



# Update on Delphes

Kenny Jia





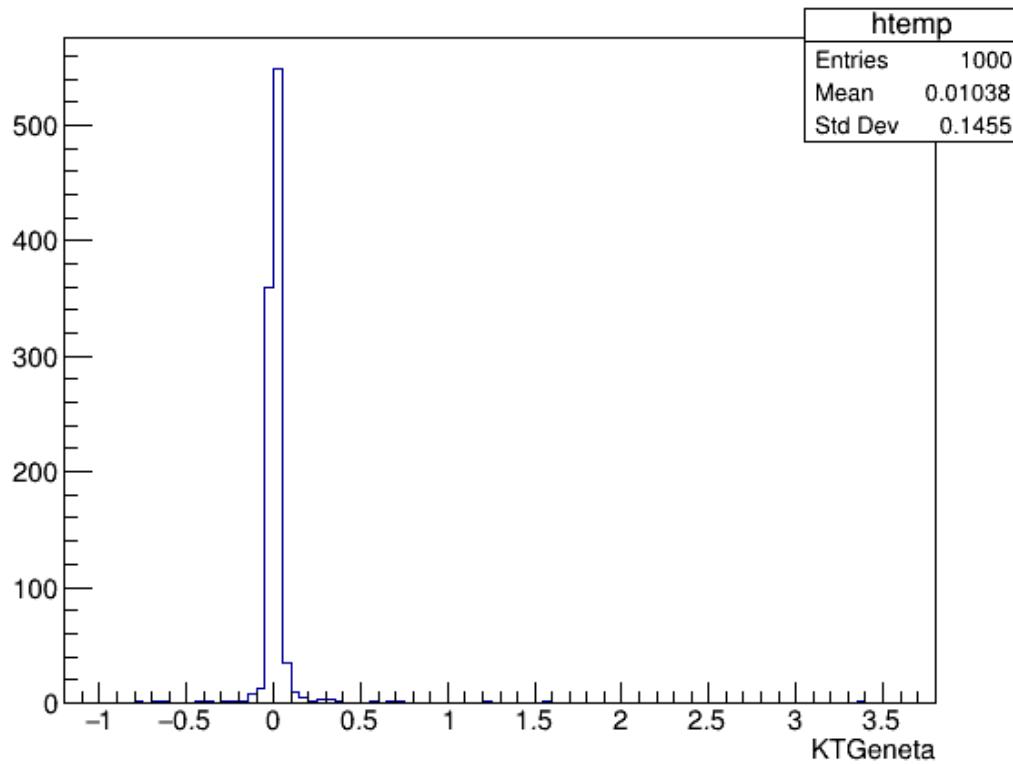
# Cross section

- $\mu^+ \mu^- \rightarrow v_m v_{m'} h h:$   $0.0008252 \pm 6.7e-06$
- $\mu^+ \mu^- \rightarrow v_m v_{m'} b b' b b':$   $0.0009234 \pm 7e-06$
- $\mu^+ \mu^- \rightarrow v_m v_{m'} b b' h:$   $0.003722 \pm 2.7e-05$
- $\mu^+ \mu^- \rightarrow v_m v_{m'} b b' z:$   $0.03168 \pm 2.7e-04$

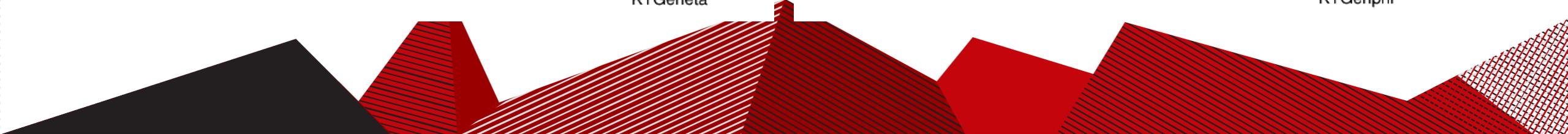
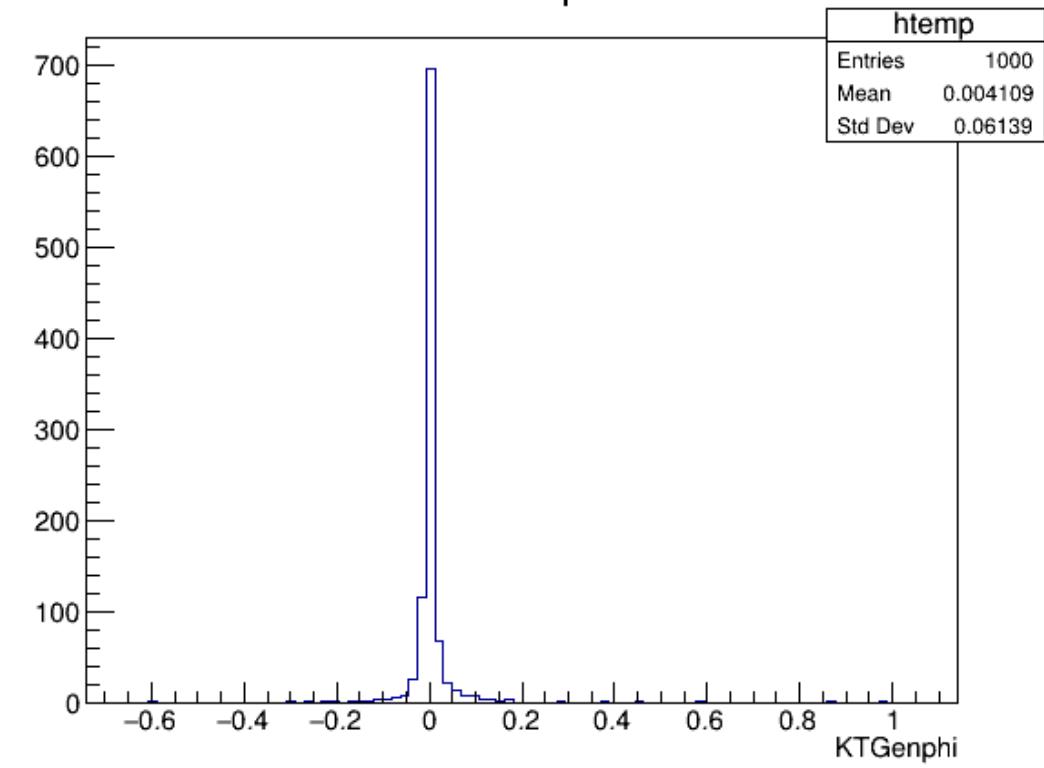


