Subject: Problem with Invariant mass distribution of D0 and D* candidates while using different tracking code
Posted by Ajay Kumar on Thu, 26 Mar 2015 15:40:16 GMT
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Dear All,

I have simulated 10^4 events for the signal channel pbar p-> D*+ D*- -> D0 pi+ D0bar pi- while adding Lambda Disks to the rest detector system in the sim_complete.C macro. I have observed that with the ideal tracking code (i.e. recoideal_complete.C) D0 (k- pi+) and D*+ (D0 pi+) are not reconstructed but with the global tracking code (reco_complete.C) are reconstructed well. I have attached the invariant mass plots here with both the tracking codes.

Without adding Lambda Disks both tracking code performed as expected. I did not understand what is issue with the ideal tracking code.

Why D0's are not well reconstructed with ideal tracking code while adding Lambda Disks to rest detector system?

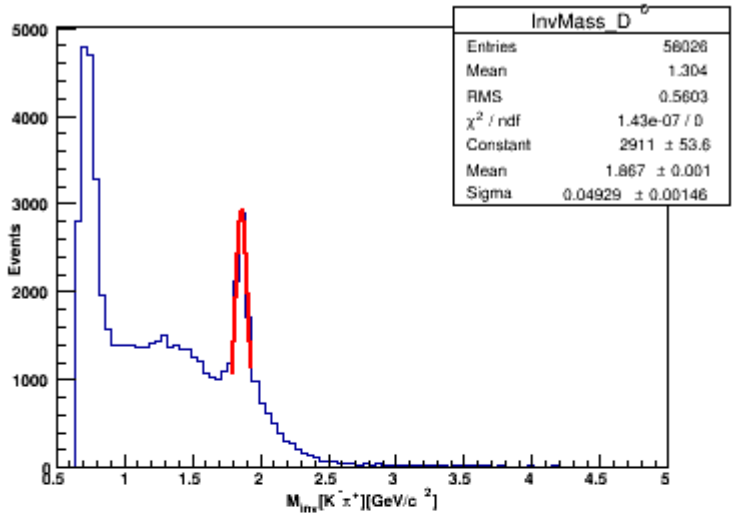
Can anybody teach me in this regard ??

