A new possible resonance at Belle

2017. 06. 01.

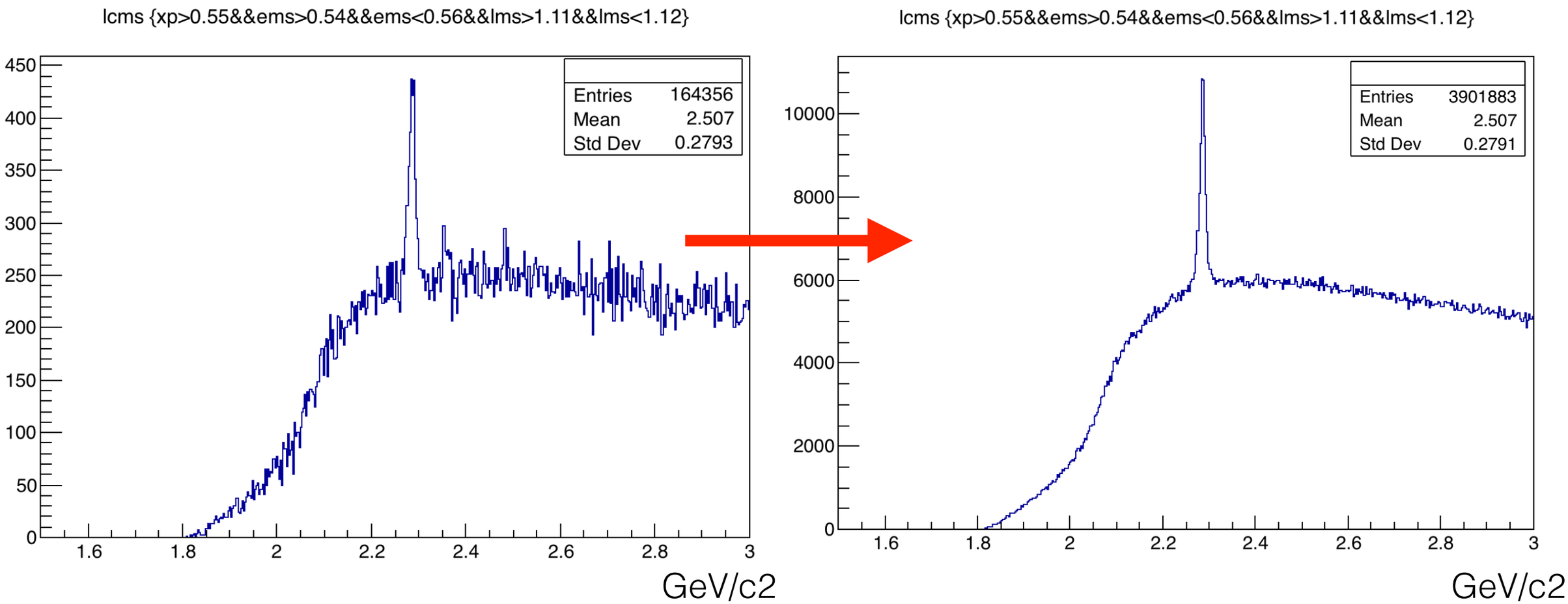
Jaeyong Lee

Generic MC (exp.63 vs entire data) - 2 gammas

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

MC (exp63)

MC (All)

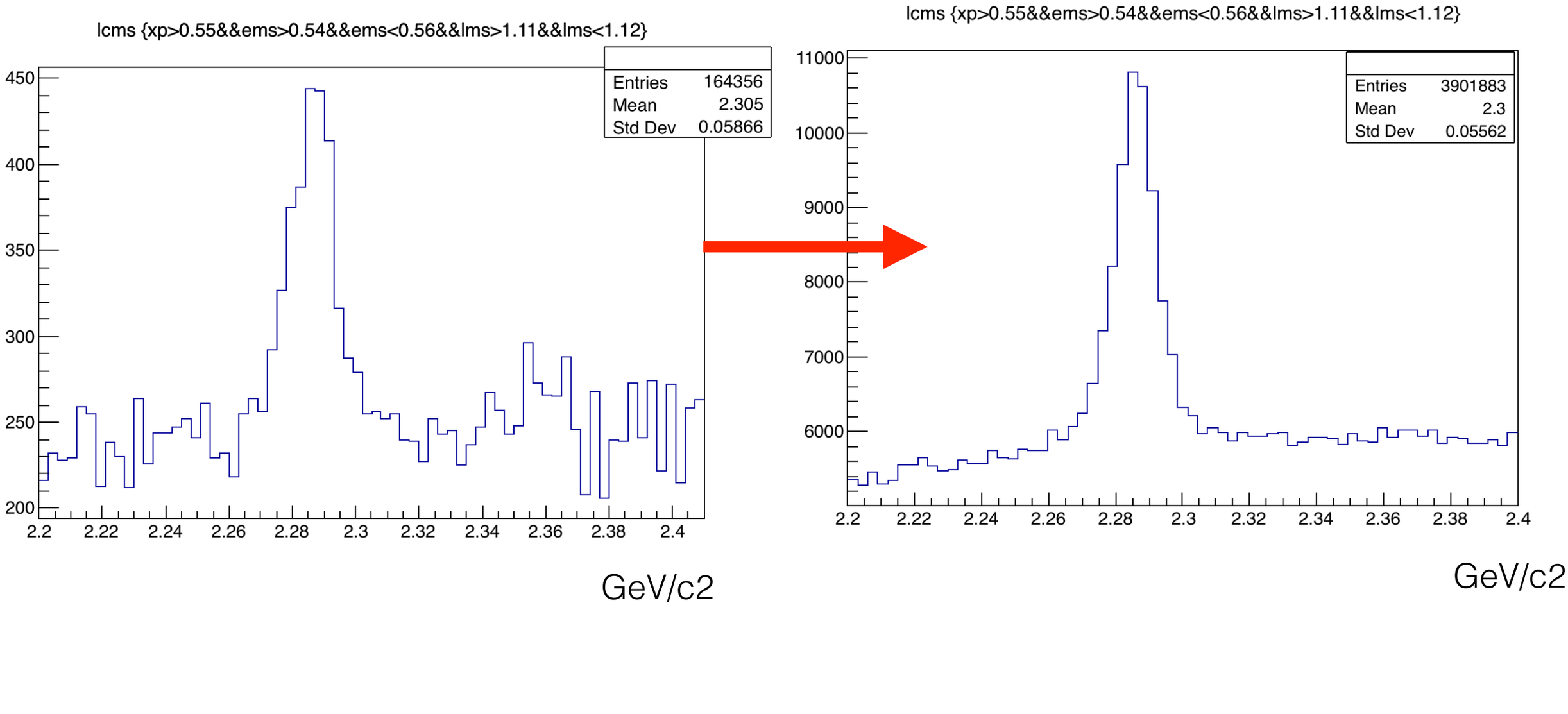


Generic MC (exp.63 vs whole data) - 2 gammas

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

MC (exp63)

