# A new possible resonance at Belle

2017. 05. 11.

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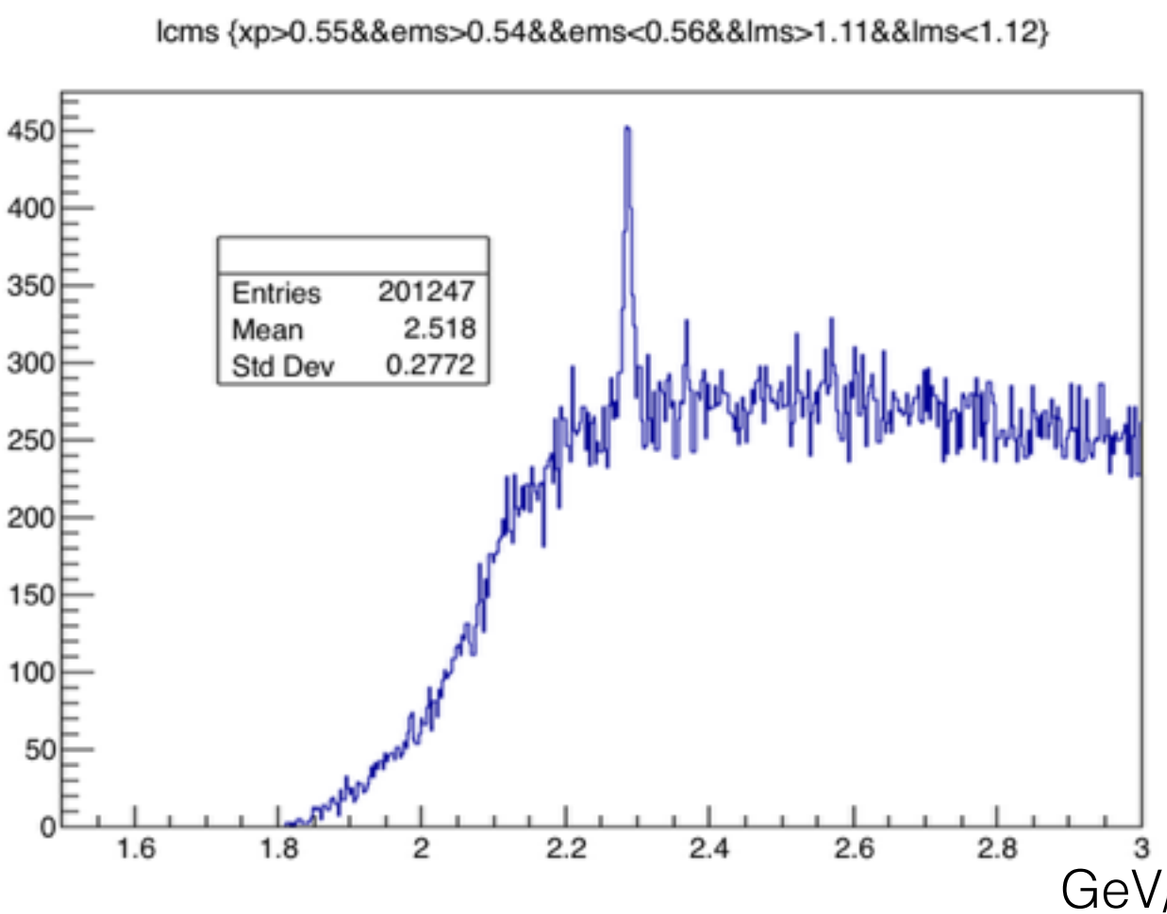
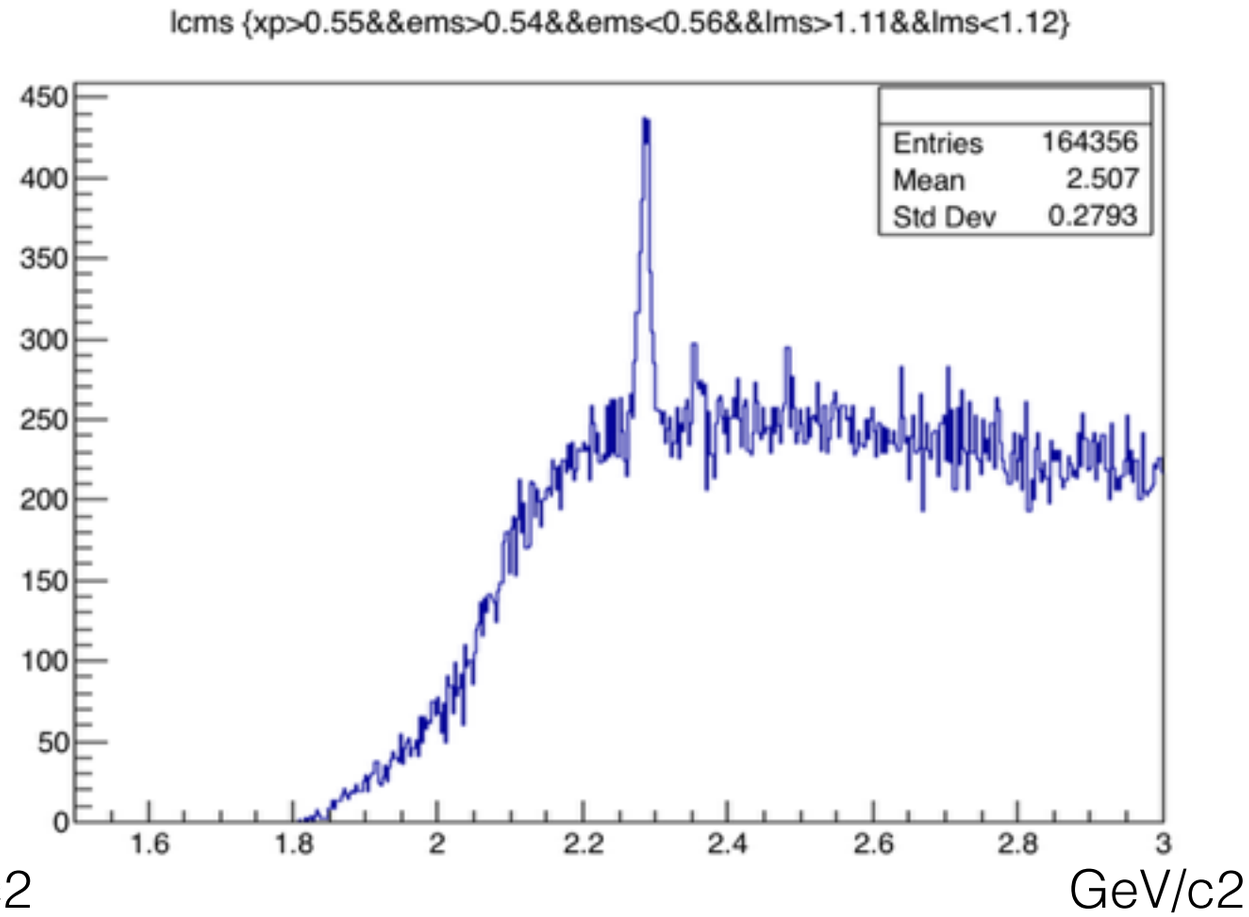
# Real Data vs Generic MC (exp.63 whole data) - 2 gammas