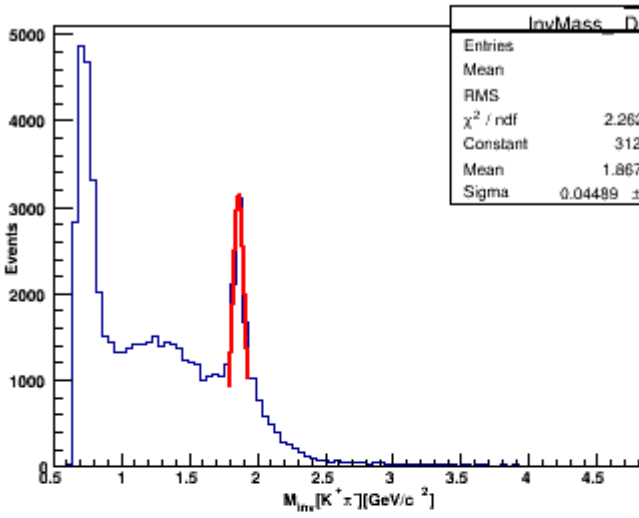
Thanks in advance

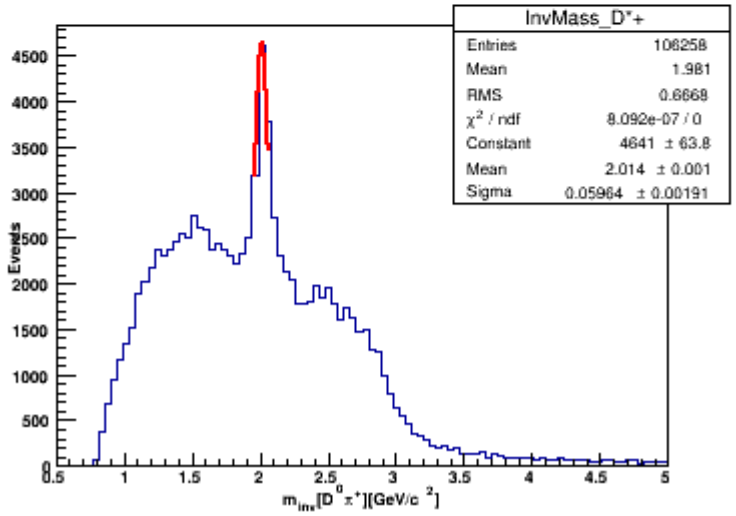
Ajay

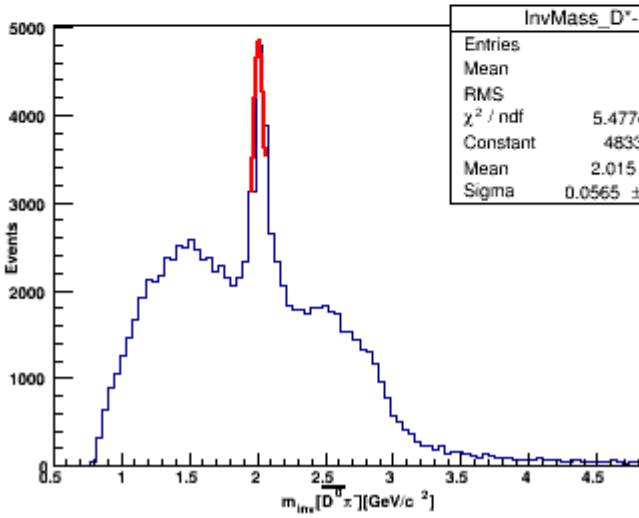
File Attachments

1) DstarPlus_DstarMinus_InvMass_GlobalTraking.png, downloaded 1105 times

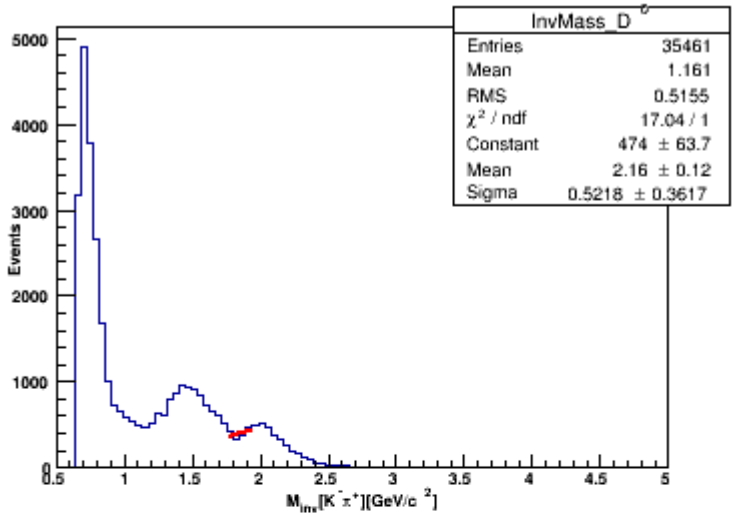


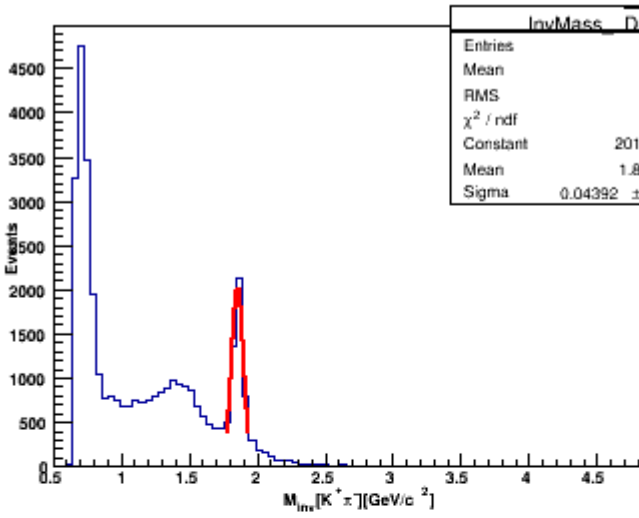


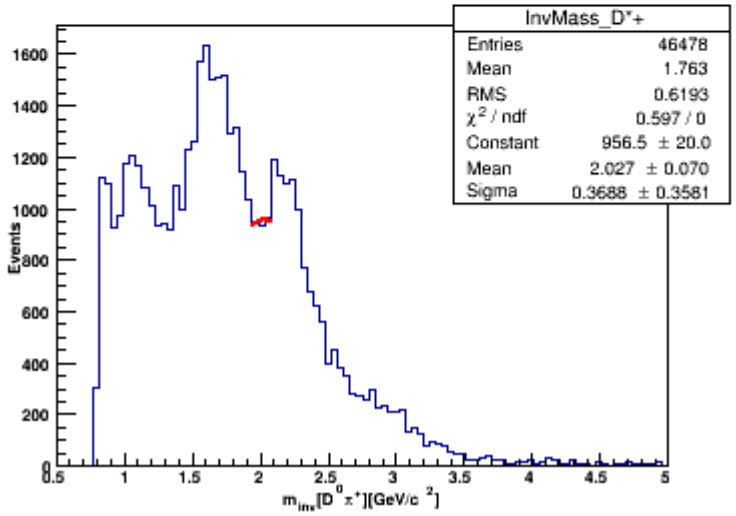


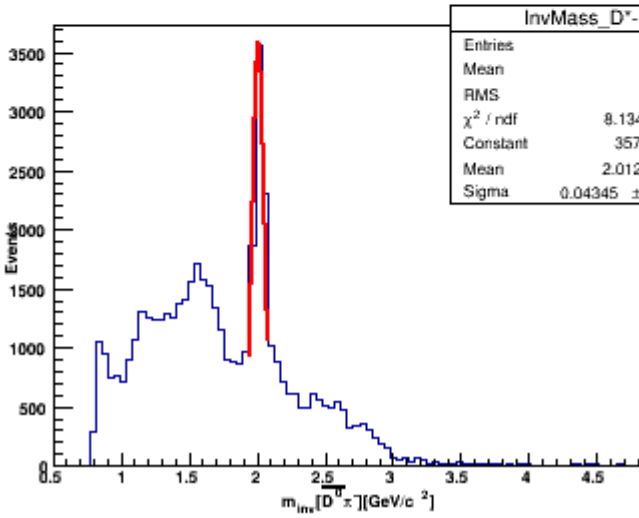


2) DstarPlus_DstarMinus_InvMass_IdealTraking.png, downloaded 1118 times









Subject: Re: Problem with Invariant mass distribution of D0 and D* candidates while using different tracking code
Posted by StefanoSpataro on Thu, 26 Mar 2015 15:59:03 GMT
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Which version of the code are you using?

