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
View Forum Message <> Reply to Message

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?

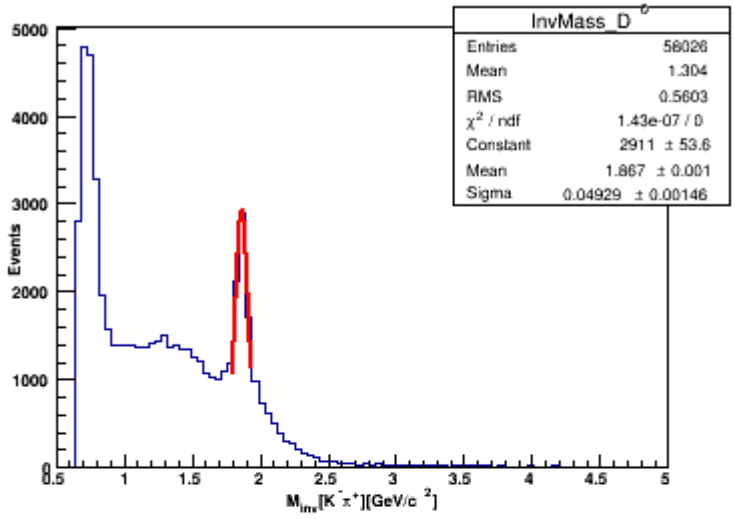
Can anybody teach me in this regard ??