# Signal: mu+ mu- > vm vm~ h h

KTGeneta



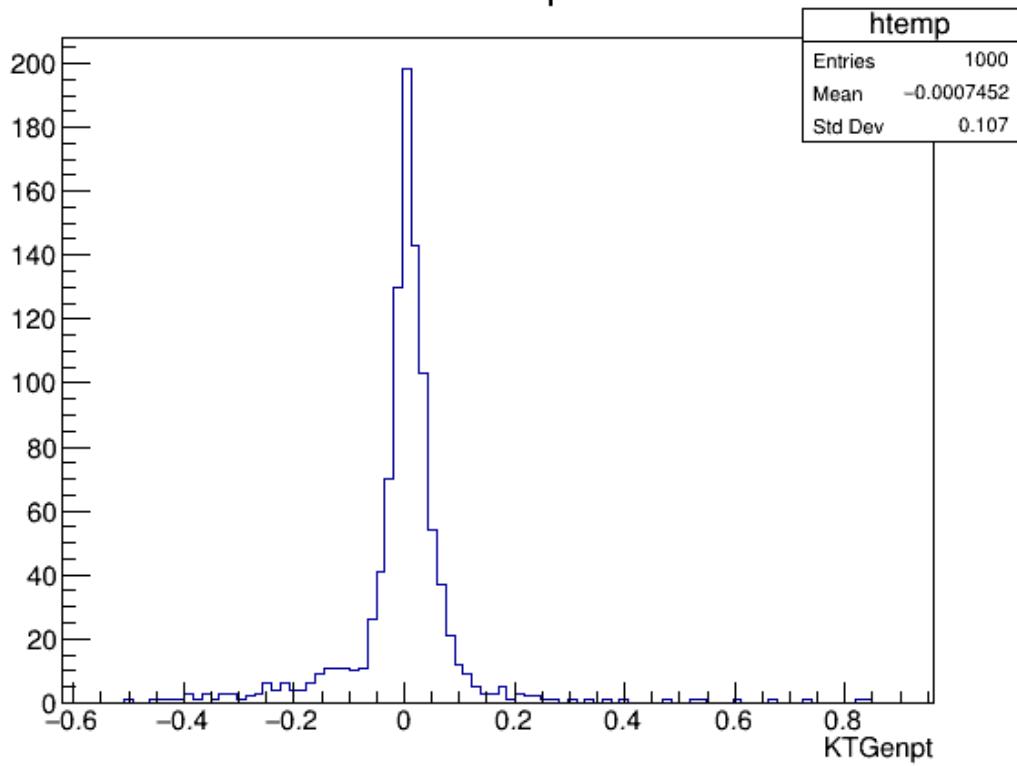
KTGenphi



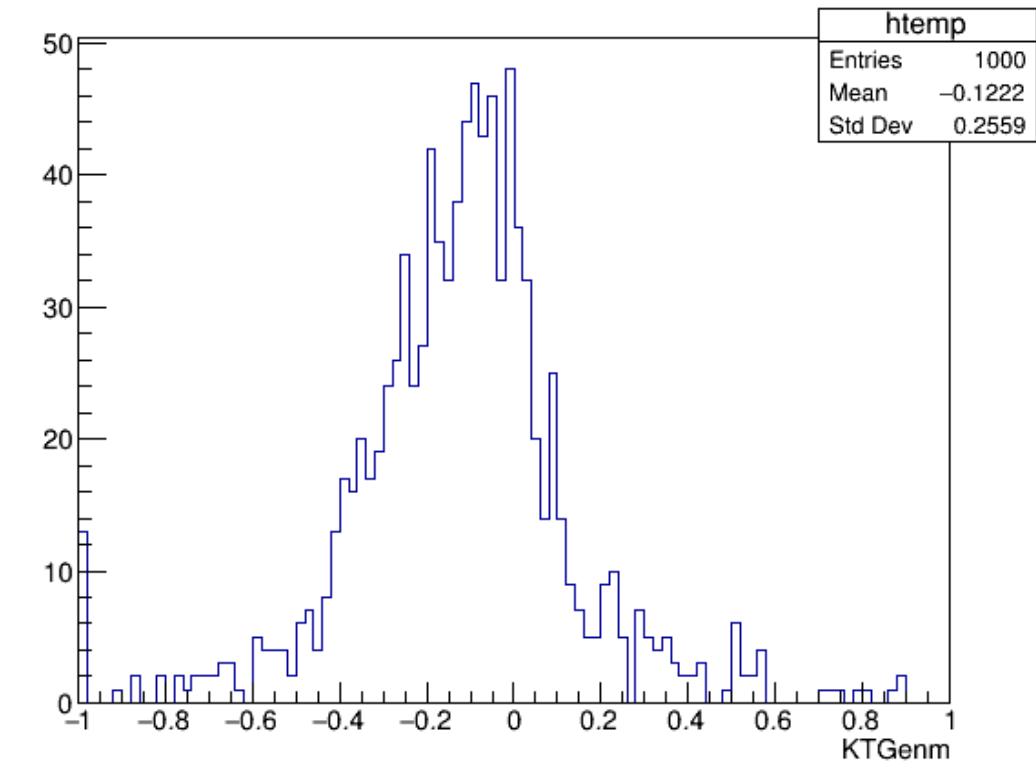


# Signal: $\mu^+ \mu^- \rightarrow v\bar{v} \nu\bar{\nu} h h$

KTGenpt



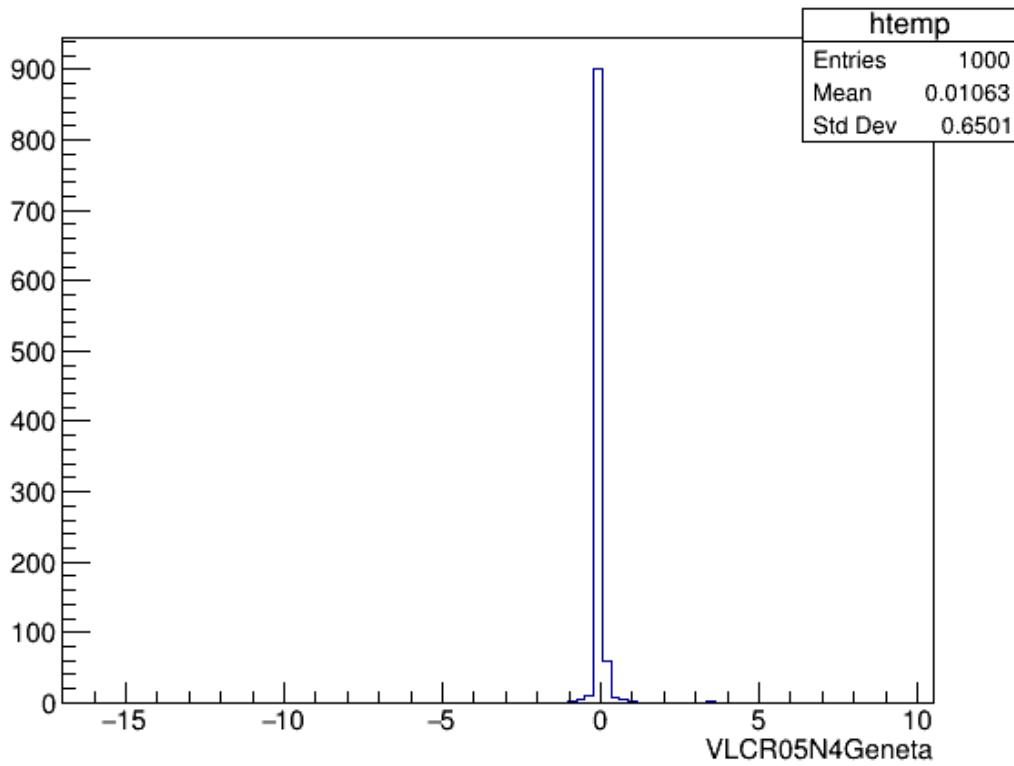
