Subject: Re: Different x-y resolutions
Posted by Jens Sören Lange on Wed, 20 Jul 2011 14:22:25 GMT
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Hi Simone,

1.) my idea, that it could have something to do with the B field, came from the X and Y differences which were observed for luminosity monitor (which was to my knowledge the only time, that any azimuthal asymmetry was reported). Now I re-checked, and I found that I was wrong: it was not the dipole field generating the effect, but the aperture. See

http://forum.gsi.de/index.php?t=tree&goto=9206&rid=0&S=77db7
7666b257eeb980ffbd17eec1d35&srch=Jost#msg_9206

However, same as the dipole field, the effect should be forward peaked.

2.) HOWEVER, your result shows, that there is an effect even in your polar angle range.

After all, there might be an effect which was probably never seen before because you are looking at very small track DCA resolutions (50-60 um), but the B field grid is (if I remember correctly) in the central region 4 cm point-to-point distance (with linear interpolation between the points).

I checked field/PndMultiField.cxx

```
if (Map=="FULL") {

        PndTransMap *map_t= new PndTransMap("TransMap", "R");
          PndDipoleMap *map_d1= new PndDipoleMap("DipoleMap1", "R");
          PndDipoleMap *map_d2= new PndDipoleMap("DipoleMap2", "R");
          PndSolenoidMap *map_s1= new PndSolenoidMap("SolenoidMap1", "R");
          PndSolenoidMap *map_s2= new PndSolenoidMap("SolenoidMap2", "R");
          PndSolenoidMap *map_s3= new PndSolenoidMap("SolenoidMap3", "R");
          PndSolenoidMap *map_s4= new PndSolenoidMap("SolenoidMap4", "R");

          AddField(map_t);
          AddField(map_d1);
          AddField(map_d2);
          AddField(map_s1);
          AddField(map_s2);
          AddField(map_s3);
          AddField(map_s4);

    }else if (Map="DIPOLE") {
          PndDipoleMap *map_d1= new PndDipoleMap("DipoleMap1", "R");
          PndDipoleMap *map_d2= new PndDipoleMap("DipoleMap2", "R");

          AddField(map_d1);
          AddField(map_d2);
```

```
}else if (Map=="SOLENOID") {

        PndSolenoidMap *map_s1= new PndSolenoidMap("SolenoidMap1", "R");
        PndSolenoidMap *map_s2= new PndSolenoidMap("SolenoidMap2", "R");
        PndSolenoidMap *map_s3= new PndSolenoidMap("SolenoidMap3", "R");
        PndSolenoidMap *map_s4= new PndSolenoidMap("SolenoidMap4", "R");

        AddField(map_s1);
        AddField(map_s2);
        AddField(map_s3);
        AddField(map_s4);
}
```

so when you change from "FULL" to "SOLENOID", it means:
it is the SAME solenoid maps, but only the dipole map and the trans map IN ADDTION (!).

In the moment, I don't understand why you see such a strong effect for the dipole field. The best would be to switch off the B field completely, but then of course the track fitter does not work for straight tracks. I have the feeling that the track fitter also uses the field map, and then fails if B field in Geant and fitter are different. But I don't know where to set the field map for the fitter. I hope that someone else has a clever idea.

Soeren