Subject: Re: Problem with Invariant mass distribution of D0 and D* candidates while using different tracking code
Posted by Ajay Kumar on Thu, 26 Mar 2015 16:17:45 GMT
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Dear Stefano,

I am using apr13 release of external package and oct14 release of pandaroot.
I took both the code from /macro/run/ folder.

Subject: Re: Problem with Invariant mass distribution of D0 and D* candidates while using different tracking code
Posted by StefanoSpataro on Thu, 26 Mar 2015 16:27:58 GMT
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Can you upload your complete analysis chain? (sim, digi, recox2, pid, dec, analysis)

Subject: Re: Problem with Invariant mass distribution of D0 and D* candidates while using different tracking code
Posted by Ajay Kumar on Thu, 26 Mar 2015 16:54:32 GMT
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Dear Stefano,

Please find the attached complete analysis folder here.

Regards
Ajay

File Attachments
1) testD0.tar.gz, downloaded 418 times

Subject: Re: Problem with Invariant mass distribution of D0 and D* candidates while using different tracking code
Posted by StefanoSpataro on Sat, 28 Mar 2015 10:25:49 GMT
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Can you please check without the lambda disk?

Subject: Re: Problem with Invariant mass distribution of D0 and D* candidates while using different tracking code
Posted by Ajay Kumar on Sun, 29 Mar 2015 13:34:47 GMT
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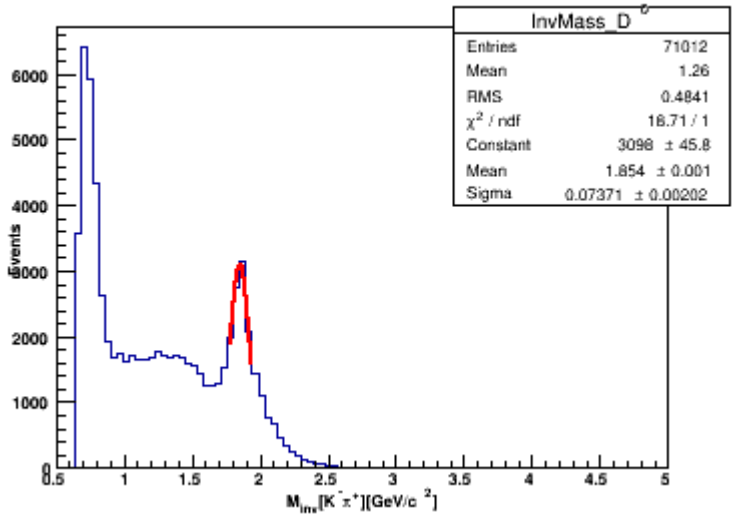
Hello Stefano,

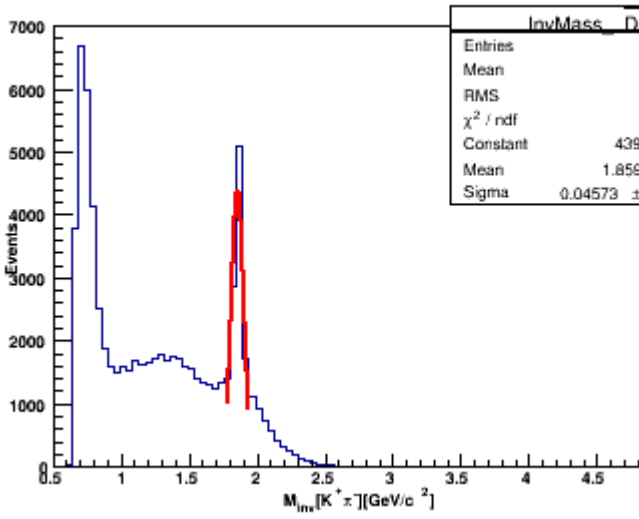
I have checked without Lambda Disks again and was able to track D0 particle with Ideal tracking. while adding Lambda Disks Ideal track finding algorithm was not able to track D0 particle.
Please find attached same plots without Lambda Disks and give me your valuable suggestions.

