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Subject: About FairGeanePro

Posted by [Jifeng Hu](#) on Thu, 10 Oct 2013 16:20:28 GMT

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Hi, All,

who has experiences of FairGeanePro propagation, please have a look at my usage and results, I think I got some wrong results.

For 2 GeV momentum pion from the origin (0,0,0), isotropically generated, the flying path is expected to be the EMC shower center position. To do that, the codes are listed (see also PndPidCorrelator.cxx ):

```
0. Bool_t PndPidCorrelator::GetEmcInfo(FairTrackParH* helix, PndPidCandidate* pidCand) {
1. FairGeanePro *fProEmc = new FairGeanePro();
2. for (Int_t ee = 0; ee<emcEntries; ee++){
3.   PndEmcCluster *emcHit = (PndEmcCluster*)fEmcCluster->At(ee);
4.   TVector3 emcPos = emcHit->where();
5.   fProEmc->SetPoint(emcPos);
6.   fProEmc->PropagateToPCA(1, 1);
7.   FairTrackParH *fRes= new FairTrackParH();
8.   Bool_t rc = fProEmc->Propagate(helix, fRes, fPidHyp*pidCand->GetCharge()); // First
propagation at module
9.   if (!rc) continue;
10.  emcGLength = fProEmc->GetLengthAtPCA();
11. }
22.}
```

emcGLength is extracted as the flying path. see its distribution in barrel.eps for Barrel Calorimeter, and so on.

see the Panda TDR:

[http://www-panda.gsi.de/archive/public/panda\\_tpr.pdf](http://www-panda.gsi.de/archive/public/panda_tpr.pdf)

the geometry tell us the flying path is wrong.

Someone can tell me where I incorrectly make use of FairGeanePro class.

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## File Attachments

- 1) [backward.eps](#), downloaded 307 times
  - 2) [forward.eps](#), downloaded 318 times
  - 3) [barrel.eps](#), downloaded 326 times
  - 4) [shashylik.eps](#), downloaded 328 times
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Subject: Re: About FairGeanePro

Posted by [StefanoSpataro](#) on Thu, 10 Oct 2013 16:40:02 GMT

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Sorry,

what is exactly wrong in these plots? They look fine to me, apart from some high lenght background due probably to some propagation/tracking problem.

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Subject: Re: About FairGeanePro  
Posted by [Jifeng Hu](#) on Fri, 11 Oct 2013 07:30:01 GMT  
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Stefano Spataro wrote on Thu, 10 October 2013 18:40: Sorry,  
what is exactly wrong in these plots? They look fine to me, apart from some high length  
background due probably to some propagation/tracking problem.

Well, maybe I misunderstand the flying path after propagation.  
That means FairGeanePro only returns the length between last point of helix to EMC hit point,  
if yes, those distributions look good.

Here the flying path should be longer than the straight line from vertex to EMC hit position. I  
thought it the total length of one track, since I only read the code instead of the document.

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Subject: Re: About FairGeanePro  
Posted by [Stefano Spataro](#) on Fri, 11 Oct 2013 09:04:01 GMT  
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Exactly, this is only the propagation length. In your case the propagation starts from the last  
point of STT and reaches EMC.  
If you check the TofInfo function, you can see how to calculate the full length of the track from  
the interaction vertex.

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Subject: Re: About FairGeanePro  
Posted by [Jifeng Hu](#) on Fri, 11 Oct 2013 09:40:24 GMT  
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Thanks, Stefano. I got it.

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