Subject: Errors in SttHi
Posted by Tobias Stockmanns on Wed, 19 Jun 2013 13:05:33 GMT
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Dear STT code developers,

I had a look into the hit errors stored in the STTHit.

The x,y,z coordinates given in the SttHit are the wire mid-position. The error given for them is 0.5 in x and y while in z it is 3 cm. In my opinion the error should be 1 / Sqrt(12) for x,y and tube length / Sqrt(12) for the z coordinate. Can you please check this?

When looking at the isochrones, these values are still given as a radius in cm with an error in cm. For the time-based simulations it is necessary to have a method to translate the stored time stamp (or time pulse) into a radius including error by giving the event time with error.

Cheers,

Tobias

Subject: Re: Errors in SttHi
Posted by Lia Lavezzi on Wed, 19 Jun 2013 14:40:12 GMT
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Dear Tobias,
Quote:The x,y,z coordinates given in the SttHit are the wire mid-position. The error given for them is 0.5 in x and y while in z it is 3 cm. In my opinion the error should be 1 / Sqrt(12) for x,y and tube length / Sqrt(12) for the z coordinate. Can you please check this?
As you said, the x, y, z position coordinates of the STTHit are the coordinates of the center of the tube, so they will be known quite precisely. For this reason, I think that d/sqrt(12) is a too large error, since this must not be the error on the hit position, but the error on the tube position.
We actually kept the old values (0.5, 0.5, 3) since this info is not used anywhere in the code. When reconstructing tracks in the STT you always rely on the isochrone error.
Do you need these errors for some study?

Quote:When looking at the isochrones, these values are still given as a radius in cm with an error in cm. For the time-based simulations it is necessary to have a method to translate the stored time stamp (or time pulse) into a radius including error by giving the event time with error.
You are right. We must create a STTDigi (the output of the single straw simulation), separate the STTHit from the STTDigi and put the function you mentioned between the two.

I will do that asap. Is that very urgent for your tests?
Cheers,
Lia.

Subject: Re: Errors in SttHi
Posted by Tobias Stockmanns on Wed, 19 Jun 2013 14:44:30 GMT
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Dear Lia,

the x,y values of the STTHits are used for fast track finding by Marius and I use them for a Riemann-based track finder including the STT. This is the reason why I have asked for the change in the errors.

The other point is not so urgent because I am busy at the moment with other stuff. I just figured out the problem when I was looking into the code.

Cheers,

Tobias

Subject: Re: Errors in SttHi
Posted by Lia Lavezzi on Wed, 19 Jun 2013 15:03:23 GMT
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Dear Tobias,
if you just use the xyz coordinates and not the errors then it should not be a big deal. I think I could put the errors to 0 0 0 just to make it clear that they must not be used now.

Concerning the isochrone/time issue, thank you for pointing that out. This is something we have to do since a while, but now we are quite busy with track finding stuff...

Cheers,
Lia.