
Subject: [FIXED] Problem with daughter links
Posted by [Andreas Pitka](#) on Fri, 24 May 2013 15:04:55 GMT
[View Forum Message](#) <> [Reply to Message](#)

Dear all,

i realized following weird problem, when examining the decay: anti-D0 -> K+ pi-

I got my RhoCandList by aD.Combine(Kp,pim)

when i now compare the values:

```
for(int j=0;j<aD.GetLength();j++)  
{  
  // Mass of the anti-D0 Candidate  
  double mass=aD[j].M();  
  
  TLorentzVector d1_p4=aD[j].Daughter(0)->P4();  
  TLorentzVector d2_p4=aD[j].Daughter(1)->P4();  
  TLorentzVector moth_p4=d1_p4+d2_p4;  
  
  // Mass of the anti-D0 by the four-vectors of the two daughters  
  double mass2=moth_p4.Mag();  
}
```

they are quite often not the same. How can this be?

Best regards

Andreas

ps i used rev 19948

Subject: Re: Problem with daughter links
Posted by [StefanoSpataro](#) on Sat, 25 May 2013 10:02:56 GMT
[View Forum Message](#) <> [Reply to Message](#)

Why don't you prepare a simple set of sim digi reco pid dec and an analysis macro, so that it is possible to reproduce all your problems?

Subject: Re: Problem with daughter links
Posted by [Ralf Kliemt](#) on Mon, 27 May 2013 07:11:18 GMT
[View Forum Message](#) <> [Reply to Message](#)

Hi Andreas,

Do you do anything to the aD, Kp nad pim candidate lists after combining but before comparing the masses?

Cheers
Ralf

Subject: Re: Problem with daughter links
Posted by [Andreas Pitka](#) on Mon, 27 May 2013 09:22:48 GMT
[View Forum Message](#) <> [Reply to Message](#)

Hi,

thanks a lot for the replies.

I was implicit fitting before showing the massing, the problem is only appearing when applying the PndKinVtxFitter.

Actually i was doing the following:

```
for (int j=0;j<aD.GetLength();j++)
{
    counter++;
    cout<<"-----"<<endl;
    PndKinVtxFitter FitteraD(aD[j]);

    FitteraD.Fit();

    double mass_aD=aD[j].GetFit()->M();
    cout<<"Mass: "<<mass_aD<<endl;
    TLorentzVector d1_p4=aD[j].GetFit()->Daughter(0)->P4();
    TLorentzVector d2_p4=aD[j].GetFit()->Daughter(1)->P4();
    TLorentzVector moth_p4=d1_p4+d2_p4;
    double mass_moth=moth_p4.Mag();
    cout<<"Mass by daughters P4: "<<mass_moth<<endl;
}
```

But perhaps Ralf thats interresting for you:

Here is a list what happens with the different fitters:

PndKinVtx

- Fails, something is wrong with the fitted fourvectors.

PndVtxPRG with fast fitting:

- Works properly.

PndKinVtx

- Works (anything else would be bad for a pure kinematic fitter...)

PndChiVtxFitter, Pnd4CFitter and
PndVtxPRG with full fitting:

- Errors with:

Error in <TVectorT<double>::operator()>: Request index(23) outside vector range of 0 - 20

PndVtxFitter:

- Errors with:

PndVtxFitter::DoVertexFitWOCorr: 0 tracks

Error in <TMatrixTRow_const(const TMatrixT<Element> &,Int_t)>: row index out of bounds

Thanks again and sorry if i caused confusion

Andreas

Subject: Re: Problem with daughter links

Posted by [Ralf Kliemt](#) on Tue, 28 May 2013 08:05:05 GMT

[View Forum Message](#) <> [Reply to Message](#)

Hi Andreas,

I put a fix to PndKinVtxFitter. The fitted mother is now exactly the daughter's sum. I might have broken some feature with neutrals there, but that issue is tackled separately anyways.

Cheers

Ralf
