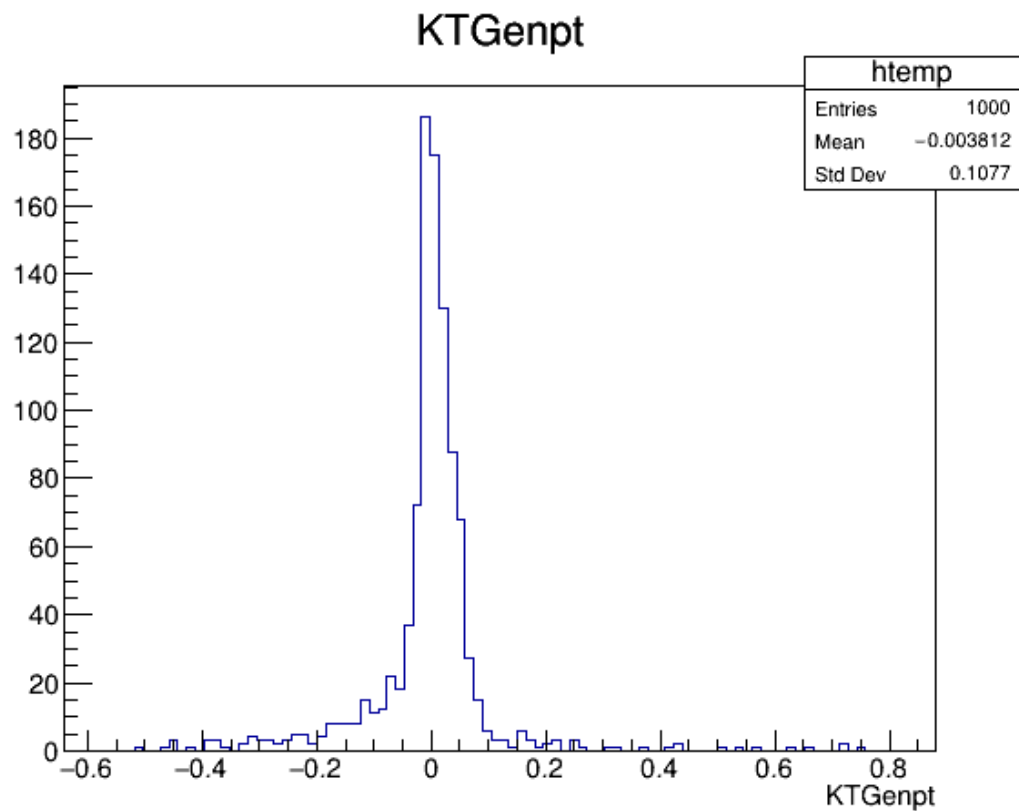
VLCR05N4Genpt



VLCR05N4Genm



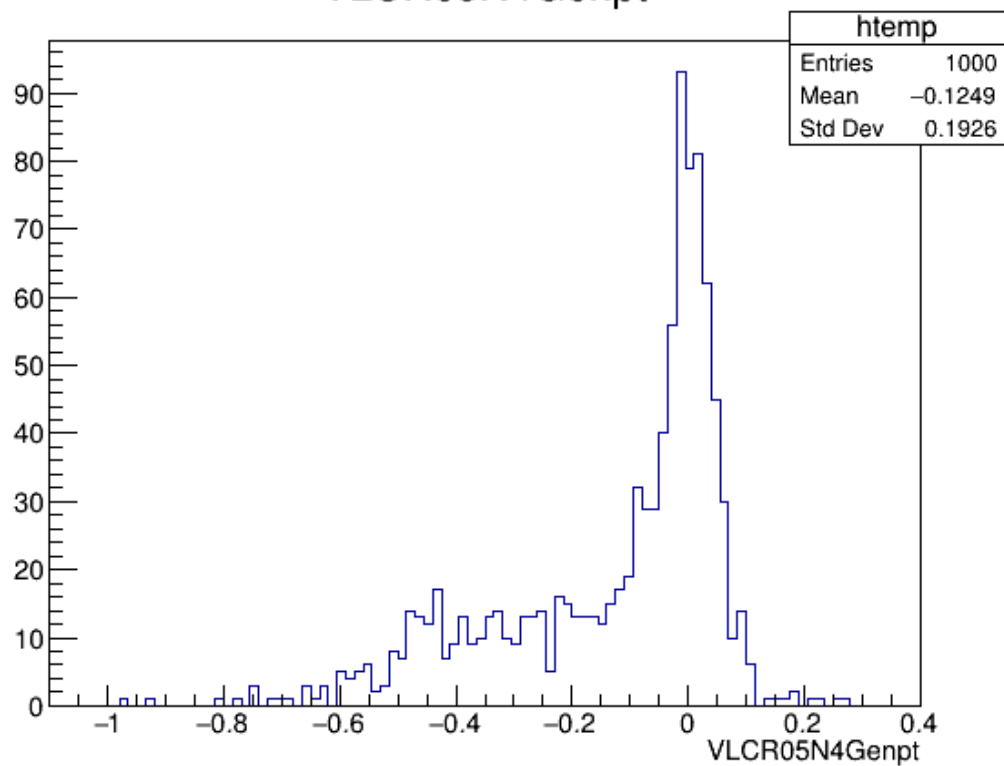
# Background: $\mu^+ \mu^- \rightarrow \nu \bar{\nu} b \bar{b} h$



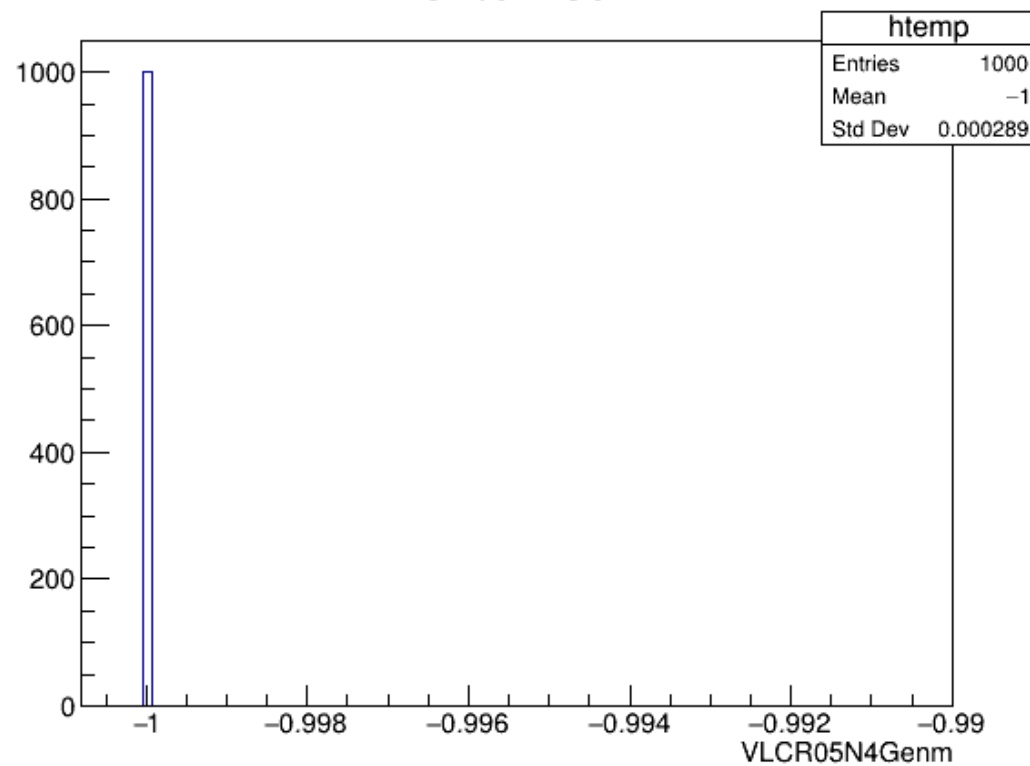
# Background: $\mu^+ \mu^- \rightarrow \nu_m \bar{\nu}_m b \bar{b} h$



