Subject: Re: Influence of the reduced B-field on the track reconstruction
Posted by Gianluigi Boca on Tue, 25 Mar 2014 17:01:21 GMT
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Hi Donghee,
so thanks for checking again with the last version of the code.
Having a worse resolution with half the B field is expected on general arguments in magnetic field.

For instance, in the case of an experiment in which tracking is done with normal planar multiwire chambers
and a dipole it is not difficult to show that

Sigma(p)/p = K* Sigma(theta) *p / B

where :
K = constant
Sigma(theta) = error on the bending angle theta ;
p = momentum;
B = magnetic field.

So the fact that you obtain a resolution a factor 2 worse when you use only half of B is in agreement with what expected

cheers Gianluigi

Donghee Kang wrote on Tue, 25 March 2014 14:40Hi Gianluigi,

Thank you for your kind update
Introduced new code of the Pattern Recognition class PndTrkTracking2.cxx and .h has been exchanged and run again
Here is the output with new code.

The improvement is a level of few %, not so significant.
I assume that the reduced field map has lower performance than full field map, that should be a natural feature due to small bending power of produced particle inside solenoid field.
It would be great to check again same study with an important physics channel analysis.

Best wishes,
Donghee