

Progress Report

**Summary for gMC study
& Real Data Fitting**

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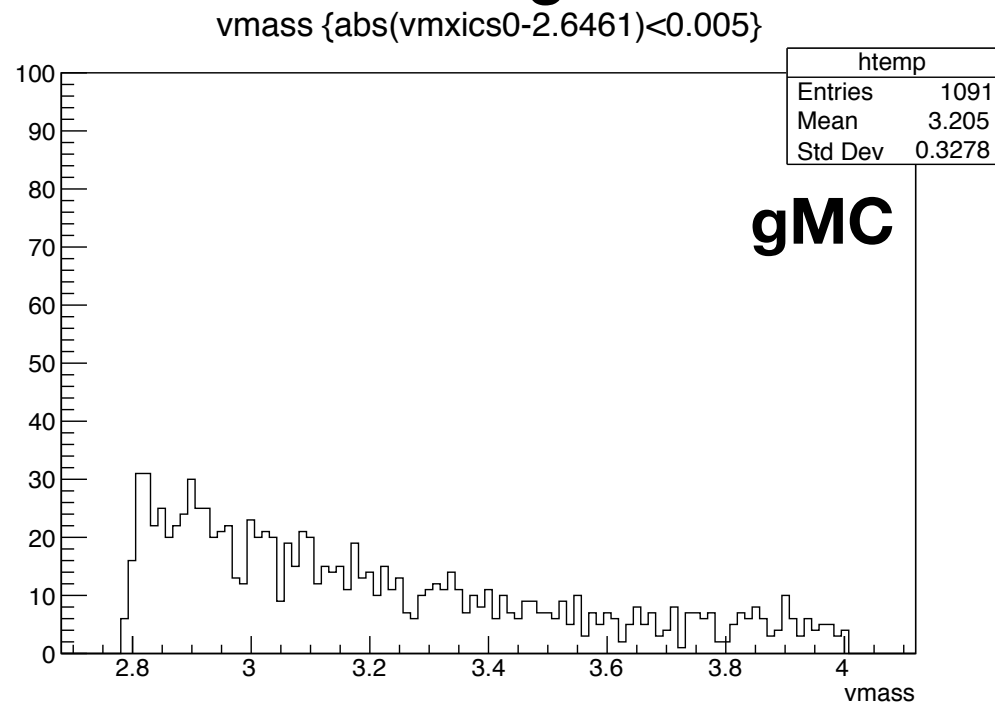
27 Aug, 2019

Generic MC

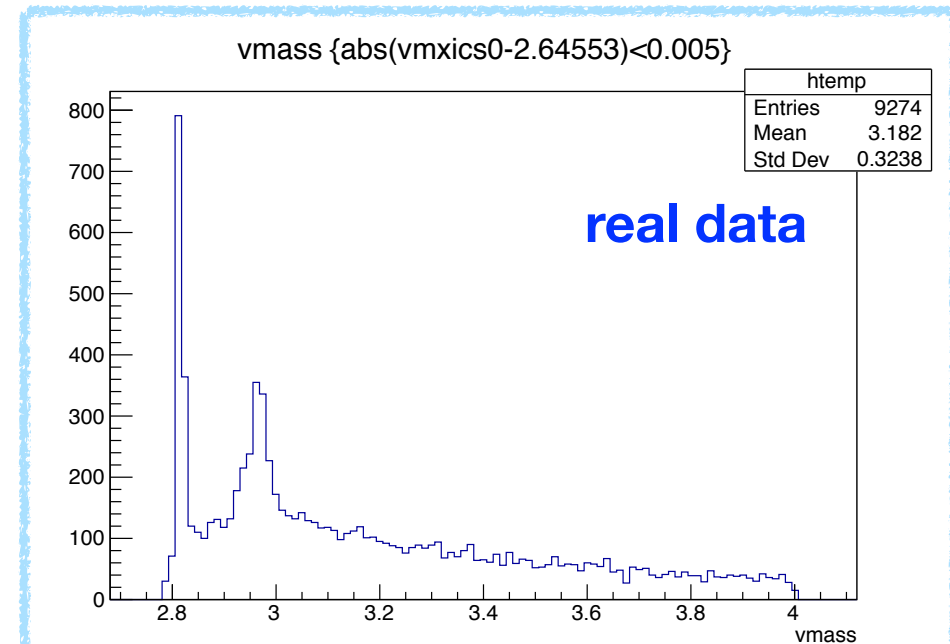
- In the generic MC, $\Xi_c(2980)$'s are not included.
- In other words, generic MC data is pure background for $\Xi_c(2980)$'s.
- The following is studied
 - Background shape
 - compared with real data