KTGenm



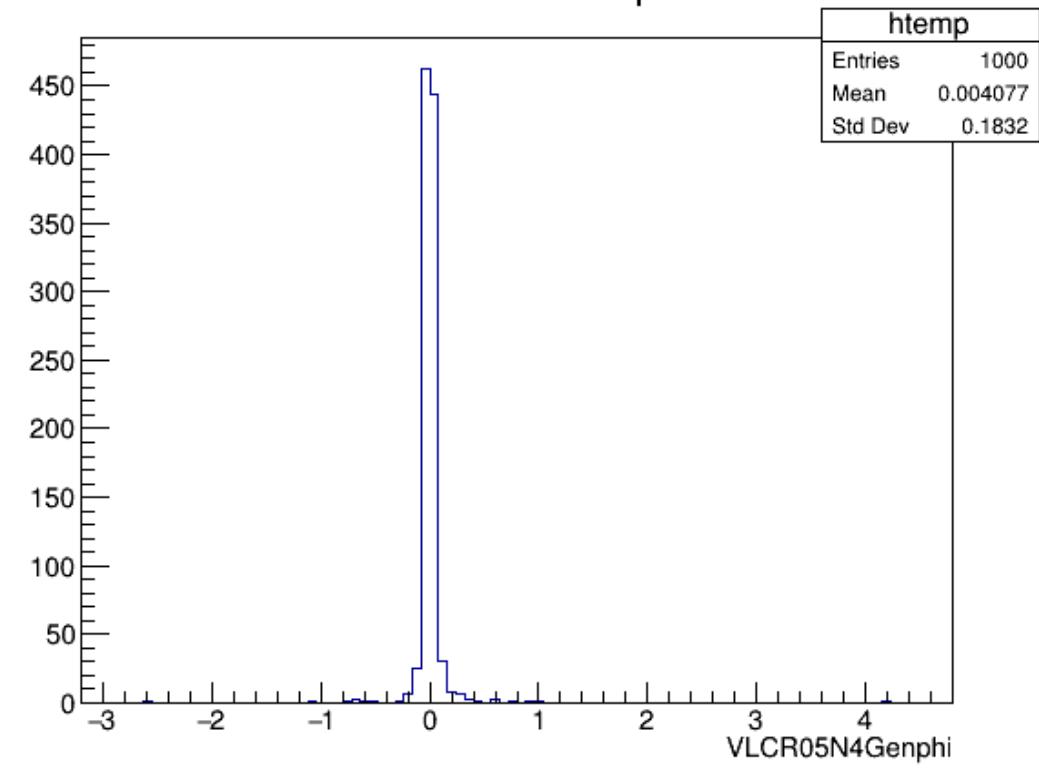


# Signal: mu+ mu- > vm vm~ h h

VLCR05N4Geneta



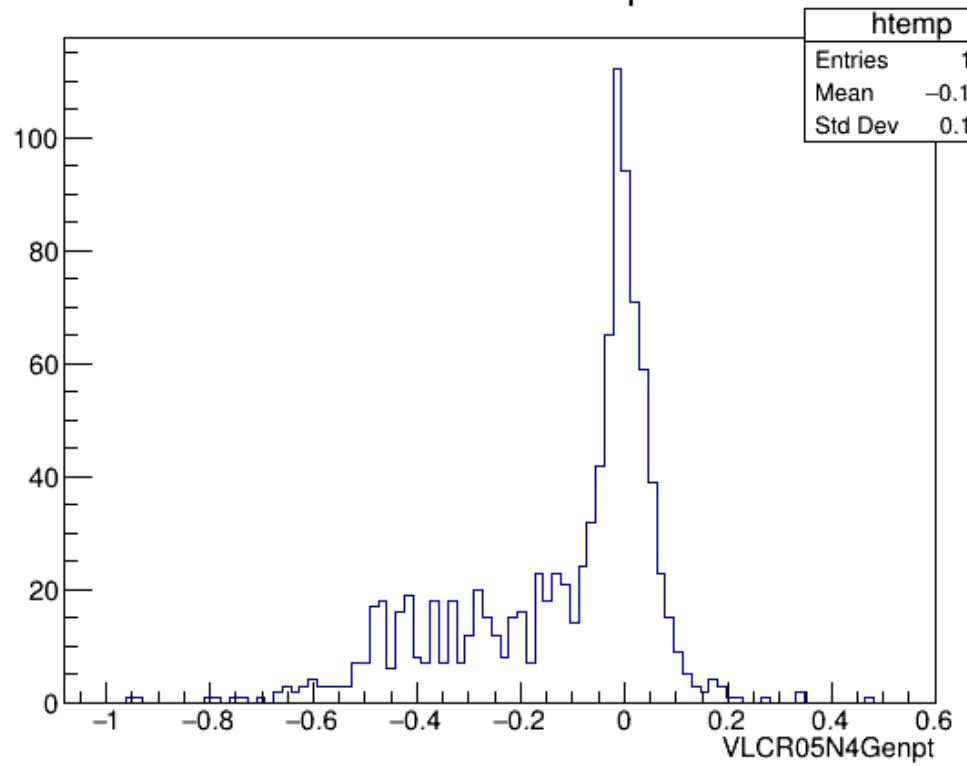
VLCR05N4Genphi



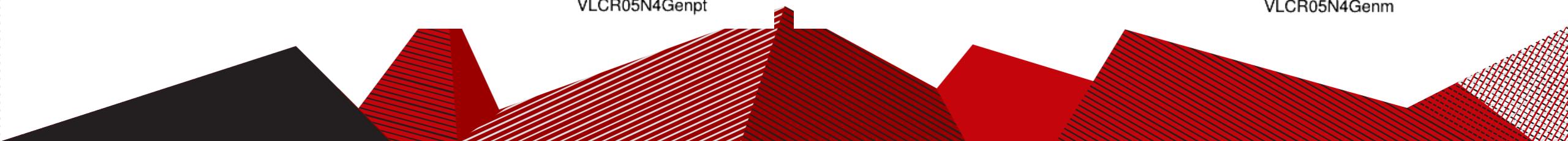
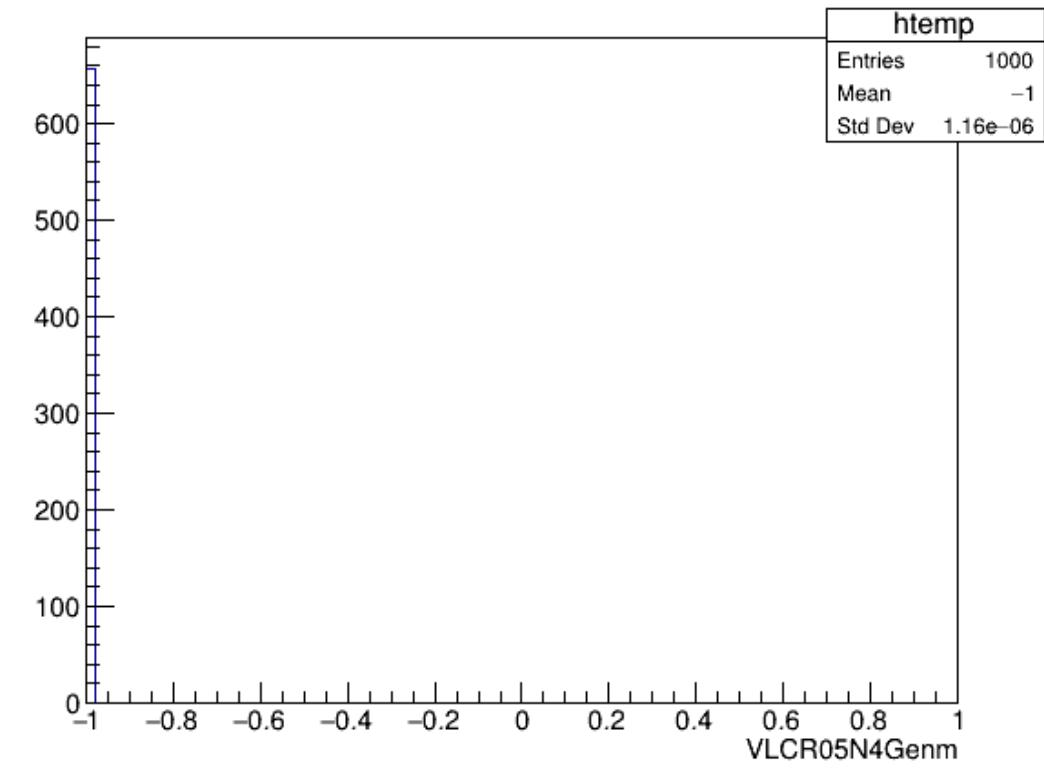


