Subject: Re: LSLTrackrep covariances are zero
Posted by Lia Lavezzi on Mon, 18 May 2009 16:20:56 GMT
View Forum Message <> Reply to Message

Hi Ralf and Christian,
the position and momentum errors in the master reference system, i.e. the 6 X 6 covariance matrix
which contains x,y,z,px,py,pz variances (and covariances), in a well defined point of the track can be easily obtained by using the utility functions in FairGeaneUtil, which provides the tools to convert both the status vector and covariance matrix from a frame to another: in this case we would use the FromSDToMars function which would transform our track description from the one on the plane to the one in the master reference system.

Moreover, if we have the parameters in, for example, the last track point, and we want it at the vertex, we just have to
use GEANE to propagate the track to the desired point and perform the conversion (from SD to MARS) there.

Ok, at the moment in GeaneTrackRep we can get the momentum and the position, but not the covariance matrix 6 X 6, but I think this could be added in quite an easy way (I hope these are not the "famous last words" )

Obviously any kind of propagation could be used to bring the track description to the desired point (not only GEANE,
but I support this one! ) and then the same utility functions can be applied to calculate the conversion; there is only one constraint: the starting description of the track must be the SC ("helix" representation) or the SD ("parabola" one). FairGeaneUtil gives you the opportunity to convert these two representations to the mars representation, since these are the ones usually used to describe the track.

So, if I well understood your requests (if not, please tell me) I think that if you, Christian, give me the interface I could fill it with the error calculation.
Ciao,
Lia.