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Subject: Panda Magnet Field Map

Posted by [donghee](#) on Fri, 27 Nov 2009 12:03:01 GMT

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Dear all,

I have very academic question about Magnet Field used in Pandaroot.

In the MC simulation I can see three main pieces to allow Magnet Field.

First of all, some geometry are defined by Geant or by some special program like CAD(?) in advance.

What is the standard tool for designing of magnet structure?

Quote:

```
FairModule *Magnet= new PndMagnet("MAGNET");  
Magnet->SetGeometryFileName("FullSolenoid.root");  
fRun->AddModule(Magnet);
```

```
FairModule *Dipole= new PndMagnet("MAGNET");  
Dipole->SetGeometryFileName("dipole.geo");  
fRun->AddModule(Dipole);
```

Next question is for multi-field definition.

At below multiple magnet field is defined by two PANDA Magents, namely Dipole and Solenoid, in addition Transition map is defined. What is the purpose and meaning of this components?

And are all those different Maps predefined in somewhere or is there some accessing process to get the field intensity via FullSolenoid.root and dipole.geo in the panda/field/\*.

How is this worked?

Quote:

```
PndMultiField *fField= new PndMultiField();  
PndTransMap *map= new PndTransMap("TransMap", "R");  
PndDipoleMap *map1= new PndDipoleMap("DipoleMap", "R");  
PndSolenoidMap *map2= new PndSolenoidMap("SolenoidMap", "R");  
fField->AddField(map);  
fField->AddField(map1);  
fField->AddField(map2);  
fRun->SetField(fField);
```

The defined multifield is now going to save into the database by means of field parametrization in rtdb.

Quote:

```
PndMultiFieldPar* Par = (PndMultiFieldPar*) rtdb->getContainer("PndMultiFieldPar");  
if (fField) { Par->SetParameters(fField); }  
Par->setInputVersion(fRun->GetRunId(),1);  
Par->setChanged();
```

I assumed that solenoid field and dipole field in present setup doesn't overlap because they are located at some distance, or there is a duplication between them, and can be described by TransMap.

Let's imagine, if dipole magnet move into very close to the solenoid magnet, then the magnet would be overlapped. In this case, independent definition of field map from solenoid and dipole could not described overlapping region. How can I handle it?

Best wishes,  
Donghee Kang

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