Subject: Re: MVD covariance matrix = 0.
Posted by Lia Lavezzi on Tue, 05 Jul 2011 09:50:45 GMT
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Hi Tobias,

I checked the Dx, Dy, Dz and I have some of them equal to 0, exactly in the event where the crash happens, for example in one test I have from the cbmsim->Scan, looking for small dx, dy, dz (below 1e-8):

```
*************************************************************
*    Row   * Instance * MVDHitsSt * MVDHitsSt * MVDHitsSt *
*************************************************************
*      110 *        0 * 0.0086602 *         0 *         0 *
*      220 *        0 * 0.0086602 * 7.178e-17 * 3.347e-17 *
*      361 *        6 * 0.0086602 *         0 *         0 *
*      876 *        0 * 1.952e-17 * 1.512e-17 * 0.0086602 *
*************************************************************
```

and the crash is exacly in event 110.

It happens quite often: I made some tests with 2000 muons each, at low momenta (around 0.2 GeV/c) and higer momenta (around 1 GeV/c) and on 7 tests, 3 crashed this way (2 crashed in the mvd riemann track finder, I will post the crash on the forum too).

I scanned the cbmsim also for the files where the riemann track finder crashed and also there I found errors equal to 0. I post here and example:

```
*************************************************************
*    Row   * Instance * MVDHitsSt * MVDHitsSt * MVDHitsSt *
*************************************************************
*      423 *        0 * 0.0086602 * 1.575e-16 * 3.061e-17 *
*      511 *        0 * 0.0086602 *         0 *         0 *
*     1243 *        0 * 0.0086602 *         0 *         0 *
*     1481 *        0 * 0.0086602 * 4.763e-17 * 4.442e-17 *
*************************************************************
```

I guess this means that if the mvdriemann didn' t crash it could crash in genfit as in the other cases...

Moreover I looked also in the files where reconstruction went fine to the end and I have errors equal to 0 also there:

```
*************************************************************
*    Row   * Instance * MVDHitsSt * MVDHitsSt * MVDHitsSt *
*************************************************************
*     1317 *        7 * 0.0086602 * 1.335e-19 * 9.140e-20 *
*     1535 *        1 * 0.0086602 *         0 *         0 *
*************************************************************
```

My idea is that it did not crash here because this hit is not assigned to any track and so it does not enter in kalman calculation... I can check this if you think it is useful.

One more information: I get the same results on openSuse and Scientific Linux Cern.

Cheers,
Lia.