Subject: Finding true vertex position of mother particles.
Posted by donghee on Mon, 20 Jun 2011 20:49:56 GMT
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Hi pandausers,

I'm trying to see true vertex position for psi3770 -> D+D- ->KpipiKpipi.

I have PndMCtracks and I don't have mother vertex ID.
At gridka, the signal data didn't contain mother particle info. as I correctly understand.
Simply I have only 6 charged outgoind tarcks with true 4-momentum.
From each three outgoing tracks, I can build intermediate state D+ or D- and can find first D+ or D- vertex position via.

Quote:
PndMCTrack *mctrack=(PndMCTrack*)mc_array->At(mc);
TVector3 vertex = (TVector3)mctrack->GetStartVertex();

Then now, I want to provide the vertex position for psi3770 from 4-momentum and vertex position of D+ and D-.
How can I get true vertex position only from PndMCtrack?

I assume that I need to build a TCandidate for true D+ and D-,
then I can get further mother decay.

Is there easy way to do with Rho package?

Thank you for your teaching....

Best wishes,
Donghee

Subject: Re: Finding true vertex position of mother particles.
Posted by Ralf Kliemt on Tue, 21 Jun 2011 07:47:47 GMT
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Hello Donghee,

The psi3770 you are looking at is a) a neutral particle and b) decaying "instantly". This means you have a) no mc track and b) no displaced vertex.
Hence the vertex of the decaying particles is the interaction point (or a point in the beam-target distributuion).

Regards,

Ralf

Subject: Re: Finding true vertex position of mother particles.
Posted by donghee on Tue, 21 Jun 2011 07:59:22 GMT
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Dear Ralf.

What a simple solution!
That's great Thank you.

Regards, donghee

Subject: Re: Finding true vertex position of mother particles.
Posted by donghee on Thu, 14 Jul 2011 12:30:11 GMT
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Hi Ralf,

If I have interaction point (0,0,0), then I can find easily the vertex for MC true event.

But we have now some vertex displacement from beam-target smearing.
What is the way to get those info only from PndMCTrack?

I have only way to get such kind of info in terms of PndMcListConverter as an extra step after building pid, that I don't want to do so.

If you know more easy way to know vertex position for instant psi3770, please let me know.

Thanks.

Subject: Re: Finding true vertex position of mother particles.
Posted by StefanoSpataro on Thu, 14 Jul 2011 19:10:01 GMT
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Hi,
this information is stored inside the MCEventHeader TClonesArray,not inside MCTrack.
Inside MCTrack you can however find StartVertex which is the production vertex of your particle, and this should also work. Of course if you produce some neutrals, i.e. lambda -> p pi, the start vertex of the charged particles will be different from the reaction vertex.

Subject: Re: Finding true vertex position of mother particles.

Posted by donghee on Fri, 15 Jul 2011 09:11:59 GMT
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Hi stefano,

I'm nearly come to the end.... could you say where I made wrong with below code (part of analysis code)

Quote:

```
        //Data accessing!
        TFile *inFile = TFile::Open(inSimFile,"READ");
        TTree *tree=(TTree *) inFile->Get("cbmsim") ;

 TClonesArray* mc_array=new TClonesArray("PndMCTrack");
        tree->SetBranchAddress("MCTrack",&mc_array);
 TClonesArray* event=new TClonesArray("FairMCEventHeader");
        tree->SetBranchAddress("MCEventHeader",&event);

        //Event loop
        PndEventReader evr(inPidFile);
        while (evr.GetEvent() && i++<nEntries)
{
            tree->GetEntry(i);

            //Event info
    FairMCEventHeader *mc_info = (FairMCEventHeader*)event->At(i);

            //Print to check
            cout<<mc_info->GetX()<<endl;
    cout<<mc_info->GetY()<<endl;
            cout<<mc_info->GetZ()<<endl;
}
```

Error message in root is
Quote:
Error: illegal pointer to class object mc_info 0x0 3481

Cheers,
Donghee

Subject: Re: Finding true vertex position of mother particles.
Posted by donghee on Fri, 15 Jul 2011 09:50:15 GMT
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Hi stefano,

In interactive mode with TBrowser, I can see correct info from MCEventHeader(FairMCEventHeader), but I couldn't get anything via
Quote:FairMCEventHeader *mc_info = (FairMCEventHeader*)event->At(i);

Simply I have zero entry from mc_info->GetEntriesFast();

So I do "NOT" understanding the way for using the FairMCEventHeader object in the simulation file.

I'm waiting for your teach
Donghee

Subject: Re: Finding true vertex position of mother particles.
Posted by asanchez on Fri, 15 Jul 2011 10:00:35 GMT
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Dear Donghee, could you attach the entire macro to see
into more detail how you proceed?
regards
Alicia.

Subject: Re: Finding true vertex position of mother particles.
Posted by Tobias Stockmanns on Fri, 15 Jul 2011 10:10:49 GMT
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Dear Donghee,

I think your branch name is not correct. It should be:

tree->SetBranchAddress("MCEventHeader.",&event);

Have a look in the TBrowser how it is written correctly.

Cheers,

Tobias

Subject: Re: Finding true vertex position of mother particles.
Posted by Ralf Kliemt on Fri, 15 Jul 2011 10:23:35 GMT
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Hello Donghee,

I have a present for you

```
TFile* f = new TFile(inFile.Data()); // the sim file you want to analyse
TTree* t=(TTree*)f->Get("cbmsim");
```

```
 FairMCEventHeader* evthead;
 t->SetBranchAddress("MCEventHeader.", &evthead);

 for (Int_t j=0; j<nEvents && j<t->GetEntriesFast(); j++)
 {
  t->GetEntry(j);
  if(verbosepoints) cout<<"Event No "<<j<<endl;
  else if (!(j%100)) cout <<"Event No "<<j<<endl;
  cout<<"GetRunID() "<<evthead->GetRunID()<<endl;
  cout<<"GetEventID() "<<evthead->GetEventID()<<endl;
  cout<<"GetX() "<<evthead->GetX()    <<endl;
  cout<<"GetY() "<<evthead->GetY()  <<endl;
  cout<<"GetZ() "<<evthead->GetZ()   <<endl;
  cout<<"GetT() "<<evthead->GetT()   <<endl;
  cout<<"GetNPrim() "<<evthead->GetNPrim()  <<endl;
 }// end for j (events)
```

Be reminded of the Branch name (thaks Tobias) and that the Event header is an object directliy inside the tree, like all the TClonesArrays.

Kind regards,
Ralf

Subject: Re: Finding true vertex position of mother particles.
Posted by donghee on Fri, 15 Jul 2011 10:41:02 GMT
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Hi Tobias and Ralf,

Thanks to Tobias for finding very tiny point at the end of naming "MCEventHeader."

Thanks Ralf for your kind present. That is very fancy!
After replacing TCloneArray to directly FairMCEventHeader, that works perfectly. Finally I have got the way to know the true IP for psi...

Regards,
Donghee