Background Shape

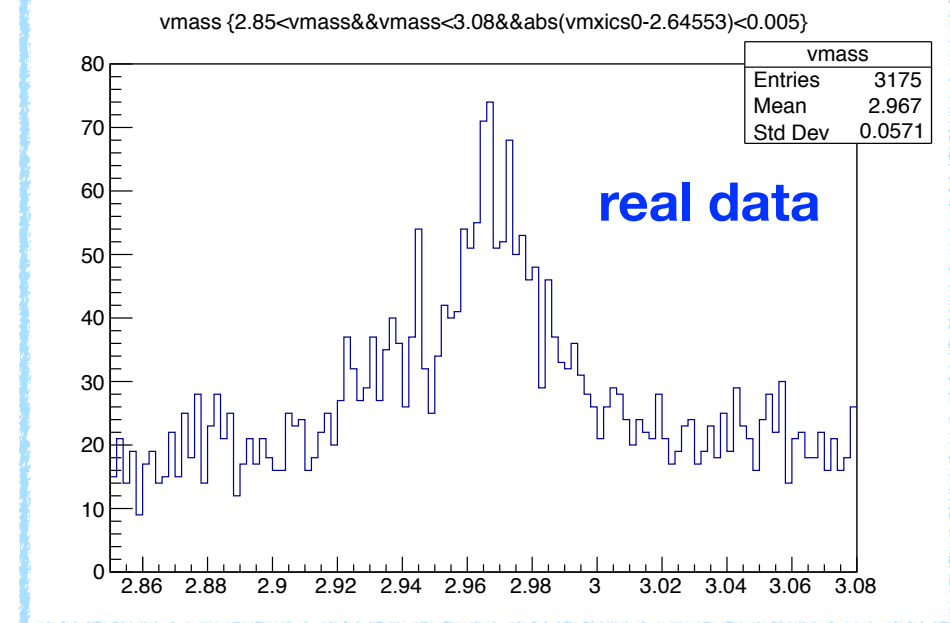
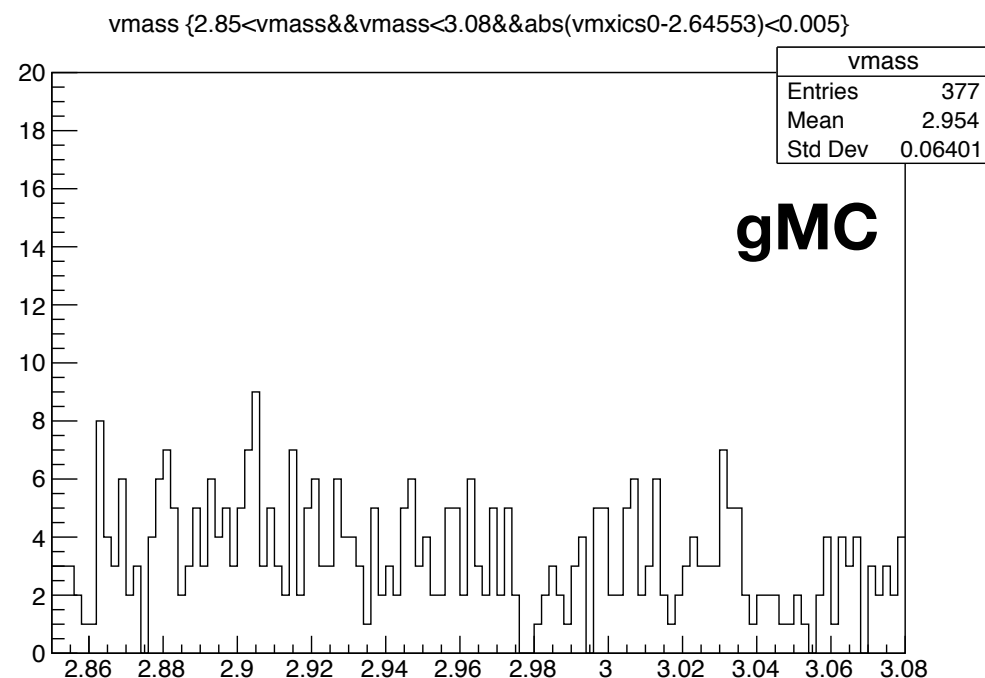
- Extended mass region : similar with real data



cf.



