Subject: Re: alternative to LHE tracking
Posted by Radoslaw Karabowicz on Tue, 21 Dec 2010 13:56:57 GMT
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Dear All, you are absolutely right. I have tested it yesterday, and the track fitting with Kalman/genfit works good, but slow:(.

Anyways, I have spotted and fixed two bugs:
- theta comparison now is taken into account when calculating efficiency
- particle charge is now correctly associated to track

I have also created histograms showing momentum resolution as functions of momentum magnitude, phi and theta. The first two dependences look rather OK, but for the smallest theta angles (in the region of GEM) the reconstructed momentum is... well, ugly.

The following plot base on the momentum as taken after the track finder, without fit.
The histograms are 2D, with X axis being the momentum, phi or theta, and Y axis being the momentum resolution. The histogram is then sliced and to each slice a gaussian function is fitted. The sigma of the fit is plotted as the black curve.

The simple change of the macro to include the genfitter:

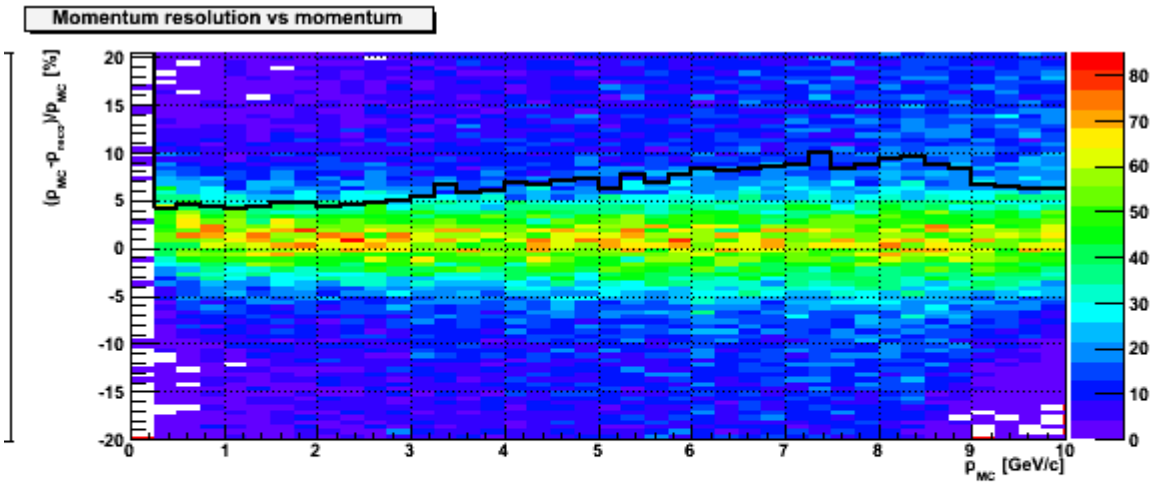
```
  FairGeane *Geane = new FairGeane();
  fRun->AddTask(Geane);
  PndRecoKalmanTask* recoKalman = new PndRecoKalmanTask();
  recoKalman->SetTrackInBranchName("BarrelTrack");
  recoKalman->SetTrackOutBranchName("BarrelFitTrack");
  fRun->AddTask(recoKalman);
```

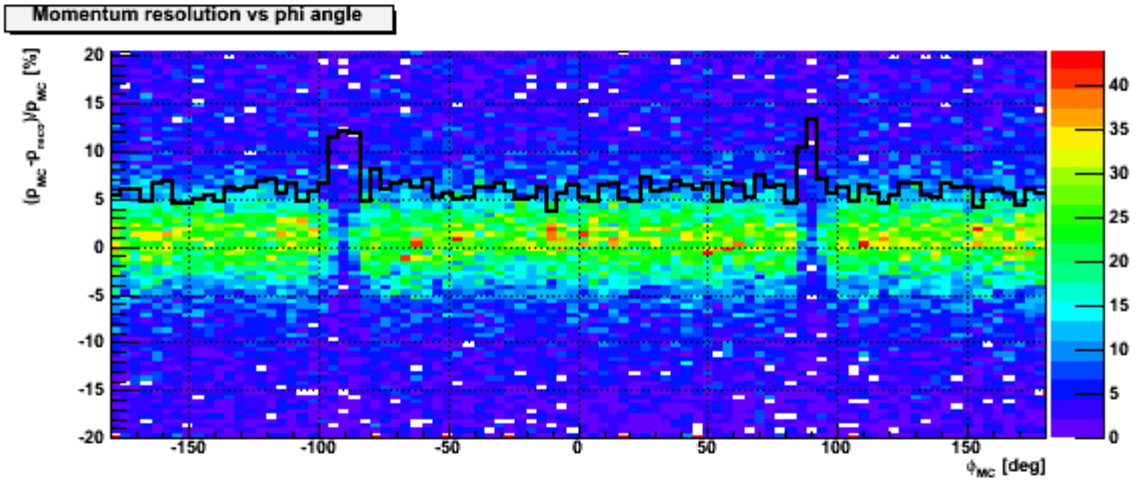
Works and fits the tracks. Below is the histogram showing the reconstructed momentum after PndBarrelTrackFinder (black curve) and after the fit applied (red curve). In this particular case 2 GeV muons were simulated.

