Subject: eta_c with event mixing for STT
Posted by Dima Melnychuk on Mon, 29 Aug 2011 22:35:11 GMT
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Dear colleagues,

I have analaised the eta_c data produced on the GRID with event mixing, and at the moment I still do not understand the results.

But I just want to share some plots to show the current status.

So multiplicity of charged tracks:

Only 8% of events have >=4 tracks which is much lower than 72% without event mixing.

Invariant mass of phi and eta_c with preselection on phi mass window:

Here there is no indication of phi or eta_c peak.

And aplying MC Truth PID does not change this distribution much.

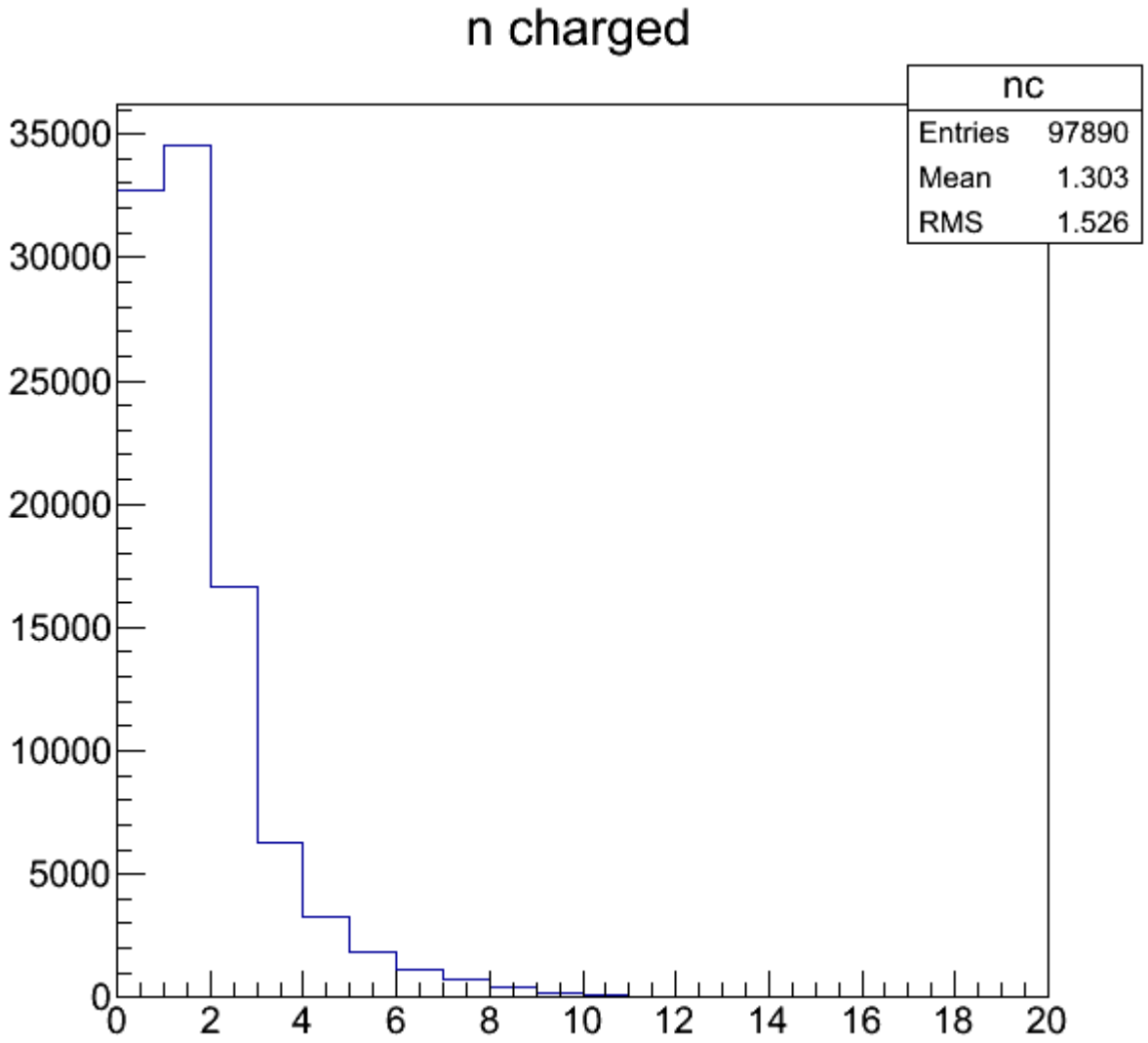
And finaly only 4 events out of 100k pass the selection cuts.

