Subject: Re: Update on eta_c reconstruction with STT and TPC
Posted by Dima Melnychuk on Fri, 29 Jul 2011 13:03:27 GMT
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Hi,

I have several additional comments concerning eta_c reconstruction efficiency.

1. First comment is related to worse reconstruction efficiency for STT.
I used the rev. 12894, which includes the latest commit from Gianluigi available in svn from the 27.07 23:15.
It didn't include latest update from Lia, which only affected PndSecondaryTrackFinder.cxx.

For data which I produced yesterday with the trunk the mass distribution for eta_c and phi without any cuts look like:

whereas for the data on grid

So the left tail for eta_c distribution increased significantly, but it's still possible that it's a statistical fluctuation.

Especially looking at the final plots for new data:

and grid data:

they are very similar. So I could expect that with higher statistics, efficiency still could increase.

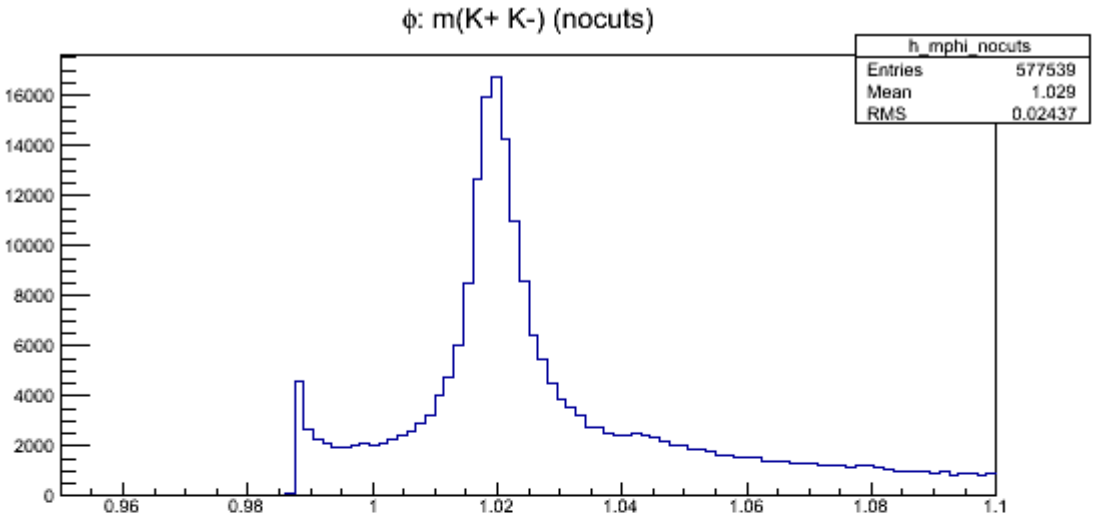
2. Second comment is related to ideal pid for tpc Riemann. I checked eta_c reconstruction with both pion and kaon hypothesis in riemann and results are very close (here the mass cuts are slightly tighter then for efficiency reported in previous post), i.e
Efficiency | sigma(eta_c) | sigma(phi)
pion:
27.04% | 11.74 MeV | 3.61 MeV
kaon:
27.29% | 11.94 MeV | 3.55 MeV

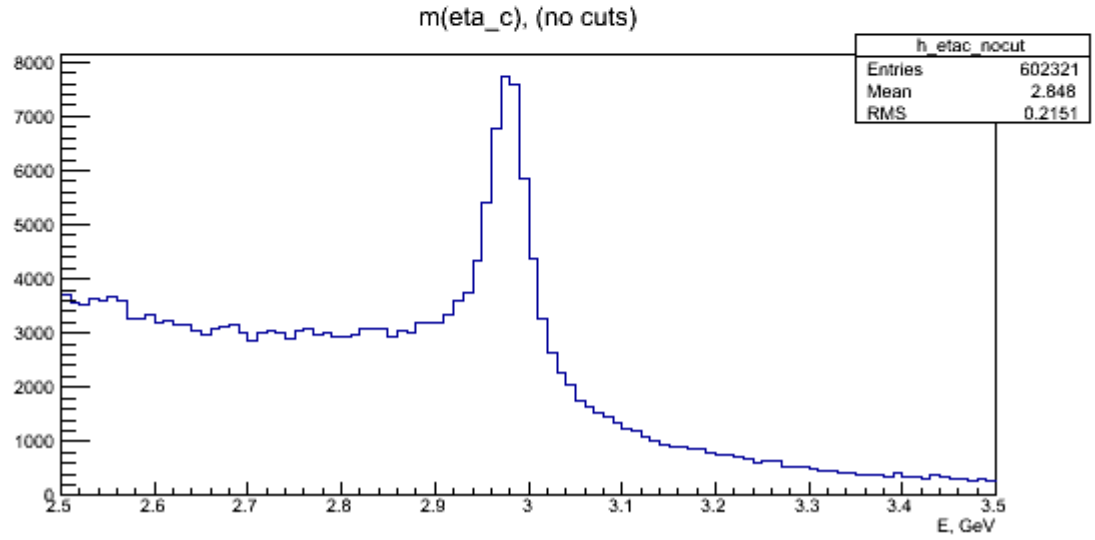
So using working ideal pid wouldn't change the results much.

