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Subject: Re: PndSttHitProducerRealFast() depends on event type?

Posted by [Lia Lavezzi](#) on Tue, 26 May 2009 15:03:49 GMT

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Hi,

I ran your macros: they both run to the end without problems.

Did you see also some crash of the code or is it just a matter of the results?

Concerning the ouput, here is what I get:

Event Number 0

-I- PndSttTrackFinderIdeal: STTTrack 0 created from MCTrack 3 (3 STTPoints)

-I- PndSttTrackFinderIdeal: STTTrack 1 created from MCTrack 4 (3 STTPoints)

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-I- Ideal STT track finding -I-

Hits: 53

MCTracks: total 5, accepted 2, reconstructable: 2

SttHits not found : 0

SttPoints not found : 0

MCTracks not found : 0

SttTracks not found : 0

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Event Number 1

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-I- Ideal STT track finding -I-

Hits: 5

MCTracks: total 6, accepted 0, reconstructable: 0

SttHits not found : 0

SttPoints not found : 0

MCTracks not found : 0

SttTracks not found : 0

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Event Number 2

-I- PndSttTrackFinderIdeal: STTTrack 0 created from MCTrack 0 (3 STTPoints)

-I- PndSttTrackFinderIdeal: STTTrack 1 created from MCTrack 3 (3 STTPoints)

-I- PndSttTrackFinderIdeal: STTTrack 2 created from MCTrack 4 (3 STTPoints)

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-I- Ideal STT track finding -I-

Hits: 56

MCTracks: total 5, accepted 3, reconstructable: 3

SttHits not found : 0

SttPoints not found : 0

MCTracks not found : 0

SttTracks not found : 0

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Event Number 3

-I- PndSttTrackFinderIdeal: STTTrack 0 created from MCTrack 0 (3 STTPoints)

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-I- Ideal STT track finding -I-

Hits: 26

MCTracks: total 3, accepted 1, reconstructable: 1  
SttHits not found : 0  
SttPoints not found : 0  
MCTracks not found : 0  
SttTracks not found : 0

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Event Number 4

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-|- Ideal STT track finding -|-  
Hits: 7  
MCTracks: total 8, accepted 0, reconstructable: 0  
SttHits not found : 0  
SttPoints not found : 0  
MCTracks not found : 0  
SttTracks not found : 0

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Event Number 5

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-|- Ideal STT track finding -|-  
Hits: 1  
MCTracks: total 3, accepted 0, reconstructable: 0  
SttHits not found : 0  
SttPoints not found : 0  
MCTracks not found : 0  
SttTracks not found : 0

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Event Number 6

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-|- Ideal STT track finding -|-  
Hits: 0  
MCTracks: total 3, accepted 0, reconstructable: 0  
SttHits not found : 0  
SttPoints not found : 0  
MCTracks not found : 0  
SttTracks not found : 0

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Event Number 7

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-|- Ideal STT track finding -|-  
Hits: 0  
MCTracks: total 3, accepted 0, reconstructable: 0  
SttHits not found : 0  
SttPoints not found : 0  
MCTracks not found : 0  
SttTracks not found : 0

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Event Number 8

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-|- Ideal STT track finding -|-  
Hits: 5  
MCTracks: total 5, accepted 0, reconstructable: 0  
SttHits not found : 0  
SttPoints not found : 0  
MCTracks not found : 0  
SttTracks not found : 0  
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Event Number 9

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-|- Ideal STT track finding -|-  
Hits: 1  
MCTracks: total 3, accepted 0, reconstructable: 0  
SttHits not found : 0  
SttPoints not found : 0  
MCTracks not found : 0  
SttTracks not found : 0

So basically I see it can reconstruct: 2 tracks in evt 0, 3 tracks in evt 2 and 1 track in evt 3.

I checked the number of hits per track in the simulation stage and what I get is:

evt 0 track 4 hits 27  
evt 0 track 3 hits 26  
evt 1 track 0 hits 3  
evt 1 track 5 hits 2  
evt 2 track 4 hits 27  
evt 2 track 3 hits 25  
evt 2 track 0 hits 4  
evt 3 track 0 hits 26  
evt 4 track 7 hits 7  
evt 5 track 0 hits 1  
evt 8 track 4 hits 3  
evt 8 track 3 hits 2  
evt 9 track 0 hits 1

I looked into the PndSttTrackFinderIdeal and I found that there is actually a cut for tracks with less than 3 hits, so we expect the finder to reconstruct only the blue colored lines in the above list, which correspond to the events and number of tracks the track finder was actually able to reconstruct, except for the event number 4 (I have to understand it, because I see several hits in the same tube and this is strange, since we register an hit each time the particles leaves the volume, so a track should leave only one hit in each tube, with an entrance and an exit position... I will investigate this).

The problem I see is that there are too few hits in the stt to construct a track (even if we throw away the cut on the number of hits, the helix construction will fail) and I think this is due to the particular kind of events (this would also explain why everything runs fine with the box generator).

Can you try to generate particles only in the transverse plane for example, in such a way that they enter the stt and leave more hits? In this case everything should run fine.

Please let me know if there are still problems or if I didn't answer properly to your questions.

Best regards,  
Lia.

### File Attachments

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1) [numhits.C](#), downloaded 389 times

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