Subject: D+ and D- vertex resolution from Psi analysis
Posted by donghee on Mon, 18 Jul 2011 15:12:40 GMT
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Dear all,

I have tried the test production with STT mode to see the quality of D+ and D- reconstruction. Total 0.5 M events was generated and D+ and D- was well reconstructed with combined STT.

Vertex distribtuions and mass distributions show the displacement and smearings can be correctly handled after reconstruction and using vertex fit, it seems that the resolution can be identified in the level of 0.15cm for x,y position, for z-position the resolution should be found roughly within ~0.38 cm.

But unfortunately, the vertex fit doesn't show good results for further reconstruction of psi3770.

So now I want to see the rate of correctly reconstructed psi with matching MC true information. In that case, 0.1 M event is too small to check the resolution of psi and each decay products. (an example is shown in the plot of Dmeson_mass_distribution at 3rd coloum)

I would like to ask you some amount of data samples for Psi3770(-> D+D-) analysis at gridka.

Currently 0.1 M events are given, but
at least factor 2 times more data (~0.2M) samples are required to test of it.
Is it possible to increase data sample during Psi3770 production?

Best wishes,
Donghee

File Attachments

1) Dmeson_mass_distribution.eps, downloaded 319 times
2) Dmeson_vertex_distribution.eps, downloaded 368 times
3) Dmeson_vertex_resolution.eps, downloaded 327 times

Subject: Re: D+ and D- vertex resolution from Psi analysis
Posted by Tobias Stockmanns on Mon, 18 Jul 2011 15:41:08 GMT
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Dear Donghee,

does your simulation and reconstruction include the MVD?

If yes, than the given resolutions for the vertex fit are a factor ten too high.

Cheers,

Tobias

Subject: Re: D+ and D- vertex resolution from Psi analysis
Posted by StefanoSpataro on Tue, 19 Jul 2011 07:34:07 GMT
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Hi,
Donghee Kang wrote on Mon, 18 July 2011 17:12Dear all,

I have tried the test production with STT mode to see the quality of D+ and D- reconstruction. Total 0.5 M events was generated and D+ and D- was well reconstructed with combined STT.

Which code/release have you used to generate those events? We have recently changed the macros (which are updated on grid but not in svn) and the release.

Quote:
Vertex distribtuions and mass distributions show the displacement and smearings can be correctly handled after reconstruction and using vertex fit, it seems that the resolution can be identified in the level of 0.15cm for x,y position, for z-position the resolution should be found roughly within ~0.38 cm.

In the eta_c channel I have seen resolution values below 100 microns, for this I think you have used some old reconstruction code or some old settings, but I have not yet checked the psi channel.

Quote:
But unfortunately, the vertex fit doesn't show good results for further reconstruction of psi3770.

I think this is a matter of implementation of the analysis macro.

Quote:
So now I want to see the rate of correctly reconstructed psi with matching MC true information. In that case, 0.1 M event is too small to check the resolution of psi and each decay products. (an example is shown in the plot of Dmeson_mass_distribution at 3rd coloum)

The counts seem enough. How much efficiency do you have in this channel? And what do you mean by "each decay products"?

Quote:
I would like to ask you some amount of data samples for Psi3770(-> D+D-) analysis at gridka.

Currently 0.1 M events are given, but
at least factor 2 times more data (~0.2M) samples are required to test of it.

Is it possible to increase data sample during Psi3770 production?

I don't know about gridka (yiou ahev to ask them), but in our grid we have first to understand the performance with 100k events, before increasing the statistics (i.e. your poor vertex resolution). I think 100k evts is enough for our analysis, and we have also to run other reconstruction channels instead of focusing only into one.

Subject: Re: D+ and D- vertex resolution from Psi analysis
Posted by donghee on Tue, 19 Jul 2011 11:14:00 GMT
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Hi Stefano,

I have done it with may11 release version based on v12414.
After switching off ISR photons, you produced run 800 and 800np series with may11.
I didn't see any psi production for those series.
Therefore I decided to produce some data with STT mode, since STT seemed to be stable at that time (just I thought like that)

Then, I copy the scripts from pbarprod/tdr11/macros/psi3770.
and produced psi with STT mode.

So, The data, what I shown you, is corresponding 8XXnp data production with may11.
If something changed during last week even at STT part, then I can get feeling that possible improvement will be come with july11 version.

I will test it with latest version of pandaroot again.

If I used same code, which is existed in Gridka, then MVD was used automatically.

And you mentioned about the bad resolution of psi3770 with 6 final states.
"Quote:I think this is a matter of implementation of the analysis macro.
I think this is a matter of reconstruction of production macro
due to the fact of all resolution strongly depends on good quality of track reconstruction.

Best regards,
Donghee

Subject: Re: D+ and D- vertex resolution from Psi analysis
Posted by StefanoSpataro on Tue, 19 Jul 2011 11:23:17 GMT
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Hi,
we are using release july11. Just check the new produced files on the wiki page.

Subject: Re: D+ and D- vertex resolution from Psi analysis
Posted by donghee on Tue, 19 Jul 2011 18:17:28 GMT
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Hi stefano and Tobias,

I found the real reason of bad resolution at D decay.
I showed you D+ and D- vertex resolution without excluding background.
Simply I took all of decay vertex...sorry for about that.
i.e., D+ and all kind of background are sitting together in the resolution distribution for D vertex.
After corrected analysis code, run981 is running at gridka.

Best regards,
Donghee