So the results still have to be understood.

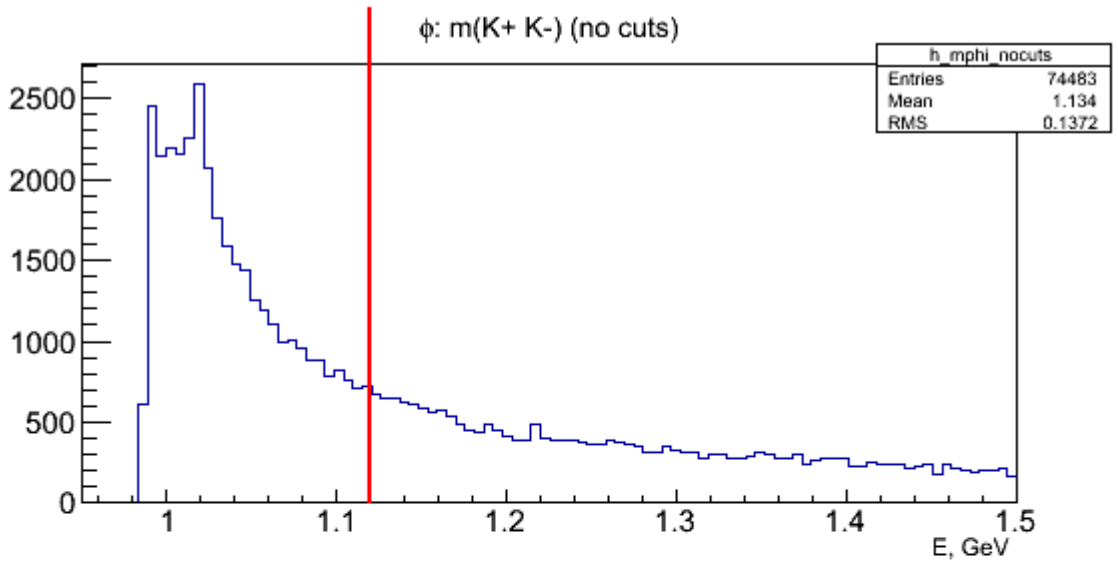
Dima

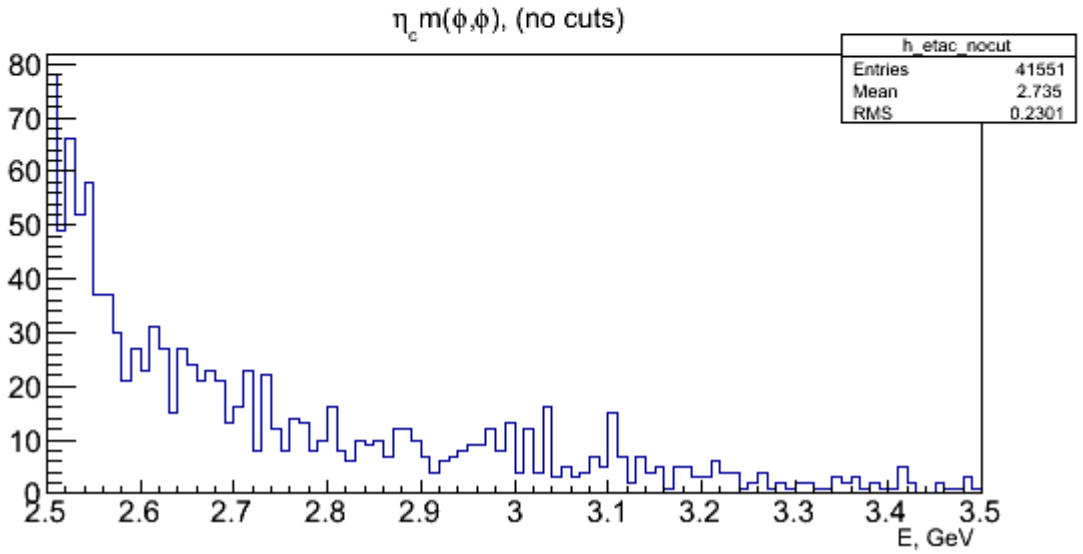
File Attachments

1) n_charged_stt.png, downloaded 1129 times



2) m_nocuts_stt.png, downloaded 1182 times





Subject: Re: eta_c with event mixing for STT
Posted by Dima Melnychuk on Fri, 02 Sep 2011 09:37:40 GMT
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Dear colleagues,

Here I update plots on eta_c reconstruction with STT and event mixing with runs mix301, mix311, mix321, mix331.

