Subject: Energyloss in thin silicon detectors
Posted by Prometeusz Jasinski on Tue, 29 Oct 2013 14:10:26 GMT
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Hi,

my bachelor student is studying the radiation damage on our luminosity detector sensors. When looking on the total energy loss per track and event in the distributions... I simply do not understand them. Other distributions I have seen in this forum do not seem to show those strange peaks. Are we cutting the edge with 50µm thick sensors at Geant4 and high particle energies (MIP) ?

Please have a look to the pages 2-6.

Regards

Promme

File Attachments
1) Analysis,Plab15GeV.pdf, downloaded 368 times

Subject: Re: Energyloss in thin silicon detectors
Posted by StefanoSpataro on Tue, 29 Oct 2013 14:20:09 GMT
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By default, in gconfig/g4Config.C:

TG4RunConfiguration* runConfiguration = new TG4RunConfiguration("geomRoot", "QGSP_BERT_EMV", "stepLimiter+specialCuts+specialControls");

if you remove "specialCuts"+specialControls" there should be no cuts at all, and the distribution could look better. Could you please try? I have some supects but I am not pretty sure.

Subject: Re: Energyloss in thin silicon detectors
Posted by Prometeusz Jasinski on Tue, 12 Nov 2013 09:02:27 GMT
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Hi,

we tried your suggestion. Still we observe structure, specially for proton/anti-proton (see page 4). Simulation takes ages now. The real reason must be another one.

File Attachments
1) no_special_cuts.pdf, downloaded 283 times

Subject: Re: Energyloss in thin silicon detectors
Posted by StefanoSpataro on Fri, 15 Nov 2013 15:31:25 GMT
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Have you seen the pid of the particles producing such structure, to understand which physics is involved? Is it present also in MVD, which should have a similar code and detector type?