Dima

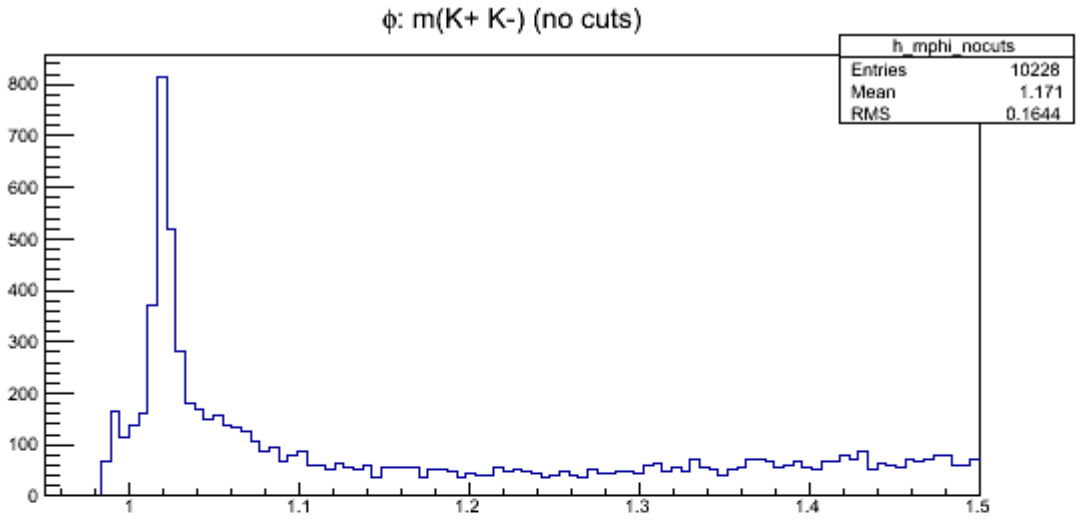
File Attachments

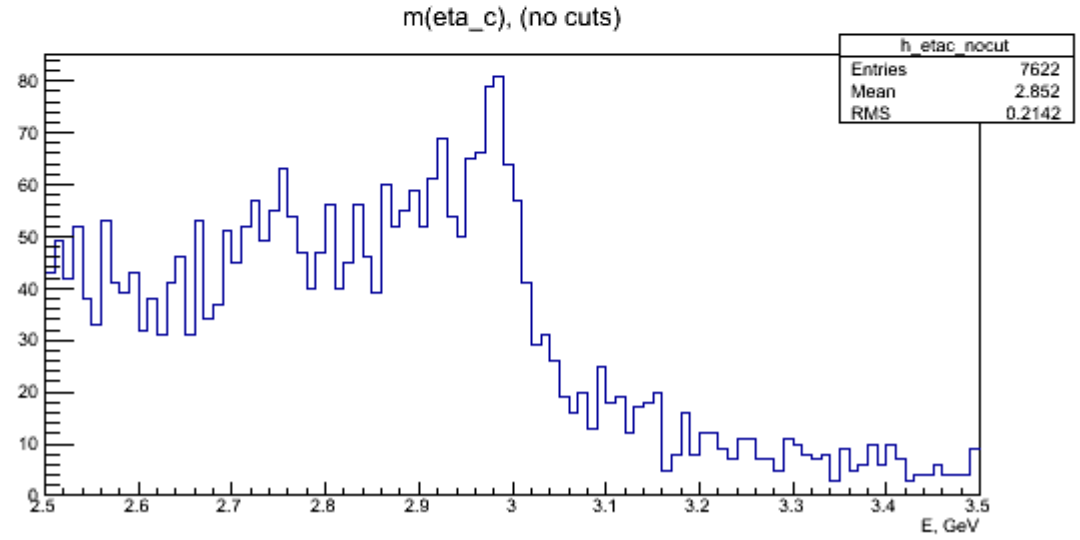
1) m_nocuts_stt.png, downloaded 711 times