## $\Lambda_c^+ \rightarrow \eta\Lambda\pi^+$ ($\eta \rightarrow \gamma\gamma$)

Real (exp63 whole data)  MC (exp63 on resonance only)

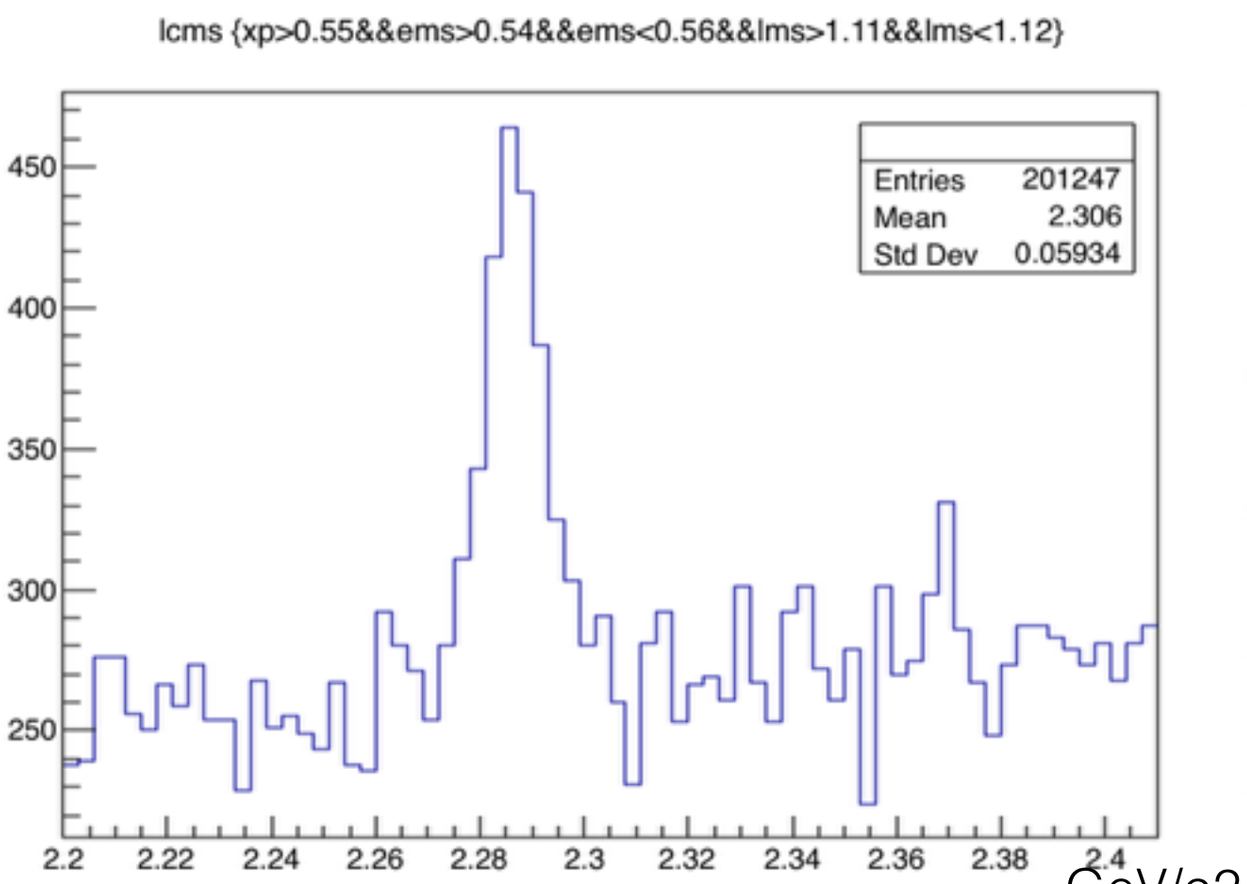


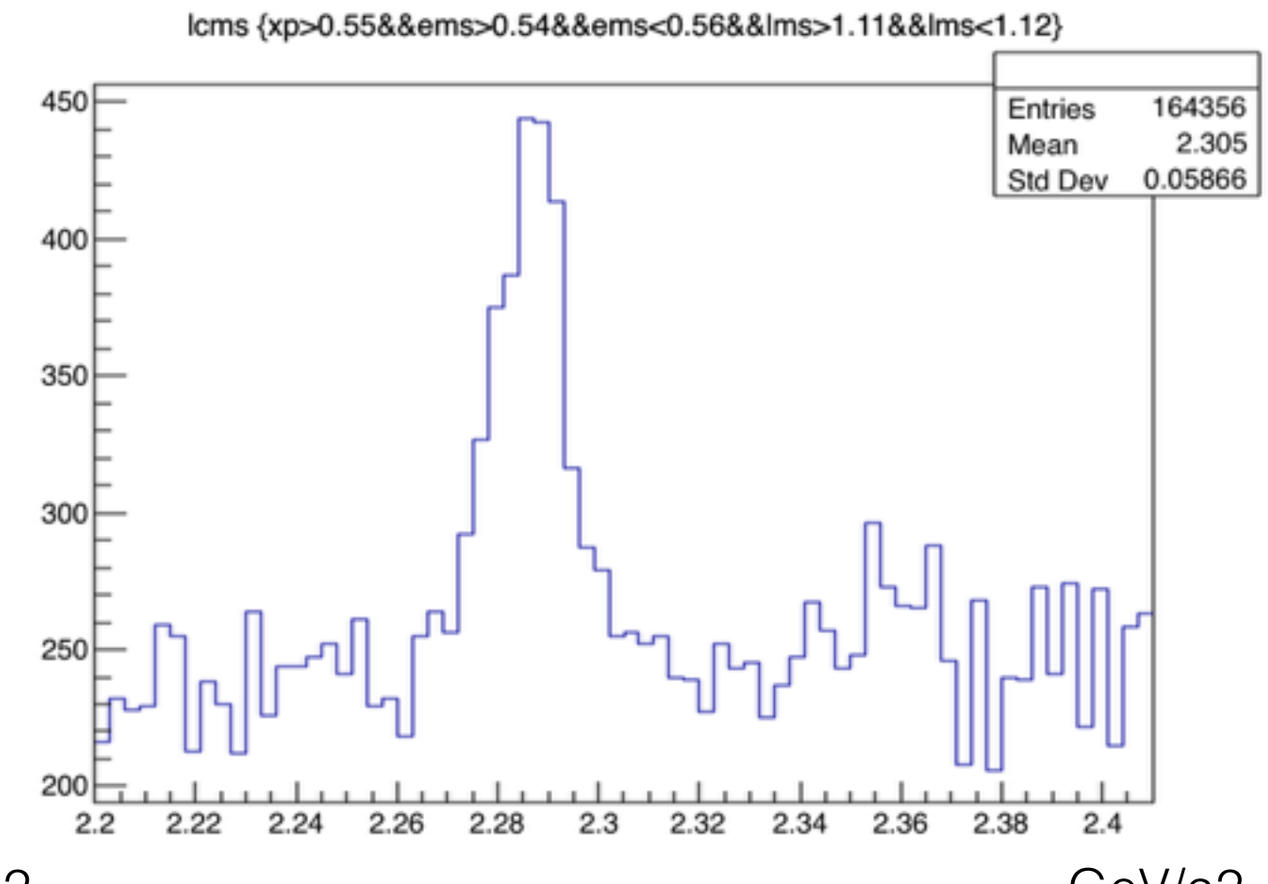



# Real Data vs Generic MC (exp.63 whole data) - 2 gammas

## $\Lambda_c^+ \rightarrow \eta\Lambda\pi^+$ ($\eta \rightarrow \gamma\gamma$)

Real (exp63 whole data)  MC (exp63 on resonance only)