There is an improvement comparing to previous results but the results are still far from reasonable.

Multiplicity of charged tracks:

23% of events have >=4 tracks in comparing to 8% in previous run and 72% without event mixing.

And invariant mass of phi and eta_c with preselection on phi mass window:

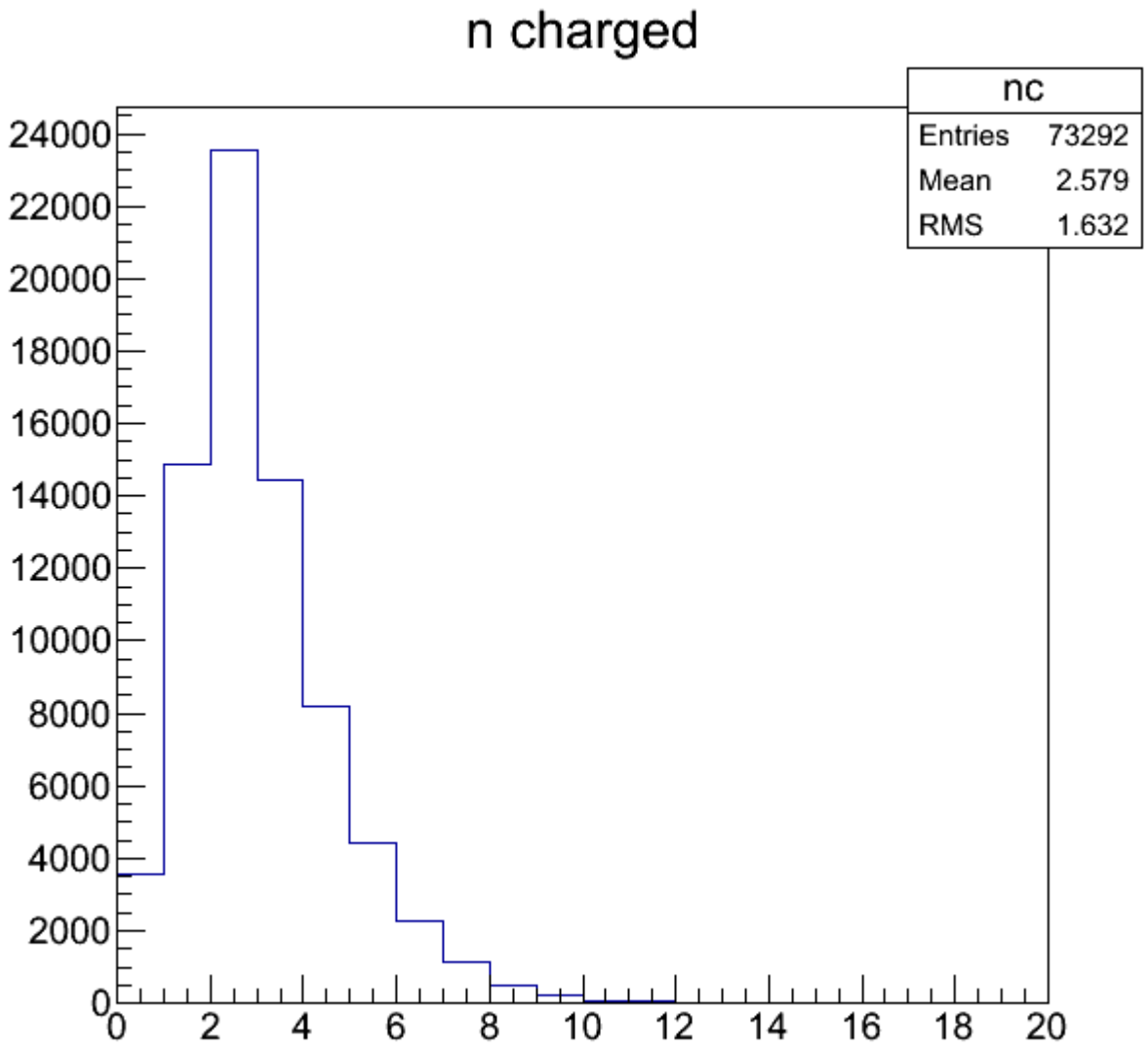
Here phi peak appears but still no indication of eta_c peak.