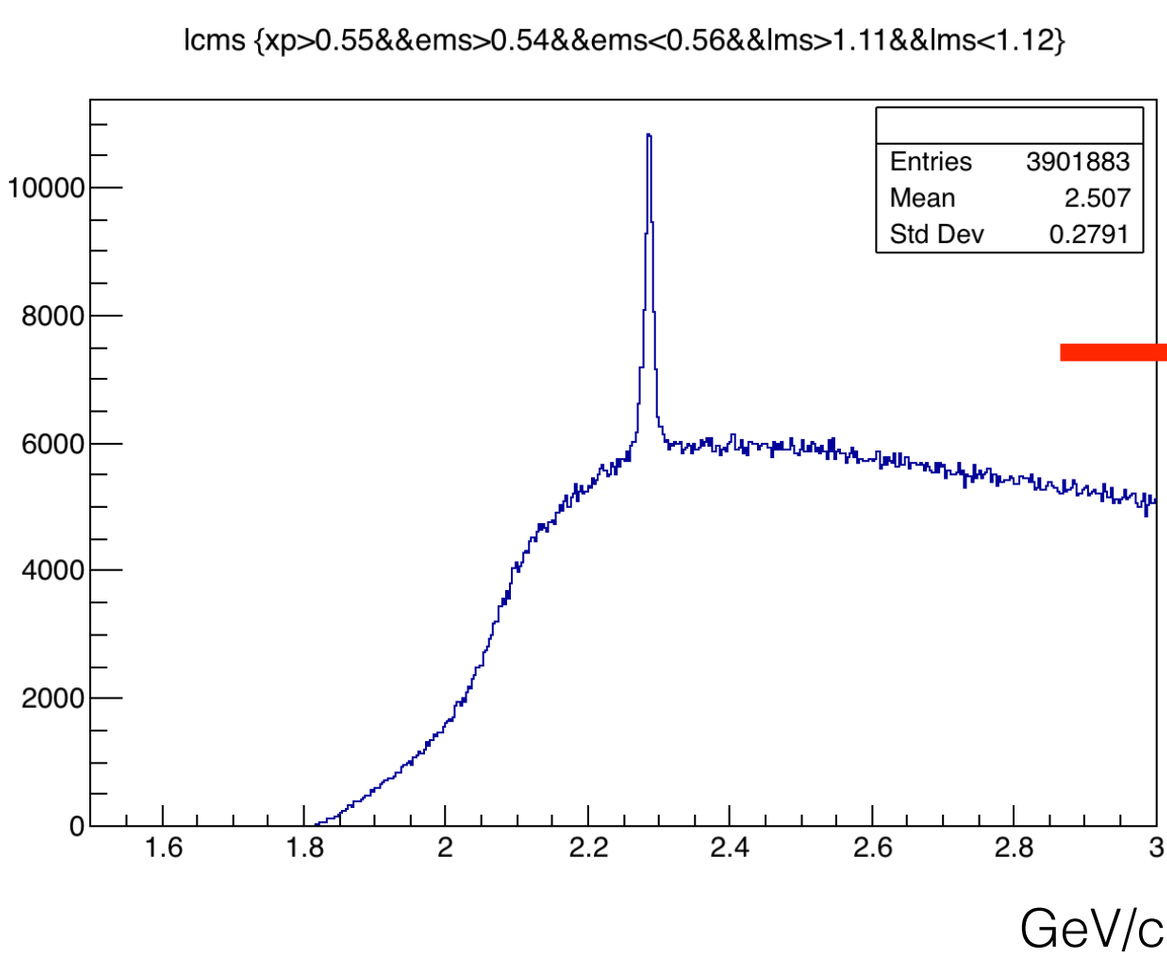
MC (All)



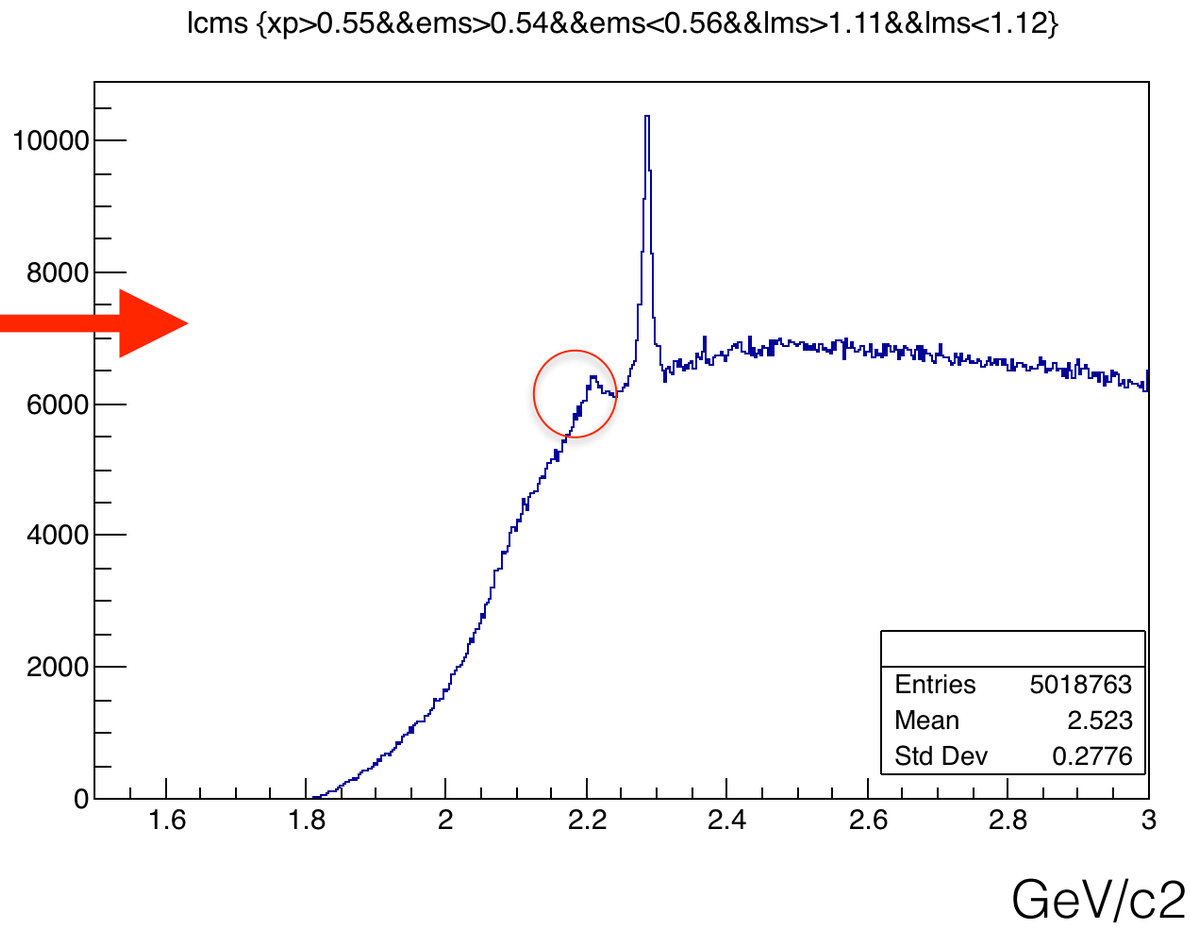
MC (ALL) vs Real Data (ALL)

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

MC (All)