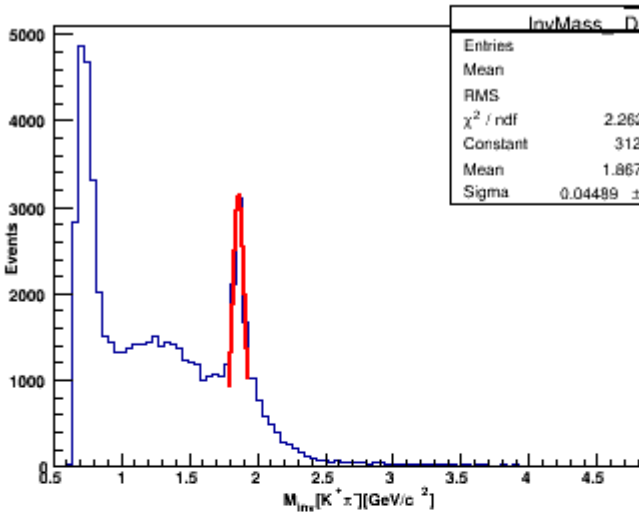
Thanks in advance

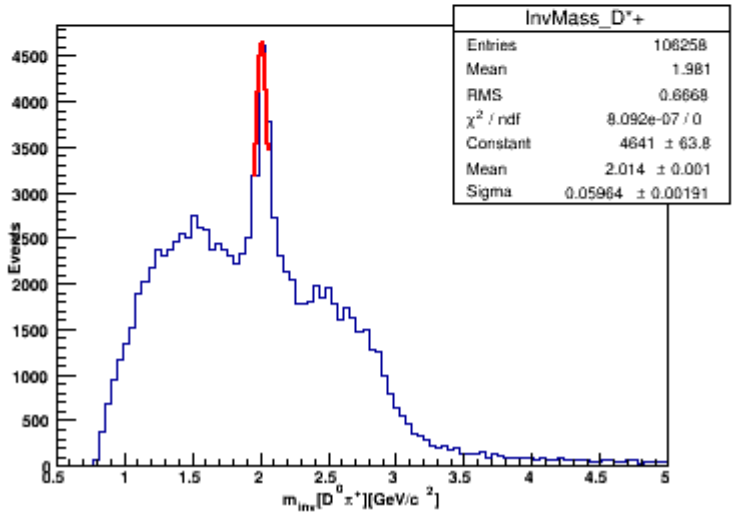
Ajay

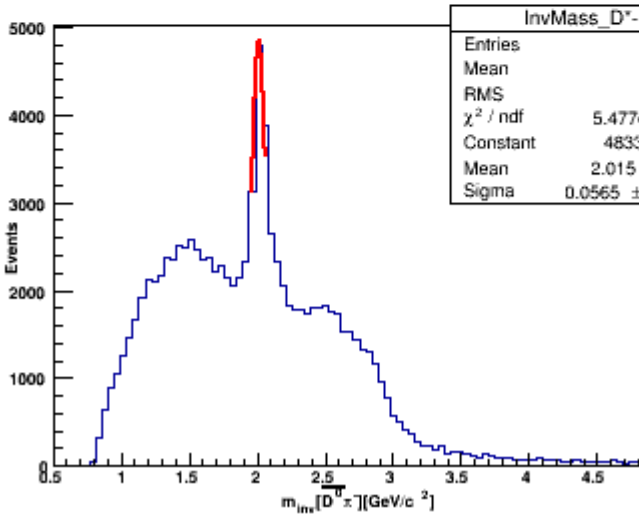
File Attachments

1) DstarPlus_DstarMinus_InvMass_GlobalTraking.png, downloaded 704 times

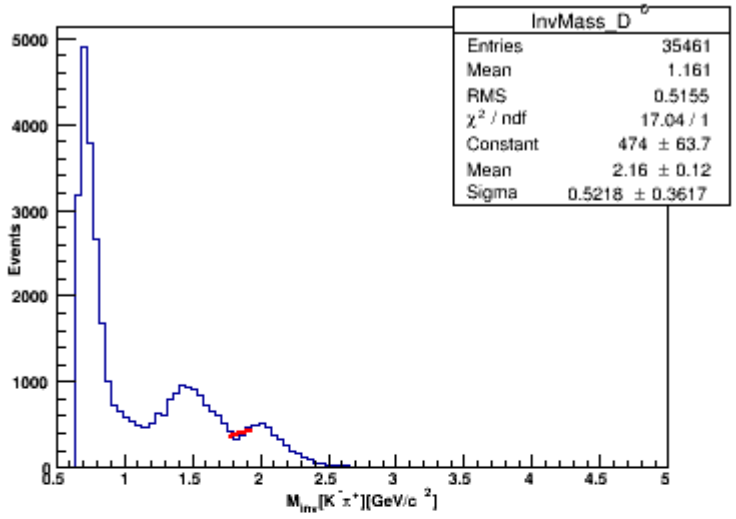


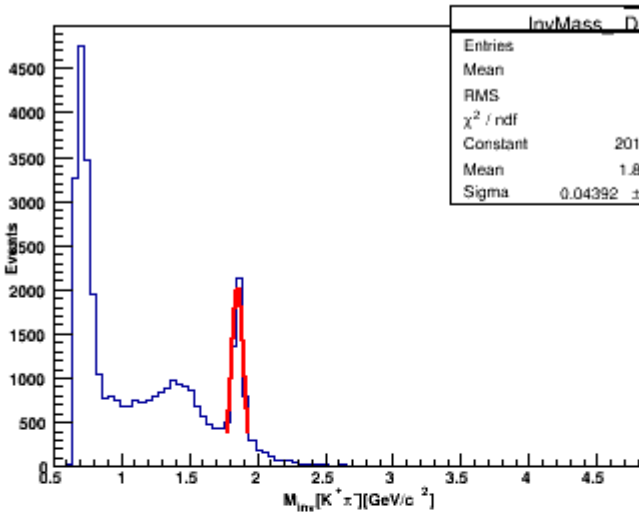


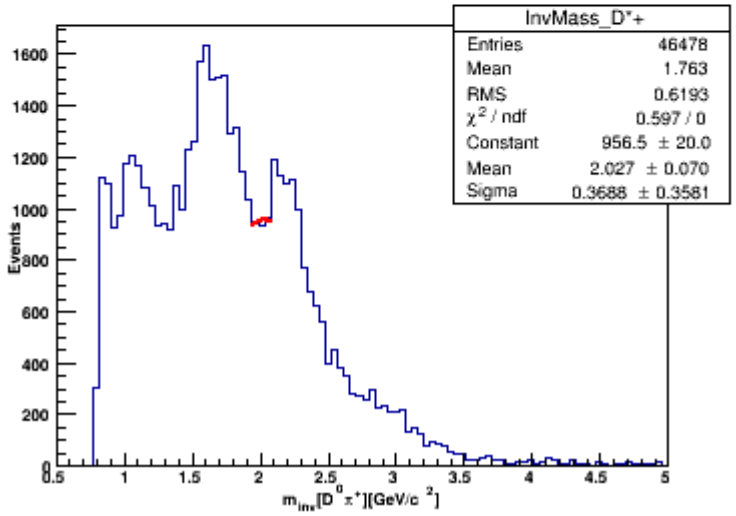


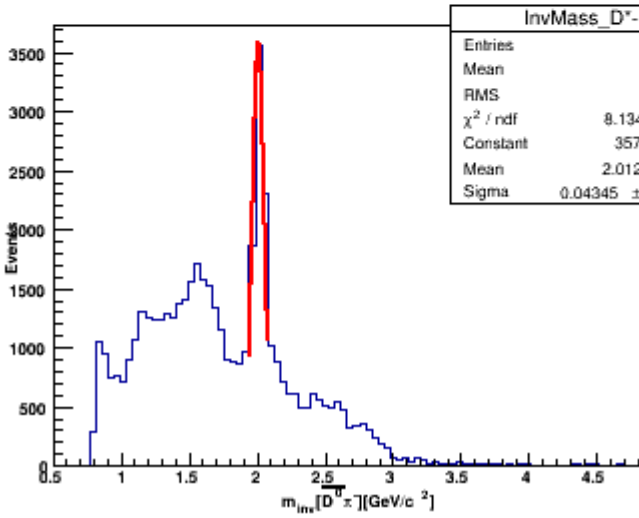


2) DstarPlus_DstarMinus_InvMass_IdealTraking.png, downloaded 679 times









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
View Forum Message <> Reply to Message

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
View Forum Message <> Reply to Message

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
View Forum Message <> Reply to Message

