Subject: True vertex position for secondary decay vertices
Posted by Ajay Kumar on Mon, 12 Jan 2015 20:31:35 GMT
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Dear All,

I am trying to find true vertex position for Lambda0->p pi- and Lambdabar->pbar pi+. I have four track from the simulation and used PndMCTrack to find the true vertex position of Lambda and Lambdabar particles. I am using GetStartVertex() to find the vertex of lambda from its decay particle as below.

```
if(mctrack->GetSecondMotherID()==1){
    if (mc_pid==2212)
{
  vtx_x= mctrack->GetStartVertex().X ();
  vtx_y= mctrack->GetStartVertex().Y();
  vtx_z= mctrack->GetStartVertex().Z();
 // r = sqrt(pow(vtx_x,2)+pow(vtx_y,2));
 // countT1++;
 //rzp-> Fill(vtx_z,r);
 // if (vtx_z< 40)
 // countT2++;

}
}
```

Is It giving the true vertex position of Lambda or not?
If not then how I should go for it?

Thanking you

Subject: Re: True vertex position for secondary decay vertices
Posted by Klaus Götzen on Tue, 13 Jan 2015 06:25:21 GMT
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Dear Ajay,

I think Lambda->GetStartVertex() gives you the true creation vertex of the Lambda, but you probably are looking for the decay vertex of it. For that you should use the GetStartVertex method for one of its true daughters, i.e. the proton or the pion (which both should have the same start vertex as cross check).

Best,
Klaus

Subject: Re: True vertex position for secondary decay vertices
Posted by Ajay Kumar on Tue, 13 Jan 2015 11:32:15 GMT
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Dear Klaus,

Thank you for your quiick reply.
As you suggested, I have used the the daughter particles of Lambda and Lambdabar to find their real decay vertex. I have ploted Z vs R distribution for final state particles p and pi- or pbar and pi+ respectively for Lambda and Lambdabar. the distribution looks same but there is difference in entries for the decay particles. I have attached the pdf file. please have a look and suggest me if it is wrong.

Thanking you.

File Attachments
1) DecayVtx_Lambda_Lambdabar.pdf, downloaded 481 times

Subject: Re: True vertex position for secondary decay vertices
Posted by Klaus Götzen on Tue, 13 Jan 2015 14:28:46 GMT
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Hi Ajay,

without your exact macro code I can't say why there are different number of entries. To check whether it's reasonable, you can plot the c tau distributions and the fit nominal c tau0 (should be 7.89 cm for Lambda).

Best,
Klaus