



Update on Delphes

Kenny Jia



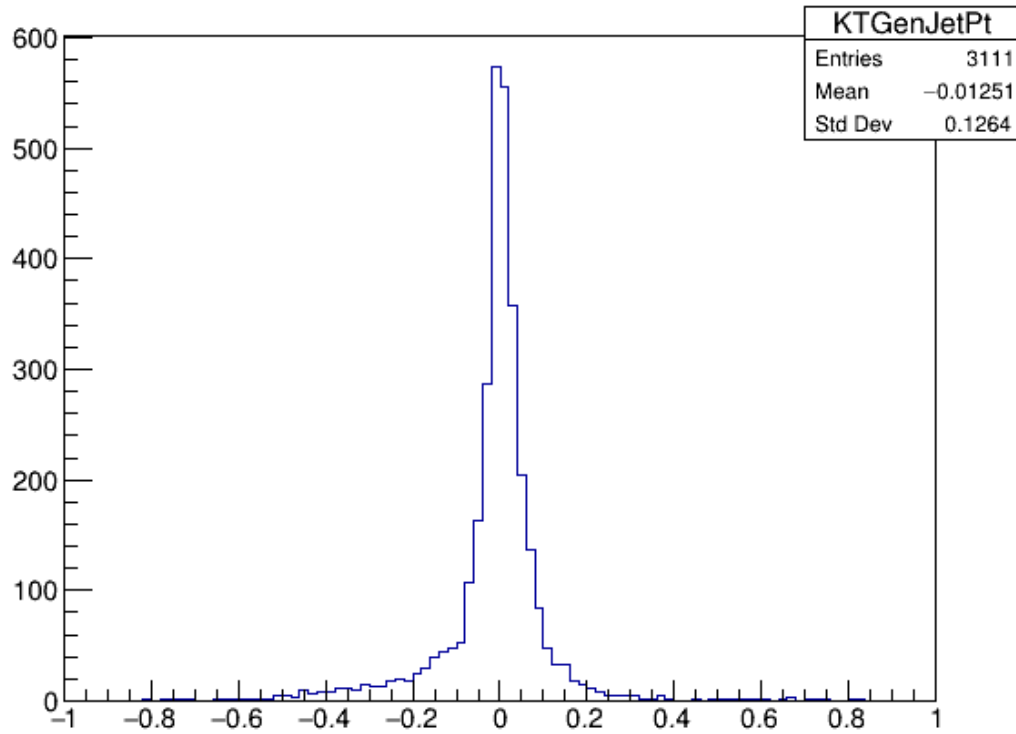


- Jets algo comparing macro is fixed: now they showed all entries rather than only the first one in each event
- Wrote the pairing up macro