- Around signal region : almost flat



Generic MC

- There is no Ξ_c in the generic MC.
- That's why statistics is low in the signal region of $\Xi_c(2970)$'s.
- Only some part of background is included.
- I just stick to existing configuration :
 - xp cut : $x_p > 0.7$
 - background function : 1st order polynomial

Real Data Fitting

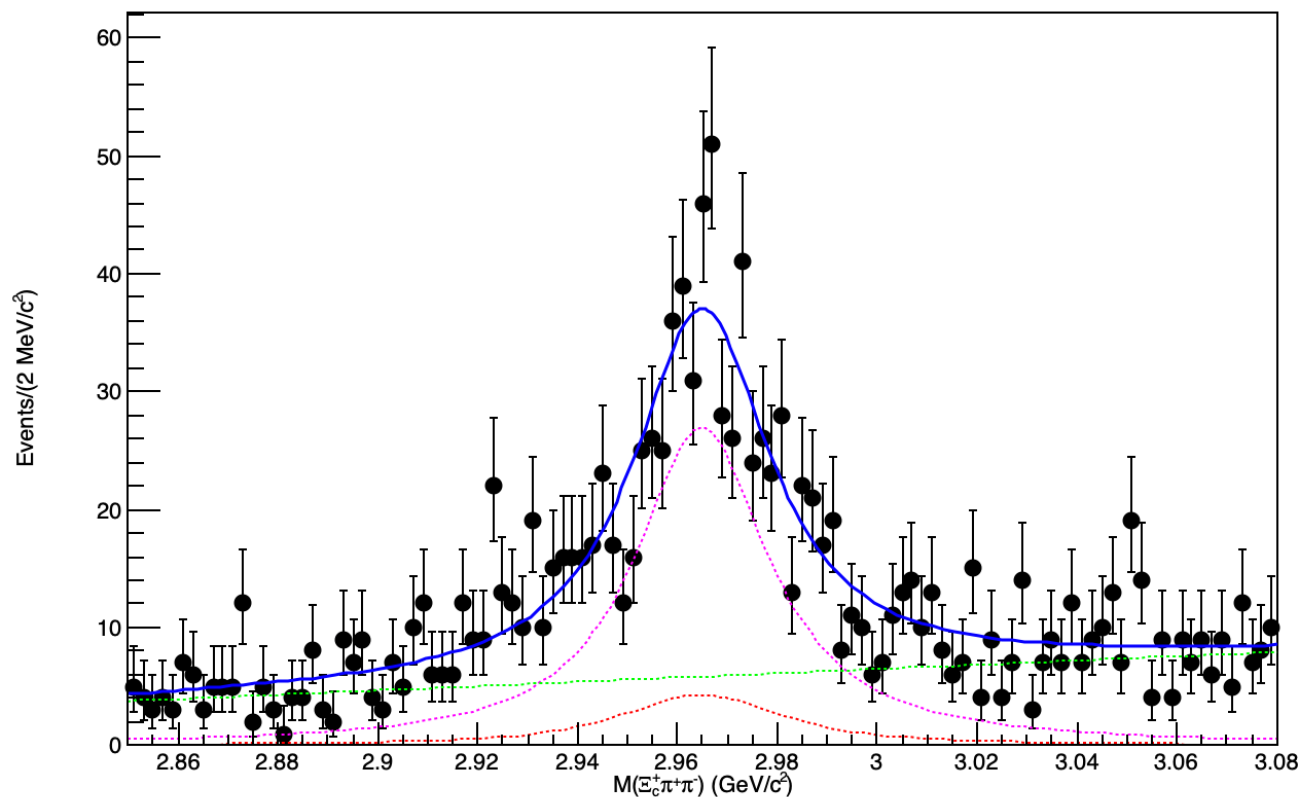
	$\Xi_c(2970)^+ \rightarrow \Xi_c(2645)^0 \pi^+$	$\Xi_c(2970)^+ \rightarrow \Xi_c' \pi^+$
Mass peak fitting for all $\cos\theta_h$	Ongoing.	To be done
Mass peak fitting for each $\cos\theta_h$	To be done	-
Mass peak fitting for each $\cos\theta_c$	To be done	-

θ_h : angle bet.
 boost direction of $\Xi_c(2970)$ in
 CM frame
 and
 boost direction of π_1 in
 $\Xi_c(2970)$'s rest frame.
 θ_c : angle bet.
 boost direction of $\Xi_c(2645)/\Xi_c'$
 in $\Xi_c(2970)$'s rest frame
 and
 boost direction of π_2/γ in
 $\Xi_c(2645)/\Xi_c'$'s rest frame.

