Subject: MVD covariance matrix = 0.
Posted by Lia Lavezzi on Mon, 04 Jul 2011 14:50:00 GMT

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Hi MVD experts,
   I am running some tests and I see several crashes in genfit, but after looking at the problem I think that this is caused by the sds covariance matrix, when it happens to have all the elements equal to 0:

-I- PndSdsRecoHit::PndSdsRecoHit: Wrote a hit with
(x,y) = (0.2535,-0.2925).
Covariance Matrix is
2x2 matrix is as follows

```
     |   0   |   1   |
------------------------------
  0 |     0        0
  1 |     0        0
```

this turns out in the crash

```
#10 0xb2454dd5 in GFTools::invertMatrix (mat=..., inv=...)
   at /home/lavezzi/test_dev/trunk/genfit/GFTools.cxx:288
#11 0xb244b438 in GFKalman::chi2Increment (this=0x8ab4208, r=..., H=...,
   cov=..., V=...) at /home/lavezzi/test_dev/trunk/genfit/GFKalman.cxx:200
#12 0xb244c4b5 in GFKalman::processHit (this=0x8ab4208, tr=0x12bc0090, ihit=3,
   irep=0, direction=1)
   at /home/lavezzi/test_dev/trunk/genfit/GFKalman.cxx:313
#13 0xb244b27d in GFKalman::fittingPass (this=0x8ab4208, trk=0x12bc0090,
   direction=1) at /home/lavezzi/test_dev/trunk/genfit/GFKalman.cxx:169
#14 0xb244aacb in GFKalman::processTrack (this=0x8ab4208, trk=0x12bc0090)
   at /home/lavezzi/test_dev/trunk/genfit/GFKalman.cxx:77
#15 0xafb6c461 in PndRecoKalmanFit::Fit (this=0x8ab41d8, tBefore=0xfd188a0,
   PDG=13)
   at /home/lavezzi/test_dev/trunk/GenfitTools/recotasks/PndRecoKalmanFit.cxx:282
```

since at that point, in the invertMatrix function, there is 1./mat[0][0] and mat[0][0] is equal to 0.
I am using rev 12447.

Could you please fix this? Or is it fixed in the latest revision?
                      Thank you in advance,
                              Lia.