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Subject: Tracking news

Posted by [Sebastian Neubert](#) on Thu, 17 Apr 2008 17:34:11 GMT

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Hi!

I have checked in new things for the tracking.

GeaneTrackRep now takes account of the particle hypothesis - you have to give the pdgcode in the ctor

GeaneTrackRep makes a guess whether it will do a propagation along the momentum vector or a backward propagation(!)

GeaneTrackRep is using the geane tools to extrapolate to a point of closest approach. (See for example DemoToolsTask)

Debug output has been cleaned up a bit.

For this you have to update more or less all tracking packages: genfit, geane, trackrep and recotasks.

I would be glad to hear from you if these things work!

Best Regards! Sebastian.

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Subject: Re: Tracking news

Posted by [asanchez](#) on Fri, 18 Apr 2008 08:22:34 GMT

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Hi Sebastian, you have done a great work!!  
thanks a lot.

I have still a question not only for you,  
what happen with low momenta particles  
( $<0.5$  MeV) is Geane and genfit still dealing properly in this case?

again thanks a lot.  
ALicia S.

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Subject: Re: Tracking news

Posted by [Sebastian Neubert](#) on Fri, 18 Apr 2008 08:28:01 GMT

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Hi Alicia!

Are that 0.5MeV or Gev???

I recently tried with 200MeV Protons and it did not work. But I did not look systematically so far.

Cheers! Seabstian.

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Subject: Re: Tracking news

Posted by [asanchez](#) on Fri, 18 Apr 2008 08:48:21 GMT

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Oh yes excuse me, <0.5 GeV.

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Subject: Re: Tracking news

Posted by [Lia Lavezzi](#) on Fri, 18 Apr 2008 10:43:07 GMT

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Hi Alicia,

concerning GEANE, unfortunately, there is still the problem of low momenta (sorry about that).

Its limit value is not fixed (for example I remeber I tracked down to 300 MeV), but as you go down with the momentum the probability of having some event with a track which begins to bend too much or has a momentum which fades to zero raises: these are the cases when a flag is returned (the well known IERR error from the FORTRAN) and the code crashes. We are thinking about bringing this flag to the interface, so that the crash can be avoided using this information.

Anyway, when the code does not crash, the results of GEANE are reliable: the problem with low momentum particles is only the crash, since when the track bends too much within a single step or has 0 momentum GEANE stops because it does not know how to go on.

So you can try to run your low momentum events: if you don' t fall in one of the mentioned cases everything should work properly, but consider that if the momentum is too small the probability to avoid these problems is small too

Ciao,  
Lia.

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Subject: Re: Tracking news

Posted by [asanchez](#) on Fri, 18 Apr 2008 10:50:10 GMT

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thanks a lot  
ALicia S.

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Subject: Re: Tracking news  
Posted by [Sebastian Neubert](#) on Fri, 18 Apr 2008 11:10:36 GMT  
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Hi Lia!

What do you mean by "bending too much". Is this in relation to the step size?

I could imagine that maybe if we reduce the step size, then the bending should not be a problem. Should it?

Sebastian.

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Subject: Re: Tracking news  
Posted by [Lia Lavezzi](#) on Fri, 18 Apr 2008 13:24:59 GMT  
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Hi Sebastian,

yes, concerning the bending problem it should actually be connected to the step size. You can have a look to the discussion "Problem with low momentum Pion" in this forum: it was related to the GEANE crash due to this kind of error. A reduction in the step size fixed this problem, but obviously it will increase the computing time.

Ciao,  
Lia.

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