Subject: Re: geane propagation: floating point exception
Posted by Andrea Fontana on Thu, 04 Oct 2007 15:06:53 GMT
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Hi Sebastian,
we are writing with an update on our progress with genfit.
First of all, the error of 0 momentum was due to a series of
reasons:

1) the PDG code of the track was hardwired to 211 (pion)
in GeaneTrackRep and in the macros we have 13 (muon).

2) the simulated momentum of 0.5 is too low. By increasing it
to 1.5 it works. We know that we need to track also slow
particles, but this will come...

3) finally we have protected the CbmTrackParP class by rejecting
the tracks with 0 momentum that are now skipped. This has been
commited to the svn repository.

Moreover, to generalize the use of the detector planes and
to make them independent from the particle direction (in
the demo they were orthogonal to z) we have modified the
DemoRecoHit class. We have created a new class DemoRecoHit
which we invite you to look at (it is in the attachment as I
cannot commit to recotasks/demo): here we defined a plane
at each hit with the correct orientation orthogonal to the
track momentum.
This is now general and can be used also with an isotropic
generator: for brevity we have done it only in the third
constructor DemoRecoHit(CbmMCPoint *point).

Having fixed this, we are now extrapolating muons of 1.5 GeV
in the TPC isotropically generated. The Kalman filter seems
to be working, but it fails on some tracks. If we shoot along
one axis (take X, to cross the TPC) the result is much better
and we are now trying to understand this.
We attach the plots of the reconstructed total momentum:
in the file X.ps we shoot along X, in Isotropic.ps isotropically.

Other thoughts in our minds:

- is there a way to reject one hit in the extrapolation/filtering
if something goes wrong? We have seen the statusFlag in
AbsTrackRep. Maybe we could also modify all the extrapolate
methods to return a bool that can be used to decide.

- We had to comment the call to FillGeotrack in DemoKalmanTask.
What is it used for?

For now this is all. Anyway we are very happy!!!

Ciao,
Andrea and Lia

File Attachments

1) X.ps, downloaded 494 times
2) Isotropic.ps, downloaded 521 times
3) DemoRecoHit.cxx, downloaded 512 times