Subject: TrackCand dip treatment where Theta > 90°
Posted by Marius Mertens on Tue, 28 Apr 2009 12:10:24 GMT
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Hi all,

since the _dip member of a TrackCand usually stores the cosine of the dip angle relative to the xy-plane, this parameter is only unambiguous for tracks where Theta relative to the z-axis is less than 90°.
I.e., using only the information from the TrackCand, I can't get the correct parameters of tracks which have a Theta > 90°. How can I properly treat such tracks?

Best regards,

Marius

Subject: Re: TrackCand dip treatment where Theta > 90°
Posted by Sebastian Neubert on Tue, 28 Apr 2009 12:24:30 GMT
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Hi Marius!

TrackCand is actually NOT supposed to carry the starting values of the fit. At least there is no guarantee that the values that are put there are meaningfull.

We still have to design a good interface to carry the fit starting values.

TrackCand acquired the field for dip angel, momentum and so on as a quick and dirty solution.

You are completely right though that there is a fundamental ambiguity in the definition of the dip angle, which arises from the (unknow) direction of motion of the particle. You cannot distinguish a particle that is going into forward direction towards the center of the system (a secondary) from a track that moves from the interaction point outwards but in backward direction.

This ambiguity is not solved at the moment.

Cheers! Sebastian.

Subject: Re: TrackCand dip treatment where Theta > 90°
Posted by Marius Mertens on Tue, 28 Apr 2009 12:51:07 GMT
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Hi Sebastian,

thank you for the information on that matter.
Since you mentioned the final interface is not yet fixed, it would be nice if it included a way to store the actual angle instead of its cosine in order to keep potential sign information.

Best regards,

Marius

Subject: Re: TrackCand dip treatment where Theta > 90°
Posted by Anonymous Poster on Tue, 28 Apr 2009 13:05:45 GMT
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Hi,

is the dip angle really measured against the x-y plane? In fact the polar angle is defined against the beam axis. This should be the same...

Christian

Subject: Re: TrackCand dip treatment where Theta > 90°
Posted by Marius Mertens on Tue, 28 Apr 2009 13:37:54 GMT
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Hi Christian,

dip angle (as used by the Riemann track finder) and polar angle (Theta, as used by PndFlatGen and probably other event generators) as they are implemented at the moment, are not the same.
Currently, _dip stores the cosine of the angle between track and xy-plane. Due to this operation the sign is lost (one can argue if "lost" is strictly correct as Sebastian already pointed out that the actual direction of a track is ambiguous unless additional information is present), but I assume its range should be -90°..90° in order to cover the full polar angle range of Theta = 180°..0°.

Best regards,

Marius

Subject: Re: TrackCand dip treatment where Theta > 90°
Posted by StefanoSpataro on Tue, 28 Apr 2009 13:39:42 GMT
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Hi,
this is the reason why in PndLheTrack I have decidet to calculate theta.
