Subject: Update on eta_c reconstruction with STT and TPC
Posted by Dima Melnychuk on Tue, 21 Jun 2011 22:13:34 GMT
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Hi all,

I have analyzed 10000 eta_c events with latest version of both STT and TPC reconstruction code.

First coming to STT. The low reconstruction efficiency of 10% persists after using corrected version of MVD, so the drop of efficiency have another origin and I have a suspect here.

But my main remark here is the low efficiency is not related to analysis macro but to small amount of event with 4 or more reconstructed charged candidates.

And plot of invariant mass of phi and eta_c

Coming to TPC I want to mention that I finally managed to run complete reconstruction chain till the rho analysis.

My version of TPC reconstruction macro /macro/run/tdrct/eta_c/run_reco_tpc_evt.C contains PndGFTrackToPndTrackConvertorTask task which convert GFTrack to PndTrack and I want here once more to ask to commit latest version of this task to svn (I don't have write access to GenfitTools directory). The file is attached. And to be more specific, maybe Stefano will commit it?

Obtained efficiency with TPC is even lower than with TPC (below 5%), which is also related to small number of events with 4 or more reconstructed charged candidates. And here I can quote the number of lost eta_c related to geometrical acceptance. In 67% of events at least one of the kaons is outside the range 140>theta>20 degree.

And invariant mass resolution:

looks comparable with STT results.

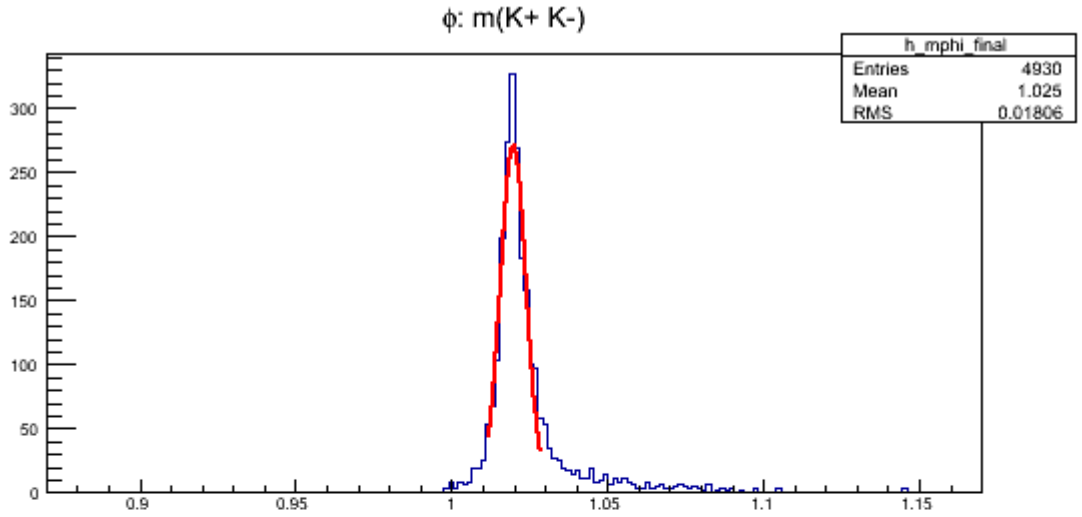
Trying to identify the source of low efficiency I compared the number of reconstructed track and number of charged candidates used for rho analysis. And this number appears to be lower by factor 2-3 (I checked it for TPC). So PndPidCorrelator, which creates charged candidates from PndTracks reject somehow significant amount of tracks. And I see that Stefano modified this class 5 days ago and approximately after that I observed drop of eta_c reconstruction efficiency with STT. So could Stefano look what could go wrong there?