Finally 36 events were reconstructed from 100 k.

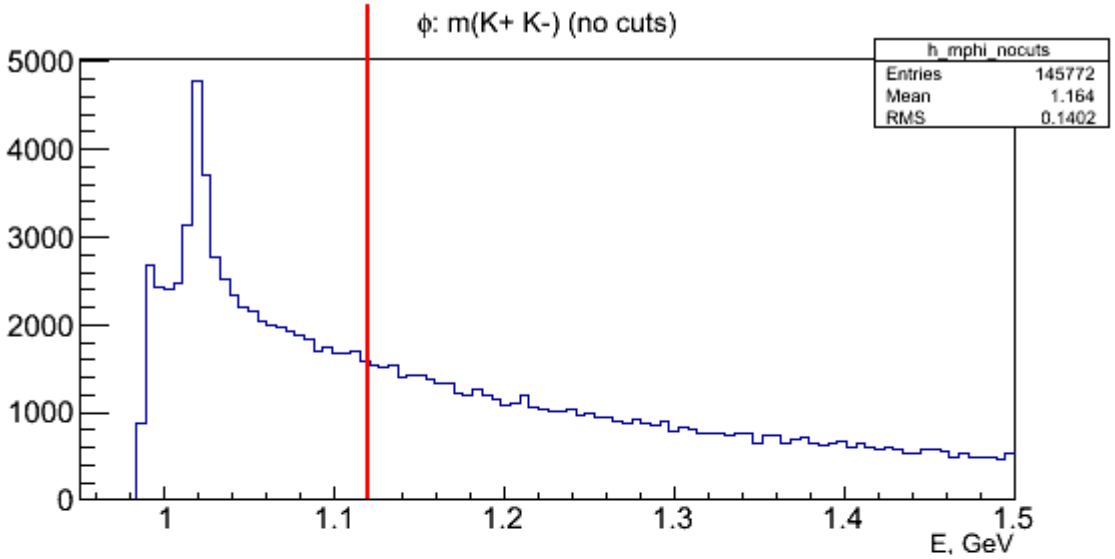
Dima

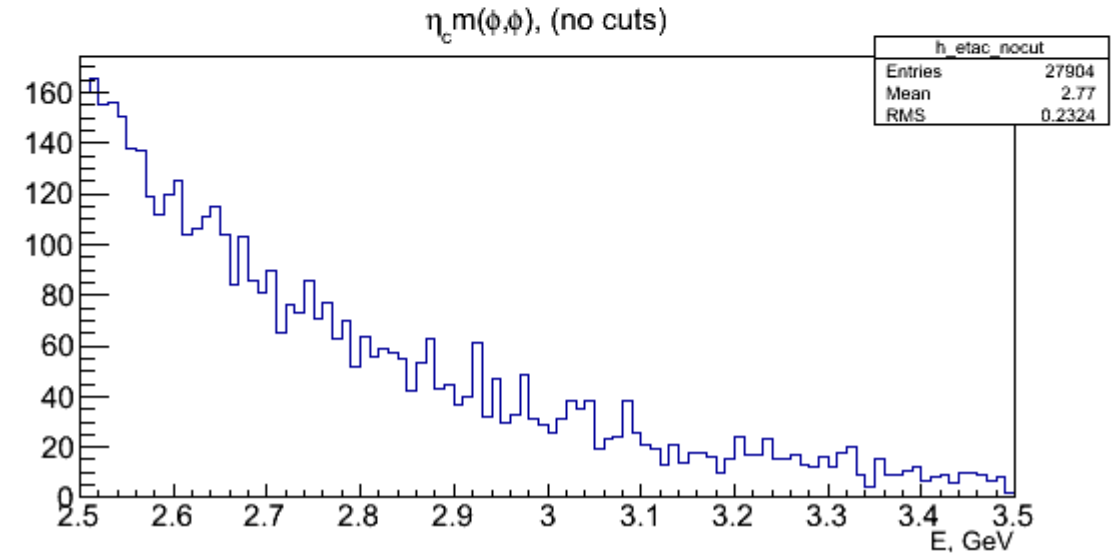
File Attachments

1) n_charged.png, downloaded 955 times



2) m_nocuts.png, downloaded 980 times





Subject: Re: eta_c with event mixing for STT
Posted by Dima Melnychuk on Fri, 02 Sep 2011 15:26:39 GMT
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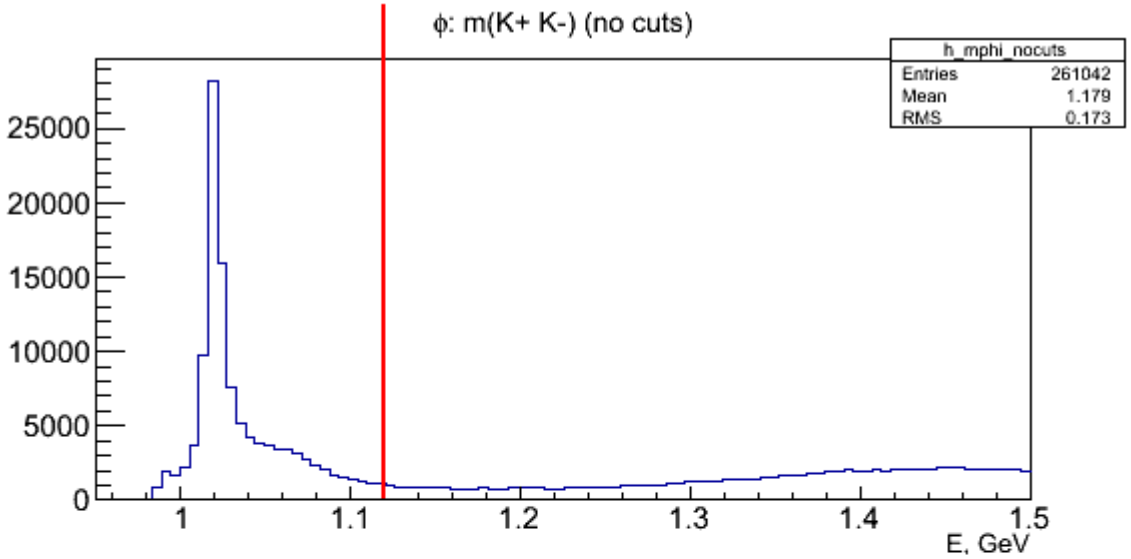
Just for comparison here I present invariant mass distributions for eta_c and phi with the same version of STT software (august11).