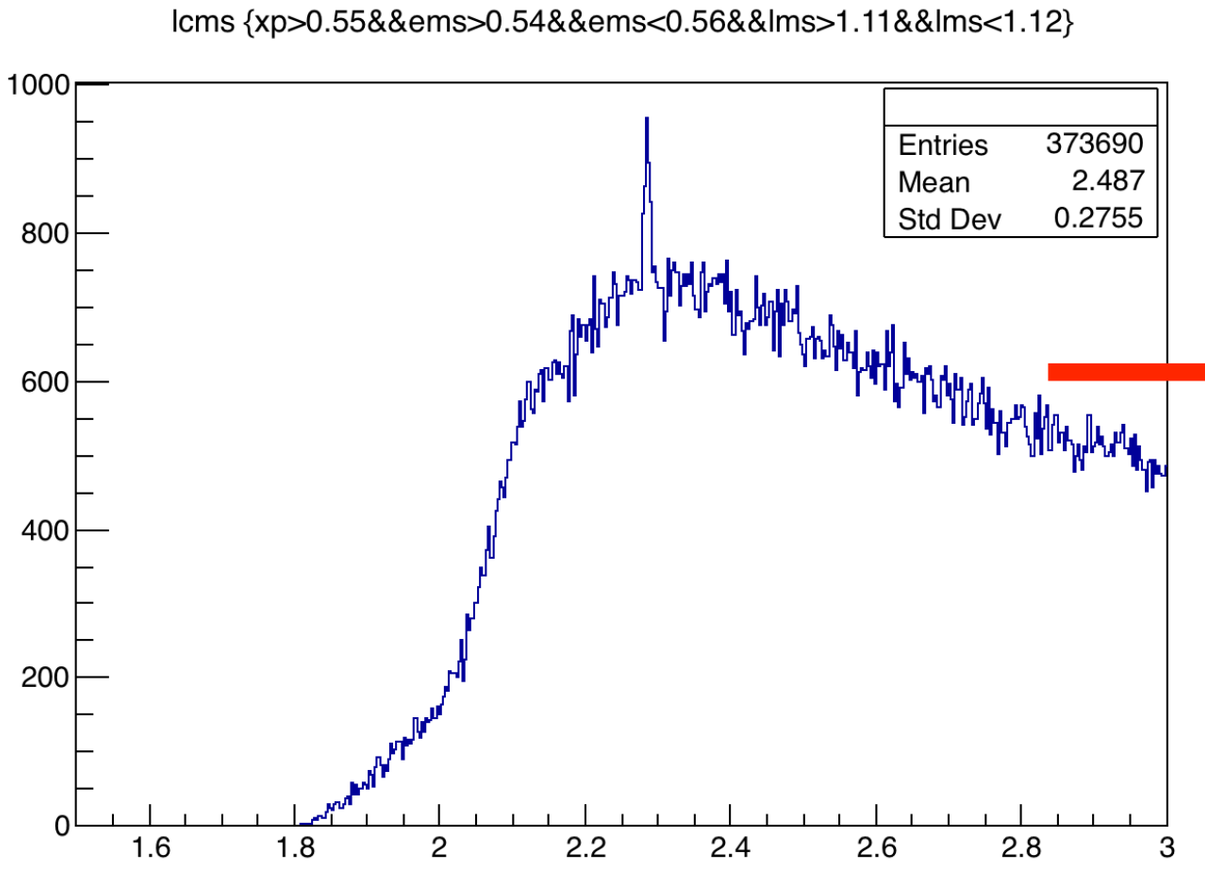
Real (All)



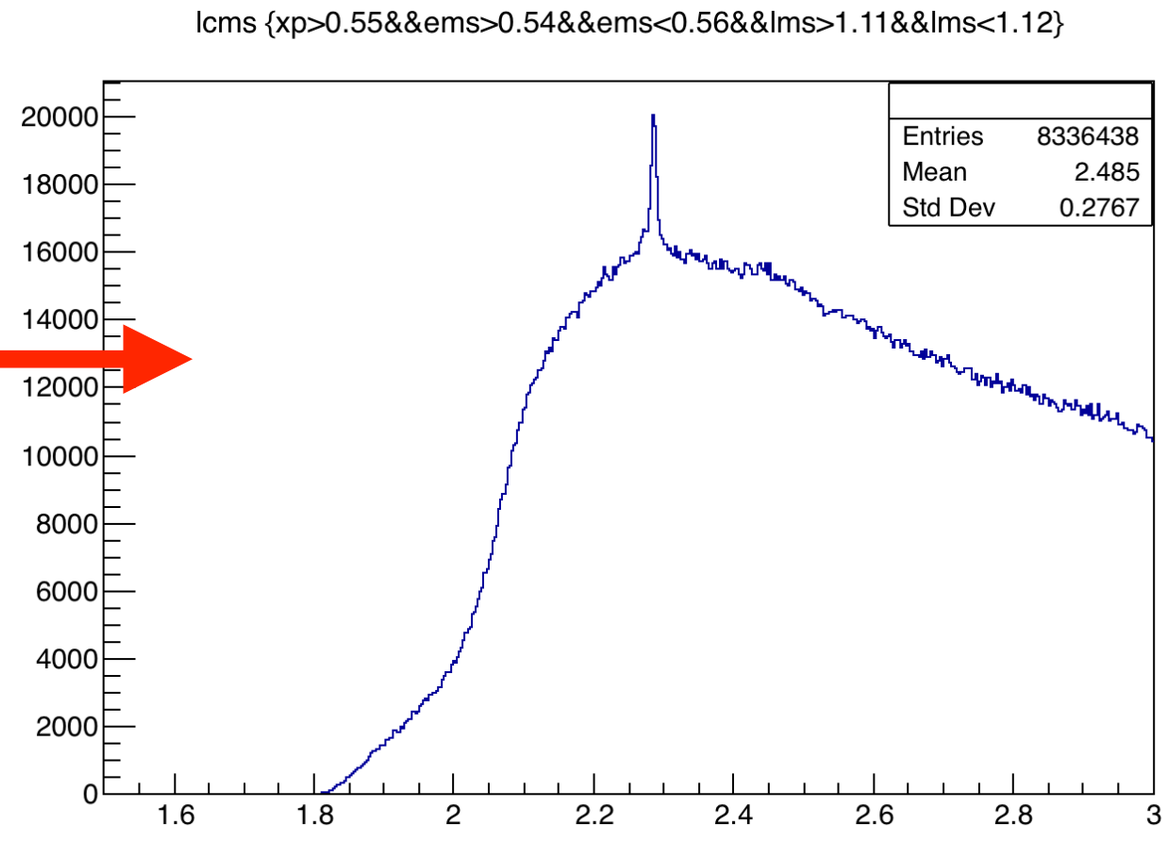
Real Data vs Generic MC (exp.63 whole data) - 3 pions

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

MC (exp63)