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
View Forum Message <> Reply to Message

Dear Stefano,

Please find the attached complete analysis folder here.

Regards
Ajay

File Attachments
1) testD0.tar.gz, downloaded 321 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
View Forum Message <> Reply to Message

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
View Forum Message <> Reply to Message

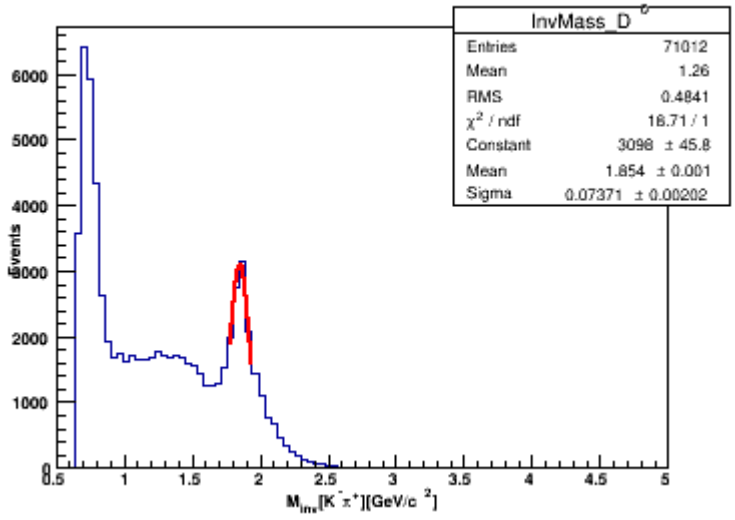
Hello Stefano,

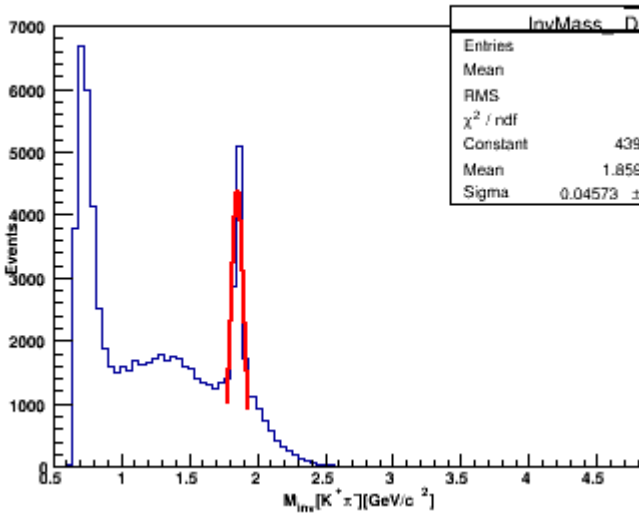
I have checked without Lambda Disks again and was able to track D0 particle with Ideal tracking. while adding Lambda Disks Ideal track finding algorithm was not able to track D0 particle.
Please find attached same plots without Lambda Disks and give me your valuable suggestions.

