Subject: Re: Weird STT reconstruction: efficiency depends on charge
Posted by Pablo Genova on Wed, 23 Jan 2008 16:07:13 GMT
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Dear Andrew,

the errow was really stupid i. e. in the line 914 of PndSttHelixTrackFitter

 if(a<0.000001) return 0;

to protect the division by zero was cutting away the a<0 i. e. the positive tracks, with

 if(fabs(a)<0.000001) return 0;

it's now OK.

So try to svn-update the PndSttHelixTrackFitter and do again the reconstruction.

Other observations:

->cross check of the variables

1. fParamLast.fTx*0.006 <--------> transverse momentum

[i. e. cbmsim->Draw("(fParamLast.fTx*0.006)"]

2.fParamLast.fTx*0.006*sqrt(1+fParamLast.fTy**2)) <------> total momentum

Do you agree?

->importance of fFlag==3 parameter

when you are looking at total reco, to get the only the events with the full reconstruction succeeded do like this:

cbmsim->Draw("(fParamLast.fTx*0.006)>>h2","fFlag==3")

in this way you select the events with fFlag==3 i. e. full success of the whole reconstructed procedure.
You should not see any more the 90 degree values (algorithm failure). Of course I expect that the reconstruction is not perfect when you go to small theta angles, since you are using only the stt with lower number of hits.

It's certainly an interesting and not yet done study that of STT resolution at small theta angles, with or without MVD.

MVD + STT integration is also an interesting issue not yet tackled.

###
If you need better explanation of the variables and the fitting procedure etc etc I can send you the presentations I made in the past and Lia's Phd Thesis (which, among other things, describes in detail the algorithm).

##
I'll soon clean the code and put into the repository a better commented version of PndSttHelixTrackFitter

LET ME KNOW IF IT'S OK AND ANY QUESTION ON YOUR SIDE!!

ciao, Pablo