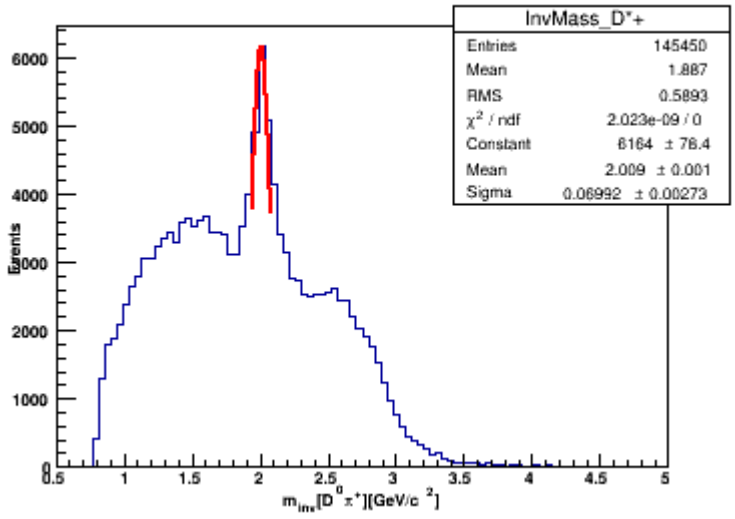
Thanks & Regards
Ajay

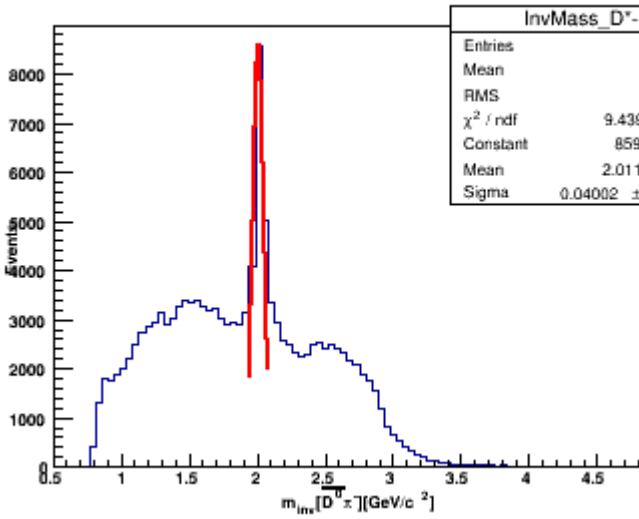
File Attachments

1)
DstarPlus_DstarMinus_InvMass_IdealTraking_Without_LamDisks.png, downloaded 850 times