# Signal: $\mu^+ \mu^- \rightarrow v\bar{v} v\bar{v} \sim h h$

VLCR05N4Genpt



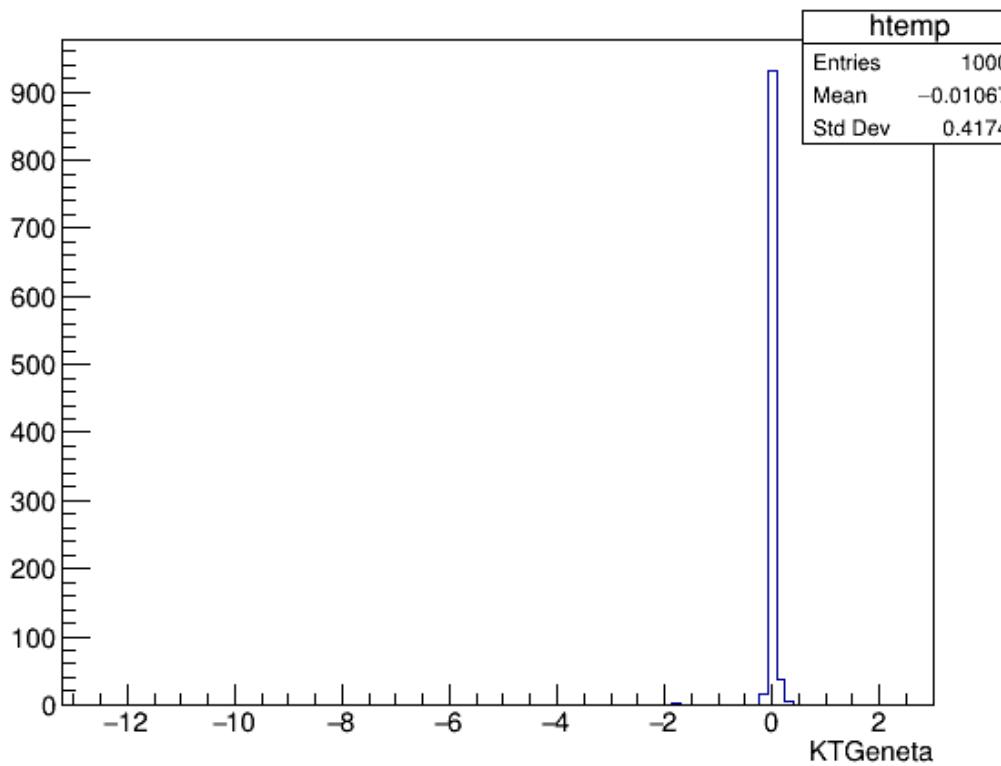
VLCR05N4Genm



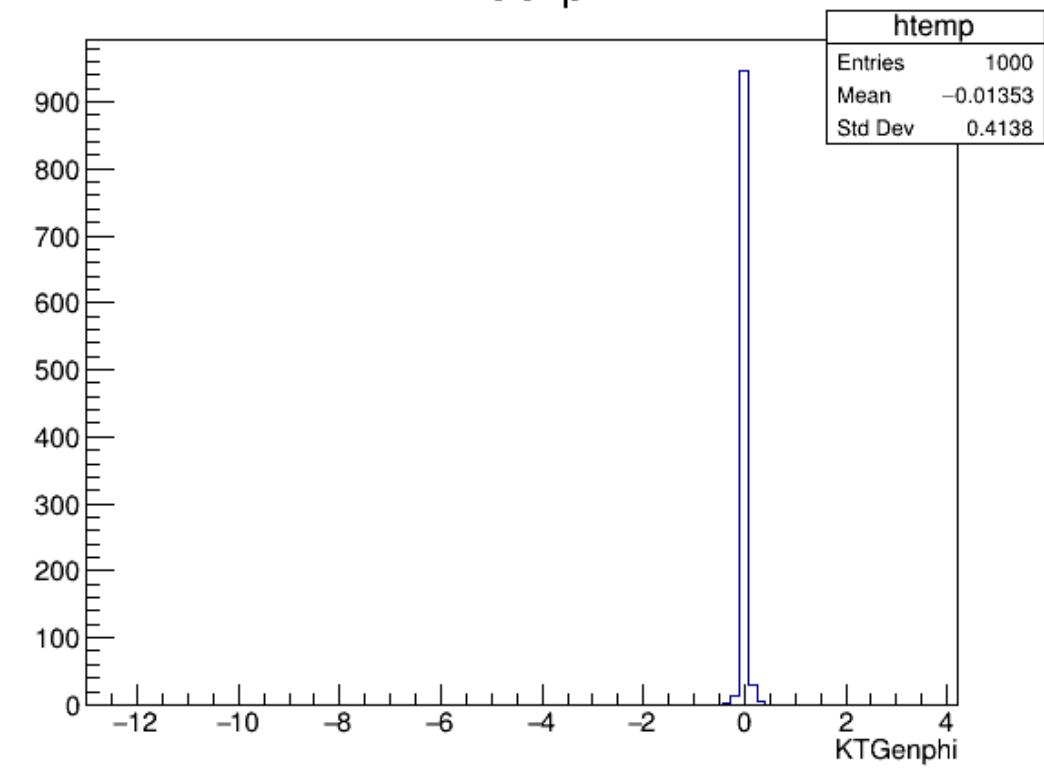
# Background: $\mu^+ \mu^- \rightarrow v_m v_m^* b b^* b b^*$