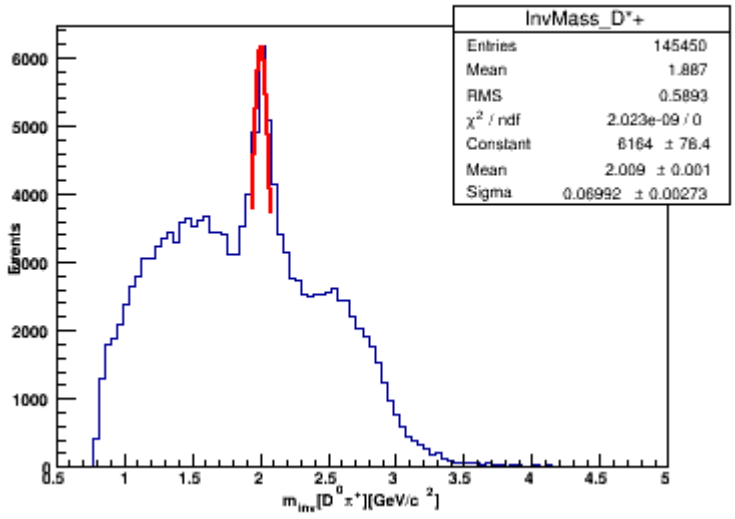
Thanks & Regards
Ajay

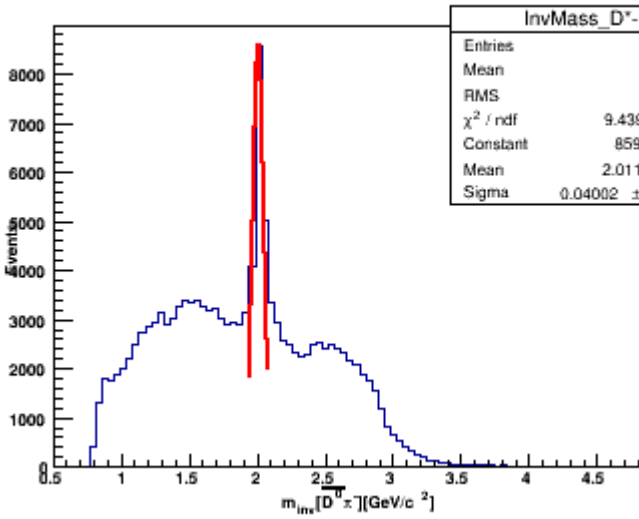
File Attachments

1)
DstarPlus_DstarMinus_InvMass_IdealTraking_Without_LamDisks.png, downloaded 465 times