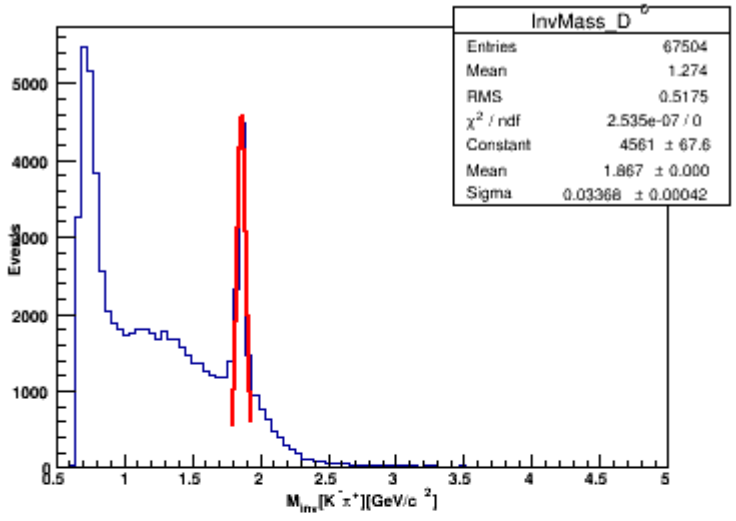


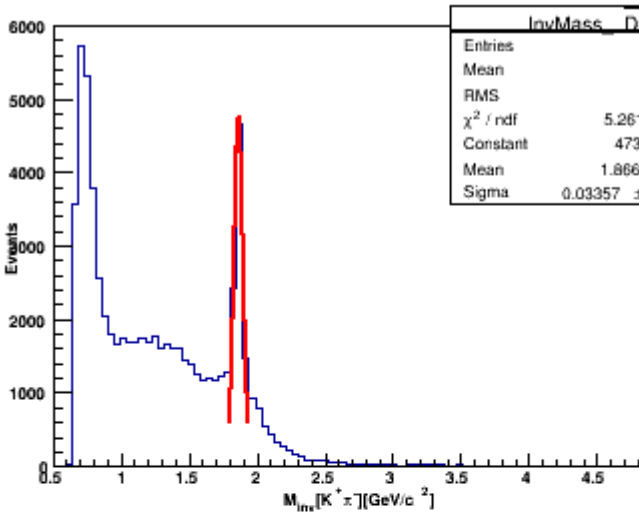


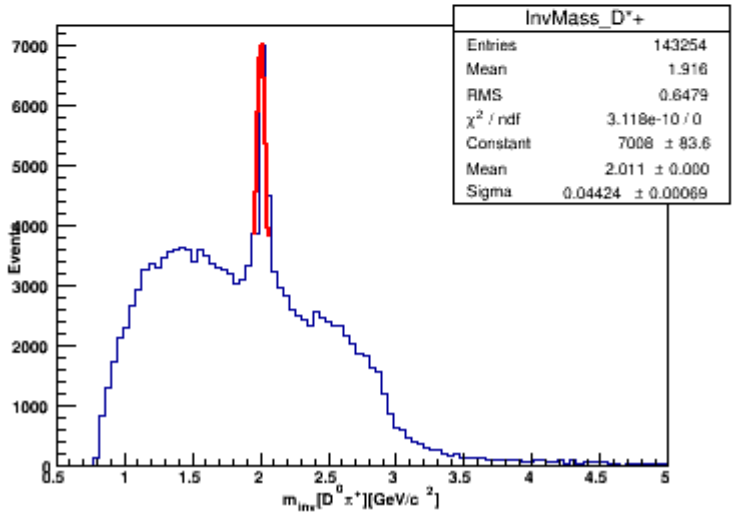


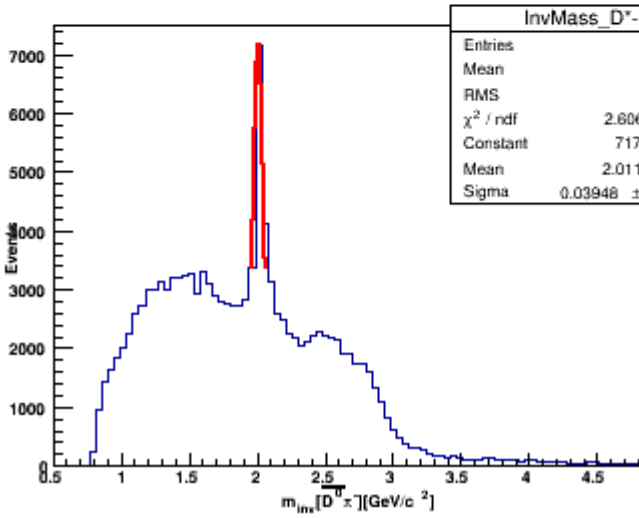


2)
DstarPlus_DstarMinus_InvMass_GlobalTraking_Without_LamDisks.png, downloaded 846 times









Subject: Re: Problem with Invariant mass distribution of D0 and D* candidates while using different tracking code
Posted by StefanoSpataro on Sun, 29 Mar 2015 14:58:35 GMT
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I suppose there is some bug in the part correlated to the lambda disk, which was never official tested for reconstruction.
