Subject: (SOLVED)Obtain Raw Info from Calorimeter (old GetMicroCandidate from TCandList class)
Posted by Mamen on Tue, 15 Apr 2014 16:12:05 GMT
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Hi, everybody!

Finally after so many years of delay I'm learning how to use PandaRoot.
I got some macro from Dmitry Khaneft and I am trying to reproduce his analysis to start learning a bit the code.
By now I have already encountered some problems. The Class TCandList has been changed to RhoCandList, and some of the methods seem not to be available anymore.
For instance I was trying to get some EMC information:

```
for (Int_t j=0;j<negative.GetLength();++j){
     if(negative[j].GetMicroCandidate().GetEmcIndex()>-1){
       // *** Fill momentum vs E/p
       hEPvsP->  Fill(negative[j].GetMicroCandidate().GetMomentum().Mag(),negative[j].Get
MicroCandidate().GetEmcCalEnergy()/negative[j].GetMicroCandidate().GetMo
mentum().Mag());
       // *** Fill number of crystals hit in the EMC
       hNCrystalsEMC->Fill(negative[j].GetMicroCandidate().GetEmcNumberOfCrystals());
     }
```

the object 'negative' is defined as follows:

```
RhoCandList negative;
```

and it refers to the negative tracks.

The method GetMicroCandidate() doesn't exist anymore in the class RhoCandList.
I was trying to find out how to do this using the new RhoCandList, instead of the old TCandList, but I could not manage to find any documentation ...
Could somebody help me? Please!

Thanks a lot in advance!
Cheers!
Mamen

Subject: Re: Obtain Raw Info from Calorimeter (old GetMicroCandidate from TCandList class)
Posted by StefanoSpataro on Tue, 15 Apr 2014 16:17:13 GMT
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Now it is called GetRecoCandidate.
A nice documentation can be found non only here but also with more details here.
Good luck!

Subject: Re: Obtain Raw Info from Calorimeter (old GetMicroCandidate from TCandList class)
Posted by Klaus Götzen on Tue, 15 Apr 2014 16:21:33 GMT
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Hi Mamen,

you can access the PndPidCandidate (previously called PndMicroCandidate) with

PndPidCandidate *pidCand = (PndPidCandidate*) negative[j]->GetRecoCandidate();

Best,
Klaus

Subject: Re: Obtain Raw Info from Calorimeter (old GetMicroCandidate from TCandList class)
Posted by Mamen on Tue, 15 Apr 2014 16:42:50 GMT
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Thanks Stefano and Klaus,

GetRecoCandidate somehow works, however, there is still something which is not really working.
Although i can see the method GetEmcIndex() defined in the code here:
https://subversion.gsi.de/trac/fairroot/browser/pandaroot/trunk/pnddata/PidData/PndPidCandidate.h
I get errors when I run the analysis:
Test code:

```
 cout<< "GetEmcIndex() -> "<< negative[j].GetRecoCandidate().GetEmcIndex() <<endl;
```

Error:

```
Warning: wrong member access operator '.' ana_complete.C:157:
Warning: wrong member access operator '.' ana_complete.C:157:
Error: Can't call FairRecoCandidate::GetEmcIndex() in current scope ana_complete.C:157:
Possible candidates are...
(in FairRecoCandidate)
(in FairMultiLinkedData)
Error: non class,struct,union object GetRecoCandidate() used with . or -> ana_complete.C:157:
GetEmcIndex() -> (class G__CINT_ENDL)26133456
*** Interpreter error recovered ***
```

And it breaks...

Other methods, like for example:
negative[j].GetRecoCandidate().GetMomentum().Mag()

work instead:

Code, commenting out the other line:

cout<< "GetMomentum() -> "<< negative[j].GetRecoCandidate().GetMomentum().Mag()
<<endl;

some of the outputs inside the loop:

....

GetMomentum() -> 0.883354
GetMomentum() -> 0.976688
GetMomentum() -> 1.15377
evt 500

....

