Subject: Re: Vertex Fitter in Fast simulation
Posted by Malte Albrecht on Mon, 21 Apr 2014 19:28:57 GMT
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Hi,

I tried a lot around with this fitting issue today. Unfortunately, it wont work as I want it to
I started off with what Klaus said, and implemented that.

Klaus Goetzen wrote on Sun, 20 April 2014 08:35

Hi,

I guess, a proper way would be for neutrals:

- Just set the dE in the detector classes.

- Chose a random smearing base on this dE value.

- Smear both E and p with this value.

- Set the according diagonal elemens for E and p and the correlated term sigma_E,p in covariance matrix before transformation to px, py, pz, E domain.

I'm not really sure whether this is the right way, but one could at least try like this.

Best and happy easter,
Klaus

- I changed the files, so that just dE is set in the detector classes again.
- Now, I dont see how the smearing of dE and dp should be handled really...
  If you compare the implementations for the smearing of energy and momentum, in case of neutrals there is only a scaling of the three momentum vector components done - both in smearMomentum and smearEnergy!
There is no sense in doing that twice, right? So... what is actually the meaning of smearing p and E seperately - for a neutral? Then it also makes no sense to have the smearing based on the same random number, since actually the same mathematical operation (the scaling) would be done twice. Please correct me if Im wrong...

Anyway, I still tried it. The results dont change (chi2 is ~0), everything looks approximately the same. Then I introduced the off-diagonal elements to the polar covariance matrix.
Am I correct, that in case of neutrals the diagonal elements, as well as the off-diagonals should contain dE*dE then?
When I put that into the covariance matrix, it seriously breaks things... the gammagamma mass spectrum looks like a barcode afterwards So, that is apparently not correct.

Any suggestions?

Best regards,