I suggest to check with single particles reaching the lambda disk, and compare results with and without the disk. I presume the disk affects only forward tracks, isn't it? Your D events are too much complicated to understand what could go wrong.

Subject: Re: Problem with Invariant mass distribution of D0 and D* candidates while using different tracking code
Posted by Ajay Kumar on Tue, 31 Mar 2015 09:30:33 GMT
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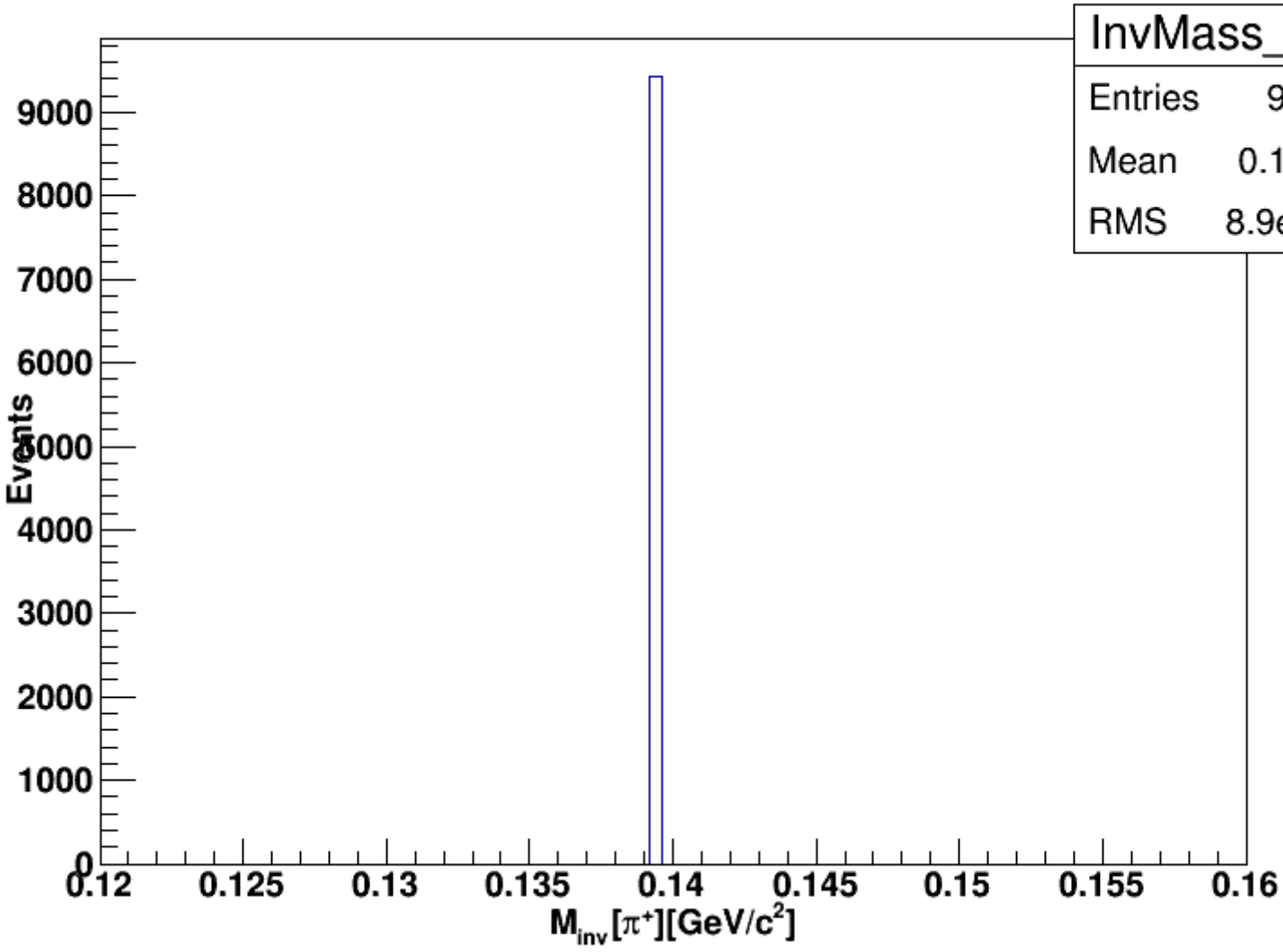
Hello Stefano,