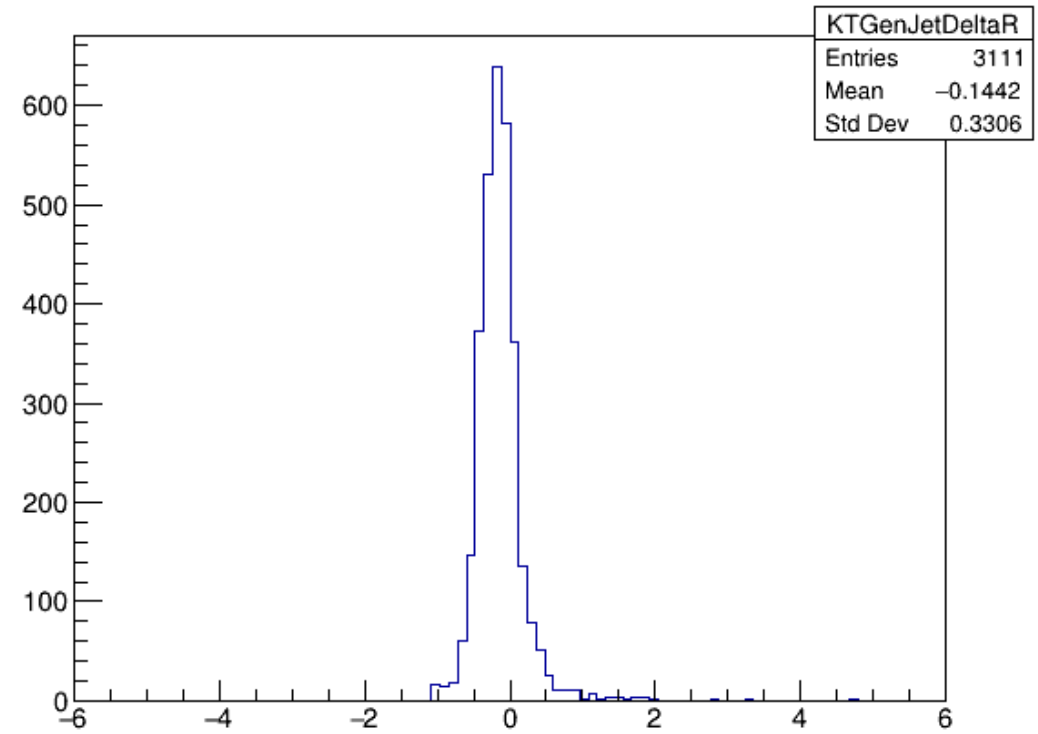


Signal: $\mu^+ \mu^- \rightarrow \nu \mu \bar{\nu} h h$

KTGenJetPt



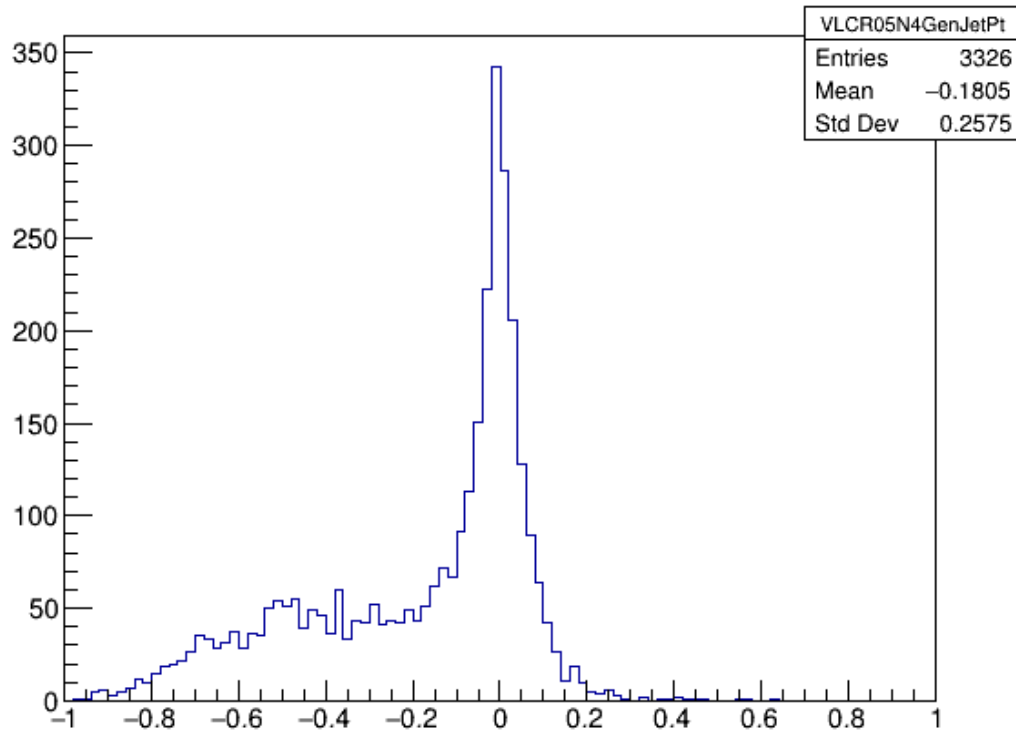
KTGenJetDeltaR



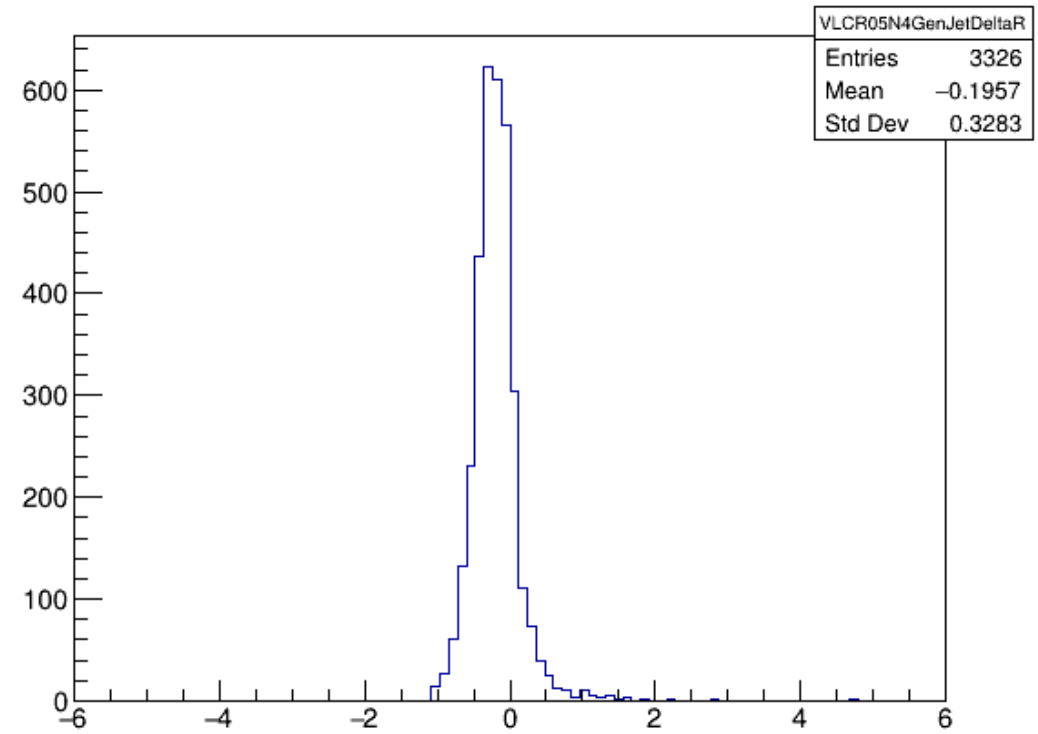