(of course I'm just printing it out on screen as a control sequence)

Somehow it looks to me like some kind of bug(?), or am I still doing something wrong?

Thanks again!
Cheers,

Mamen

Subject: Re: Obtain Raw Info from Calorimeter (old GetMicroCandidate from TCandList class)
Posted by Klaus Götzen on Tue, 15 Apr 2014 17:50:18 GMT
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Hi Mamen,

as I wrote (and as it is written in the docu Stefano linked to), you have to cast the FairRecoCandidate (= base class) to the PndPidCandidate to access the full functionality. I.e. to access the EMC specific stuff, you need the cast, since the FairRecoCandidate knows about momentum etc, but not about detector specific information.

Therefore it might be more clear to create first a proper pointer to the PndPidCandidate and use it afterwards. You could also try a construction like

cout<< "GetEmcIndex() -> "<<
((PndPidCandidate*)negative[j]->GetRecoCandidate())->GetEmcIndex() <<endl;

but actually, I don't know whether it works, and it looks quite ugly...

Best,
Klaus

Subject: Re: Obtain Raw Info from Calorimeter (old GetMicroCandidate from TCandList class)
Posted by StefanoSpataro on Tue, 15 Apr 2014 17:55:00 GMT
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Just one comment: this only works with full reco. In fast sim you cannot access to PID detectors information such as EMC cal energy, I believe.

Subject: Re: Obtain Raw Info from Calorimeter (old GetMicroCandidate from TCandList class)
Posted by Klaus Götzen on Tue, 15 Apr 2014 18:07:01 GMT
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Hi,

that's not completely true. Some of the values which are created by e.g. PID detectors are actually filled. Which values are available can be seen in PndFastSim.cxx, line 441 ff.

```
441     pidCand->SetMcIndex(iTrack);
442     pidCand->SetMvdDEDX( ft->detResponse()->MvddEdx() );
443     //pidCand->SetMvdDEdxErr( ft->detResponse()->MvddEdxErr() );
444     pidCand->SetSttMeanDEDX( ft->detResponse()->SttdEdx() );
445     //pidCand->SetSttDEdxErr( ft->detResponse()->SttdEdxErr() );
446     pidCand->SetTofM2( ft->detResponse()->m2() );
447     //pidCand->SetTofM2Err( ft->detResponse()->m2Err() );
448     pidCand->SetDrcThetaC( ft->detResponse()->DrcBarrelThtc() );
449     pidCand->SetDrcThetaCErr( ft->detResponse()->DrcBarrelThtcErr() );
450     pidCand->SetDrcNumberOfPhotons(0);
451     pidCand->SetDiscThetaC( ft->detResponse()->DrcDiscThtc() );
452     pidCand->SetDiscThetaCErr( ft->detResponse()->DrcDiscThtcErr() );
453     pidCand->SetDiscNumberOfPhotons(0);
454     pidCand->SetRichThetaC( ft->detResponse()->RichThtc() );
455     pidCand->SetRichThetaCErr( ft->detResponse()->RichThtcErr() );
456     pidCand->SetRichNumberOfPhotons(0);
457     pidCand->SetEmcCalEnergy(ft->detResponse()->EmcEcal() );
458     pidCand->SetMuoIron(ft->detResponse()->MuoIron() );
```

Best,
Klaus

Subject: Re: Obtain Raw Info from Calorimeter (old GetMicroCandidate from TCandList class)
Posted by StefanoSpataro on Tue, 15 Apr 2014 18:24:20 GMT
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Ok but the GetEmcIndex, which gives crashes to Mamen, is not filled

Subject: Re: Obtain Raw Info from Calorimeter (old GetMicroCandidate from TCandList class)
Posted by Mamen on Wed, 16 Apr 2014 08:49:20 GMT
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Thanks a lot to both of you!

I finnaly could access the information I wanted

Cheers!
Mamen