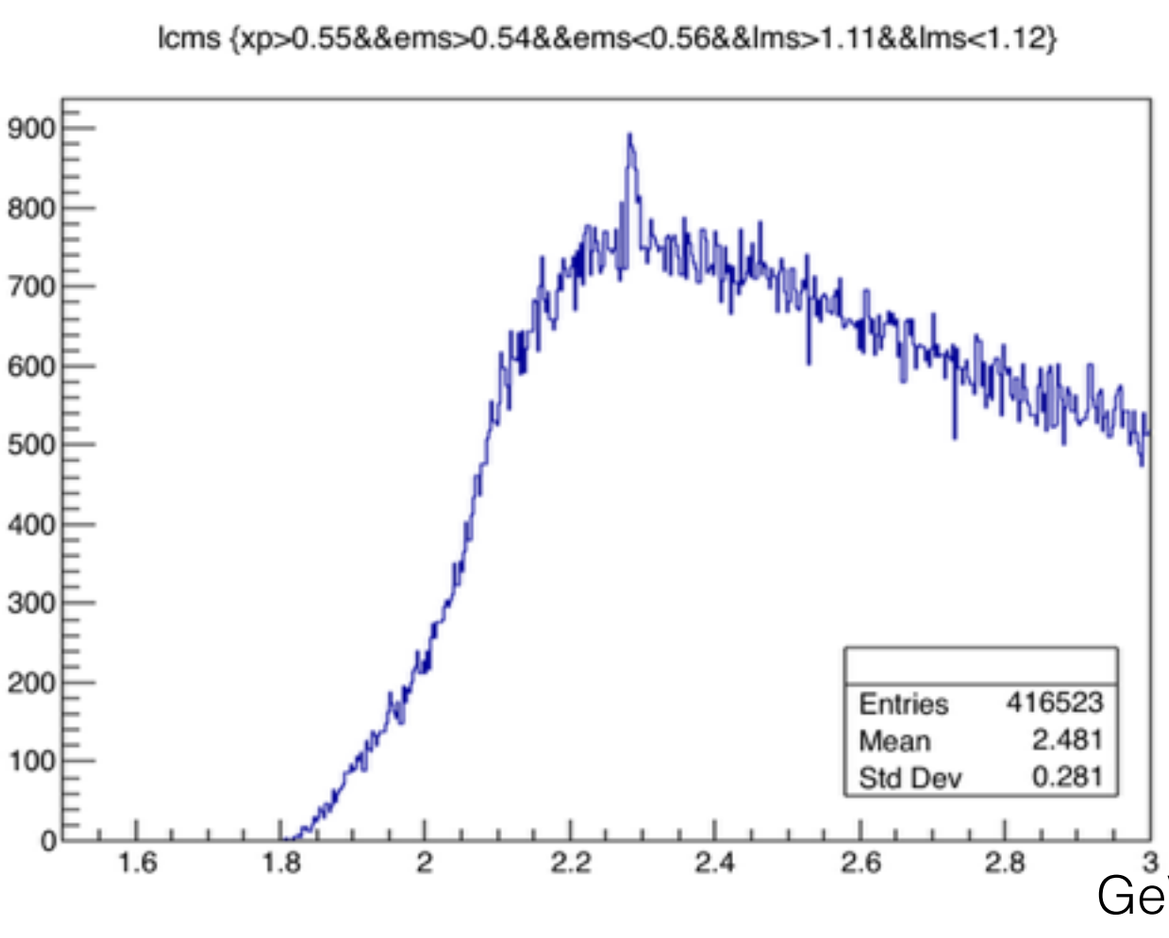


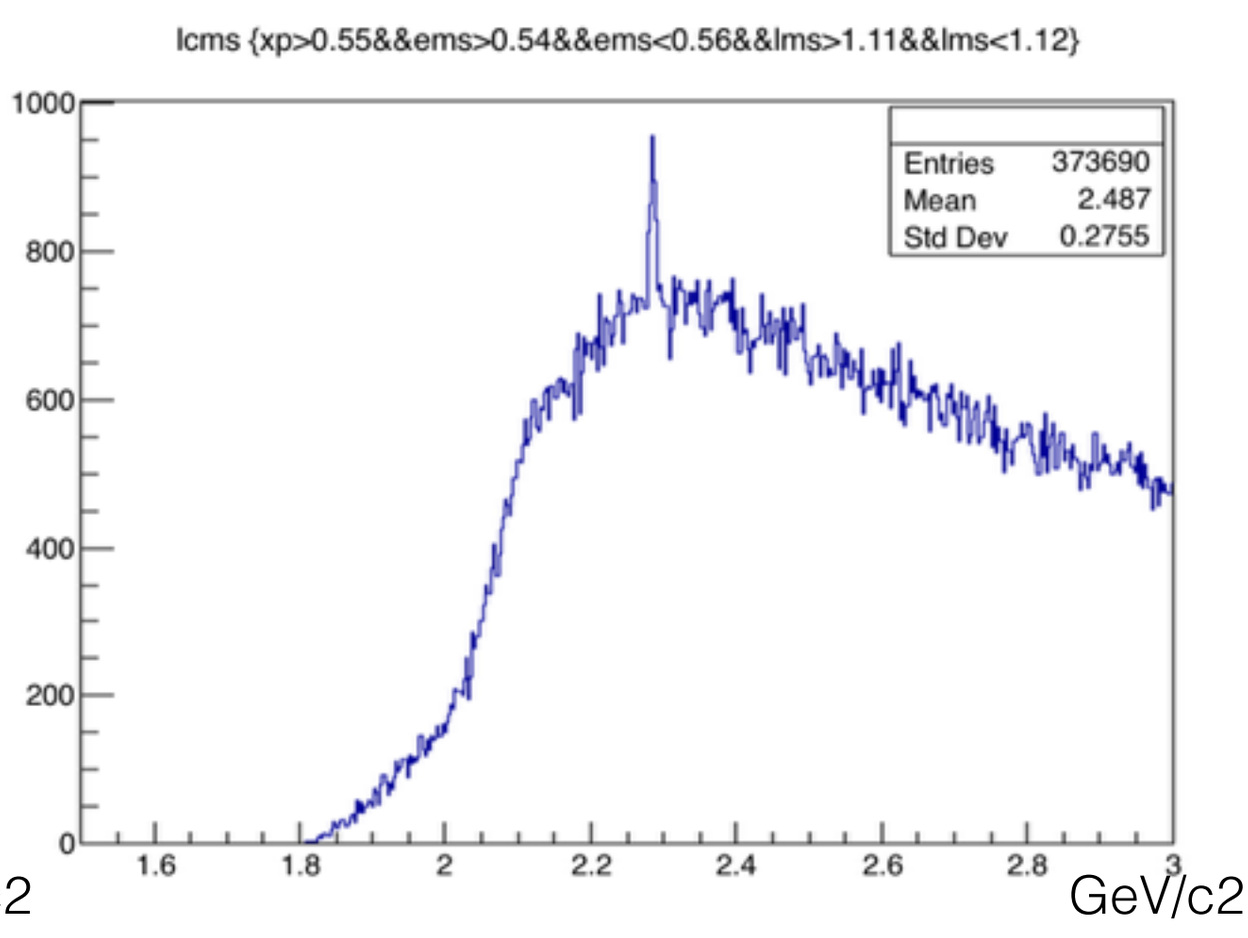



# Real Data vs Generic MC (exp.63 whole data) - 3 pions

## $\Lambda_c^+ \rightarrow \eta\Lambda\pi^+$ ($\eta \rightarrow \pi^+\pi^-\pi 0$)

Real (exp63 whole data)  MC (exp63 on resonance only)

