Subject: Re: Try with no PID
Posted by Klaus Götzen   on Wed, 27 Sep 2017 09:45:11 GMT
View Forum Message <> Reply to Message

Hi Alex,

actually it is not double counting. Double counting means (for my understanding), that you enter twice the same number (i.e. the same invariant mass) in your spectrum. This does not happen in your case. Considering all particles under all possible hypothesis is completely legitim and the only option, if an experiment does not have any means of PID.

Is it possible that you mean ideal PID instead of no PID? I.e. you only want true kaons in your plus2 list? To test that you could try

theAnalysis->FillList(plus1, "PionLoosePlus", "PidAlgoIdealCharged");
theAnalysis->FillList(minus1, "KaonLooseMinus", "PidAlgoIdealCharged");
theAnalysis->FillList(plus2, "KaonLoosePlus", "PidAlgoIdealCharged");
theAnalysis->FillList(minus2, "PionLooseMinus", "PidAlgoIdealCharged");

I guess this should work. Ideal PID assigns P=1 to the correct PID and P=0 to the others, and the Loose criterion cuts on P>0.25, thus selecting only the correct tracks. However, there might still be mis-ID even in truth matched PID (the track truth match is not perfect). Alternatively, you can apply a MC-truth match like explained here:
https://panda-wiki.gsi.de/foswiki/bin/view/Computing/PandaRootRhoTutoria l#A_2.4._Monte_Carlo_Truth_Match. This takes into account the decay pattern D0 -> K- pi+ as well.

Essentially it works by e.g. adding a flag in your macro inside your D0/D0bar loop

theAnalysis->McTruthMatch(d0[j]);
nd0->Column("d0mct", (int) (d0[j]->GetMcTruth()!=0));

and plot with
root [0] nd0->Draw("d0m","d0mct")

Best,
Klaus