KTGeneta



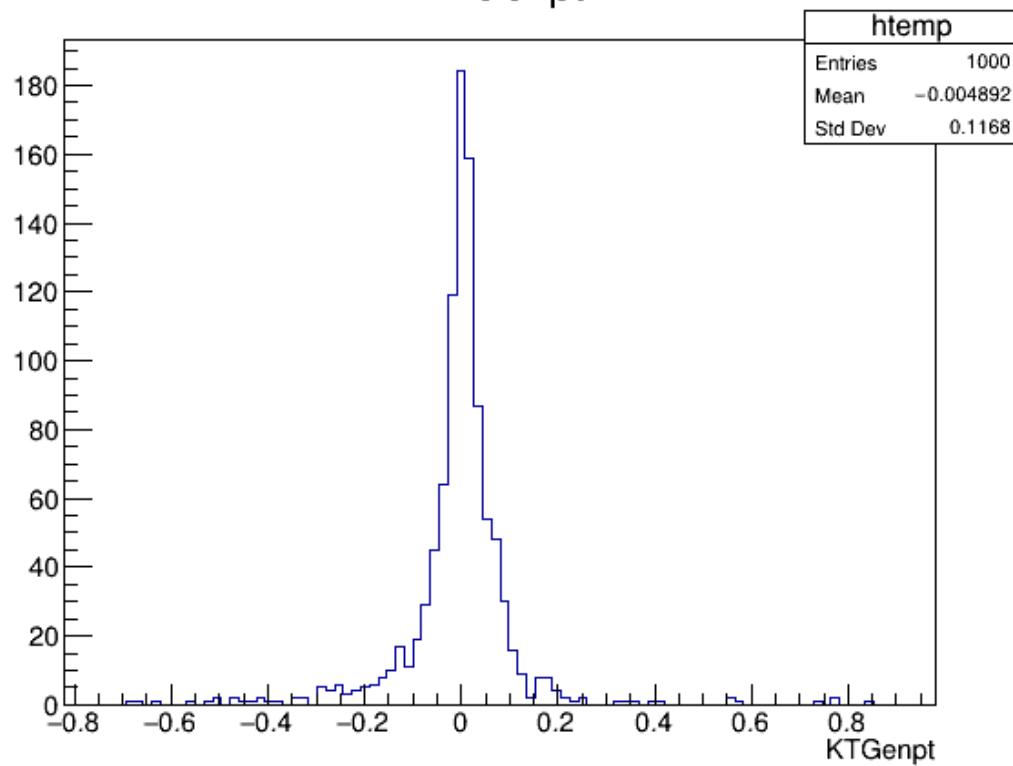
KTGenphi



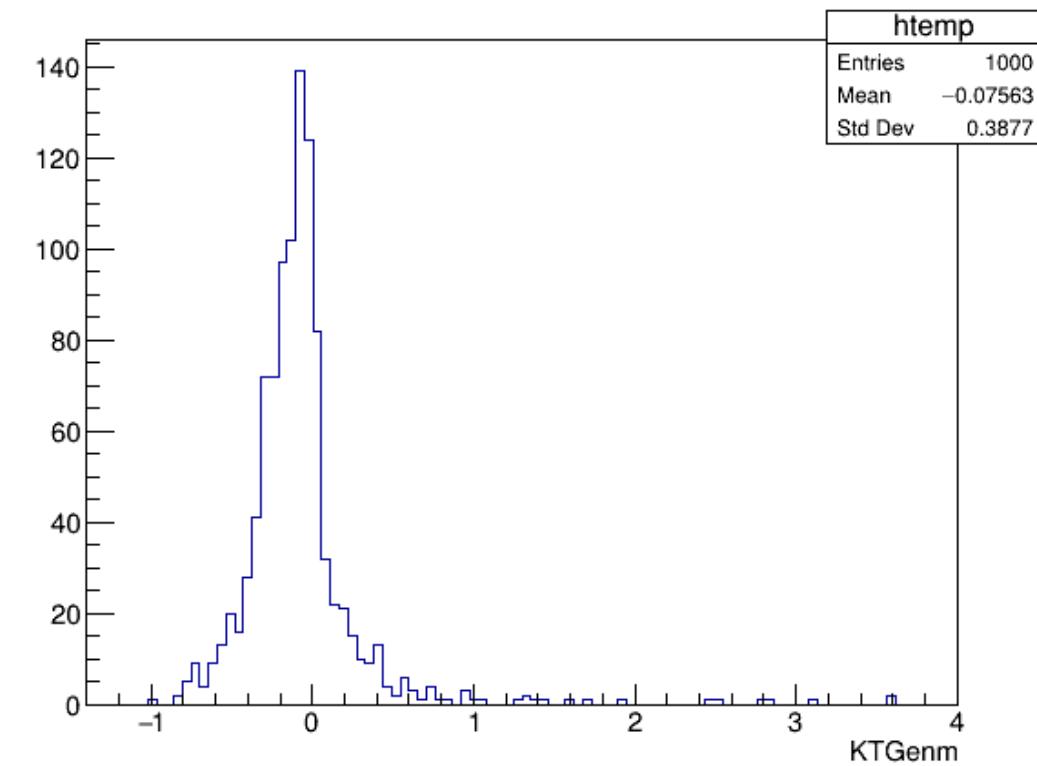


Background:  $\mu^+ \mu^- \rightarrow v\bar{v} v\bar{v} b\bar{b} b\bar{b}$

KTGenpt



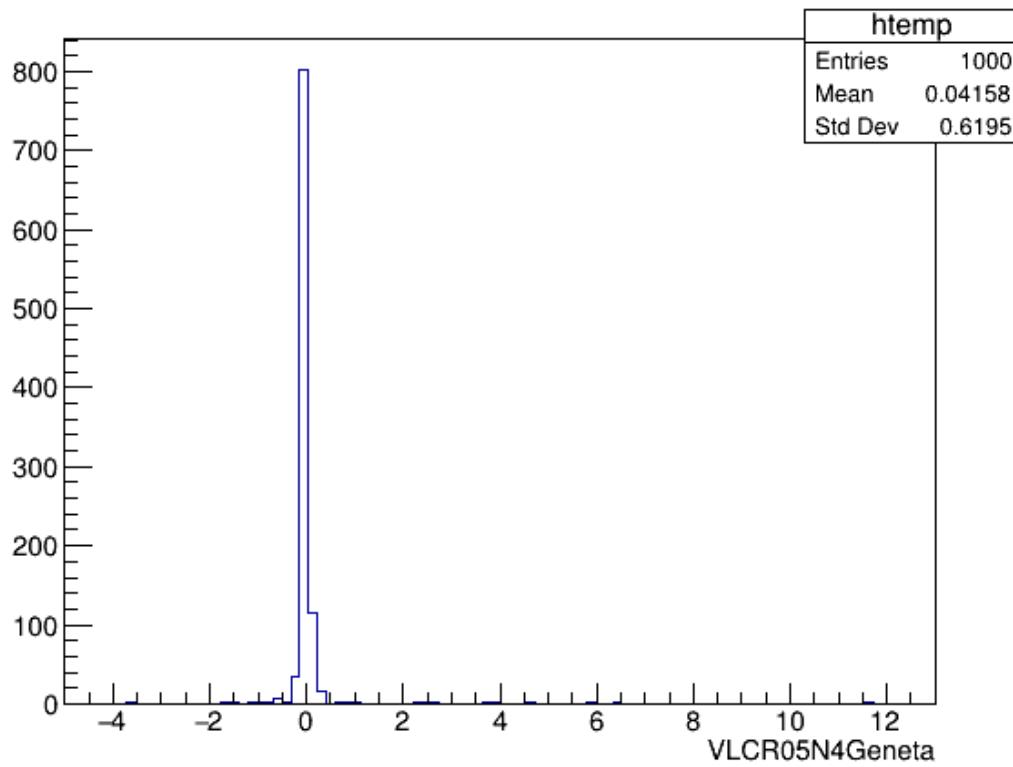
KTGenm



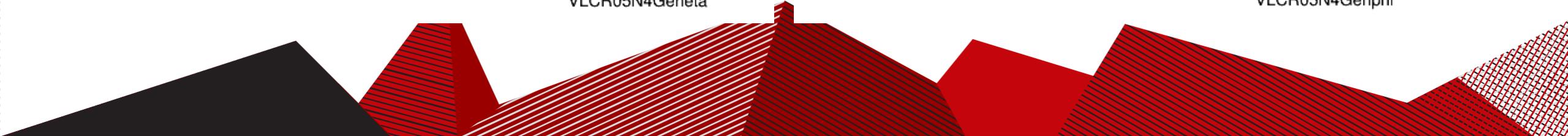
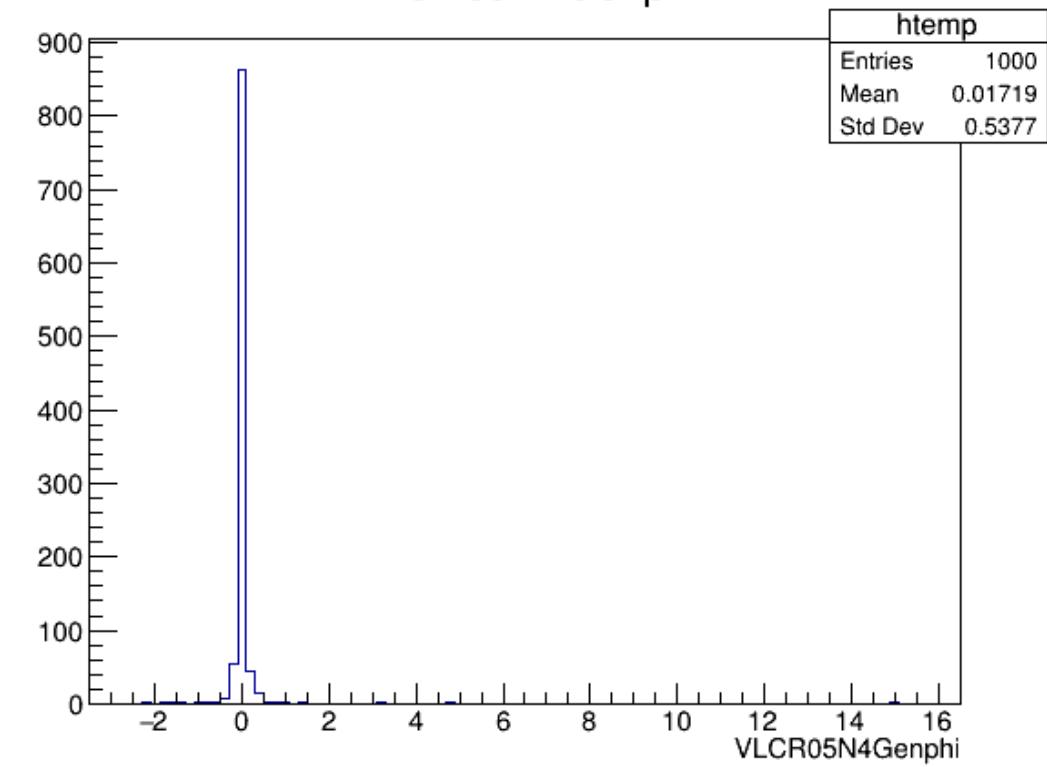
Background:  $\mu^+ \mu^- \rightarrow v_m v_m^{\sim} b b^{\sim} b b^{\sim}$



