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Subject: Re: back-propagation with GEANE

Posted by [Anastasia Karavdina](#) on Fri, 11 Jun 2010 11:43:07 GMT

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Hi Lia!

Quote: Could there be a mismatch between the StartPos and the starting plane? Are you sure that the starting plane contains the point (i.e. is the first surface)? Anyway, the important thing here is the orientation of the plane, since as starting point it takes StartPos.

The main difficulty here, that our planes rotated relative to the z-axis. So for hits with different (x,y) coordinates we have different z. Distribution for z-coordinate of the first MC coordinate seems to be reasonable. Also I saw several events with event display and MC hits always on the first surface of the plane.

Quote:

I see in the plots with fixed momentum direction you don't have the zero errors... How do the reconstructed momentum distributions look like if you separate the cases with and without 0 error in the test with random starting momentum and magnetic field on? Is there any difference between the two?

There is only one difference between case with 0 errors and case non-zero errors. Do you remember two spots in plot of difference between simulated and "reconstructed" momentum magnitude? Spot around zero corresponds to 0 errors in momentum coordinates and spot around  $-2 \cdot 10^{-5}$  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. For example for (phi,theta)=(0, 0.45) I have non-zero peak, for (phi,theta)=(45, 0.45) also non-zero peak, but for (phi,theta)=(90, 0.45) I have zero peak. Maybe here magnetic field from solenoid & dipole play a main role, but how it can influence for calculation errors in GEANE?

Quote: You should set to 0 the value in gconfig/SetCuts.C:

```
gMC->SetProcess("MULS",0); /**multiple scattering*/
```

I switched off multiple scattering, but nothing changed after it in my histogram. And it's confirm that MC hits which I used are always on the first surface of the plane and I don't have any sources of multiple scattering in my test.

Cheers,  
Anastasia.

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