Signal: $\mu^+ \mu^- \rightarrow \nu \mu \nu^{\sim} h h$

VLCR05N4GenJetPt



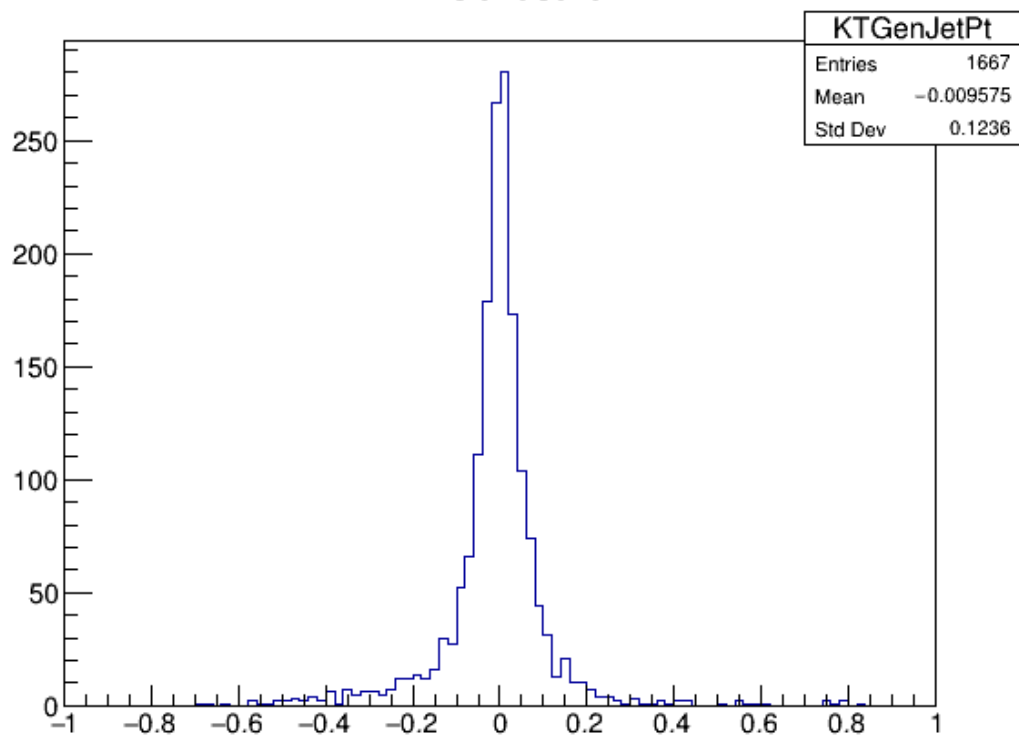
VLCR05N4GenJetDeltaR



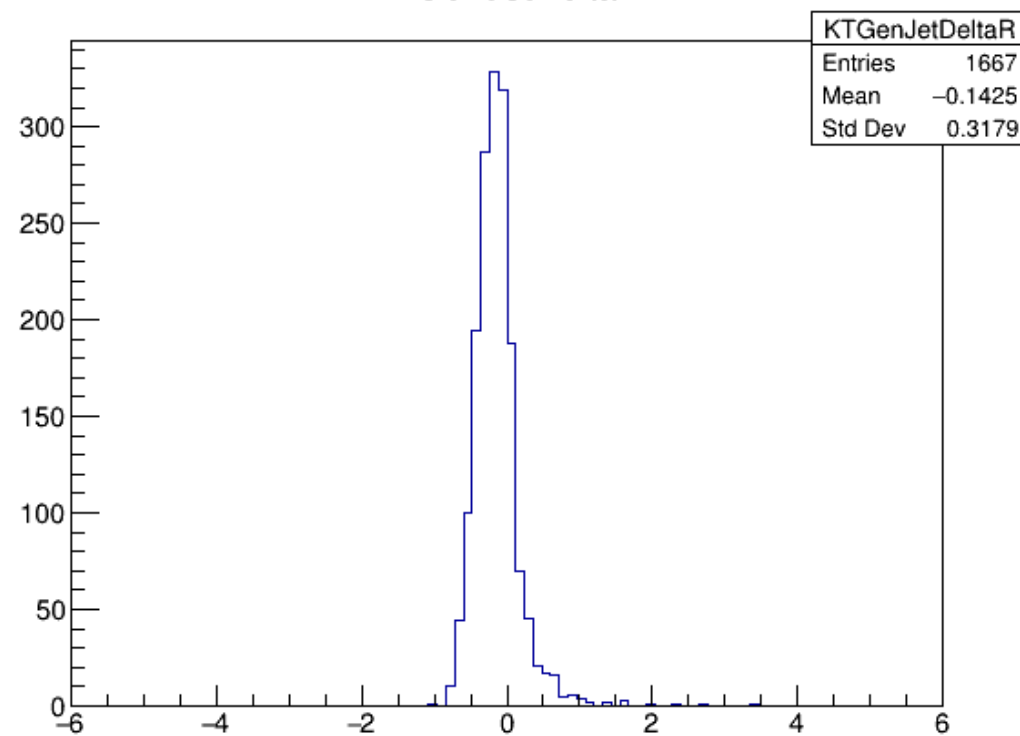
Background: $\mu^+ \mu^- \rightarrow \nu \bar{\nu} b \bar{b}$