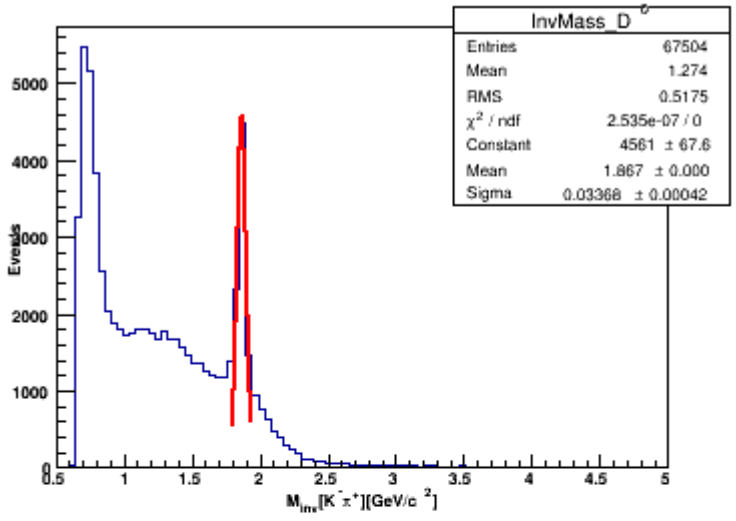


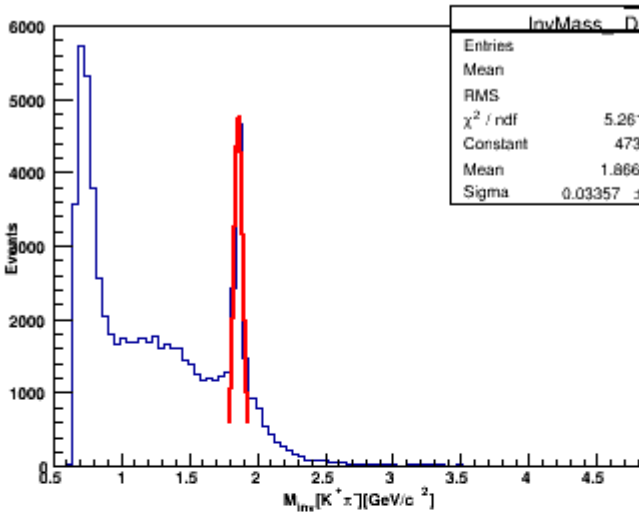


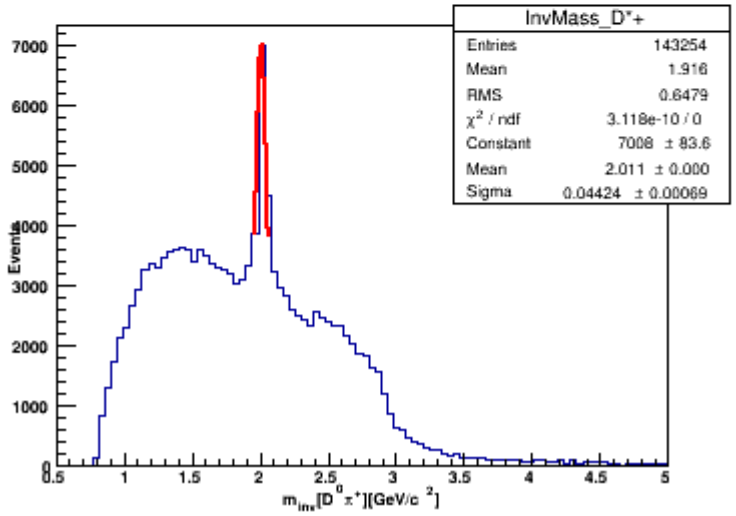


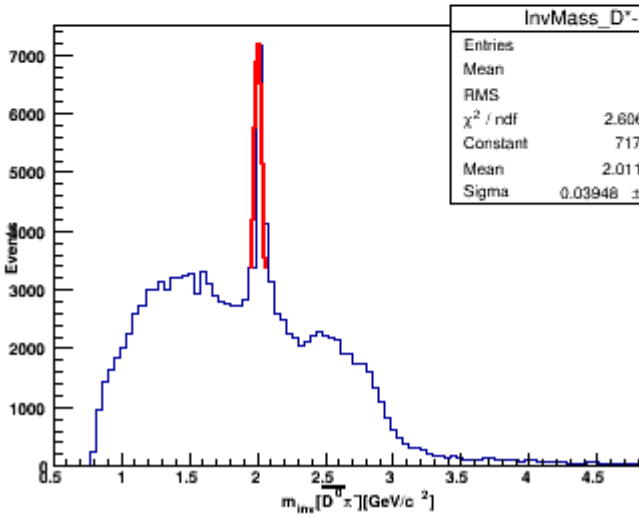


2)
DstarPlus_DstarMinus_InvMass_GlobalTraking_Without_LamDisks.png, downloaded 461 times









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
View Forum Message <> Reply to Message

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
View Forum Message <> Reply to Message