I have simulated single pi+ per event using box generator with and without Lambda disks. I observed that some pi+ were lost with Lambda Disks in comparison of without Lambda Disks. I have used both tracking code to see the effect of Lambda disks on the pi+ tracks. I have attached related plots here.
Kindly give your suggestions.

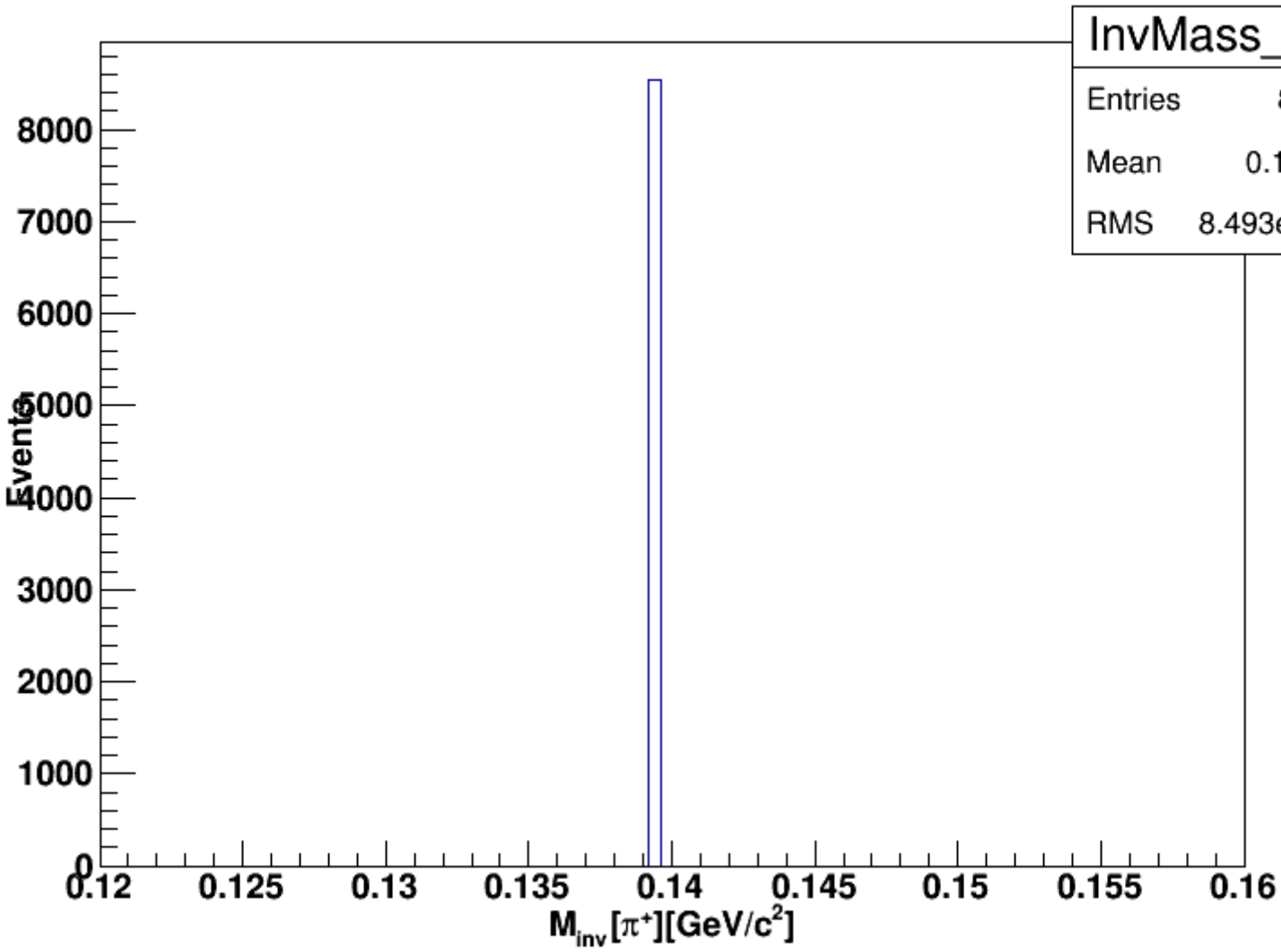
Thanks and Regards
Ajay

File Attachments

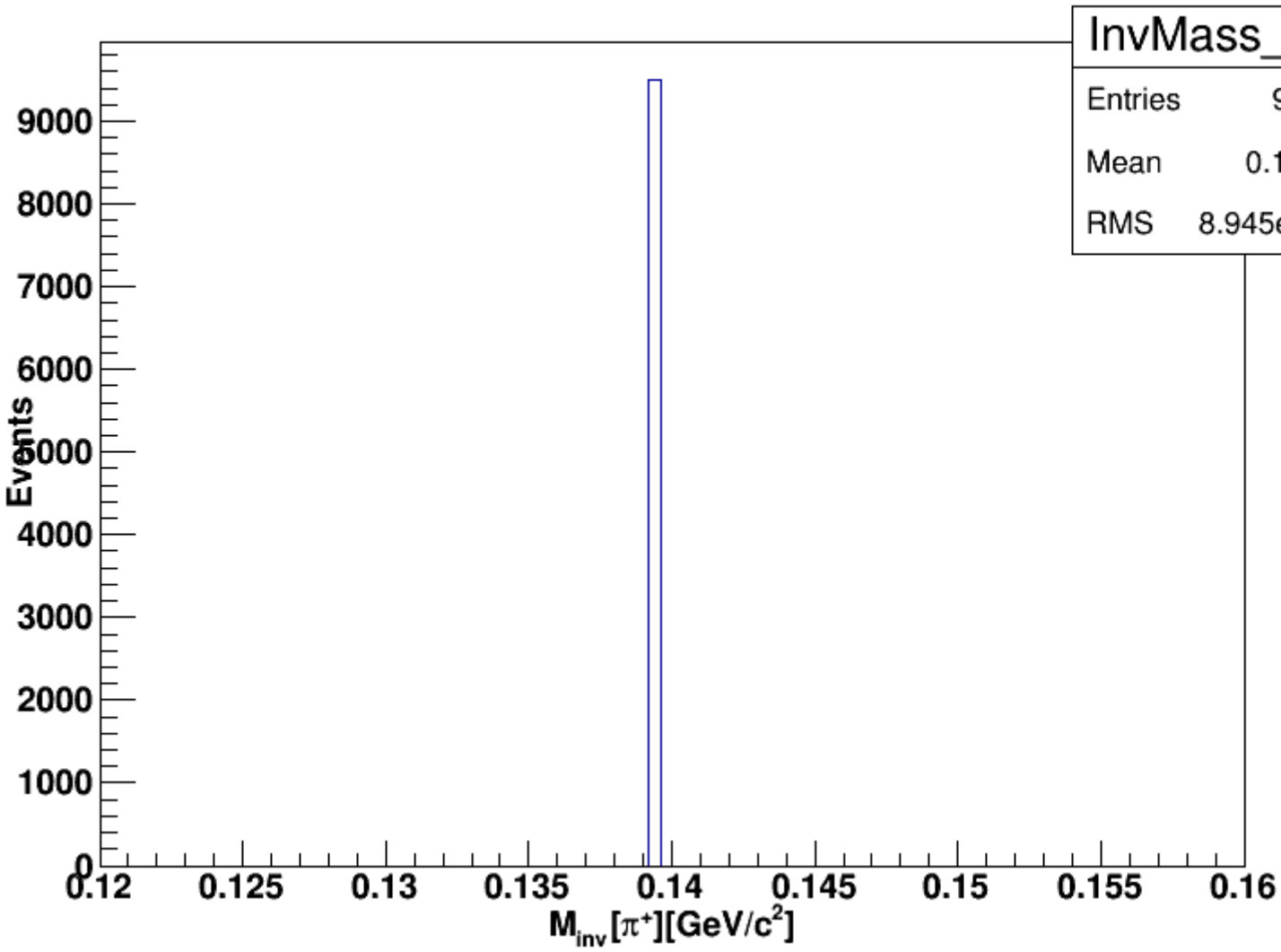
1) GlobalTraking_Without Lambda Disks.png, downloaded 895 times