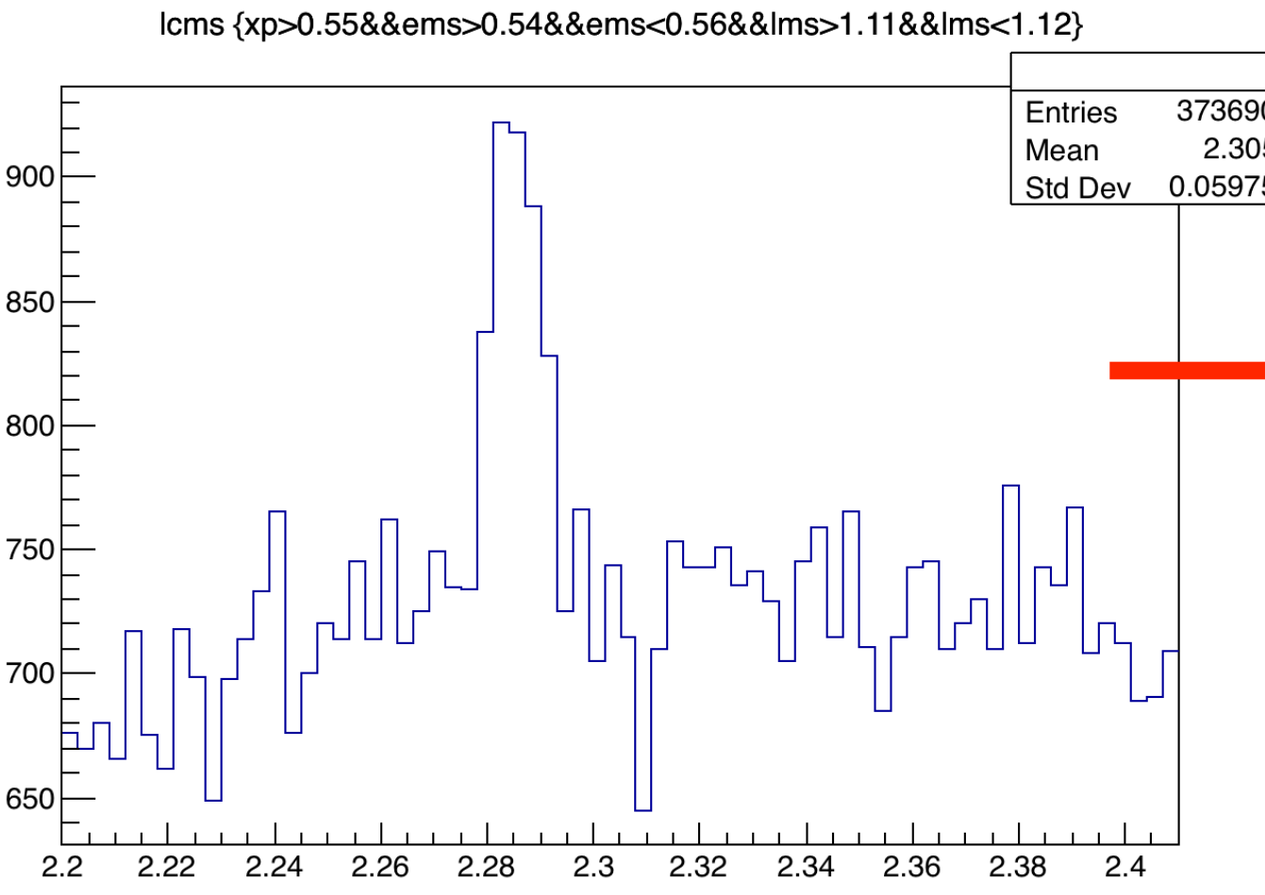
MC (All)



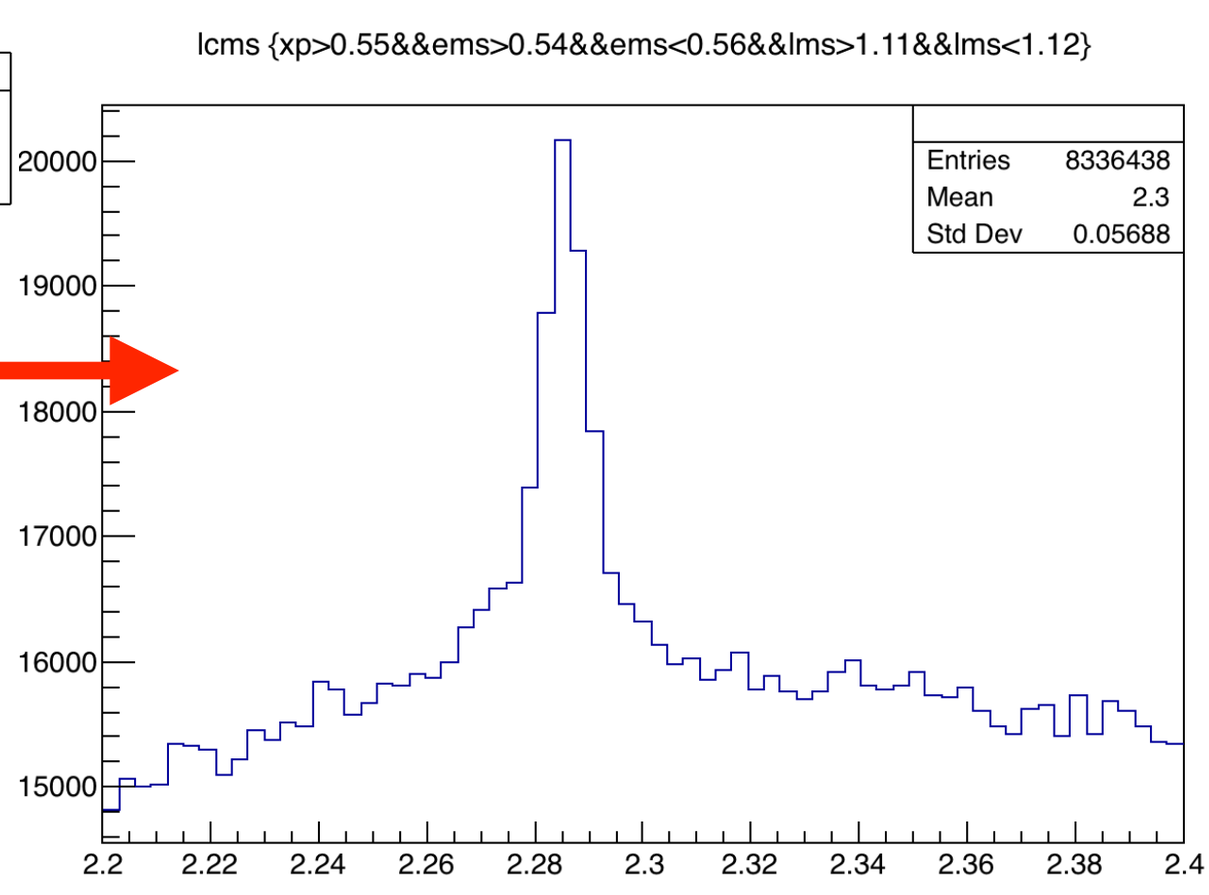
Real Data vs Generic MC (exp.63 whole data) - 3 pions

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

MC (exp63)



