Subject: back-propagation with GEANE
Posted by Anastasia Karavdina on Wed, 19 May 2010 16:17:02 GMT
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Hello all!
I'm faced with one unexpected problem with GEANE and need your help. My task is obtain antiproton parameters in interaction point from reconstructed information in luminosity monitor. So I want use back-propagation from GEANE. I simulated antiprotons with momentum 8.9 GeV/c, and just for test I used information (position and momentum) from first MC hit in lumi as input for FairTrackParP
Also I set origin of coordinates in point (0,0,0) and used BackTrackToVirtualPlaneAtPCA(1) function for back-propagation. As a results I have point near origin of coordinates and momentum in this point.
I compared my results with true information from MC generator and I observed significant differences in momentum coordinates, which lead to differences between reconstructed and simulated angles of particles. I made such tests with dipole&solenoid&transition maps as well as without magnetic field. Without magnetic field differences between reconstructed and simulated angles aren't so significant, but they still exist.
There are files with plots, which I obtained in simulation with magnetic field:

File momentum.eps with plots of momentum coordinates, errors for momentum coordinates and differences between momentum coordinates from MC generator and "reconstructed" momentum coordinates by GEANE.

In file vertex.eps with plots of coordinates of PCA and errors.

In file uncer.eps with plots of differences between reconstructed and simulated angles and momentum magnitude.

So my main question is: Does anybody know something about accuracy for propagation and back-propagation with GEANE?
How GEANE use information about errors of input parameters (position and momentum) ?
Only for calculation of covariance matrix or for calculation output parameters too?

Best wishes,
Anastasia.

File Attachments

1) momentum.eps, downloaded 558 times
2) vertex.eps, downloaded 566 times
3) uncer.eps, downloaded 564 times