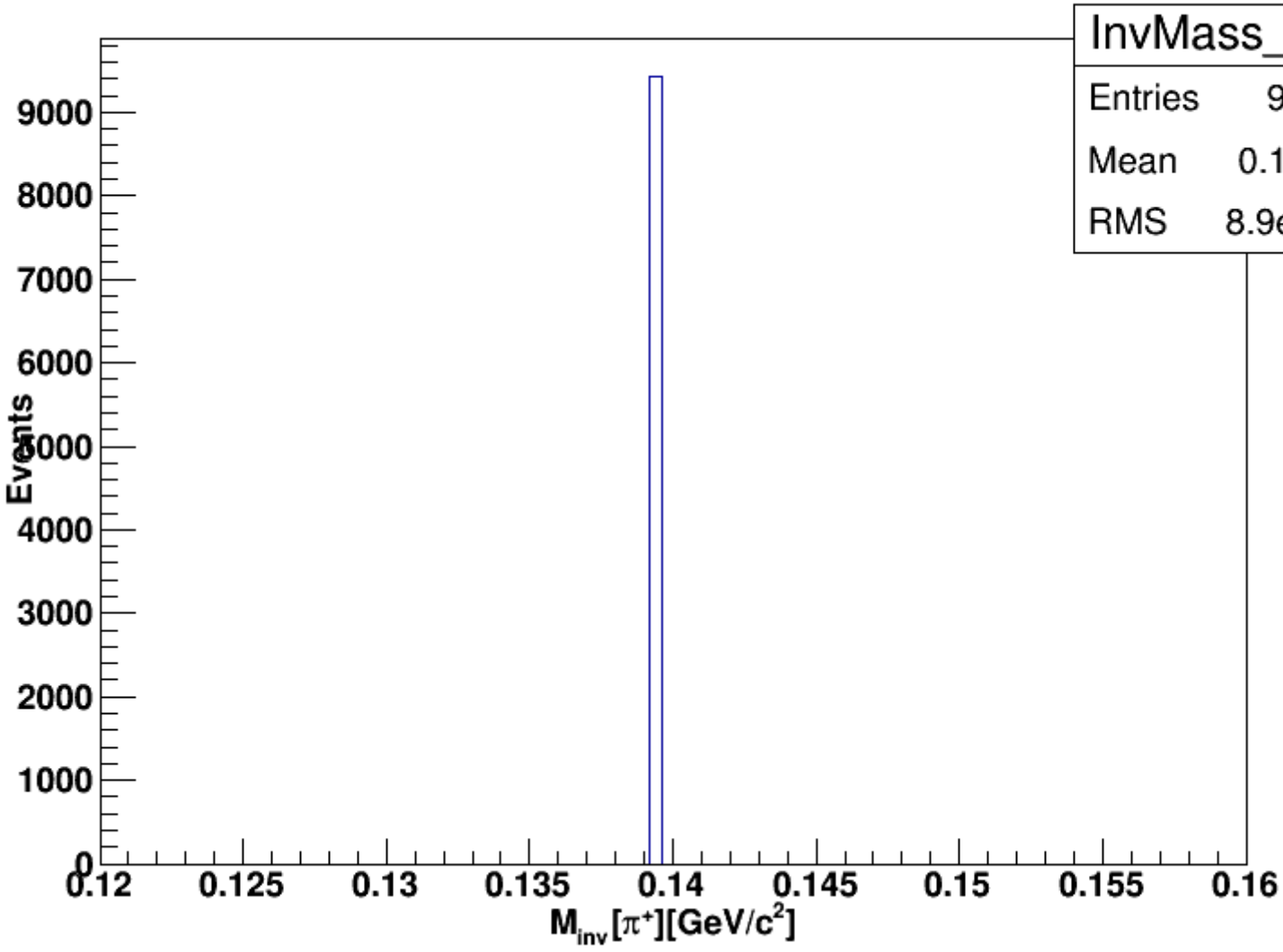
Hello Stefano,

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.