VLCR05N4Geneta



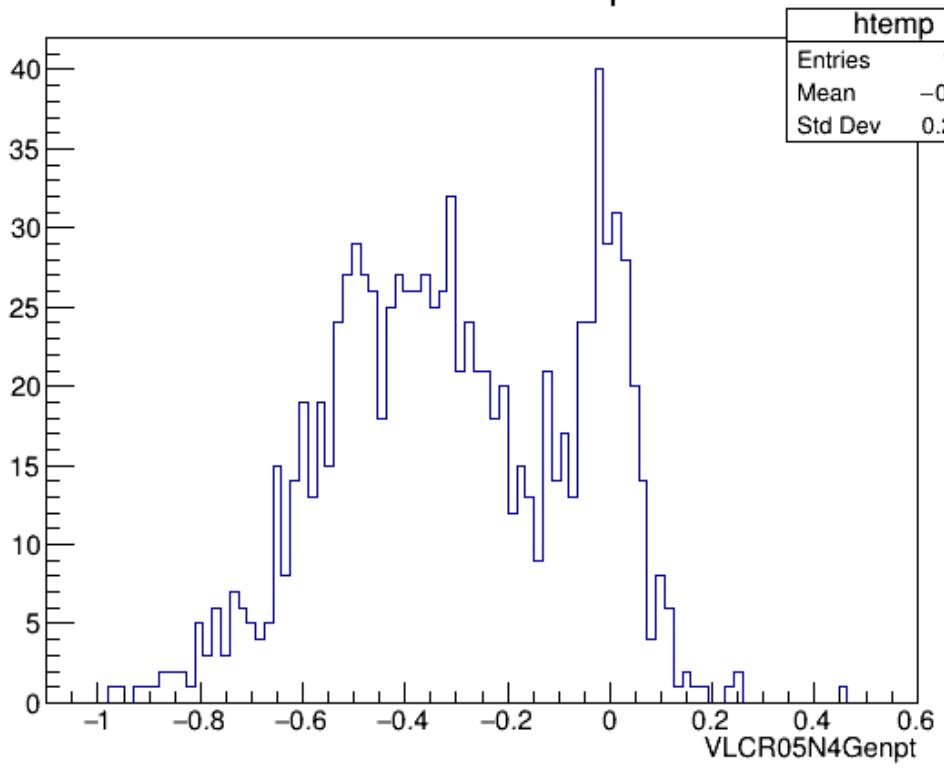
VLCR05N4Genphi



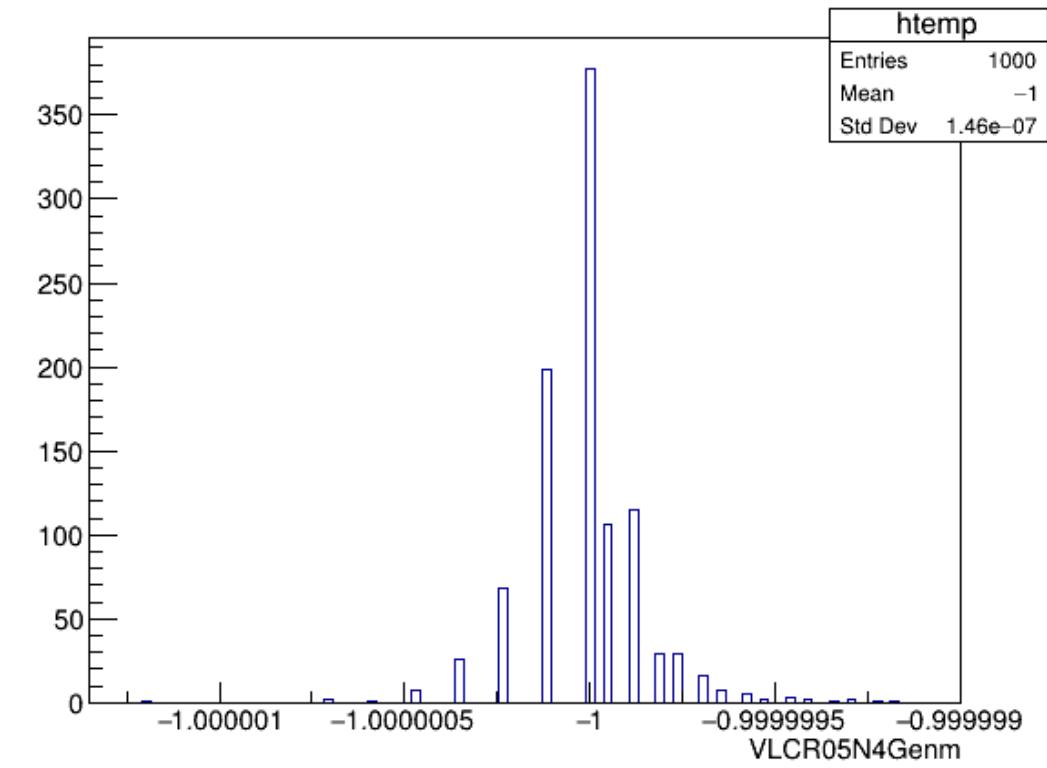


Background:  $\mu^+ \mu^- \rightarrow v\bar{v} v\bar{v} b\bar{b} b\bar{b}$

VLCR05N4Genpt



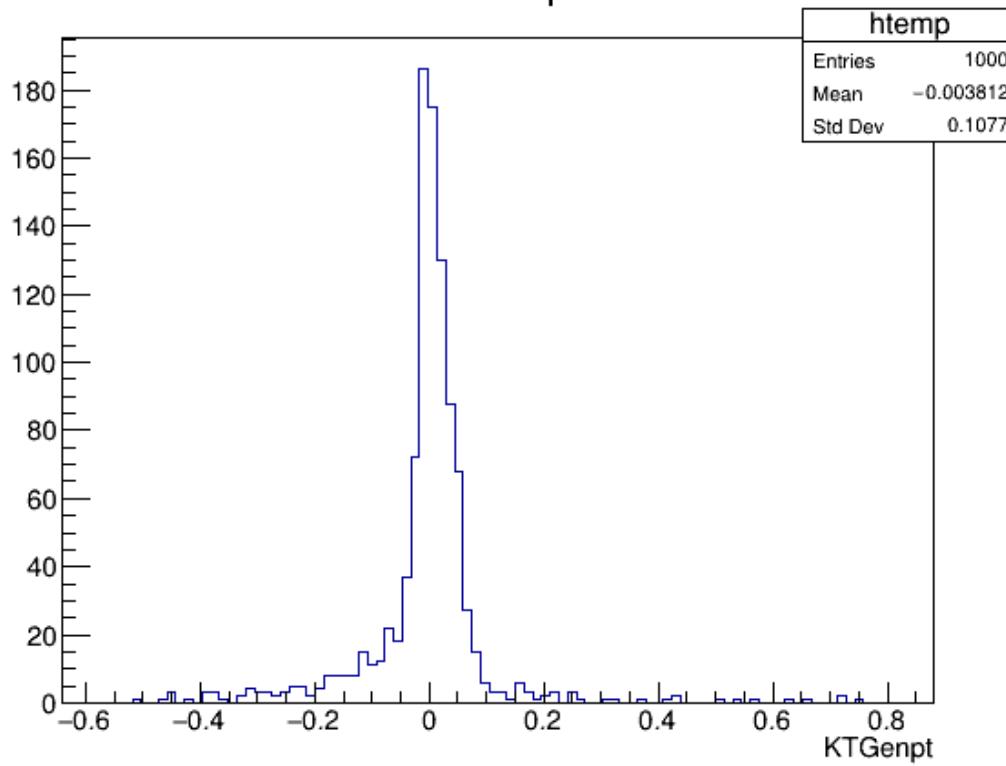
VLCR05N4Genm



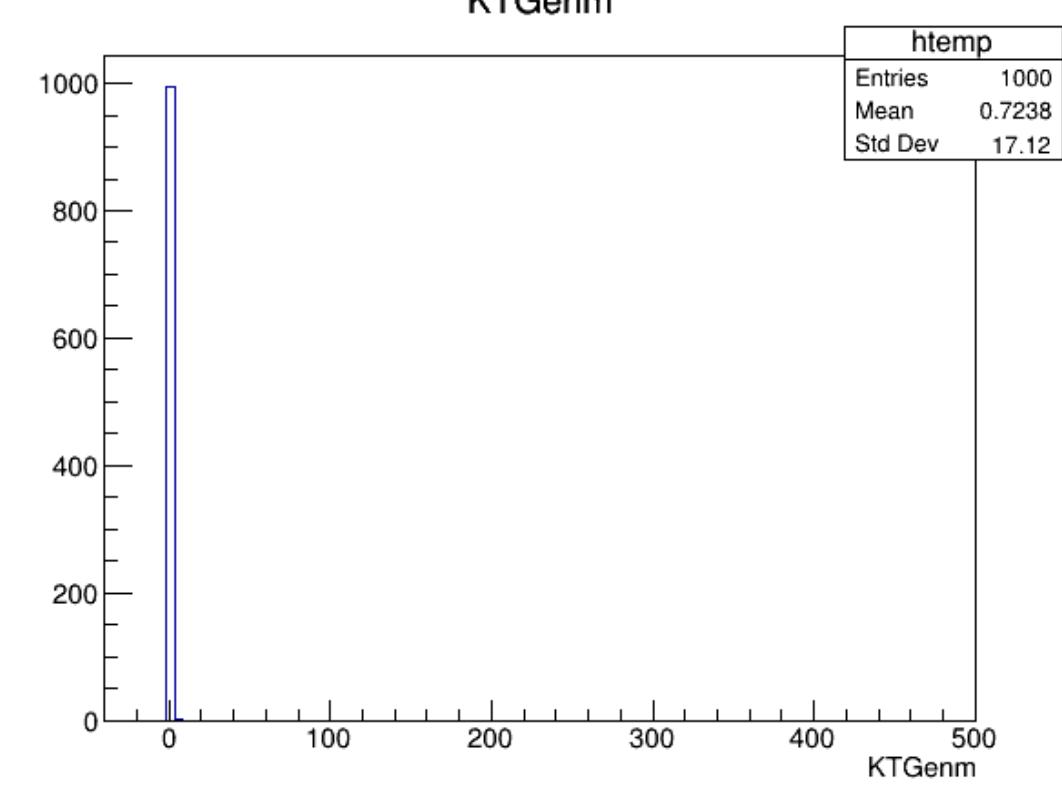


# Background: $\mu^+ \mu^- \rightarrow v\bar{v} b\bar{b} h$

KTGenpt