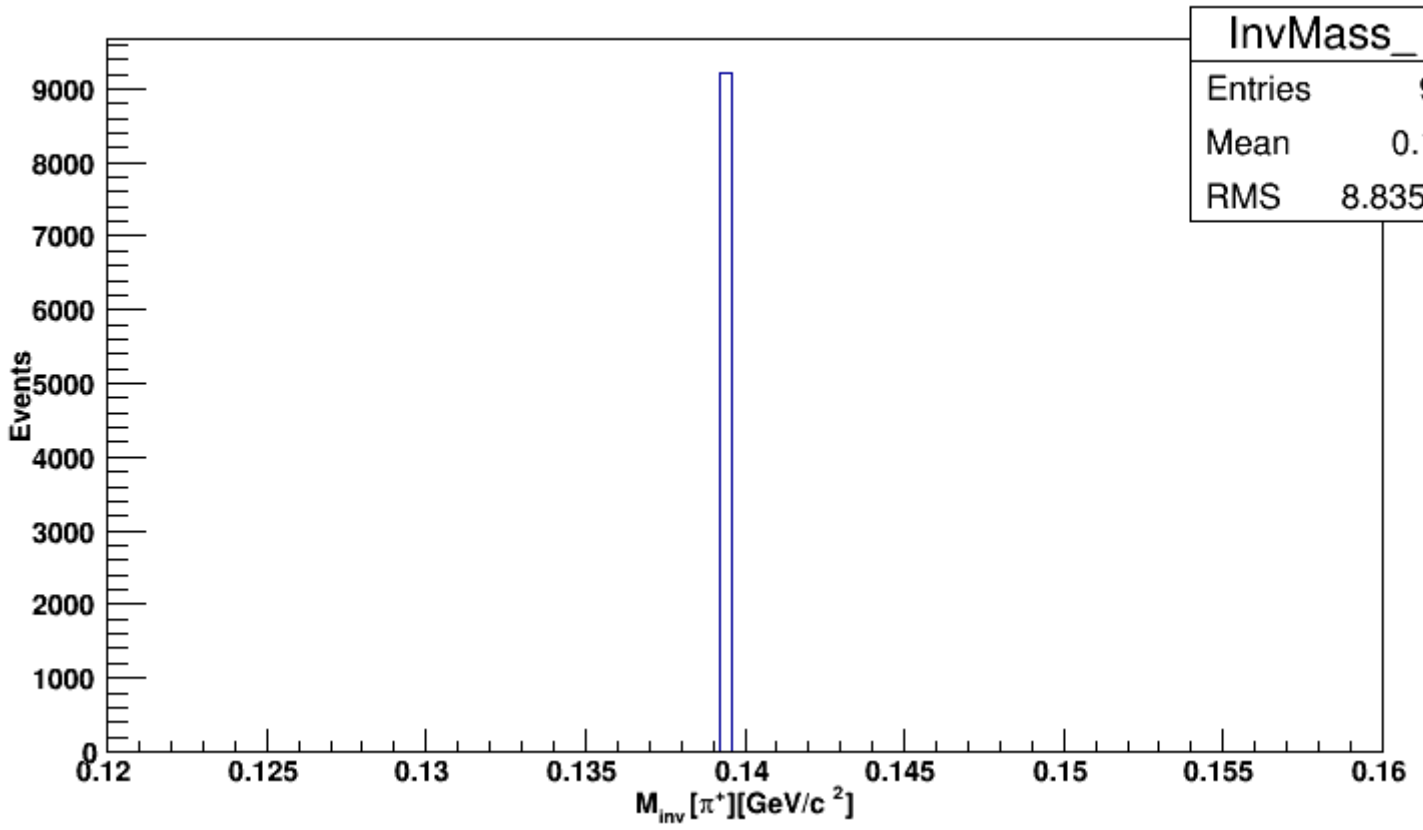
2) GlobalTraking_With Lambda Disks.png, downloaded 906 times



3) IdealTraking_Without Lambda Disks.png, downloaded 872 times



4) IdealTraking_With Lambda Disks.png, downloaded 866 times



Subject: Re: Problem with Invariant mass distribution of D0 and D* candidates while using different tracking code
Posted by StefanoSpataro on Tue, 31 Mar 2015 09:39:00 GMT
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Are you sure that the lambda disk is properly implemented in reconstruction?

Subject: Re: Problem with Invariant mass distribution of D0 and D* candidates while using different tracking code
Posted by Ajay Kumar on Tue, 31 Mar 2015 10:00:40 GMT
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Hello,

I just implemented Lambda Disks in the "sim_complete.C" macro. As these are using MVD classes, so I assume that included them in reconstruction too.
Is that the answer of your question?

Subject: Re: Problem with Invariant mass distribution of D0 and D* candidates while using different tracking code
Posted by StefanoSpataro on Tue, 31 Mar 2015 10:33:43 GMT

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This means that most probably it is not implemented in reconstruction, or that it could screw the reco chain. I would check the output of all the objects up to PndTrack to be sure that it really works.

Subject: Re: Problem with Invariant mass distribution of D0 and D* candidates while using different tracking code
Posted by Ajay Kumar on Fri, 22 May 2015 09:31:30 GMT
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Dear Stefano,

I am still waiting for your reply. Is there any update on this issue?

Thanking you

Ajay

Subject: Re: Problem with Invariant mass distribution of D0 and D* candidates while using different tracking code
Posted by StefanoSpataro on Fri, 22 May 2015 09:53:18 GMT
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Hi,
sorry, I was not clear.

Quote:I would check the output of all the objects up to PndTrack to be sure that it really works.

-> If I were in you I would check the output of all the objects up to PndTrack to be sure that it really works.