Subject: Momentum difference between first and last point
Posted by StefanoSpataro on Tue, 23 Jul 2013 15:37:07 GMT
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Dear all,
I noticed that sometimes the momentum at the last point is greater than the momentum at the first point. I believe this is a problem of genfit.

In order to understand this I have simulated 1000 muons in the central tracker (20°<theta<120°), standard macros, and I plotted the following variables from MVD+STT+GEM realistic reconstruction:

cbmsim.Draw("SttMvdGemGenTrack.GetParamFirst().GetMomentum().Mag()-SttMvdGemGenTrack.GetParamLast().GetMomentum().Mag()","SttMvdGemGenTrack.fFlag>0")

In theory the momentum at the first point should be greater than the momentum at the last point, apart some fluctuactions, but this is the distribution I obtain:

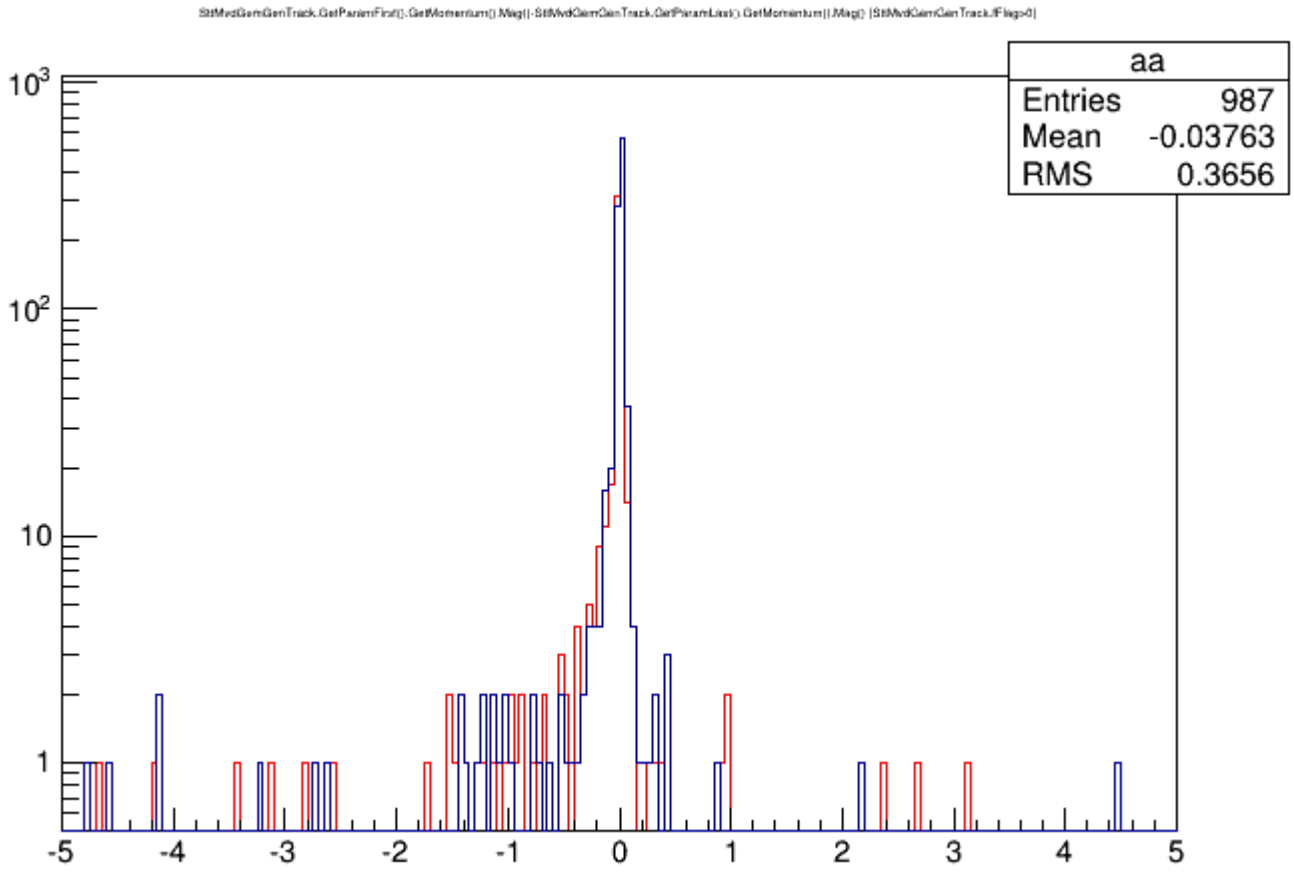
I have used both GeaneTrackRep (red) and RKTrackRep (blue), to check if it is a problem of Geane, but it does not seem so. Be aware that the x scale is GeV/c!!!
This means that sometimes there are tracks where the momentum difference between 1st and last point is also greater than 1 GeV/c...

I believe this comes from the Kalman. I tried using ideal tracking, taking out gems, increasing the number of iterations, but the problem still persists.

Has some tracking experts (maybe some genfit experts) idea on what is going wrong?

File Attachments

1) momdiff.gif, downloaded 915 times


StiMvdGemGenTrack.GetParamFirst().GetMomentum().Mag() - StiMvdGemGenTrack.GetParamLast().GetMomentum().Mag() {StiMvdGemGenTrack.fFlag>0}
aa
Entries 987
Mean -0.03763
RMS 0.3656
10^3
10^2
10
1
-5
-4
-3
-2
-1
0
1
2
3
4
5