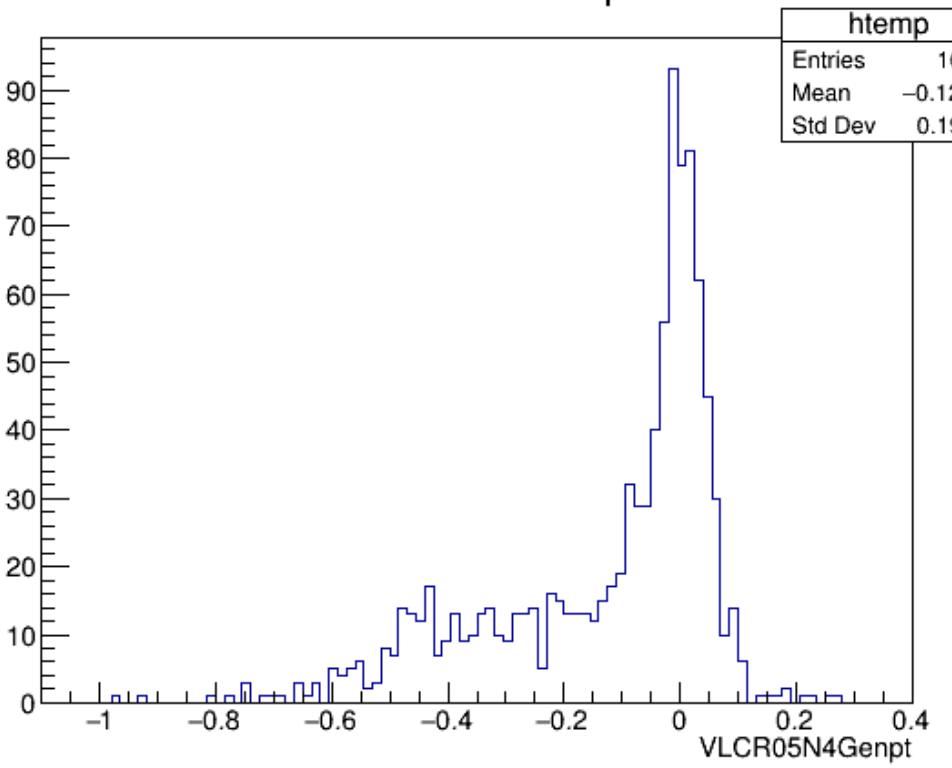
KTGenm



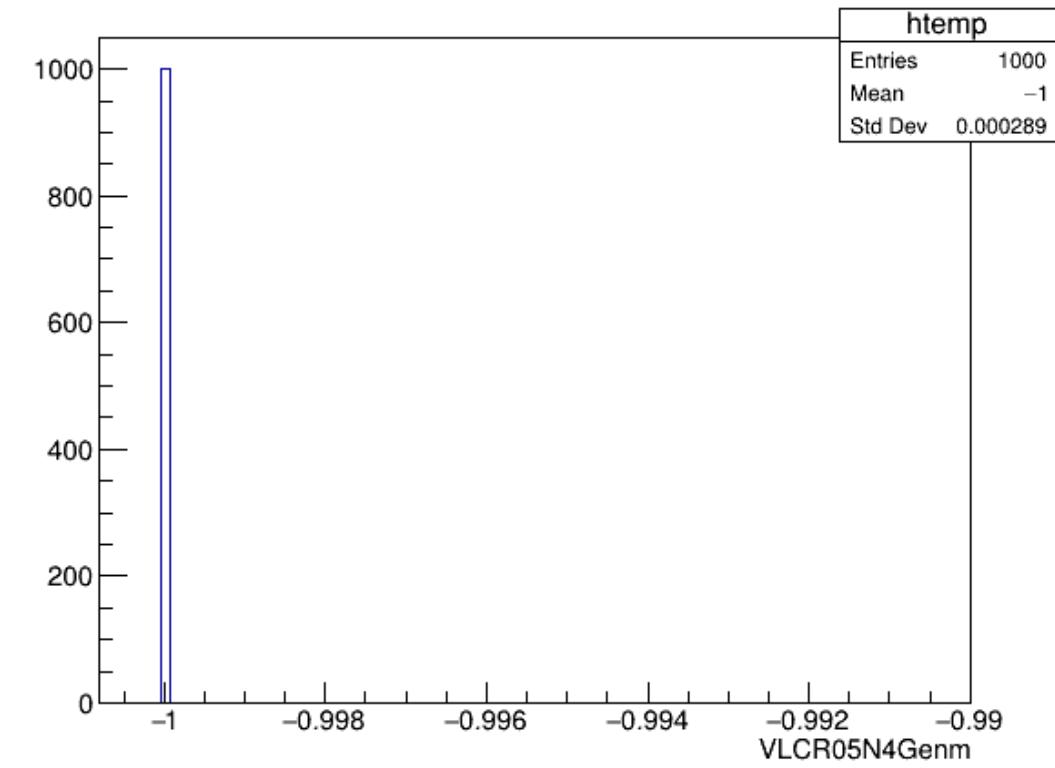


# Background: $\mu^+ \mu^- \rightarrow v\bar{v} b\bar{b} h$

VLCR05N4Genpt



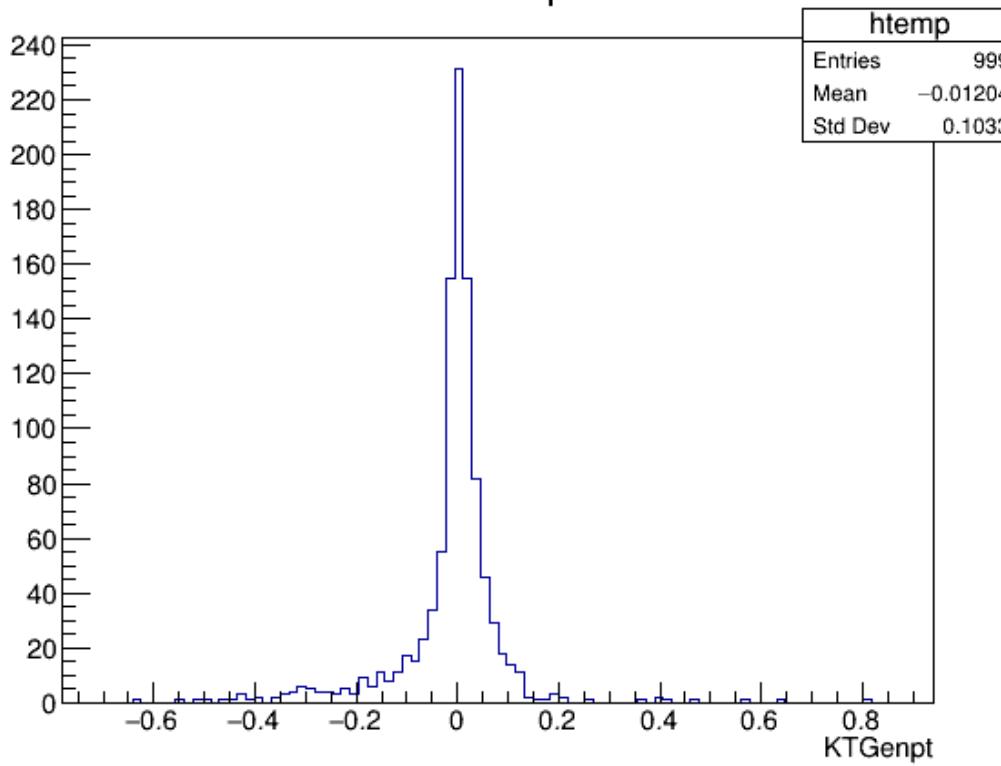
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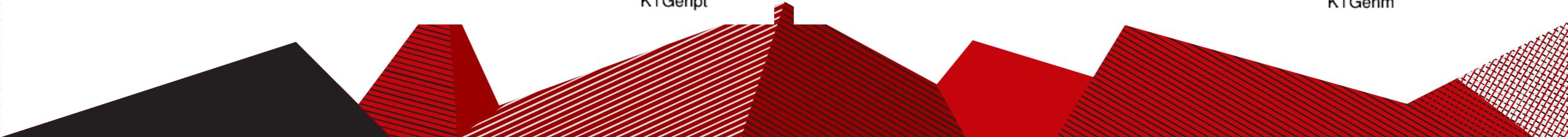
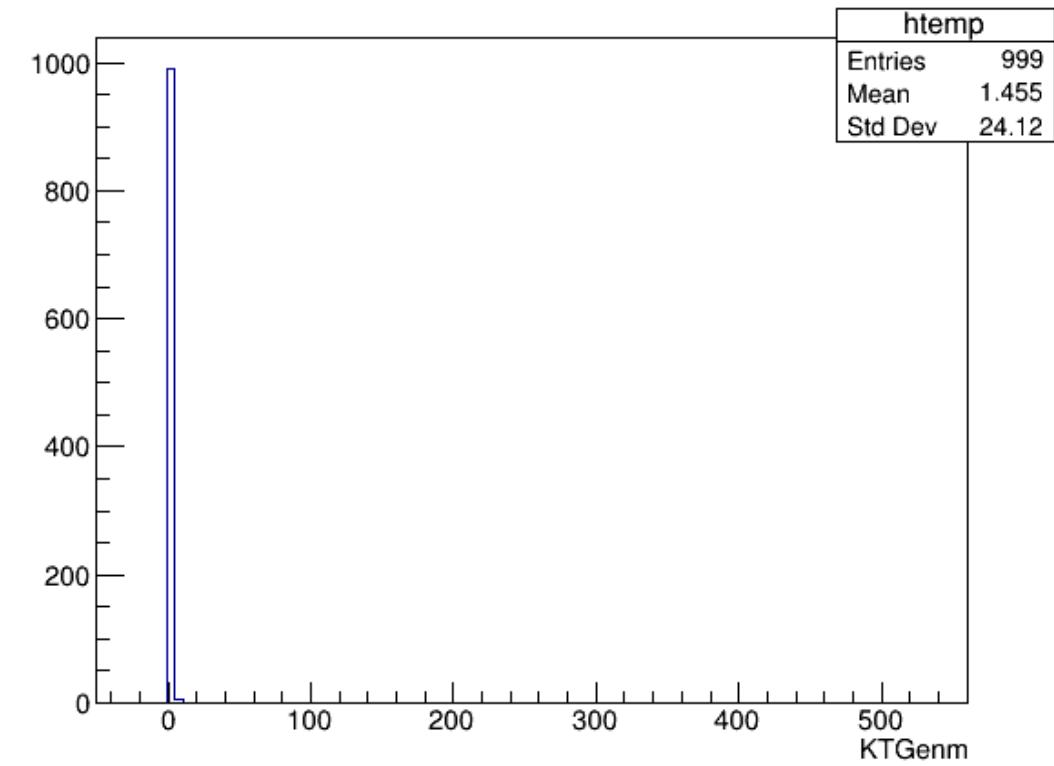
# Background: $\mu^+ \mu^- \rightarrow v\bar{v} b\bar{b} z$



