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Subject: Re: back-propagation with GEANE

Posted by [Anastasia Karavdina](#) on Wed, 02 Jun 2010 11:47:55 GMT

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Hi Lia!

I made tests for fixed direction that you suggested me

Quote:About the amount of this difference, I think it could be estimated by simulating several (enough to have a statistically valid sample) particles with fixed direction and distributing the momentum on the first luminosity monitor layer: it should be spread and the width of the distribution should tell you the amount of the difference you get later with GEANE. It should moreover be of the order of magnitude of the error calculated by GEANE itself.

I found out that momentum on the first luminosity monitor layer is not spread at all, but momentum on the second luminosity monitor layer is spread and amount of this spread is the same order as errors of momentum coordinates after back-propagation with GEANE. Good news that difference between "reconstructed" with GEANE and true values smaller then spread of momentum coordinate on the second layer. But I used MC hit information from the first layer and as I understand it is a hit on the first surface of the first layer of luminosity monitor, before any multiple scattering. Maybe GEANE use this information inside out as a hit from the last surface of the first layer and this is the reason why errors after back-propagation with GEANE the same as spread after multiple scattering?

In file `momentum_1stMChit.ps` you can see plots for momentum coordinate of MC hits from the first (0) and the second(1) layers. In file `momentum_rec.ps` you can see momentum coordinate, errors and differences between "reconstructed" with GEANE and true values of momentum coordinates.

Quote:Another test to see that everything works fine could be to switch off the multiple scattering during geant3 simulation, in this case the deltas should become smaller, since practically you would simulate with geant3 in the same way you track with GEANE.

Can you tell me how I can switch off the multiple scattering, please?

Quote:If I understood correctly from a picture of the luminosity monitor the first layer is made up by 4 sensors, is this correct? So I guess your StartPos could belong to any of the four sensors... Could it be that when you start from one sensor you get one of the two spots, and when you start from another you get the other one? ...but this is just a guess! Wink

It's not true. The luminosity monitor consists only from 4 layers and each of them contain only one sensor plane. And I check that my first MC hit is indeed hit from first layer.

My code is not available in SVN now(

Because we use MVD classes and now we are waiting for new realisation from MVD group to avoid any conflict between different version of code.

Cheers,  
Anastasia.

### File Attachments

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- 1) [momentum\\_1stMChit.ps](#), downloaded 290 times
  - 2) [momentum\\_rec.ps](#), downloaded 374 times
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