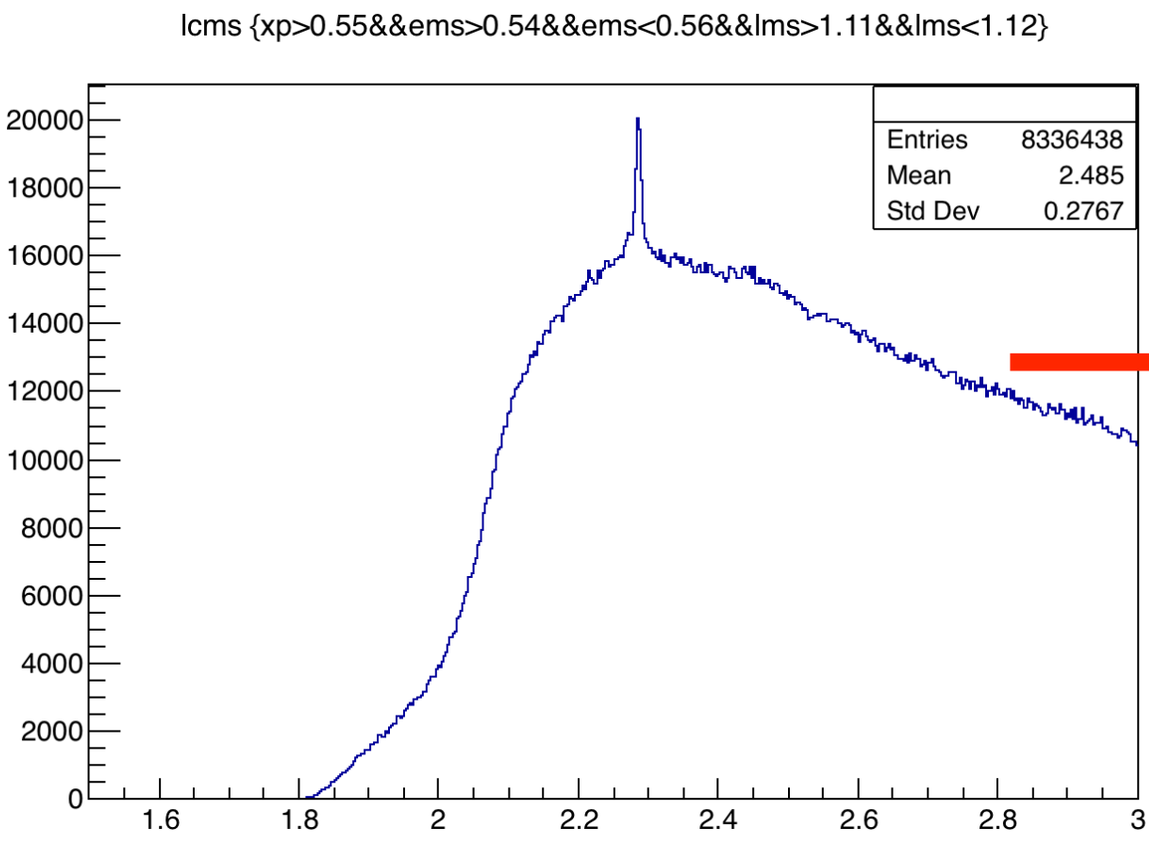
MC (All)



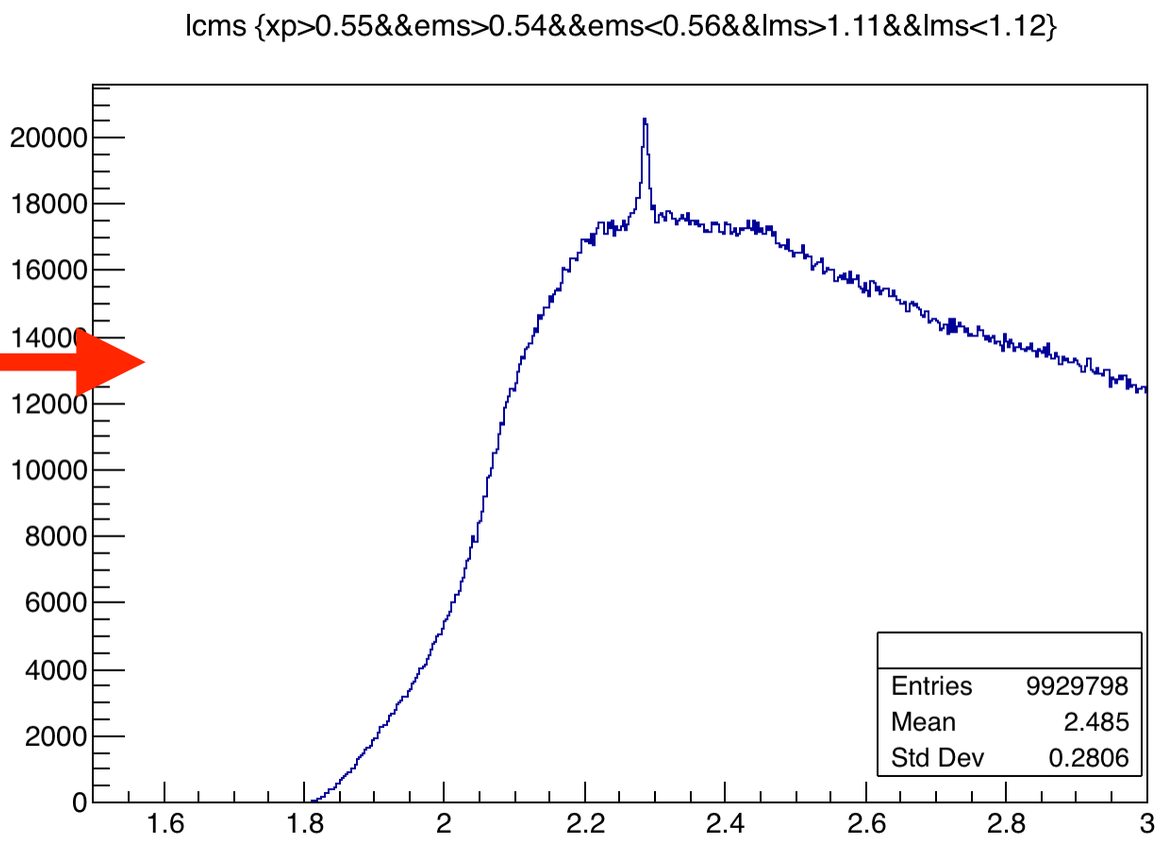
MC (ALL) vs Real Data (ALL)

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

MC (All)



Real (All)



Summary

1. Running entire data (Both Generic MC & Real Data) successfully conducted.
2. A small peak appeared from two gamma channel of real data

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)

