Subject: Decay analysis
Posted by Alexandros on Thu, 13 Mar 2014 17:38:07 GMT
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Hi all,

So I am new to panda and I am trying to perform some simulations..

I have tried to follow the example rho analysis to have my first results..
Some of the results are ok but I have several problems..
First: why is the efficiency for psi(4160) so low???less than 20%...Is it normal or do i have mistakes in my code??
Second: for each event I don't get one D0 and one antid0...there are some(not so few) events that give 2 or 3 D0's and some other events 2 or 3 antiD0's...I suppose this is not normal right???I should get one D0 per event..
Third: How does this McTruth work exactly???I have tried some things for D0's, antiD0's and psi(4160) but nothing seems to work...I also tried to follow the way that the mctruth is shown in the slides from Klaus in PANDA Computing Workshop 2012 Torino but it didnt work either..
Can you tell me what is going wrong???
I will also attach my code to have a look...
For the simulation I use the tut_sim.C where I put in the evtgendirect my decay file as input...
The decay file is called psi4160.dec...
The analysis file is called psi4160.....Analysis.C and the drawin part is called psi4160.....DrawPlots.C

I am looking forward for your answers....
Thank you guys and girls for your time

File Attachments

1) psi4160.dec, downloaded 535 times
2) psi4160at15GevMomentum1000eventsAnalysis.C, downloaded 638 times
3) psi4160at15GevMomentum1000eventsDrawPlots.C, downloaded 533 times

Subject: Re: Decay analysis
Posted by Klaus Götzen on Fri, 14 Mar 2014 07:00:05 GMT
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Hi Alexandros,

from a quick view I would say your analysis in general looks fine. Concerning the issues you observe I have some ideas:

- Low psi efficiency: The reason for this could be your PID selection (KaonLoose, PionLoose) requiring P>0.25. There is currently a bug (being fixed at the moment) in the assignment of DIRC PID info to tracks leading to a drop in efficiency for selection of pions, kaons and protons. Try with KaonAll and PionAll and look, whether your efficiency increases. You can

tighten your PID requirements in the analysis of your ntuple to find out whether this is the problem.

- Multiple MCT matches: The full mct tree match requires, that the assignement of reco particles to truth objects is correct. This is not always the case as far as I've seen, so that sometimes multiple recos are assigned to the same McTruth object. This of course also leads to multiple tree matches. I think the truth match itself works fine.

- Concerning your analysis script: I saw tiny problems in lines 149ff and 240ff, where you store info about the truth candidates, if the match was successful. When using the RhoTuple it is more safe to always fill all columns, and not some just under certain conditions, since in the latter case for some ntuple entries the branches might not be filled properly. So I usually do some 'fake' fill in case the mct match failed...

Hope that helps a bit.

Best,
Klaus

Subject: Re: Decay analysis
Posted by Alexandros on Mon, 17 Mar 2014 10:41:15 GMT
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thanks a lot Klaus...
everything seems to work now...