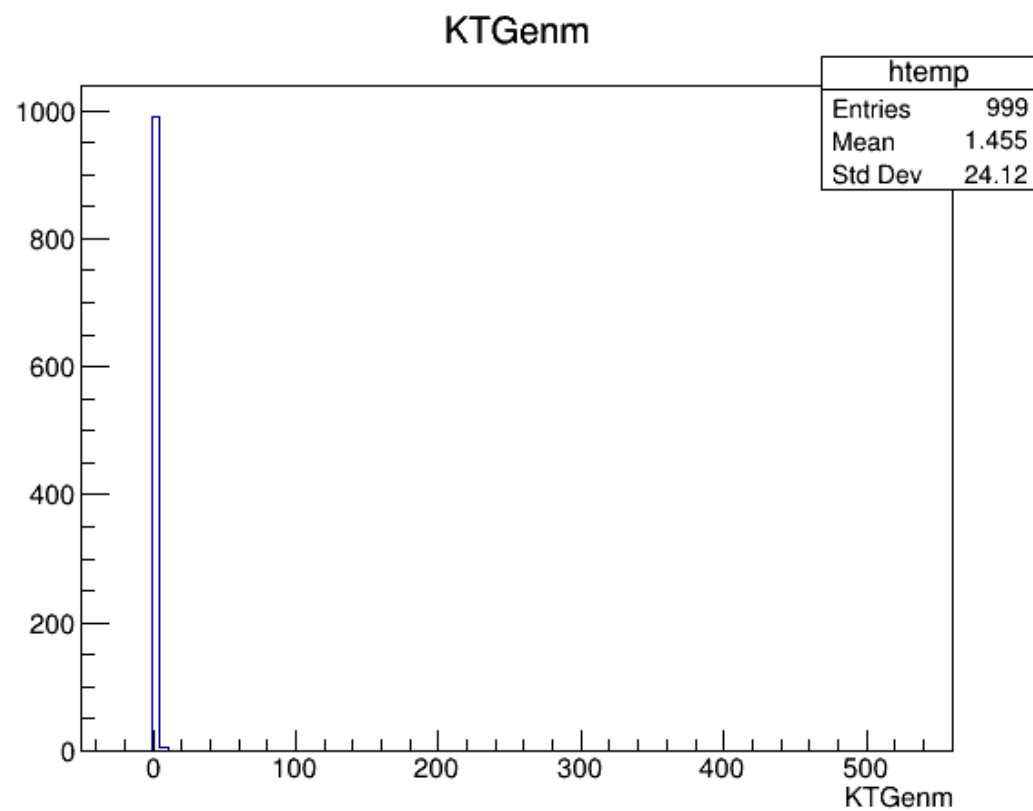
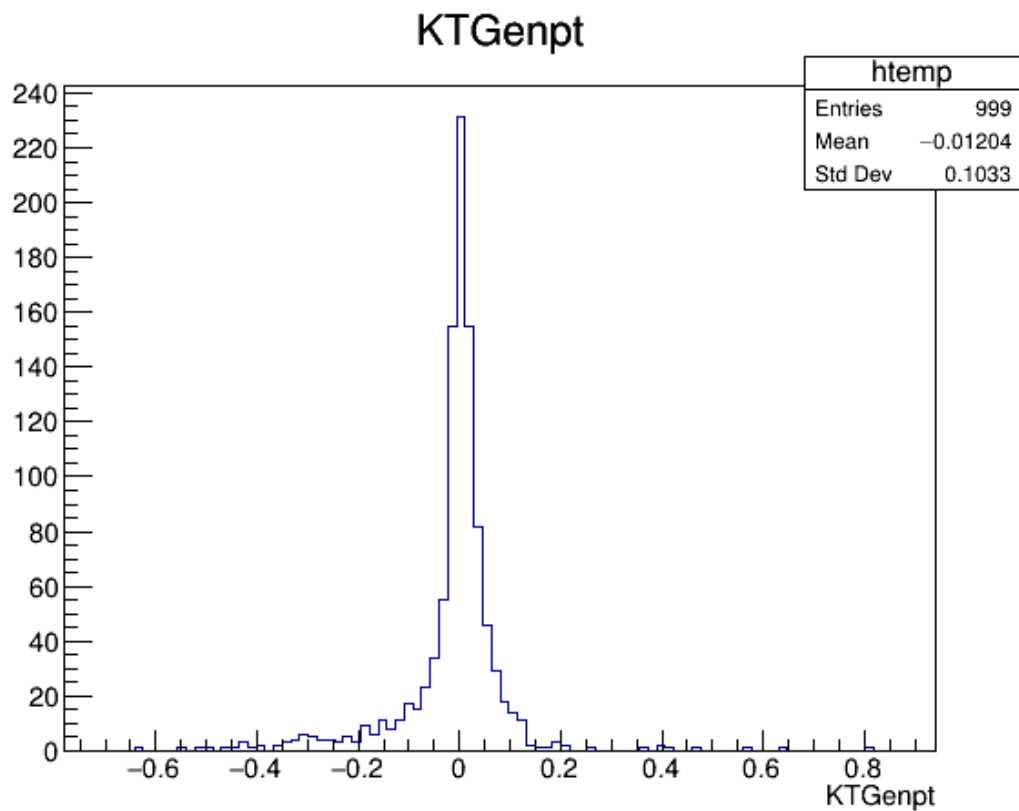
VLCR05N4Genpt