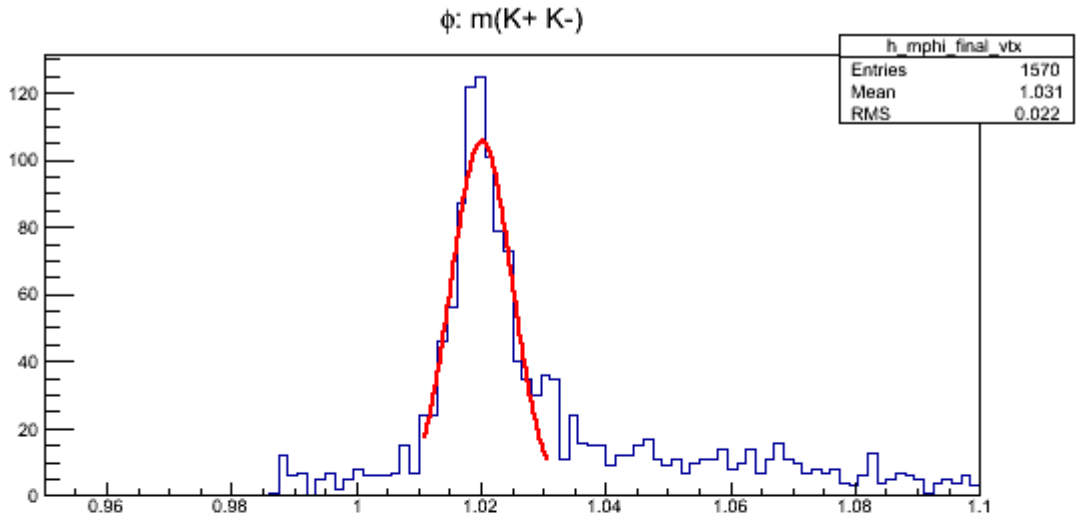


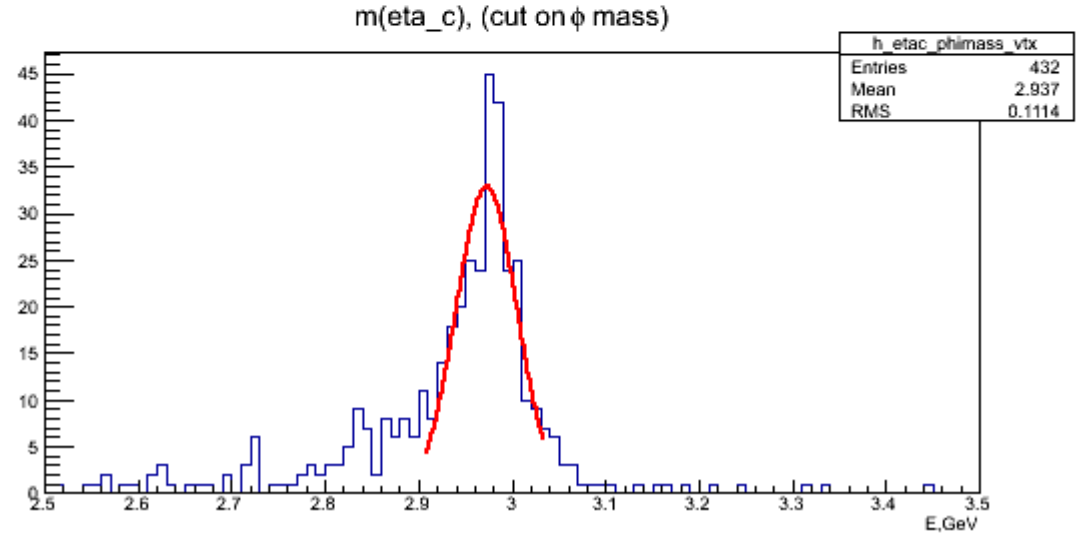
2) m_nocuts_stt_new.png, downloaded 812 times