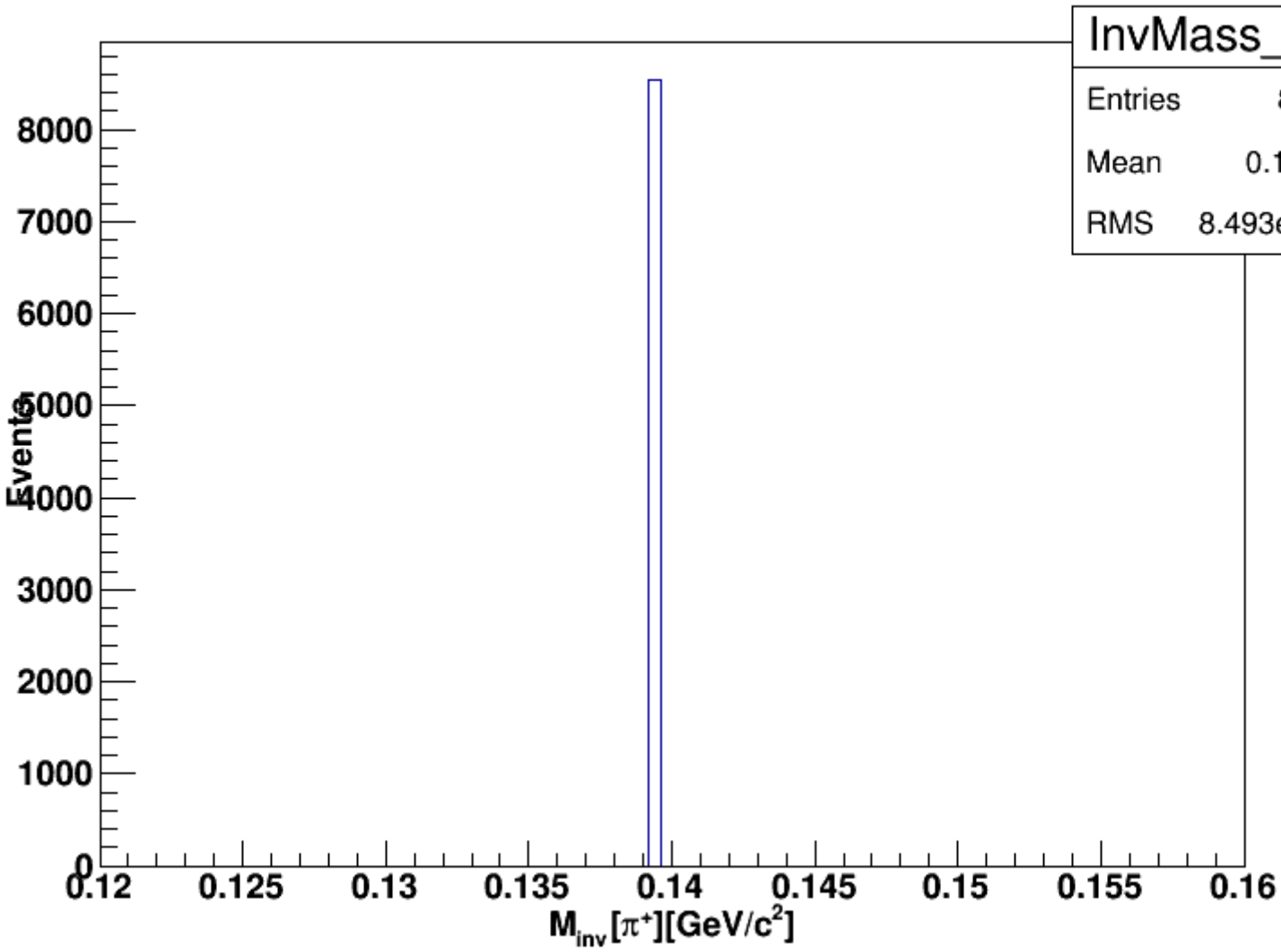
Thanks and Regards
Ajay

File Attachments

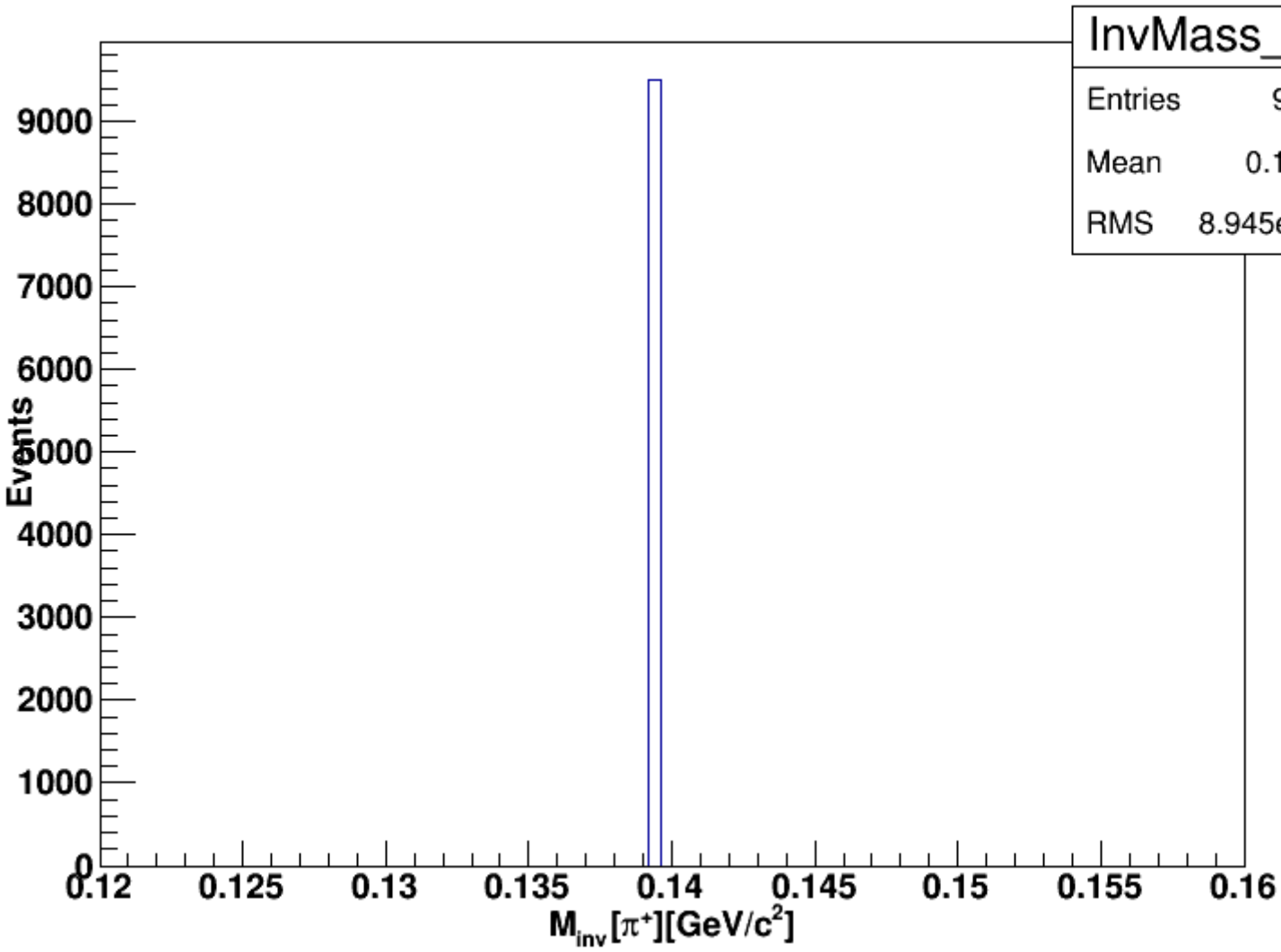
1) GlobalTraking_Without Lambda Disks.png, downloaded 465 times