VLCR05N4Genm



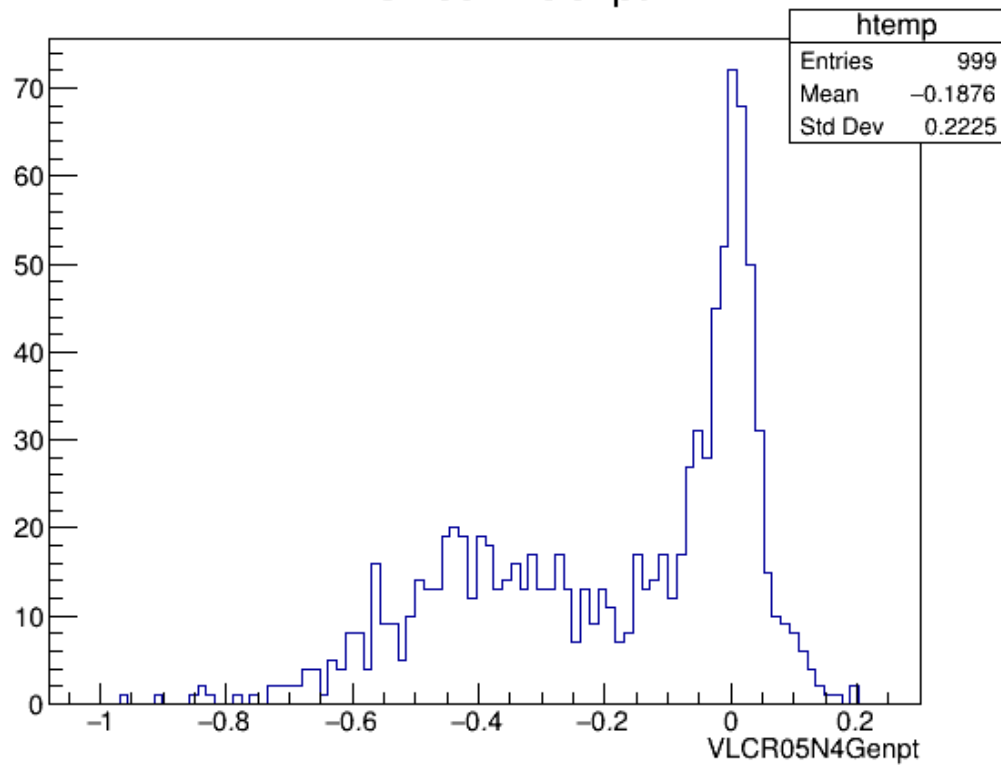
# Background: $\mu^+ \mu^- \rightarrow \nu \mu \bar{\nu} b \bar{b} z$