KTGenJetPt



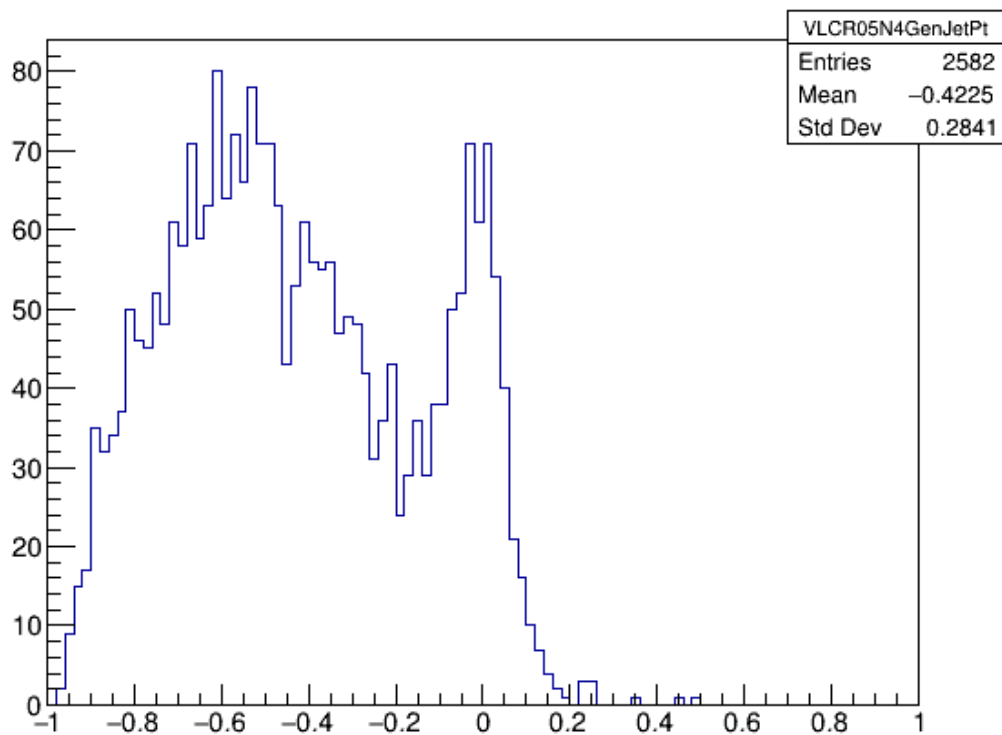
KTGenJetDeltaR



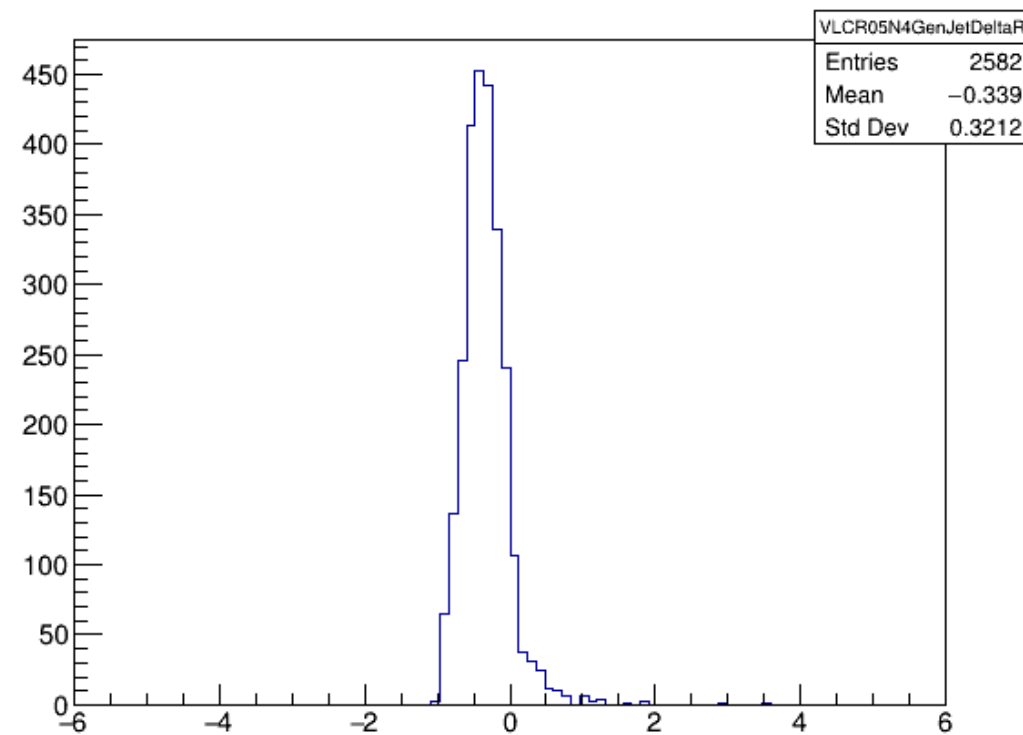
Background: $\mu^+ \mu^- \rightarrow \nu \bar{\nu} b \bar{b}$



