Subject: Re: back-propagation with GEANE
Posted by Lia Lavezzi on Fri, 11 Jun 2010 15:09:13 GMT
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Hi Anastasia,
Quote:Spot around zero corresponds to 0 errors in momentum coordinates and spot around -2*10^-5 GeV/c corresponds to non-zero errors. But other distributions in both cases look the same.
Also I figured out that if I fix direction of particle momentum (angle phi and theta) I always have only one peak in errors distribution, but it can be as zero peak as well as non-zero peak.
These are good news! Then we have two group of tracks:
1) in one case the tracks behave as you expect: no energy loss, no multiple scattering, giving as results a difference between reco and MC equal to 0 and the corresponding error 0 as well;
2) the other case is the one we have to understand: something happens and creates the difference reco - MC and the corresponding error (which takes into account that the particle has undergone some process).

The fact that with fixed momentum and position you have either one case or the other could suggest (as you were saying) that the magnetic field could play a role in this behaviour. At least in the reco - MC different from 0. I still don' t get exactly the GEANE error different from zero, since the presence of the magnetic field should transport starting errors in a typical way, but should not add new errors if the starting value is 0. So the errors cannot be directly linked to the magnetic field.

You said that even switching off the multiple scattering the delta reco - MC is still there, then it is not multiple scattering.

If it is not multiple scattering then it has to be energy loss!
Maybe some particles (depending on their initial pos and mom) in GEANE can make one (or more) step(s) inside the luminosity monitor before exiting it and here there is an energy loss with associated error. In fact the reco momentum is lower than the MC one...
What do you think?

Cheers,
Lia.