Subject: vertex fitting
Posted by Alexandros on Mon, 08 Sep 2014 11:26:46 GMT
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Hi all,

Is there something wrong with the code below??Because I get a segmentation break with these lines and without everything works perfectly..
The problem seems to be in the red line...
Any ideas??

```
                    // store the 4-vector of the truth matched candidate (or a dummy, if not matched to keep ntuple consistent)
  RhoCandidate *truth = d0[j]->GetMcTruth();
  TLorentzVector lv;
  if (truth) lv = truth->P4();
  qa.qaP4("trd0", lv, nd0);

  PndKinVtxFitter *vtxfitter=new PndKinVtxFitter(truth); // instantiate a vertex fitter
  vtxfitter->Fit();


  RhoCandidate *d0fitvtx = truth->GetFit(); // access the fitted cand
  Float_t chi2_vtx = vtxfitter->GetChi2(); // access chi2 of fit
  Float_t prob_vtx = vtxfitter->GetProb(); // access probability of fit

  TVector3 d0Vtx = d0fitvtx->Pos();   // and the decay vertex position
  nd0->Column("vtxprob", (Float_t) prob_vtx);
  nd0->Column("vtxchi2", (Float_t) chi2_vtx);
  nd0->Column("vtxposx", (Float_t) d0Vtx.));
  nd0->Column("vtxposy", (Float_t) d0Vtx.Y());
  nd0->Column("vtxposz", (Float_t) d0Vtx.Z());
```

Subject: Re: vertex fitting
Posted by Ralf Kliemt on Mon, 08 Sep 2014 12:07:54 GMT
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Hi Alexandros,

You try to fit a MC-Truth candidate. I have two objections against that: Firstly it does not have a PidCandidate object and not all featureas, esp. Vertexing, are available. Secondly it is the truth and should not be processed by a fitter, because vertex and fourmomenta are true and the truest truth.
Try some reconstructed candidate.

Cheers
Ralf

Subject: Re: vertex fitting
Posted by StefanoSpataro on Mon, 08 Sep 2014 12:21:15 GMT
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I suppose a MC truth has no covariance matrix, then it cannot be fitted.

Subject: Re: vertex fitting
Posted by Alexandros on Wed, 10 Sep 2014 09:38:32 GMT
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Hi again,
I have one more question..
I am trying to calculate ctau for D0 meson in my analysis(123micrometers)
From the mc the calculation is correct(125micrometers).
From the vertex information I get 185micrometers..
I have looked several times my code and I could not find a single mistake..
Is there a chance, since we are talking about micrometers that the resolution is not good or there is something else wrong??
I attach my code and my results to get an idea..
Thanks!!

File Attachments
1) Analysis.C, downloaded 444 times
2) Draw.C, downloaded 438 times
3) distance_from_IP.pdf, downloaded 480 times
4) betaVSenergy.pdf, downloaded 414 times
5) ctau_and_beta*gamma_mc.pdf, downloaded 431 times
6) ctau_and_beta*gamma_data.pdf, downloaded 433 times

Subject: Re: vertex fitting
Posted by StefanoSpataro on Wed, 10 Sep 2014 09:57:30 GMT
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Why you are not fitting in the whole range?

Subject: Re: vertex fitting
Posted by Alexandros on Wed, 10 Sep 2014 10:07:10 GMT
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It doesn't change anything..
I still have 50-60 micrometers difference

Subject: Re: vertex fitting
Posted by StefanoSpataro on Wed, 10 Sep 2014 10:08:49 GMT
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The mine was a question.
However, to be correct, the reco plot should be corrected for efficiency.

Subject: Re: vertex fitting
Posted by Alexandros on Wed, 10 Sep 2014 10:51:53 GMT
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I am sorry I didnt get you..
what do you mean by that??

Subject: Re: vertex fitting
Posted by StefanoSpataro on Wed, 10 Sep 2014 12:59:22 GMT
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If you have an efficiency high close to the IP and smaller far, then your fit will be biased. Then, in general, one uses simulation to evaluate the efficiency as a function of the position, and after you use this function to correct your experimental data.
The fact that you have a mean life different from the MC tells you that the reconstruction efficiency is not flat as a function of the distance. But I would not be scared by this.

Subject: Re: vertex fitting
Posted by Alexandros on Wed, 10 Sep 2014 13:15:05 GMT
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ok then, i will try to find a way of doing what you propose..
thanks a lot!!!