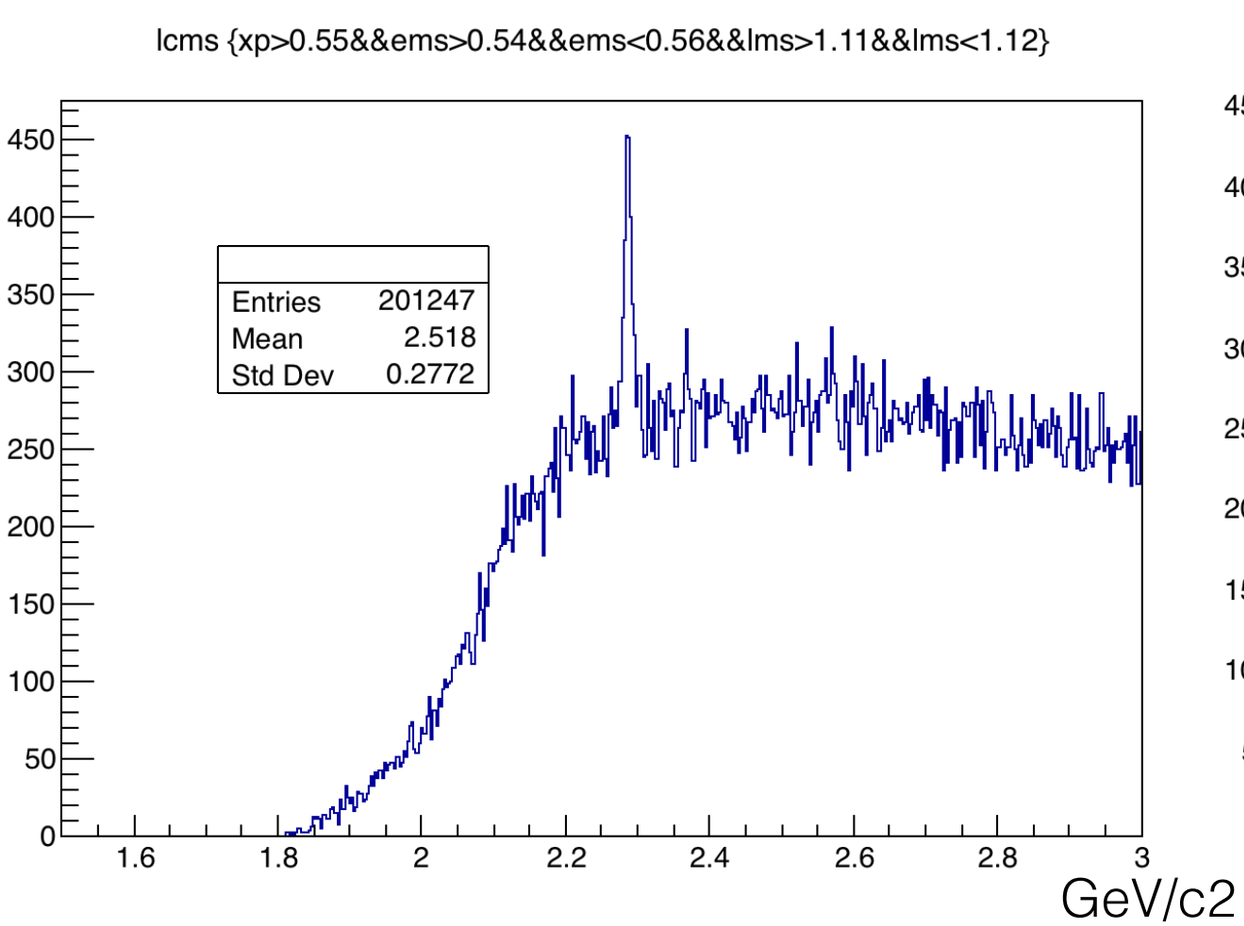
R(K|Pi) < 0.6, R(P|Pi) < 0.6, R(e)<0.9, nSVD>0, impact parameter dr < 0.1 cm dz< 2.0 cm for charged pions

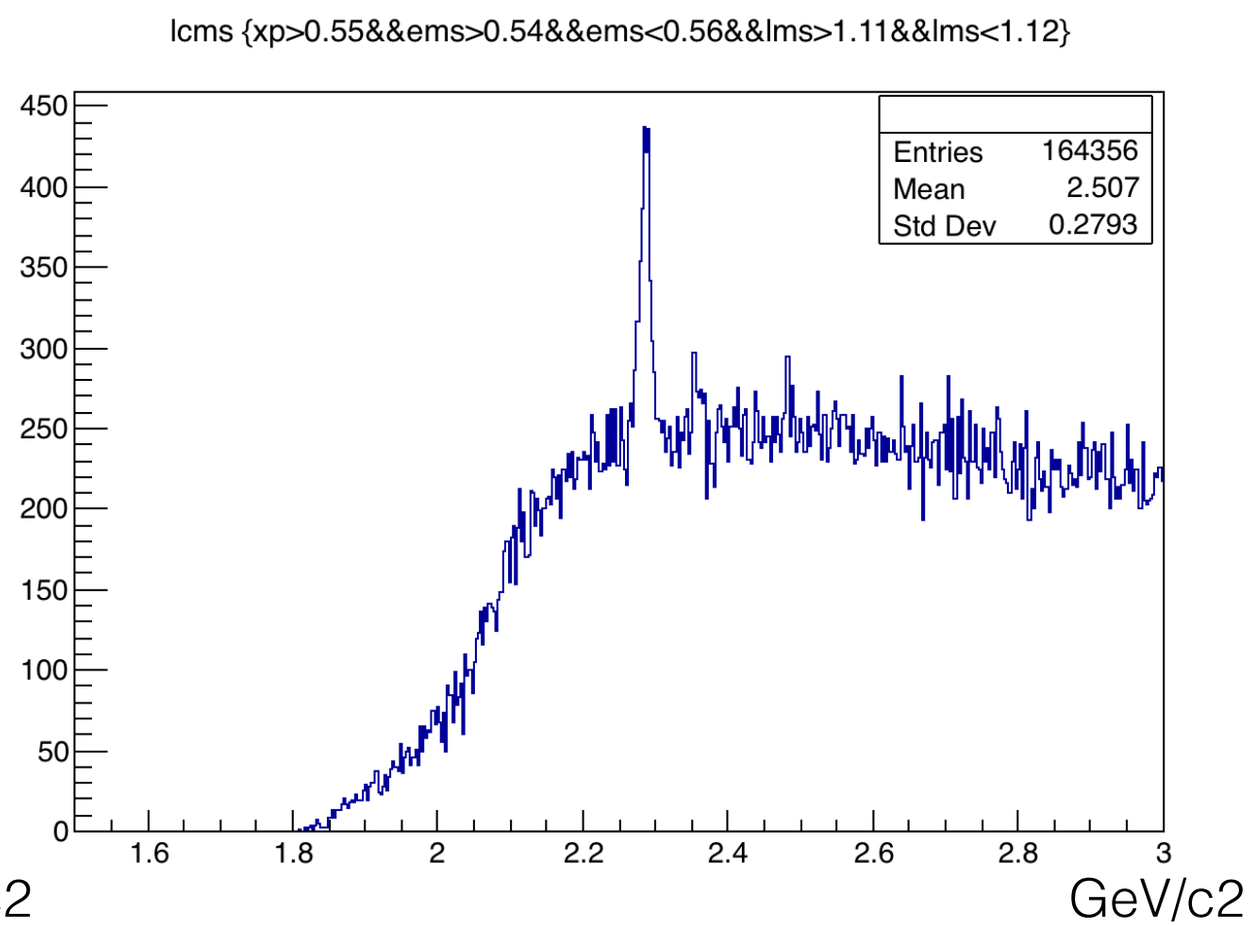
Mdst good lambda = 1 or 2 for lambda selection

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)