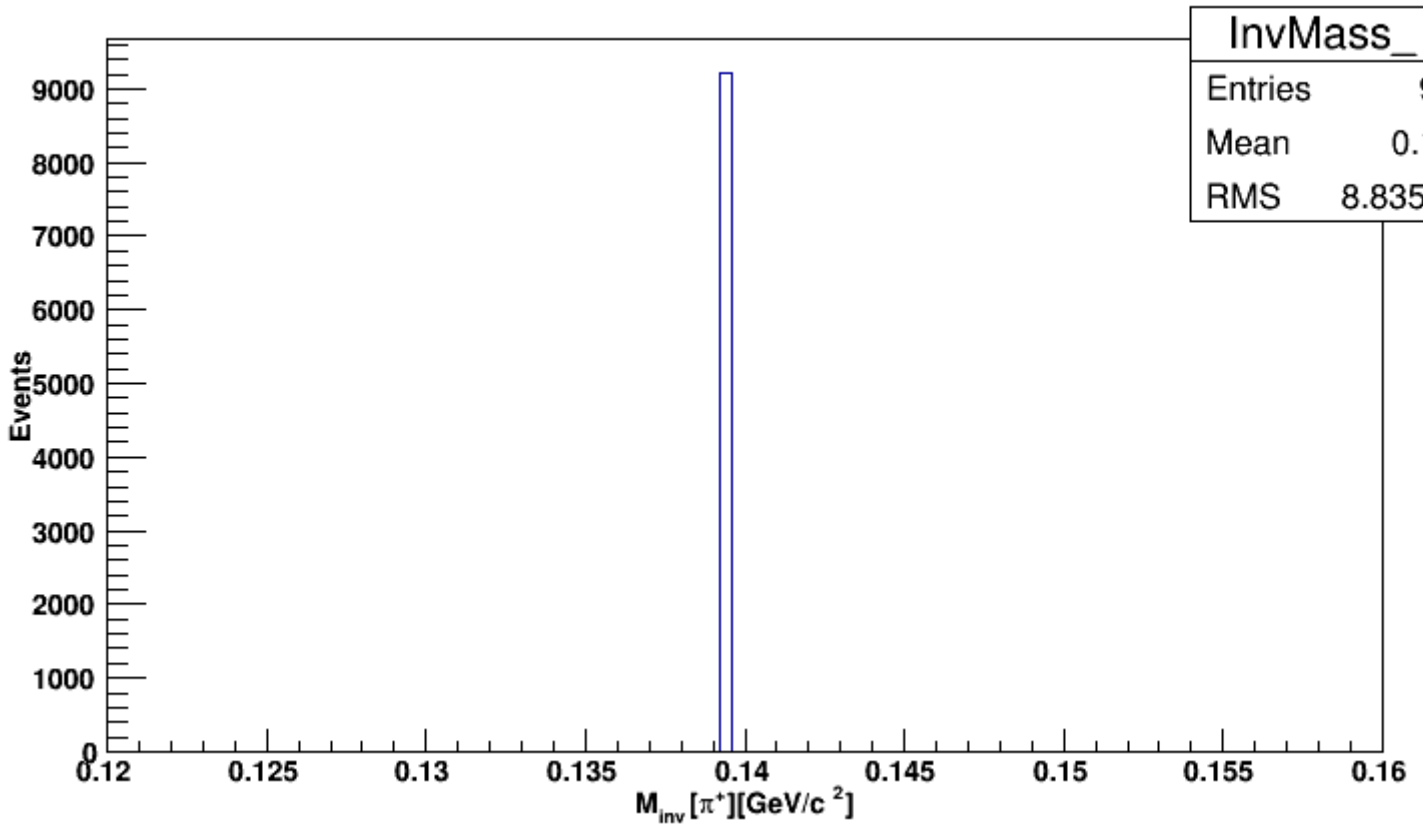
2) GlobalTraking_With Lambda Disks.png, downloaded 492 times



3) IdealTraking_Without Lambda Disks.png, downloaded 475 times



4) IdealTraking_With Lambda Disks.png, downloaded 471 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
View Forum Message <> Reply to Message

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
View Forum Message <> Reply to Message

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

View Forum Message <> Reply to Message

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
View Forum Message <> Reply to Message

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
View Forum Message <> Reply to Message

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.