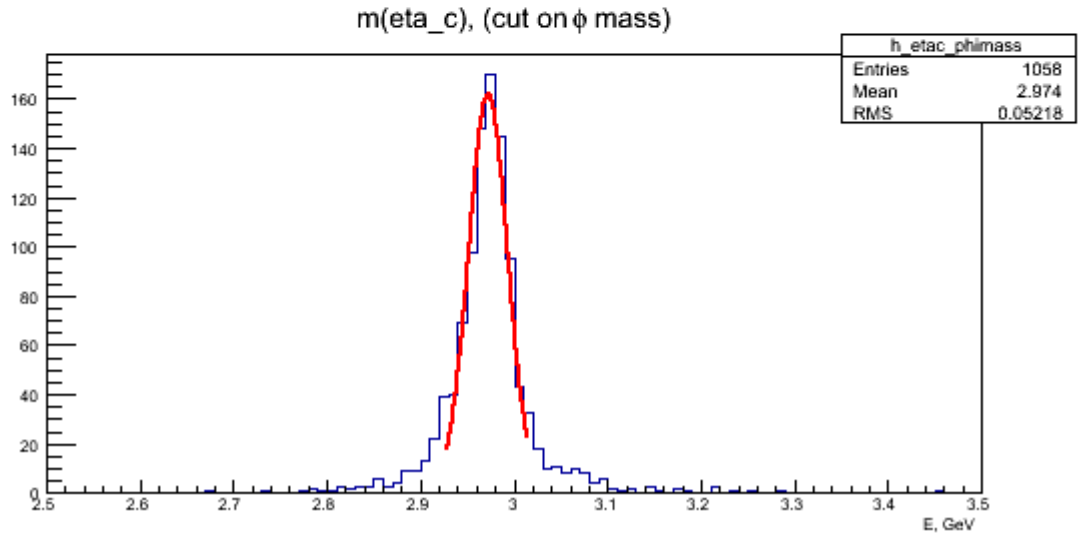
Best regards,

Dima

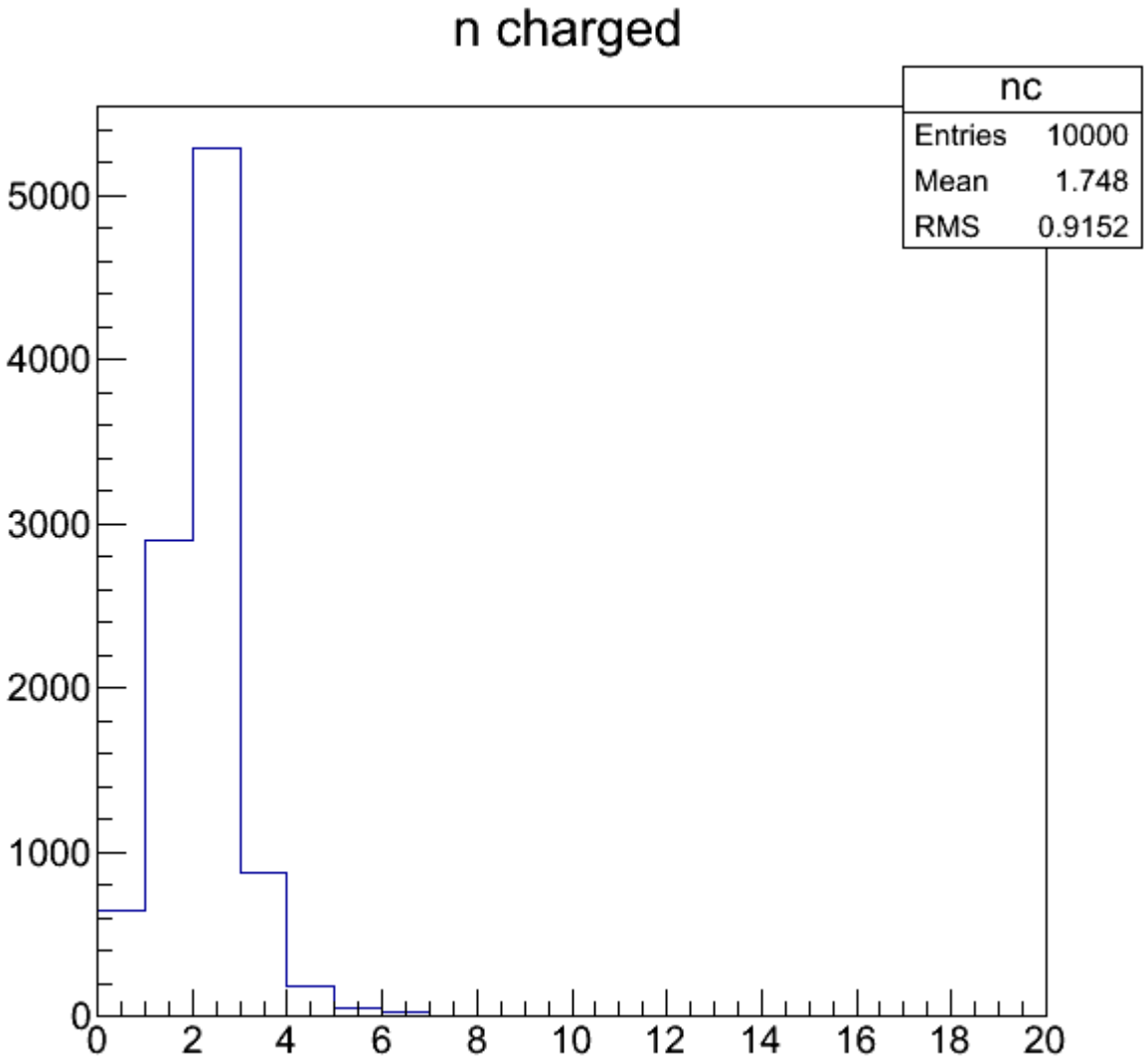
File Attachments

1) final_stt.png, downloaded 1312 times