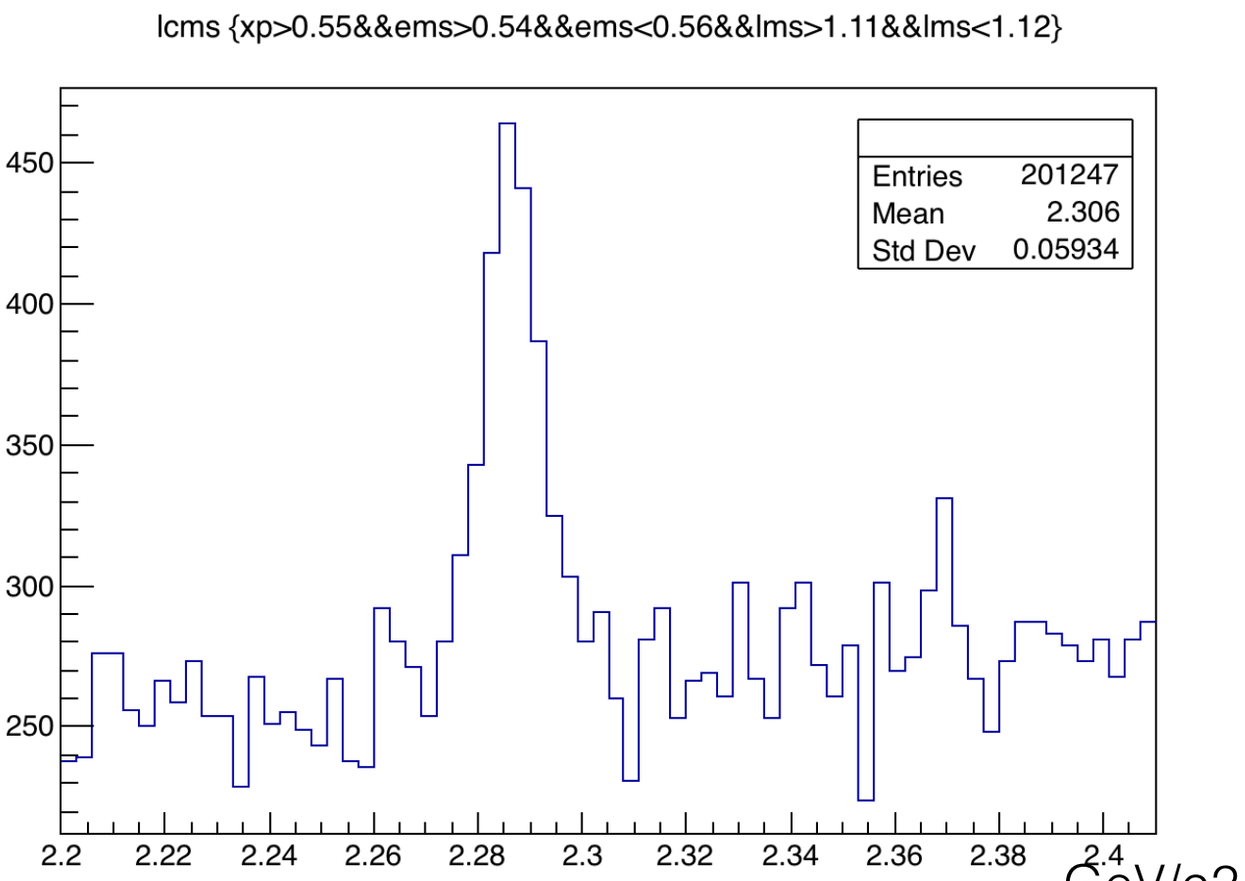


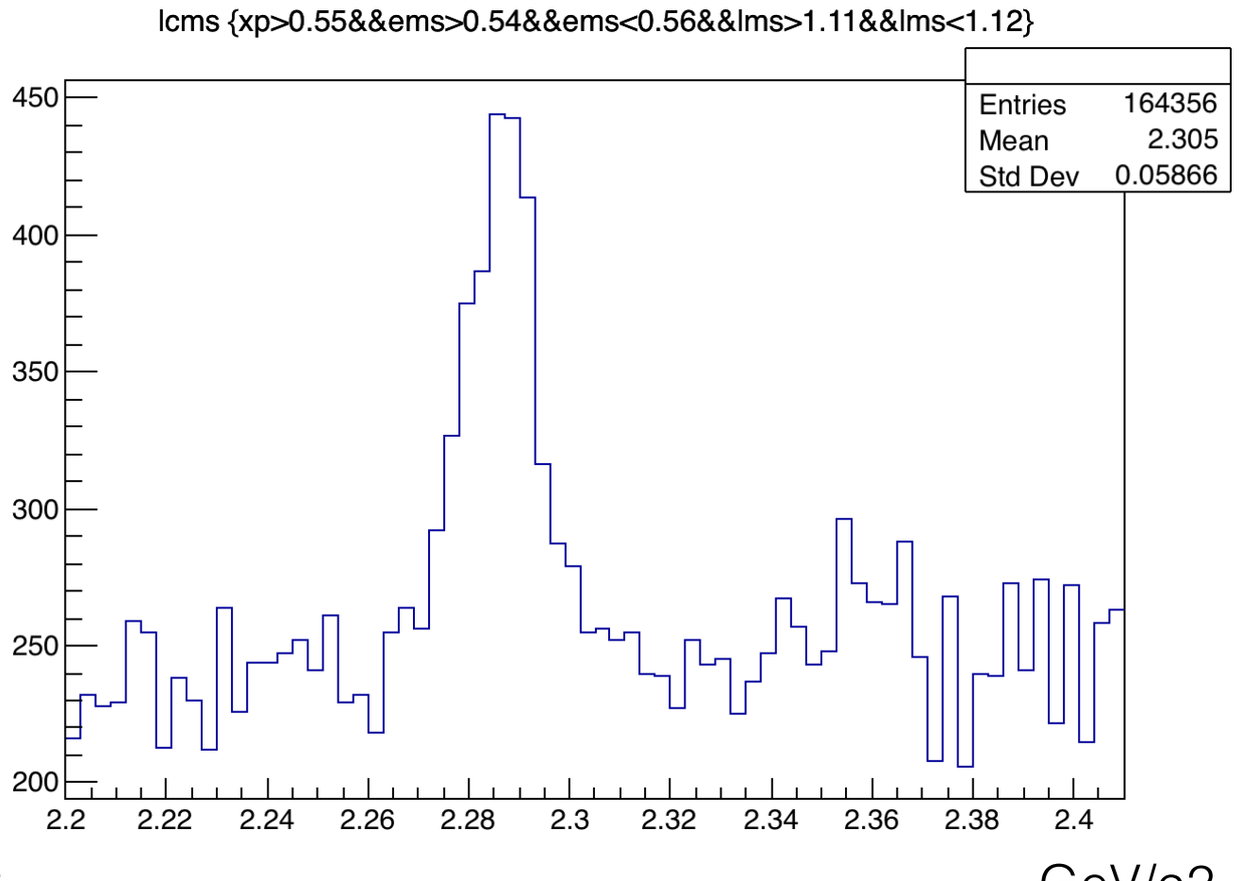


Real Data vs Generic MC (exp.63 whole data) - 2 gammas

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

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