VLCR05N4GenJetPt



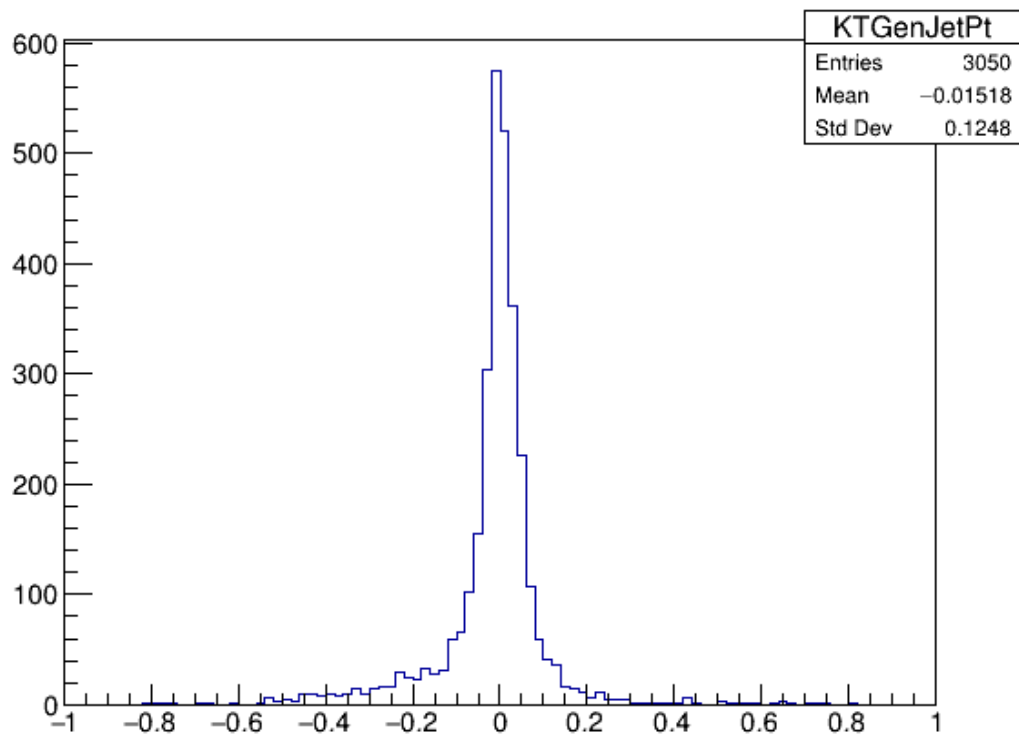
VLCR05N4GenJetDeltaR



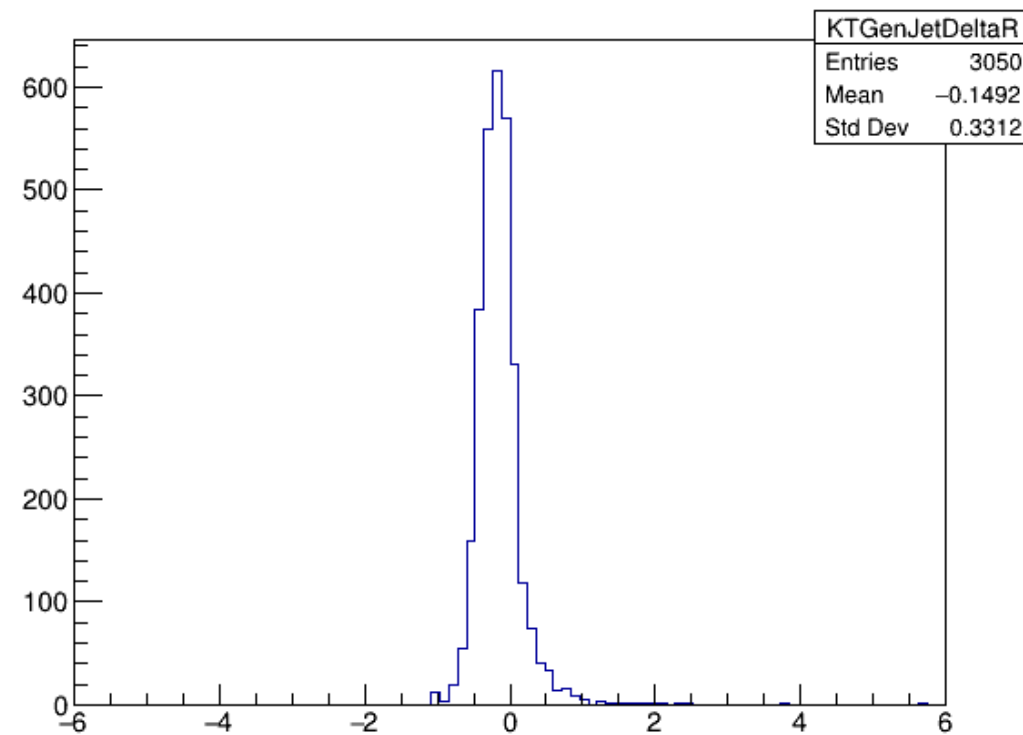
Background: $\mu^+ \mu^- \rightarrow \nu \bar{\nu} b \bar{b} h$



