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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 exactly in event 110.

It happens quite often: I made some tests with 2000 muons each, at low momenta (around 0.2 GeV/c) and higher 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 an 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.