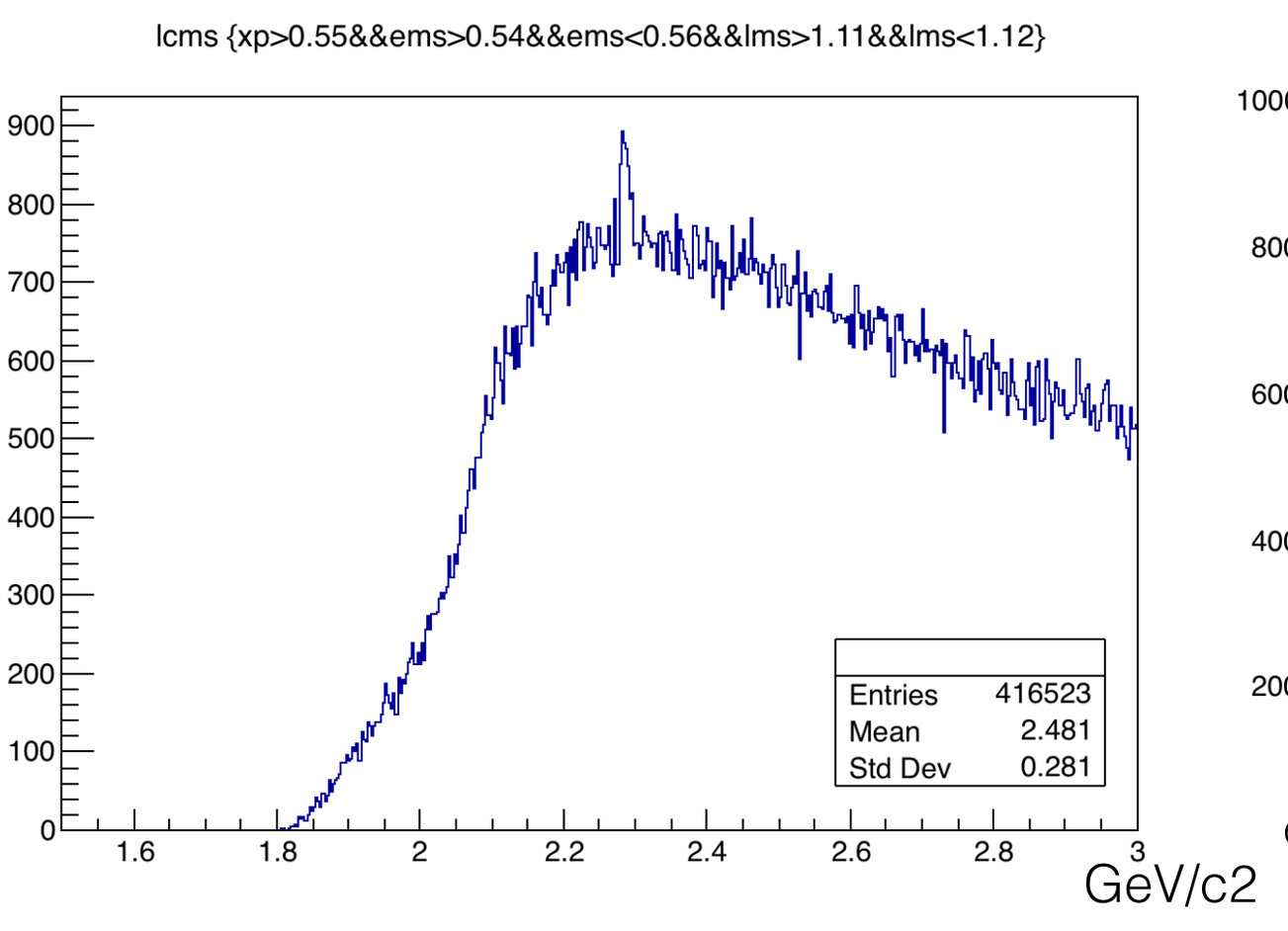


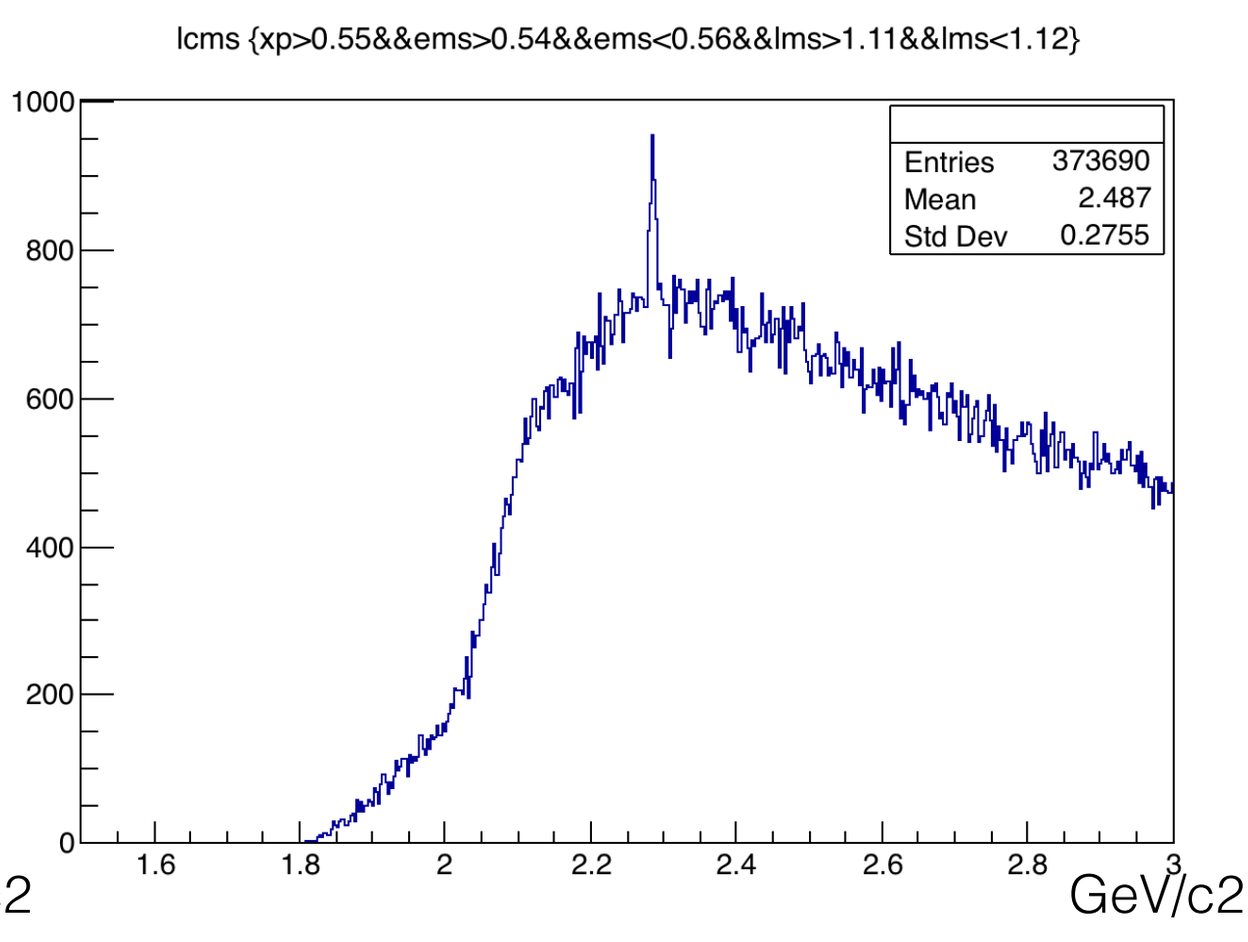


Real Data vs Generic MC (exp.63 whole data) - 3 pions

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

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)