KTGenJetPt



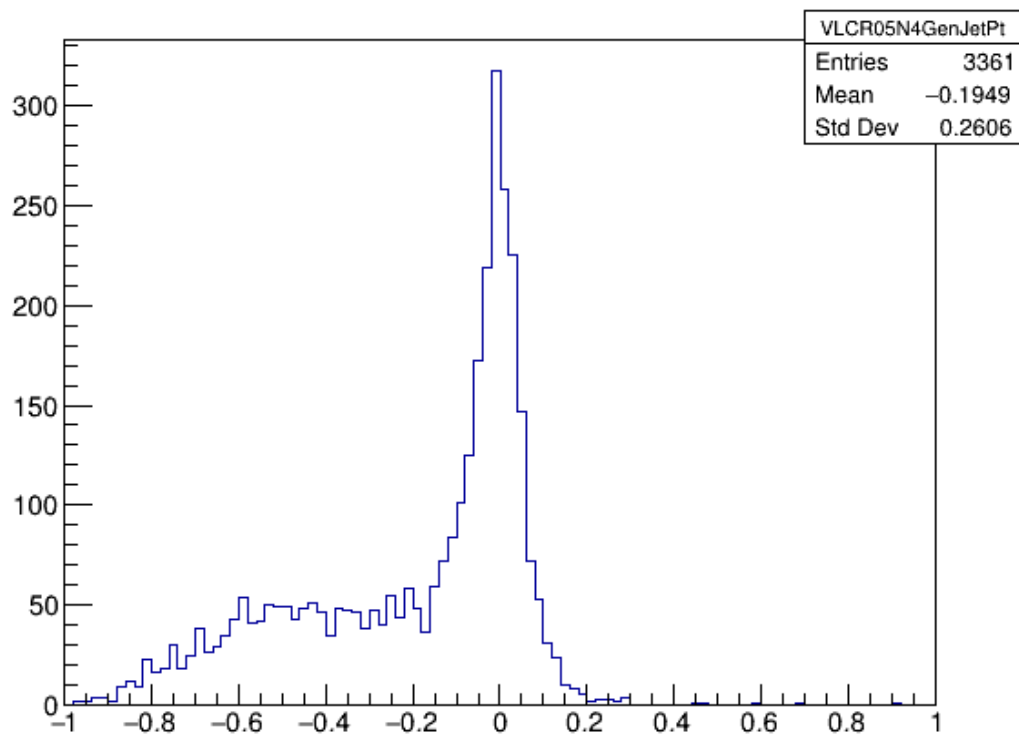
KTGenJetDeltaR



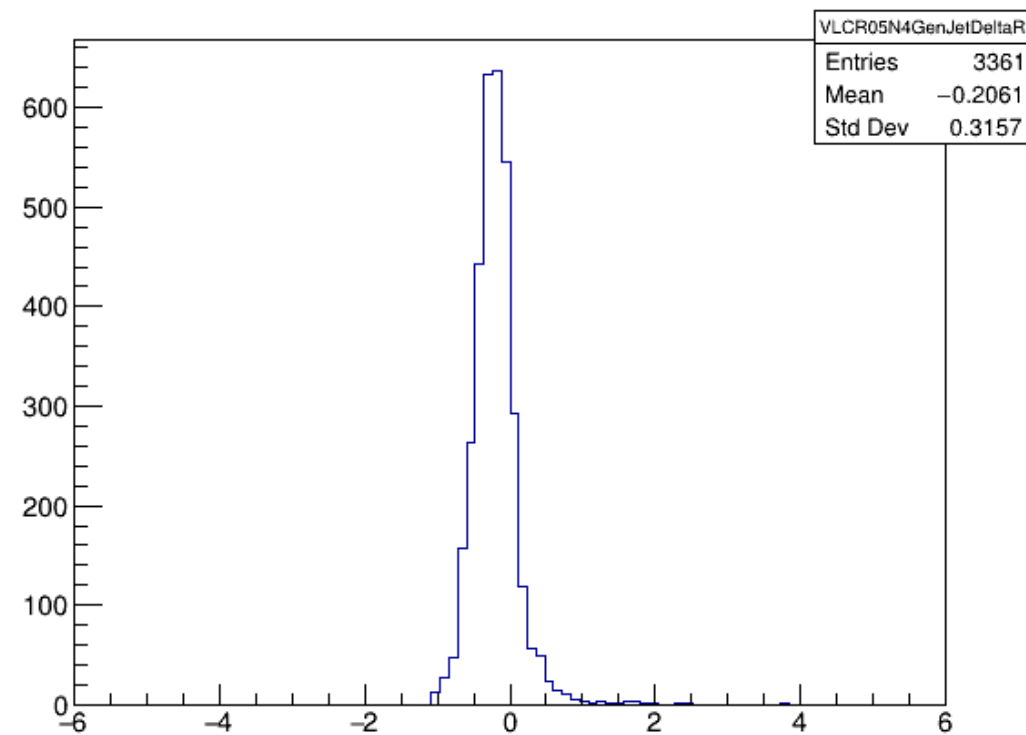
Background: $\mu^+ \mu^- \rightarrow \nu \mu \bar{\nu} b \bar{b} h$