Real Data Fitting

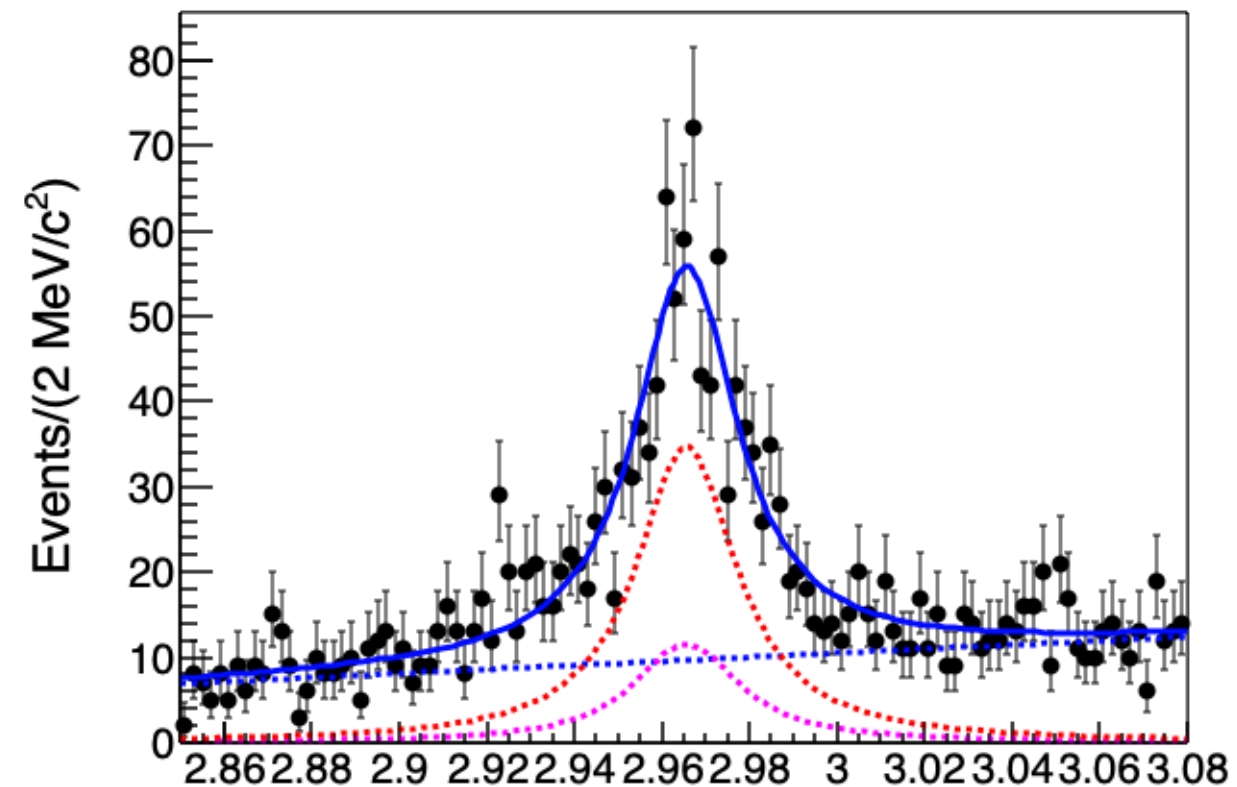
$\Xi_c(2970)^+ \rightarrow \Xi_c(2645)^0 \pi^+ \rightarrow \Xi_c^{0+} \pi \pi^+$
Angle integrated data.

$M(\Xi_c^+ \pi^+ \pi^-)$ (GeV/c²)



Mass of $\Xi_c(2970)^+$ from the current study

width: 31.5 ± 3.5 MeV/c



cf. from Yelton's study

width: 27.6 ± 2.6 MeV/c

- Fitting result is wider than the previous study.
- Channel with highest SN ratio and largest statistics is included.
- Total statistics ↓, SN ratio ↑