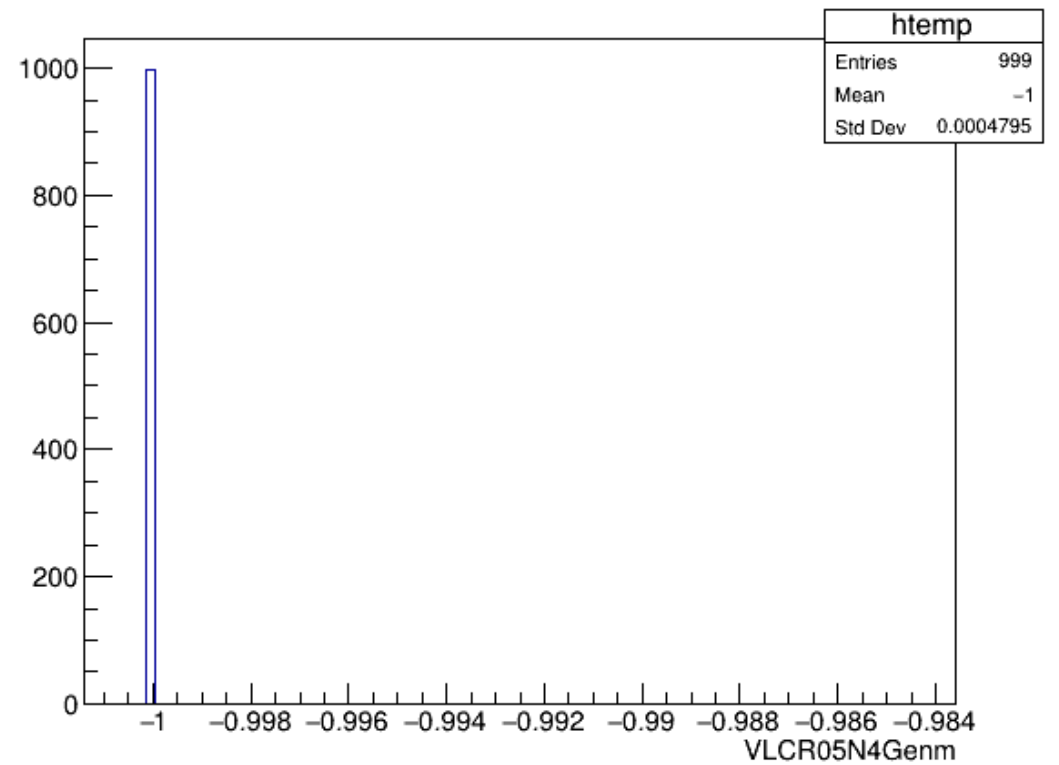
# Background: $\mu^+ \mu^- \rightarrow \nu_m \bar{\nu}_m b \bar{b} z$



VLCR05N4Genpt



VLCR05N4Genm





# Jets matching macro

- $\Delta R = \sqrt{\Delta \eta^2 + \Delta \phi^2}$
- If  $\Delta R$  between VLCjetR05N4 or Ktjet and GenJet < 0.25:

`plot (KT<variable>-Gen<variable>)/Gen<variable>`

Problem:

Currently stored the matched jet information as fixed length array, some array entry are empty. Anyways to avoid this? How to fill the Tleaf jet by jet?