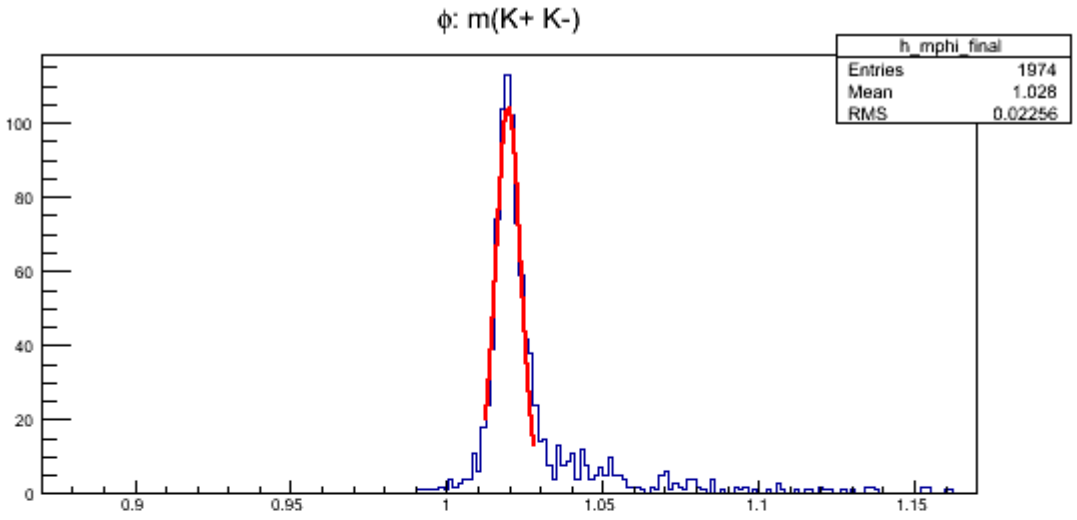


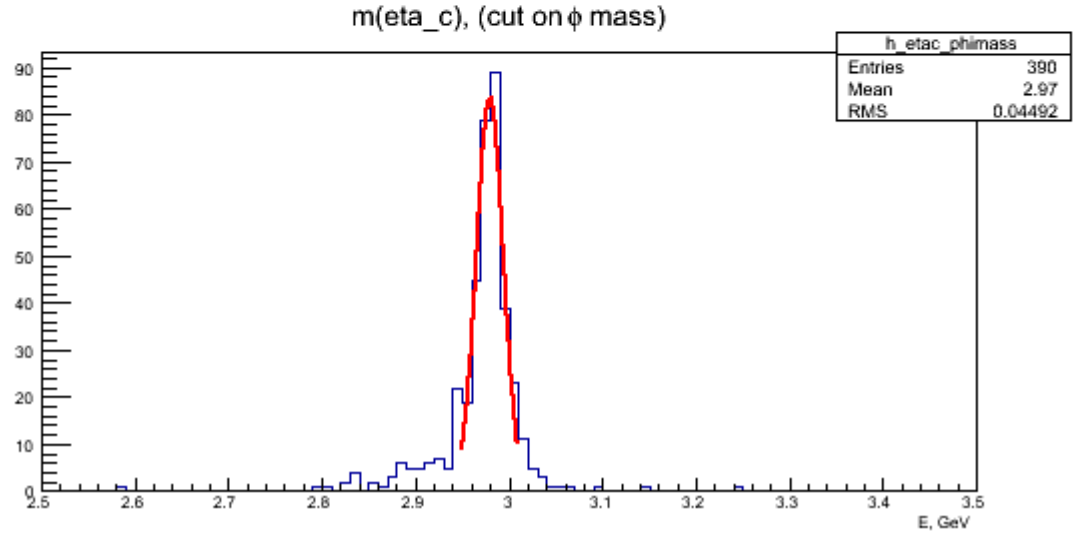


2) nc_stt.png, downloaded 1261 times

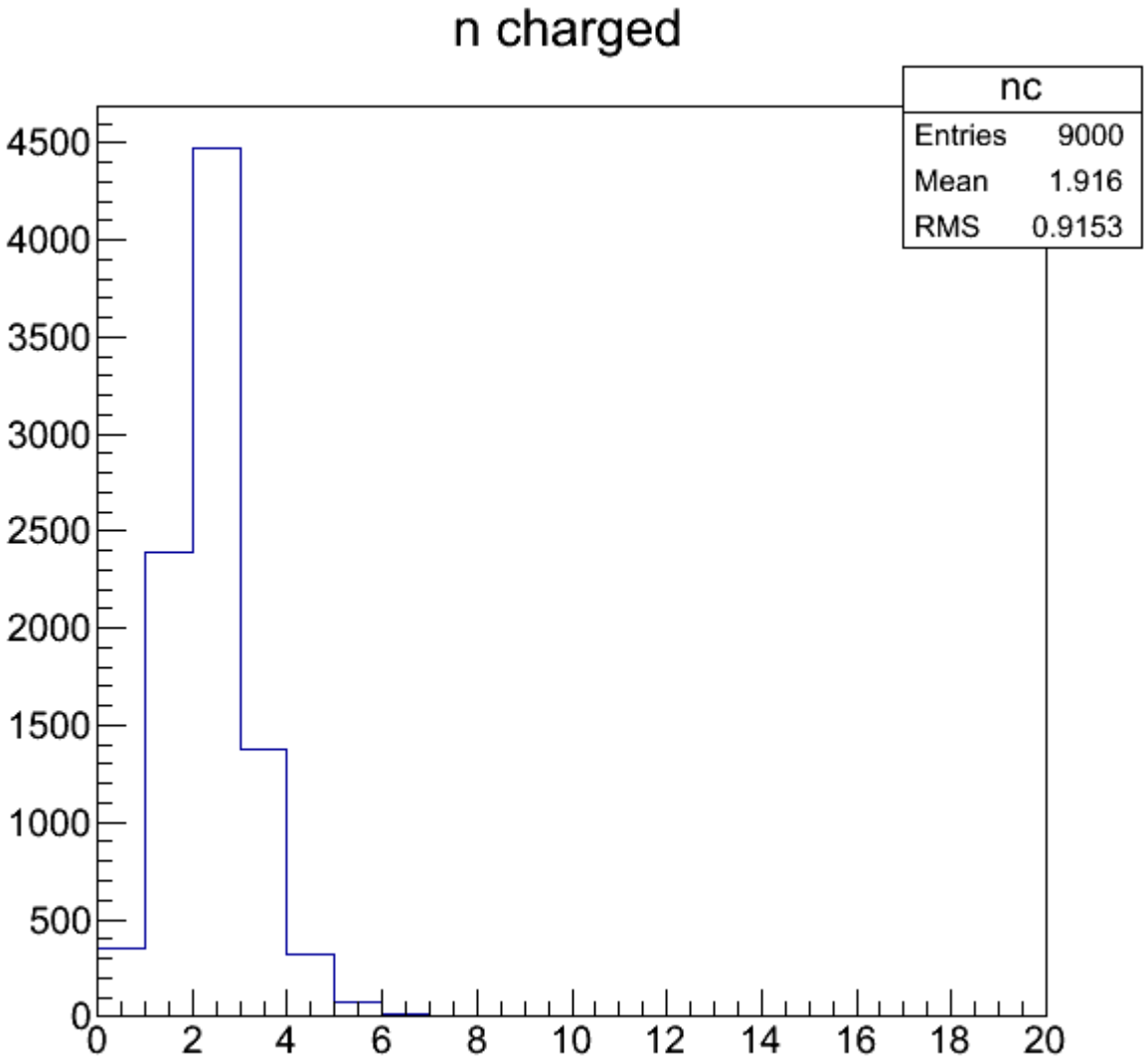


3) final_tpc.png, downloaded 1340 times





4) nc_tpc.png, downloaded 1335 times



5) PndGFTrackToPndTrackConvertorTask.cxx, downloaded 460 times

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