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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 1GeV 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: 2.11 0.656733 1.94354

u: 0 1 0

v: -1 0 0

-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: 4.08241 1.43459 4.5

u: -0.104528 0.994522 0

v: 0 0 1

-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: 0.707107 0.707107 0

v: -0.707107 0.707107 0

-l- 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: 7.67364 1.9824 10.65

u: 0 0 1

v: 0.238533 -0.971134 0

-l- 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: 0 0 1

v: -0.0139622 -0.999903 0

-l- 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: 12.3431 2.06957 16.7752

u: 0 0 1

v: 0.173648 -0.984808 0

6 hits in track 0

starting fit

Kalman::processTrack::Starting track

3x1 matrix is as follows

```
| 0 |  
-----  
0 | 1.609  
1 | 0.2717  
2 | 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

```

5x1 matrix is as follows

	0	
0	0	
1	0	
2	0	
3	0	
4	0	

5x5 matrix is as follows

	0		1		2		3		4	
0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0

```

+++++
Error in <TDecompLU::DecomposeLUCrout>: matrix is singular
Error in <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

```