Subject: Re: Revised CbmGeaneUtil, CbmGeanePro and CbmTrackParP.
Posted by Lia Lavezzi on Tue, 10 Jun 2008 15:37:32 GMT
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Hi Sebastian!
I talked to Alberto Rotondi and so I can add these additional comments.

First, the change in sign of the covariance elements should not be a problem: in principle during the extrapolation this is possible.

Second, concerning q/p and 1/p, this is the problem: the original GEANE routines are written with 1/p and not q/p, so the covariance matrix refers to 1/p. This is the reason why there is this problem with negative charge, because we are using the state vector with q/p together with the covariance matrix with 1/p.
So the exact solution if we want to change everything to q/p is to check all the routines in the interface which handle the covariance matrix and change them to q/p: we can do this here in Pavia.

So I think my previous solution of the changed Kalman.cxx is not completely exact, because it fixes the problem within the Kalman filtering step, but if in the end you change back to q/p you would still have the covariance matrix in 1/p. The correct choice would be:
1) change everything (also covariances) to q/p;
or
2) change everything (also the state) to 1/p.

It would be better to make tests with the positive particles for the moment.

What do you think?
Do we have to change the routines to q/p or we decide to use 1/p?
Lia.