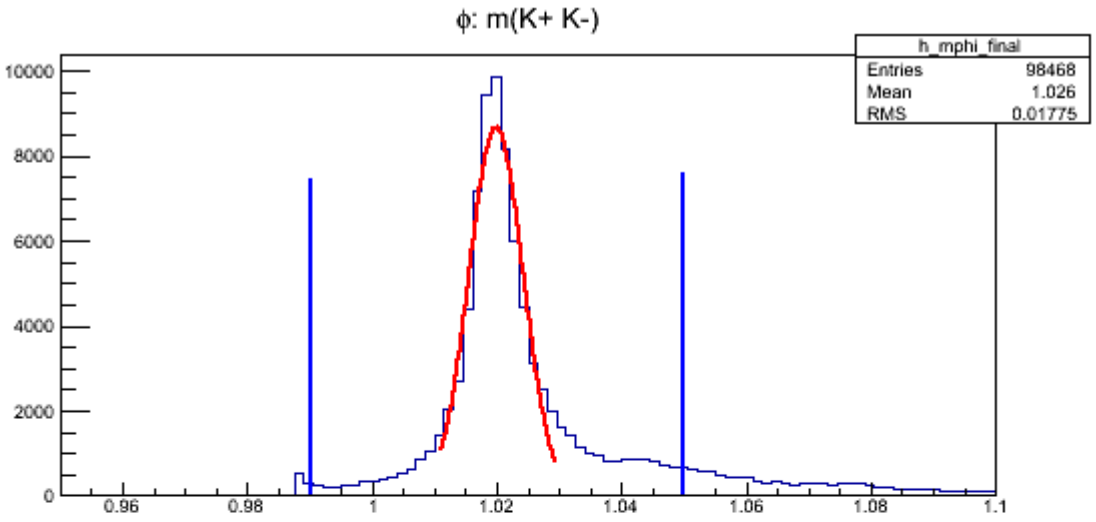


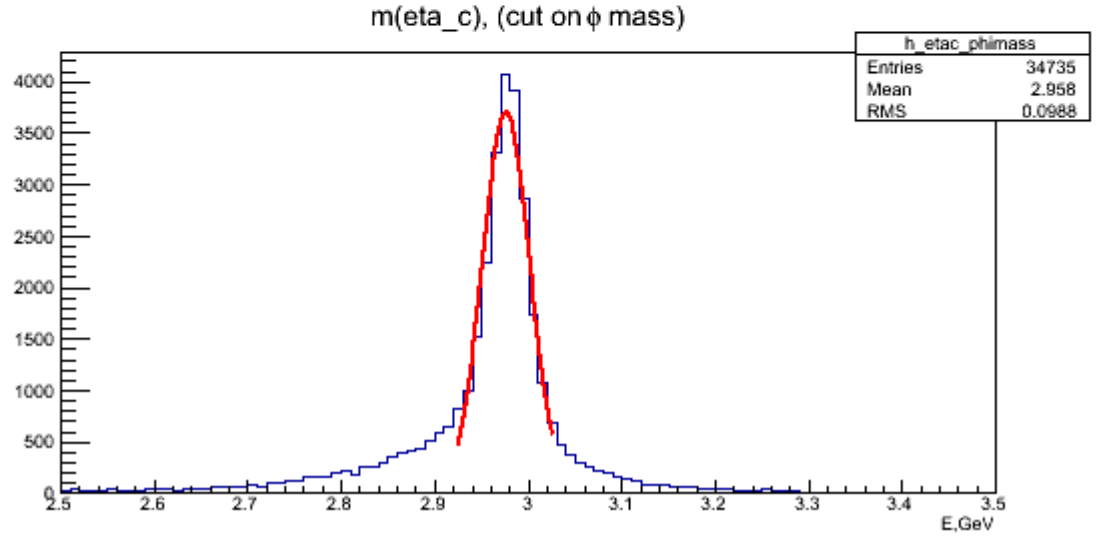
3) m_phicut_stt_new.png, downloaded 833 times





4) m_phicut_stt.png, downloaded 835 times


ϕ: m(K+ K-)
h_mphi_final
Entries 98468
Mean 1.026
RMS 0.01775
10000
8000
6000
4000
2000
0
0.96
0.98
1
1.02
1.04
1.06
1.08
1.1


m(eta_c), (cut on ϕ mass)
h_etac_phimass
Entries 34735
Mean 2.958
RMS 0.0988
4000
3500
3000
2500
2000
1500
1000
500
0
2.5
2.6
2.7
2.8
2.9
3
3.1
3.2
3.3
3.4
3.5
E,GeV