Subject: Re: Vertex fitter(s) and B field setting in pandaroot release.
Posted by StefanoSpataro on Fri, 06 Feb 2015 21:05:12 GMT
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Dear Elisabetta,
in oct14 as well as in the trunk, in macro/run/ana_complete.c, there is no option about the field:

https://subversion.gsi.de/trac/fairroot/browser/pandaroot/release/oct14/macro/run/ana_complete.C

Why do you say that the B is constant? I cannot see any single line with field.

In macro/run/sim_complete.C the field option for simulation is:

```
PndMultiField *fField= new PndMultiField("AUTO");
fRun->SetField(fField);
```

AUTO means that the solenoid field is 2T for pbar momentum > 3 GeV/c and 1T for pbar momentum < 3 GeV/c. If you have p higher than 3 GeV/c as I presume AUTO and FULL provide exactly the same magnetic field inside the central part.

Last point: the vertex fitters are assuming that the particle is produced close to the IP where the field is constant. Then, if the first hit is a MVD one, they approximate the trajectory as a helix with a constant value of the field, neglecting field inhomogenity and energy loss. But the field value is loaded from the magnetic map, and it is the field value at the first hit of the track if I remember correctly. The ForceConstant option is to force to use a well defined value, and if you put 2T you will have the same value as w/o that option for p bar momentum > 3GeV. If you run < 3GeV/c then you will have a discrepancy, IF you force the field value to 2T. This is the reason why Ralf suggests not to use that option.

All the other macros in the repository are not the standard one and are maintained by the package experts, it is possible they they are not the last version and keep some old settings. Macro/run is the default way.