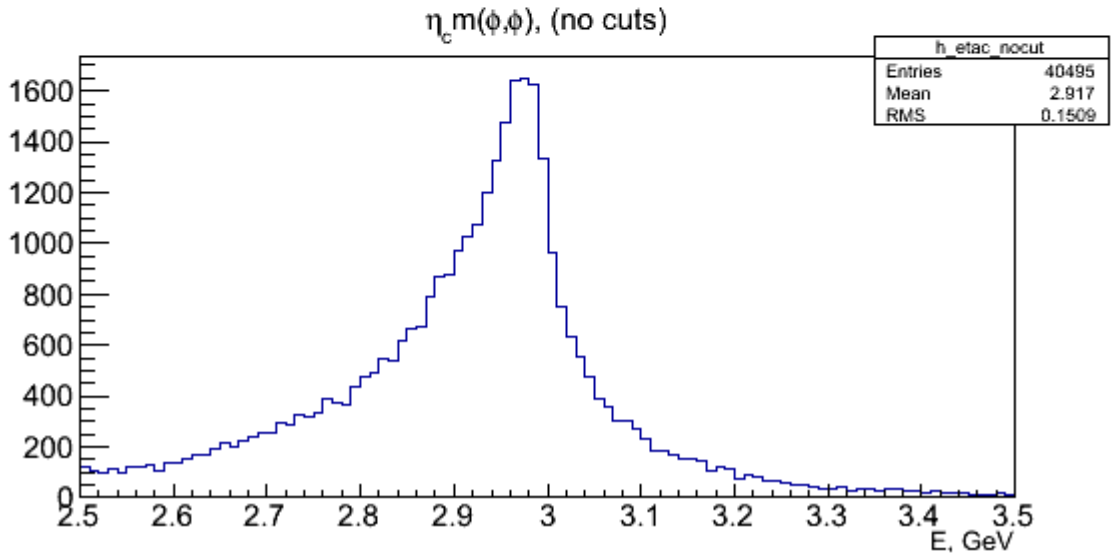
This run is produced with cleanup code and eta_c reconstruction efficiency is 7.8%

Dima

File Attachments

1) m_nocuts_nomix.png, downloaded 821 times





Subject: Re: eta_c with event mixing for STT
Posted by Dima Melnychuk on Thu, 08 Sep 2011 00:48:23 GMT
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Hi all,

With the latest run eta_c events produced with STT with background mixing are reconstructable.