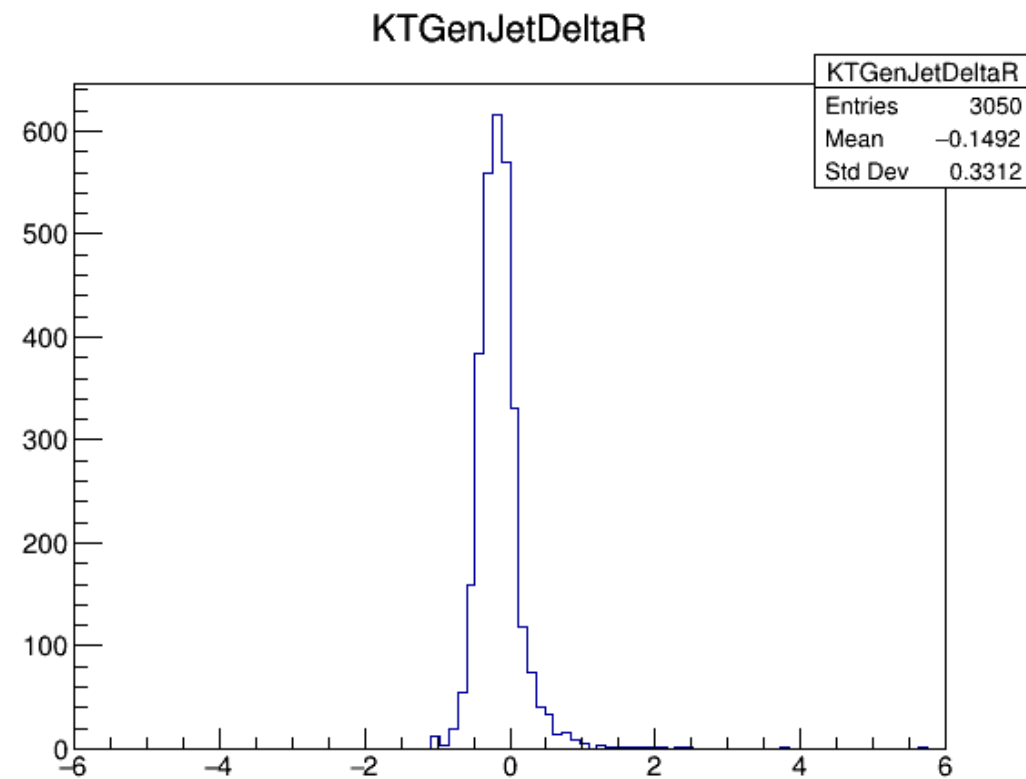
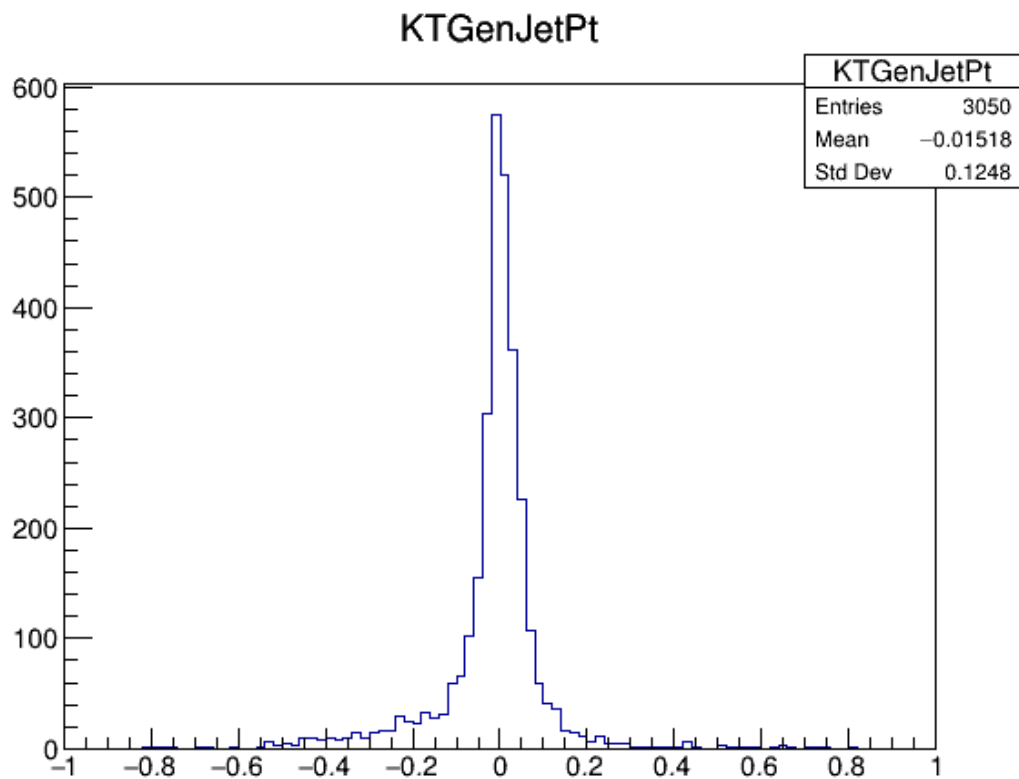
VLCR05N4GenJetPt



VLCR05N4GenJetDeltaR



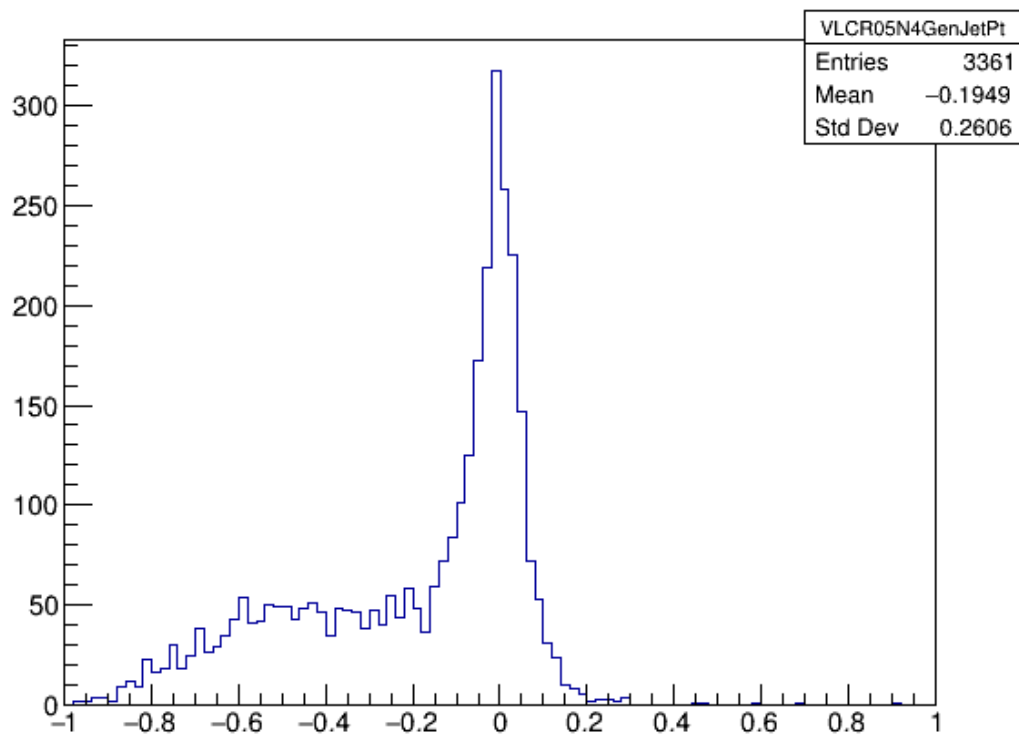
Background: $\mu^+ \mu^- \rightarrow \nu \mu \bar{\nu} b \bar{b} z$