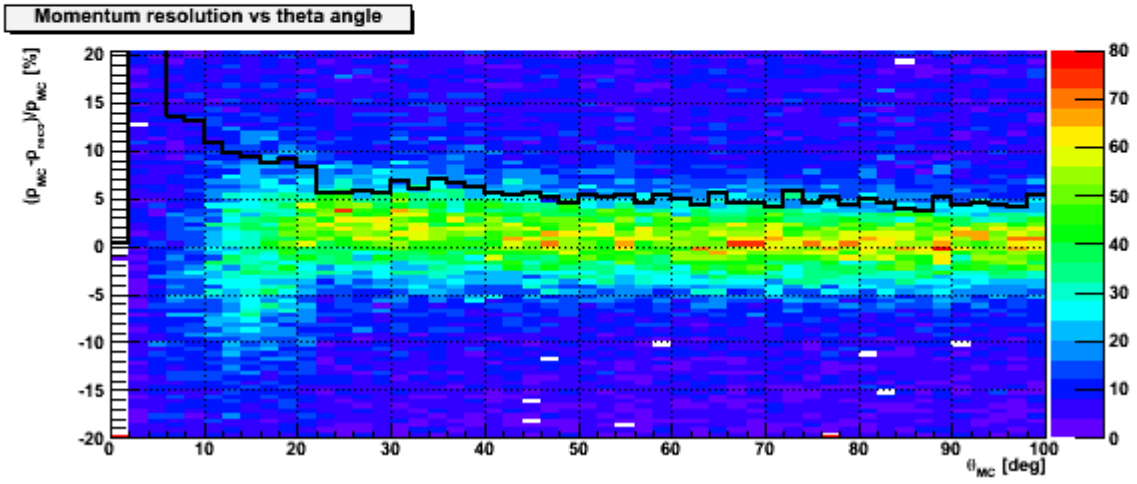
yours
radek

File Attachments

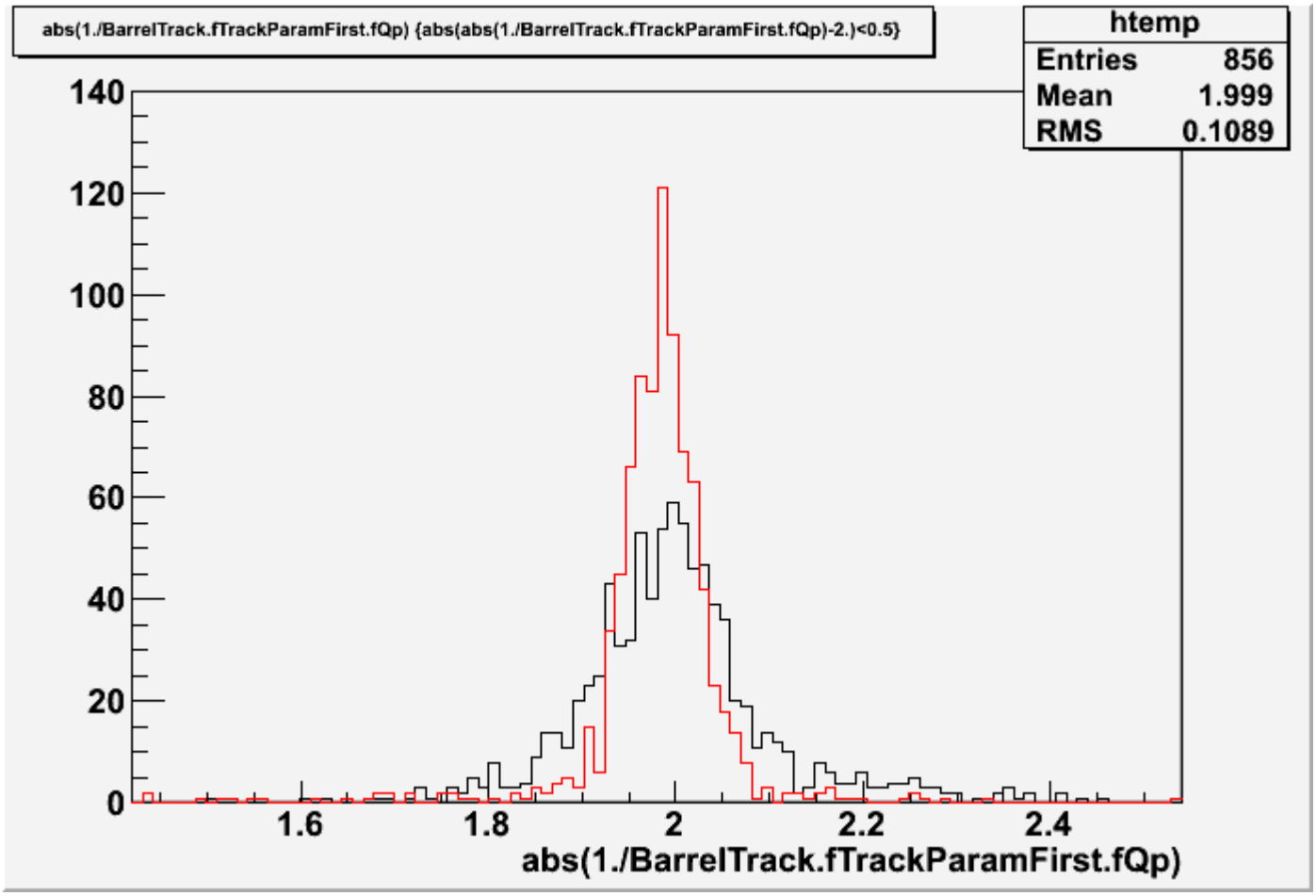
1) resolution2D.gif, downloaded 723 times







2) fitMom.gif, downloaded 681 times


abs(1./BarrelTrack.fTrackParamFirst.fQp) {abs(abs(1./BarrelTrack.fTrackParamFirst.fQp)-2.)<0.5}
htemp
Entries 856
Mean 1.999
RMS 0.1089
140
120
100
80
60
40
20
0
1.6
1.8
2
2.2
2.4
abs(1./BarrelTrack.fTrackParamFirst.fQp)