Subject: Running the Kalman on the Mvd
Posted by Ralf Kliemt on Thu, 24 Apr 2008 09:54:20 GMT
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Hi all,
I started to try out genfit on MvdHits. After some issues concerning the Mvd package itself I ran into some fitting problems which don't tell me much. Here we go:

I checked in the stuff into rev. 2589 (and 2588).
I run the macros in macro/mvd/Tracking
The simulation does 1 GeV protons with Mvd \& Field
The digi \& hitreco runs
MC Trackfinding runs

Anyway somehow the Kalman cannot fit the tracks I make. Here you have some detailed output (I uncommented the info output in the Kalman class).

Hopefully someone can help...
Ralf.
Toggle Spoiler
PndMvdKalmanTask::Exec
-I- PndMvdKalmanTask: contains 1 Tracks.
Detailed Debug info on the tracks:
TrackCand no. 0 has 6 hits.
[ ihit | detid | index ]
[0|3|0]
[1|3|1]
[2|3|2]
[3|4|0]
[4|4|1]
[5|4|2]
starting track0
-I- PndMvdRecoHit::PndMvdRecoHit(PndMvdHit*) called.
Mvd hit in detector 1_1/34_0/119_1/118_2/98_14/92_1/90_1/89_1/ at (1.60909, 0.271733, 1.94354 ) cm with 46929.8 e, Cluster No. 0
o: 2.110 .6567331 .94354
u: 010
v: -1 00
-I- PndMvdRecoHit::PndMvdRecoHit(PndMvdHit*) called.
Mvd hit in detector 1_1/34_0/102_1/101_3/98_1/92_1/90_1/89_1/ at (4.16446, 0.653887, 5.0215 ) cm with 92495.9 e, Cluster No. 1
o: 4.082411 .434594 .5
u: -0.104528 0.9945220
v: 001
-I- PndMvdRecoHit::PndMvdRecoHit(PndMvdHit*) called.
Mvd hit in detector 1_1/34_0/66_2/65_12/59_1/57_1/56_1/ at (4.9599, 0.758694, 5.975) cm
with 32364.3 e, Cluster No. 2
o: 4.10249-1.00282 5.975
u: 0.7071070 .7071070
v: -0.707107 0.7071070
-I- PndMvdRecoHit::PndMvdRecoHit(PndMvdHit*) called.
Mvd hit in detector 1_1/34_0/80_1/78_1/77_4/75_29/72_1/71_1/ at (7.89362, 1.08679, 9.48283 ) cm with 122466 e, Cluster No. 0
o: 7.673641 .982410 .65
u: 001
v: $0.238533-0.9711340$
-I- PndMvdRecoHit::PndMvdRecoHit(PndMvdHit*) called.
Mvd hit in detector 1_1/34_0/80_1/79_1/77_9/75_29/72_1/71_1/ at (7.44033, 1.04598, 8.9416) cm with 66616.9 e, Cluster No. 2
o: 7.4256 -0.00891832 10.65
u: 001
v: -0.0139622-0.999903 0
-I- PndMvdRecoHit::PndMvdRecoHit(PndMvdHit*) called.
Mvd hit in detector 1_1/34_0/86_1/83_1/82_5/81_1/72_2/71_1/ at (12.4543, 1.43929, 14.9139)
cm with 65711.7 e, Cluster No. 4
o: 12.34312 .0695716 .7752
u: 001
v: $0.173648-0.9848080$
6 hits in track 0
starting fit
Kalman::processTrack::Starting track
$3 \times 1$ matrix is as follows

| $\mid$ | 0 |
| :---: | :---: |
| ------------ |  |
| 0 | 1.609 |
| $1 \mid$ | 0.2717 |
| $2 \mid$ | 1.944 |

Process hit \#0 of rep \#0
.DetPlane: $O(2.11,0.656733,1.94354) u(0,1,0) v(-1,0,0)$
+++++++++++++++ do prediction:
$s$ before extrapolation: 0
s_to: 1.94354
unew[2]=z=1.94354s after extrapolation: 0
$s$ before extrapolation: 0
s_to: 1.94354
unew[2]=z=1.94354s after extrapolation: 0
$s$ before extrapolation: 0
s_to: 1.94354
unew[2]=z=1.94354s after extrapolation: 0
$s$ before extrapolation: 0
s_to: 1.94354
unew[2]=z=1.94354s after extrapolation: 0
s before extrapolation: 0
s_to: 1.94354
unew[2]=z=1.94354s after extrapolation: 0
$s$ before extrapolation: 0
s_to: 1.94354
unew[2]=z=1.94354s after extrapolation: 0
$5 \times 1$ matrix is as follows

|  | \| |
| :---: | :---: |
| 01 | 0 |
| 1 \| | 0 |
| 21 | 0 |
| 31 | 0 |
| 4 \| | 0 |

$5 \times 5$ matrix is as follows


## ++++++++++++++++++++++++++++++++++++++++++++++

Error in [TDecompLU::DecomposeLUCrout](TDecompLU::DecomposeLUCrout): matrix is singular
Error in [TDecompLU::InvertLU](TDecompLU::InvertLU): matrix is singular, 0 diag elements < tolerance of 2.2204e-16
FitterException thrown with whatString:
cannot invert covsum in Kalman Gain - det=0
in line: 265 in file: /home/ralfk/Pandaroot/pandaroot/genfit/Kalman.cxx

