Subject: Re: new in AbsTrackRep: extrapolateToLine and consequences on WirepointHitPolicy
Posted by Anonymous Poster on Wed, 18 Mar 2009 10:51:51 GMT
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Hi Lia,

you are absolutely right that we do some extrapolations twice. I thought a lot about this problem, and I can not come up with a general solution to it. Here is the biggest problem with it:

If you would only want to do it once, you would have to return the statePred and CovPred together with the DetPlane in AbsRecoHit::getDetPlane(). This is not yet a problem. But, in your hit policy::detPlane, where you implement this, you have to make some call to an extrapolateToLine or so of AbsTrackRep. Now if this is supposed to give you also the state and Cov, it needs to fix already the DetPlane, because state and cov can only be defined in a plane.
This is in general impossible, since it would mean that everytime you want to change your definition of the DetPlane for a wire hit or so, you would have to change track reps, and then different detectors would need extrapolate1,2,3,... functions. In short it would be a mess!

My opinion is this: We make a an extrapolateToLine and also to Poca, which does not give the state,cov and plane results and just returns the POCA. We live with the fact, that we do some extrapolations twice. But keep in mind that they are not really the same, in the final extrapolation you fixed your plane geometry, and it is clear that then you have to do another extrapolation.

Please remember, that we are paying this minor price for a great deal of flexibility which we gain! And I think that is exactly what we need at this early stage of our experiment. We can still easily test and interchange different track models and hit geometries without any changes to the core code of the tracking! To my knowledge (and I did quite a lot of research on finding something) there is no other tracking system which could even handle the STT and TPC together with everything else in geometry we have it.

Lia, what do you think of my proposal for changing what the extrapolateToLine should do?

Cheers, Christian