KTGenpt



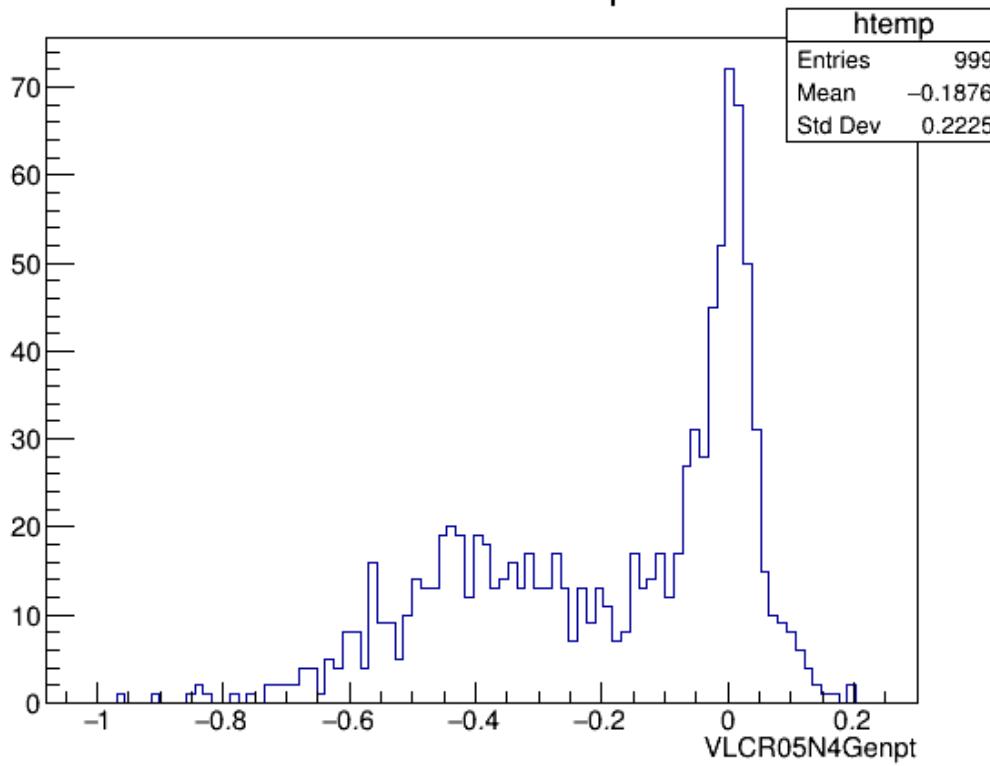
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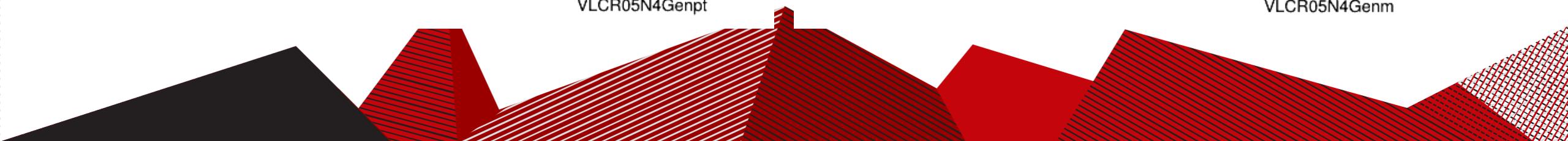
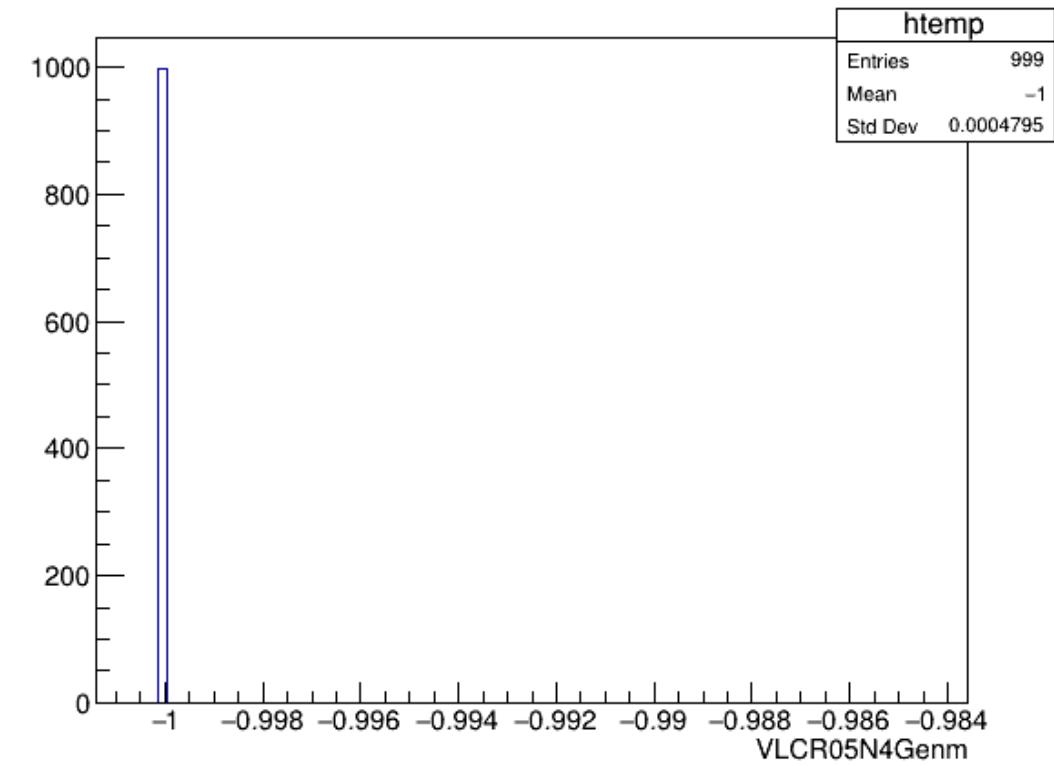
# Background: $\mu^+ \mu^- \rightarrow v_m v_{m'} \sim b \bar{b} \sim z$



VLCR05N4Genpt



VLCR05N4Gemm





# Jets matching macro

- $\text{DeltaR} = \text{Sqrt}(\text{deltaEta}^2 + \text{deltaPhi}^2)$
- If  $\text{DeltaR}$  between VLCjetR05N4 or Ktjet and GenJet < **0.25**:  
plot  $(\text{KT<} \text{variable} \text{>} - \text{Gen<} \text{variable} \text{>}) / \text{Gen<} \text{variable} \text{>}$

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?