Subject: Geantino?
Posted by Tobias Stockmanns on Fri, 08 Feb 2008 08:14:09 GMT
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Hi developers,

does anybody know how to create (standard / charged) geantinos with our box generator?

Thank's

Tobias

Subject: Re: Geantino?
Posted by StefanoSpataro on Fri, 08 Feb 2008 08:22:58 GMT
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Ahem,
what is exactly a "geantino"?

Subject: Re: Geantino?
Posted by Tobias Stockmanns on Fri, 08 Feb 2008 08:44:56 GMT
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Hi Stefano,

a Geantino is an artifical particle from Geant which is used as a geometrical probe. It is only transported through your detector and does not interact with it.

Ciao,

Tobias

Subject: Re: Geantino?
Posted by Tobias Stockmanns on Mon, 11 Feb 2008 10:09:34 GMT
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Hi developers,

I have solved part of the geantino problem. The geantino has (in VirtualMC) the pdg code 0. I still do no know how to handle charge geantinos.

Ciao,

Tobias

Subject: Re: Geantino?
Posted by Ralf Kliemt on Mon, 11 Feb 2008 10:11:43 GMT
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Hi Tobias,

The geantino (actually we use the rootino) can be accessed via the PDG number 0. in the simualtion.

```
  //ROOTino
  CbmBoxGenerator *fBox1 = new CbmBoxGenerator(0, 1);
```

To give you the right feeling try to check inside root:

```
root [0] TDatabasePDG* pdgBase = TDatabasePDG::Instance()
root [1] TParticlePDG *particle = pdgBase->GetParticle(0)
root [2] particle->GetName()
(const char* 0x8466b18)"Rootino"
root [3] particle->Charm()
(const Int_t)(0)
root [4] particle->Charge()
(const Double_t)0.00000000000000000e+00
root [5] particle->Lifetime()
(const Double_t)0.00000000000000000e+00
root [6] particle->Mass()
(const Double_t)0.00000000000000000e+00
root [7] particle->Width()
(const Double_t)0.00000000000000000e+00
root [8] particle->Stable()
(const Int_t)(1)
root [9] particle->ParticleClass()
(const char* 0x84652c8)"Unknown"
root [10] particle->Spin()
(const Double_t)0.00000000000000000e+00
root [11] particle->Parity()
(const Int_t)(0)
```

...

Greetings from Dresden,
Ralf.

Subject: Re: Geantino?
Posted by asanchez on Mon, 11 Feb 2008 10:19:08 GMT
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hallo Tobias,
you can add your charge geantino doing as follows
best regrads
ALicia

```
CbmParticle  *chargedGeant = new CbmParticle("He5", Z,A,1, mass,Z,kFALSE,lifetime);


 fRun->AddNewParticle(cgargedGeant );

 Int_t pdg;
 TDatabasePDG *db= TDatabasePDG::Instance();
  TParticlePDG *p=0;
   p=db->GetParticle("chargedGeant");
 if(p) pdg = p->PdgCode();


   CbmParticleGenerator* partGen = new CbmParticleGenerator(pdg, 1, -0.3,0.3,0.
3, 0., 0., 0);
     primGen->AddGenerator(partGen);
```

Subject: Re: Geantino?
Posted by asanchez on Mon, 11 Feb 2008 10:31:44 GMT
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Sorry,
CbmParticle *chargedGeant = new CbmParticle("chargedGeant", Z,A,1,
mass,Z,kFALSE,lifetime);

Subject: Re: Geantino?
Posted by Tobias Stockmanns on Mon, 11 Feb 2008 10:39:51 GMT
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Hi Alicia,

thank you for your reply.

I have tested your suggestion. Unfortunately it fails with the following error message:

TG4PrimaryGeneratorAction::TransformPrimaries:
G4ParticleTable::FindParticle() failed for crootino pdgEncoding=10000000.
*** TG4Exception: Aborting execution ***

Do you have any idea how to solve this problem?

Tanks,

Tobias

Subject: Re: Geantino?

Posted by Tobias Stockmanns on Mon, 11 Feb 2008 10:41:27 GMT
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Hi Ralf,

is there a charged rootino, too?

Thanks,

Tobias

Subject: Re: Geantino?
Posted by asanchez on Mon, 11 Feb 2008 10:46:26 GMT
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Hi Tobias, try to do that

CbmParticle *chargedGeant = new CbmParticle("chargedGeant",
Z,A, mass,Z,kFALSE,lifetime);

sorry there was one additional field inside, remove the one
in the constructor.

Subject: Re: Geantino?
Posted by asanchez on Mon, 11 Feb 2008 11:07:42 GMT
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i have found the following information in geant4
for the charged geantino

```
 Arguments for constructor are as follows
00062   //               name           mass          width         charge
00063   //             2*spin           parity  C-conjugation
00064   //          2*Isospin       2*Isospin3       G-parity
00065   //               type    lepton number  baryon number    PDG encoding
00066   //             stable         lifetime    decay table
00067   //             shortlived      subType    anti_encoding
00068    anInstance = new G4ParticleDefinition(
00069                  name,         0.0*MeV,       0.0*MeV,   +1.*eplus,
00070                    0,              0,            0,
00071                    0,              0,            0,
00072            "geantino",             0,            0,          0,
00073                 true,           0.0,          NULL,
00074                 false,     "geantino",            0
00075           );
```

maybe it works for the following options

CbmParticle *chargedGeant = new CbmParticle("chargedGeant",

1,0, 0,1,kTRUE,0);

Subject: Re: Geantino?
Posted by Ralf Kliemt on Mon, 11 Feb 2008 12:03:50 GMT
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Hi again,

I found this description in the root classes:
Quote:TDatabasePDG
Particle database manager class

This manager creates a list of particles which by default is
initialised from with the constants used by PYTHIA6 (plus some
other particles added). See definition and the format of the default
particle list in $ROOTSYS/etc/pdg_table.txt

there are 2 ways of redefining the name of the file containing the
particle properties

1. one can define the name in .rootrc file:

Root.DatabasePDG: $(HOME)/my_pdg_table.txt

2. one can use TDatabasePDG::ReadPDGTable method explicitly:

- TDatabasePDG *pdg = new TDatabasePDG();
- pdg->ReadPDGtable(filename)

See TParticlePDG for the description of a static particle properties.
See TParticle for the description of a dynamic particle particle.

This means you could just create your own charged rootino. Additionally I found the rootino at the pdg ID 521 in root/etc/pdg_table.txt.

Ralf.

Subject: Re: Geantino?
Posted by Tobias Stockmanns on Mon, 11 Feb 2008 12:47:25 GMT
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Dear Ralf and Alicia,

with both of you ways (my_pdg_table.txt / fRun->AddNewParticle) I am able to create a charged rootino in root. But it seems that this particle is not correctly transformed into Geant because I always get the following error message:

TG4PrimaryGeneratorAction::TransformPrimaries:
   G4ParticleTable::FindParticle() failed for ChargedGeantino pdgEncoding=1001000.
*** TG4Exception: Aborting execution ***

Tobias