

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 committed 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

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- 1) [X.ps](#), downloaded 595 times
  - 2) [Isotropic.ps](#), downloaded 610 times
  - 3) [DemoRecoHit.cxx](#), downloaded 608 times
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