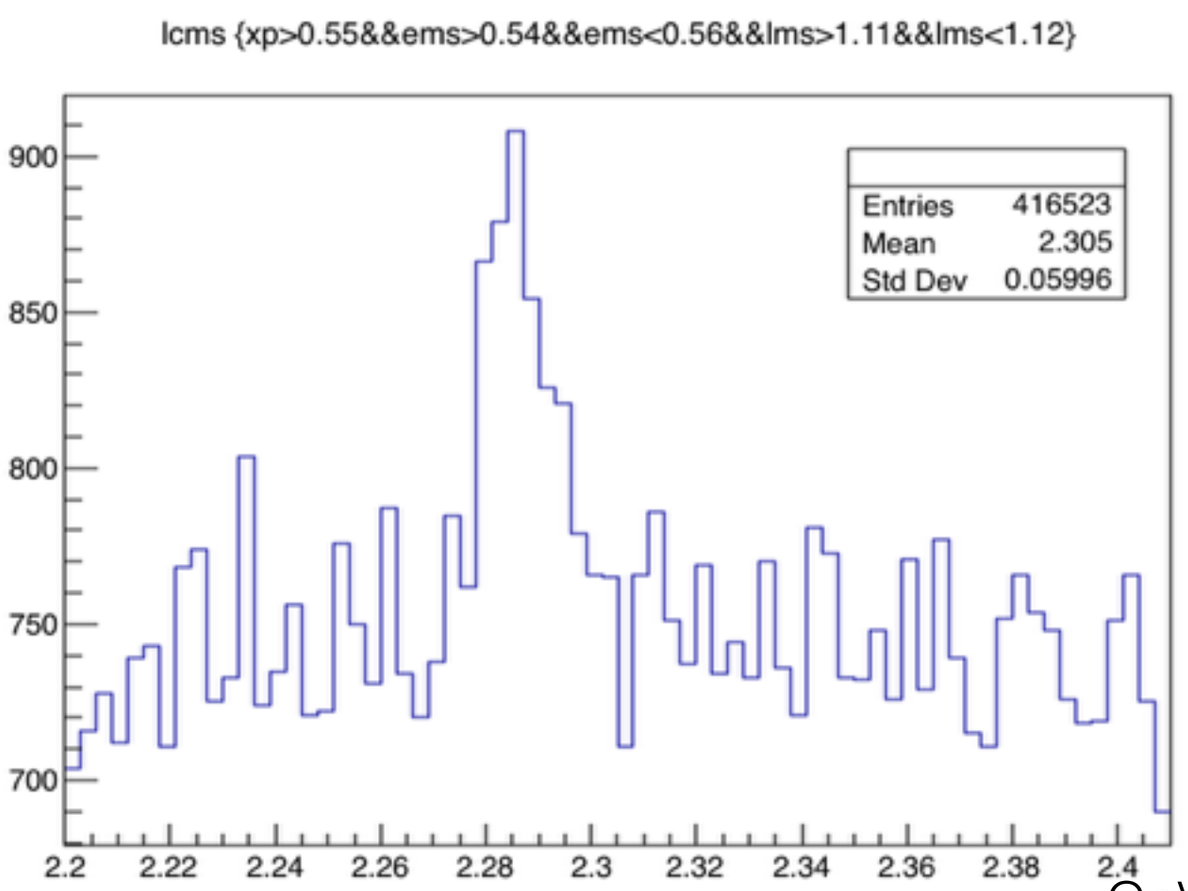


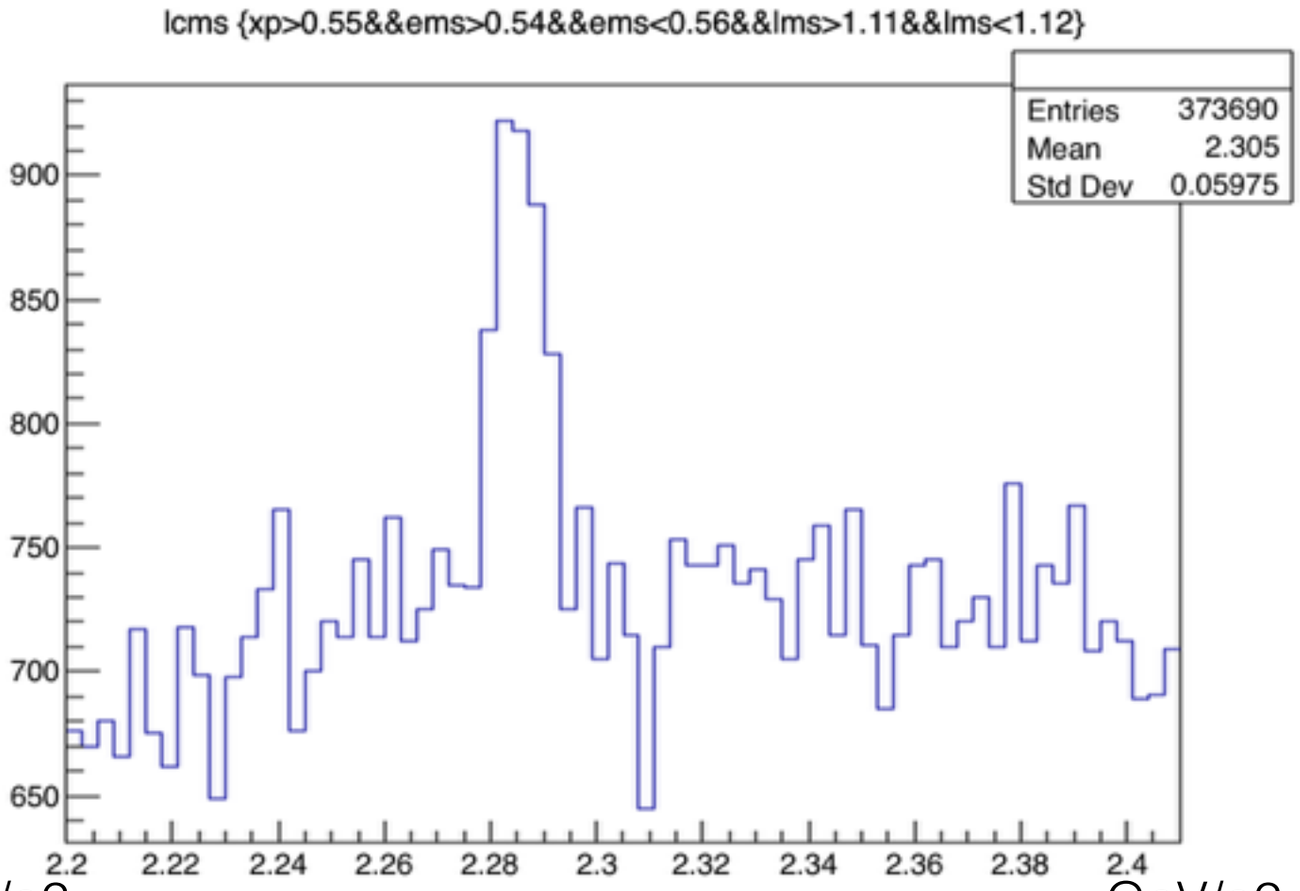



# Real Data vs Generic MC (exp.63 whole data) - 3 pions

## $\Lambda_c^+ \rightarrow \eta\Lambda\pi^+$ ($\eta \rightarrow \pi^+\pi^-\pi^0$)

Real (exp63 whole data)  MC (exp63 on resonance only)



# Summary

1. Statistics is lower in Generic MC.
2. But the background distribution shape of the two data sets show no significant difference.
3. So, I think it is a reasonable way to do optimization solely with the generic MC data sets.

# Next Plan

Do  optimization of Lambda_c+

# Backup

# Selection Criteria

Cut:
single gamma E in endcap region > 100 MeV, in Barrel region > 50 MeV for pi0 + mass cut (from 120 to 150)

R(K|Pi) < 0.6, R(P|Pi) < 0.6, R(e)<0.9, nSVD>0, impact parameter dr < 0.1 cm dz< 2.0 cm for charged pions

Mdst good lambda = 1 or 2 for lambda selection