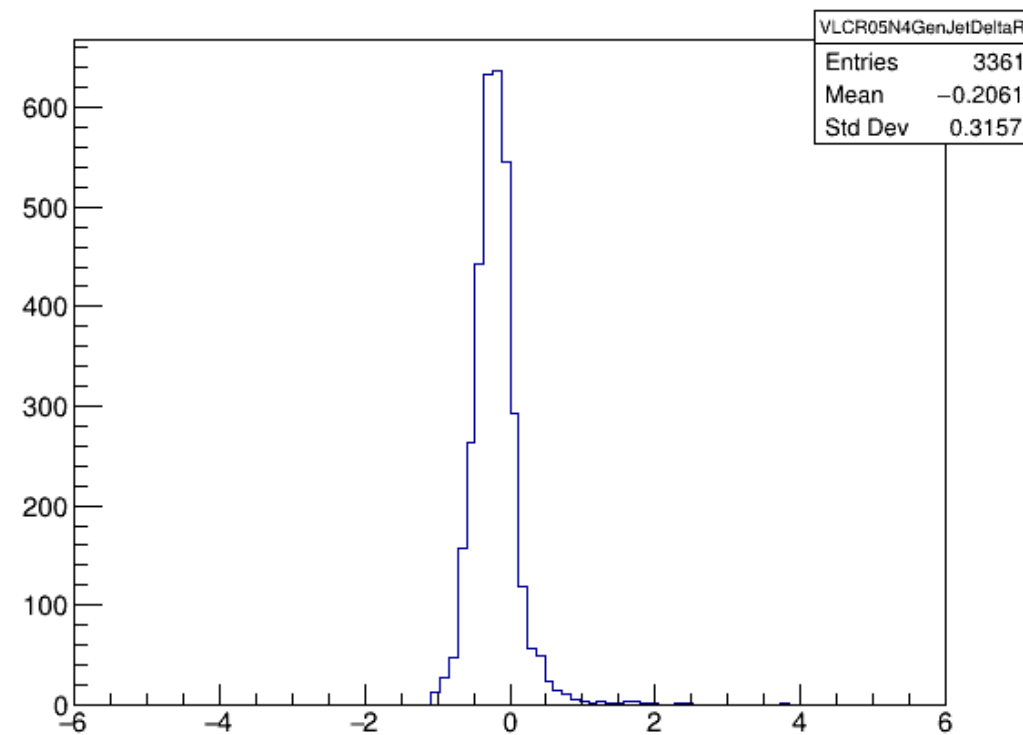
Background: $\mu^+ \mu^- \rightarrow \nu \mu \bar{\nu} b \bar{b} z$



VLCR05N4GenJetPt



VLCR05N4GenJetDeltaR





Jets pairing up macro

- Choosing the jet with invariant mass the closest to 125 GeV as the leading one. Left pair as the sub-leading one.

Two methods:

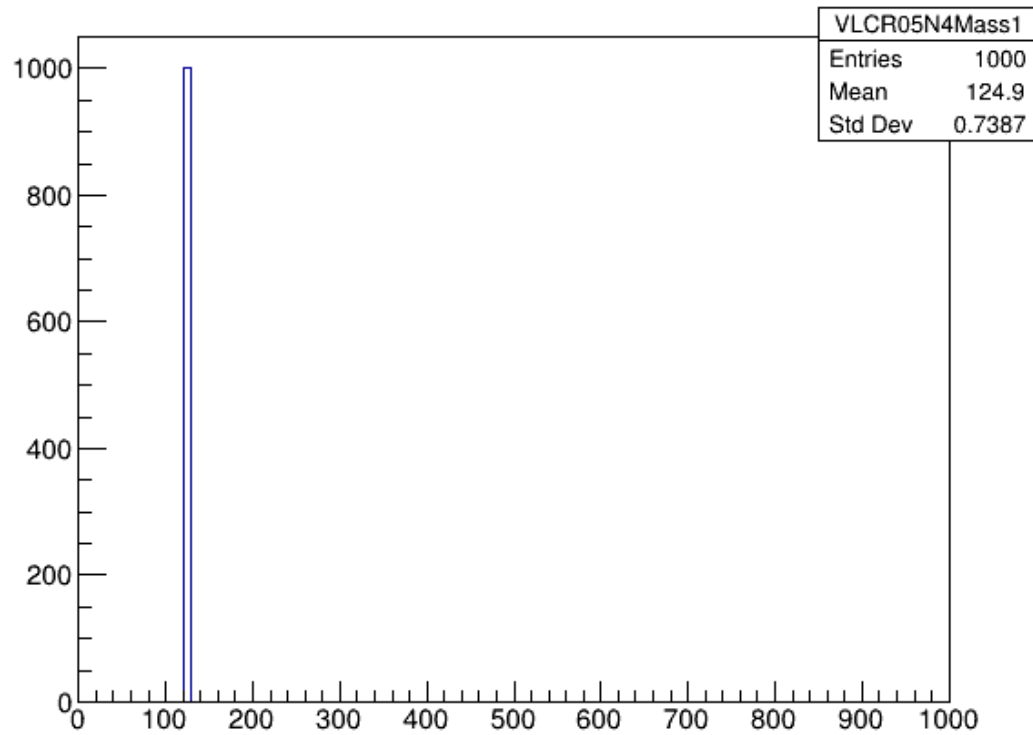
1. Using built in function in TLorentzVector

2.
$$M = \sqrt{2p_{T1}p_{T2} \cdot (\cosh(\eta_1 - \eta_2) - \cos(\phi_1 - \phi_2))}$$



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

VLCR05N4Mass1



VLCR05N4Mass2