Multiplicity of reconstructed tracks is rather high:

With rough pre-selection on phi mass invariant mass distributions looks like:

So there is small indication of eta_c peak.

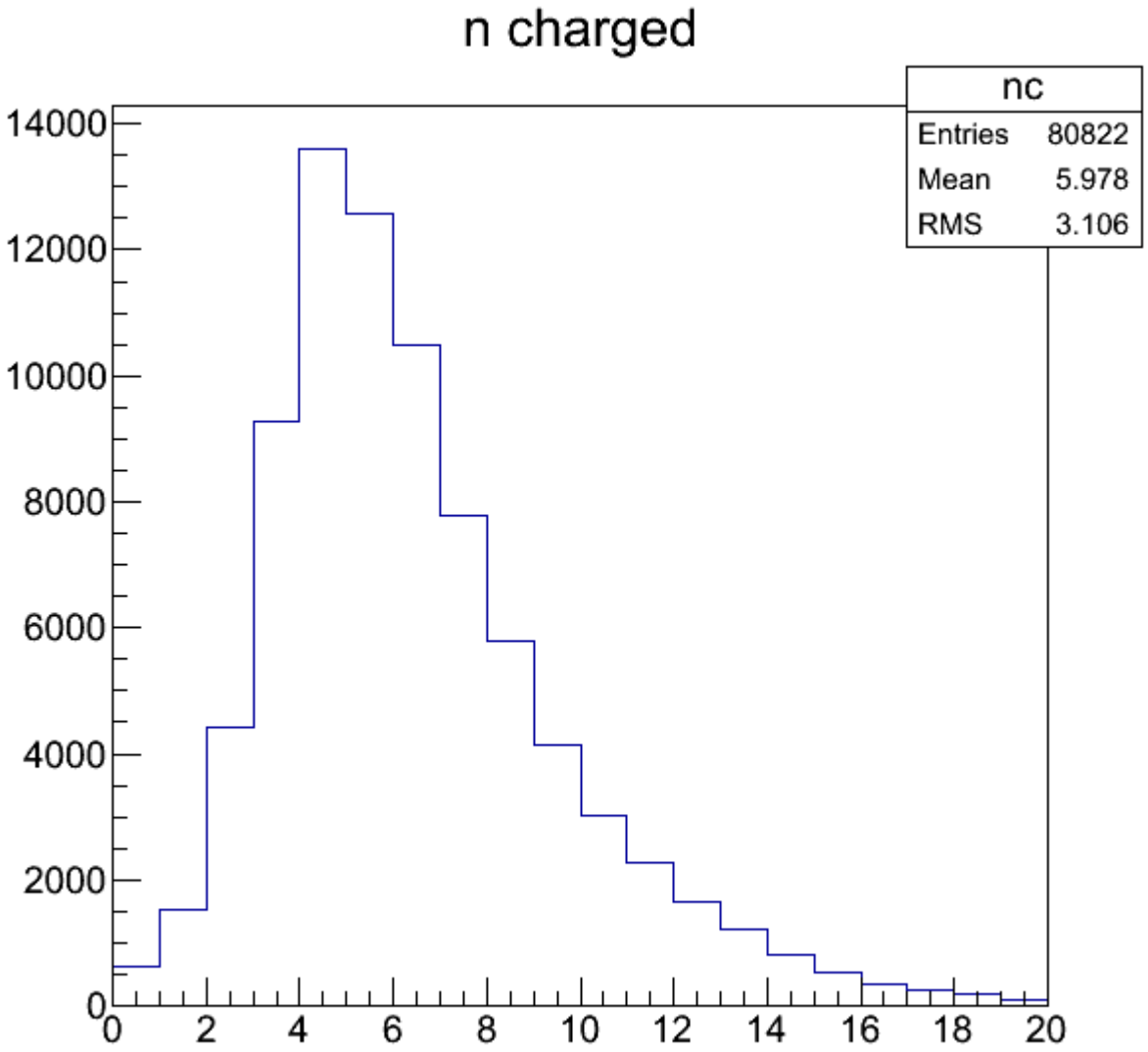
But after the final selection:

eta_c is reconstructed with efficiency 3.3%

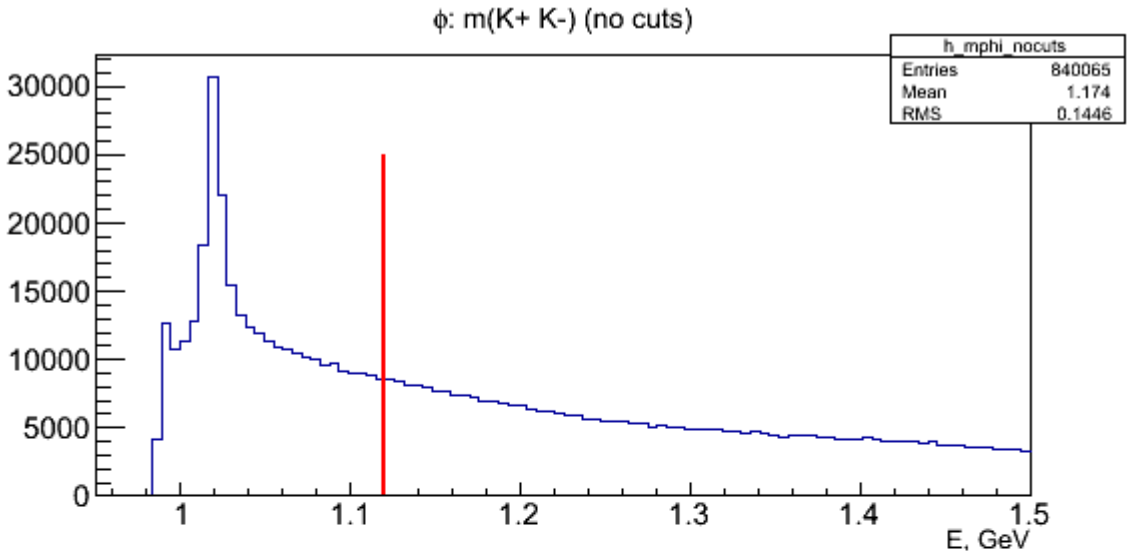
Dima

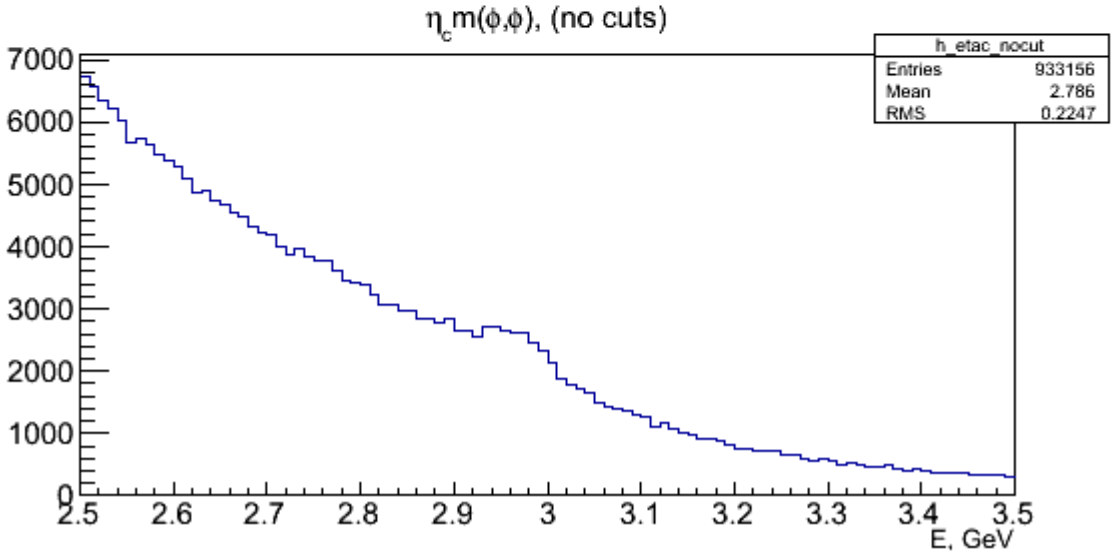
File Attachments

1) n_charged_stt_mix.png, downloaded 942 times

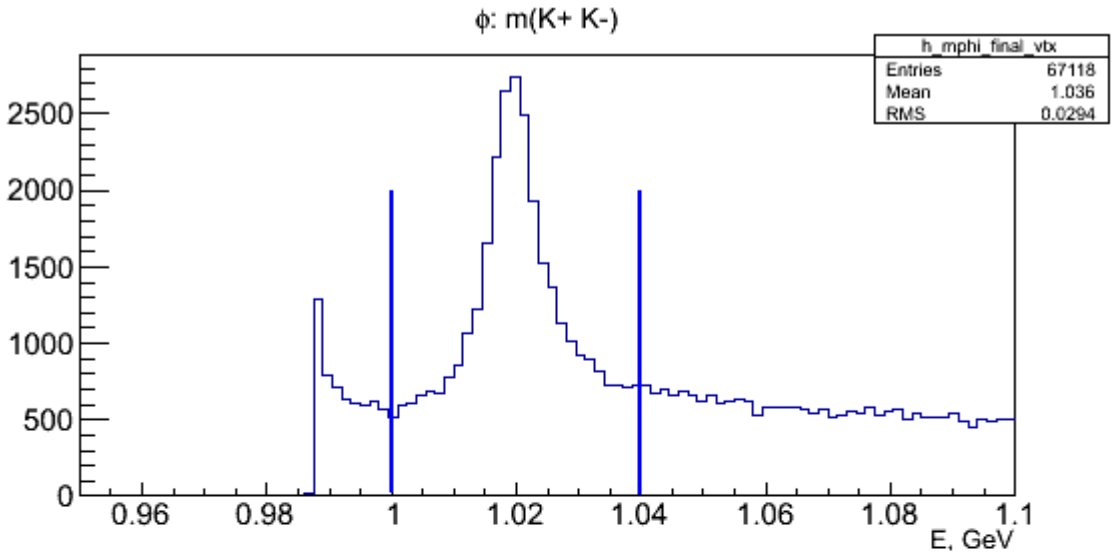


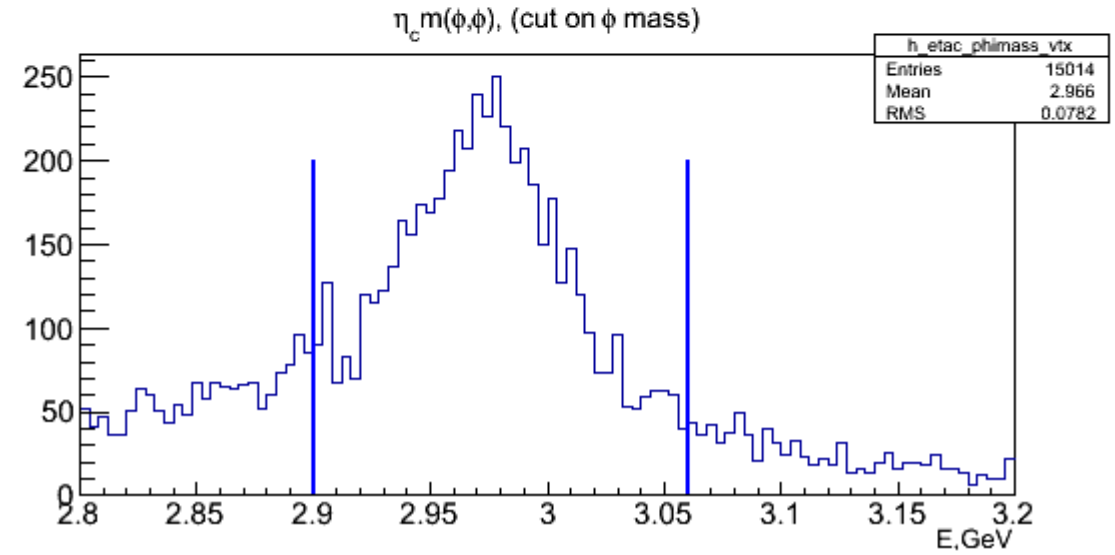
2) m_nocuts_stt_mix.png, downloaded 1035 times





3) m_final_vtx_stt_mix.png, downloaded 989 times


ϕ: m(K+ K-)
h_mphi_final_vtx
Entries 67118
Mean 1.036
RMS 0.0294
2500
2000
1500
1000
500
0
0.96
0.98
1
1.02
1.04
1.06
1.08
1.1
E, GeV


η_c m(ϕ,ϕ), (cut on ϕ mass)
h_etac_phimass_vtx
Entries 15014
Mean 2.966
RMS 0.0782
250
200
150
100
50
0
2.8
2.85
2.9
2.95
3
3.05
3.1
3.15
3.2
E,GeV