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Subject: Inconsistency geant3/gcons/gpart.F and TGean3.cxx

Posted by [asanchez](#) on Thu, 14 May 2009 14:50:43 GMT

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Dear all, i have noticed there is some inconsistency between the defined particles by TGean3.cxx or TGean4.cxx and geant3/gcons/gpart.F

I was using the geanetrackrep for tracking, and i saw that the tracking macro crashes when a deuteron is to be tracked by geane.

here can you see the message,

Quote:11 hits in track 5

Position : (-0.40, 0.76, -76.)

Slopes : dx/dz = -0.84, dy/dz = 1.8

q/p = 1.6

Propagate in flight direction

Error in ERTRAK : particle type 0 unknown in GEANT

\*\*\* Break \*\*\* floating point exception

Using host libthread\_db library "/lib/libthread\_db.so.1".

Attaching to program: /proc/10412/exe, process 10412

Failed to read a valid object file image from memory.

done.

done.

[Thread debugging using libthread\_db enabled]

[New Thread 16384 (LWP 10412)]

done.

done.

done.

done.

done.

done.

done.

done.

done.

0x4117f788 in waitpid () from /lib/libc.so.6

#1 0x412078c0 in \_\_DTOR\_END\_\_ () from /lib/libc.so.6

#2 0x41118442 in do\_system () from /lib/libc.so.6

#3 0x41093c5f in system () from /lib/libpthread.so.0

#4 0x40237363 in TUnixSystem::Exec (this=0x80e2a78,

#5 0x40237836 in TUnixSystem::StackTrace (this=0x80e2a78) at core/unix/src/TUnixSystem.cxx:2121

#6 0x402356f5 in TUnixSystem::DispatchSignals (this=0x80e2a78, sig=kSigFloatingException)

at core/unix/src/TUnixSystem.cxx:1089

#7 0x402336b4 in SigHandler (sig=kSigFloatingException) at core/unix/src/TUnixSystem.cxx:351

#8 0x4023a6d3 in sighandler (sig=8) at core/unix/src/TUnixSystem.cxx:3344

#9 0x41092825 in \_\_pthread\_sighandler () from /lib/libpthread.so.0

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#10 <signal handler called>
#11 0x44e17e2e in CbmGeanePro::Track2ToPoint (this=0xa2008f0, x1=
    {<TObject> = {_vptr.TObject = 0x43249e08, fUniqueID = 0, fBits = 33554432, static
fgDtorOnly = 0, static fgObjectStat = false, static fglsA = 0x82b48c0}, fX = 0, fY = 0, fZ = 0,
static fglsA = 0x9e4e3c8}, x2=
    {<TObject> = {_vptr.TObject = 0x43249e08, fUniqueID = 0, fBits = 33554432, static
fgDtorOnly = 0, static fgObjectStat = false, static fglsA = 0x82b48c0}, fX = 0, fY = 0, fZ = 0,
static fglsA = 0x9e4e3c8},
    w1=
    {<TObject> = {_vptr.TObject = 0x43249e08, fUniqueID = 0, fBits = 33554432, static
fgDtorOnly = 0, static fgObjectStat = false, static fglsA = 0x82b48c0}, fX = 0, fY = 0, fZ = 0,
static fglsA = 0x9e4e3c8}, Pfinal=@0xa200af0, Dist=@0xa200ae8, Length=@0xbf803f38)
    at /u/asanchez/FairJan09/trunk/geane/CbmGeanePro.cxx:762
#12 0x44e14f8b in CbmGeanePro::FindPCA (this=0xa2008f0, pca=1, PDGCode=1000010020,
point=
    {<TObject> = {_vptr.TObject = 0x43249e08, fUniqueID = 0, fBits = 33554432, static
fgDtorOnly = 0, static fgObjectStat = false, static fglsA = 0x82b48c0}, fX = 0, fY = 0, fZ = 0,
static fglsA = 0x9e4e3c8}, wire1=
    {<TObject> = {_vptr.TObject = 0x44e2b1e8, fUniqueID = 0, fBits = 50331648, static
fgDtorOnly = 0, static fgObjectStat = false, static fglsA = 0x82b48c0}, fX =
1.563365687775424e-260, fY = 1.5633904981780072e-260, fZ = 149.63770000687941, static
fglsA = 0x9e4e3c8}, wire2=
    {<TObject> = {_vptr.TObject = 0x43249e08, fUniqueID = 0, fBits = 33554432, static
fgDtorOnly = 0, static fgObjectStat = false, static fglsA = 0x82b48c0}, fX = 0, fY = 0, fZ = 0,
static fglsA = 0x9e4e3c8}, maxdistance=151.28160462801051, Rad=@0xa200ae0,
vpf=@0xa200af0, vwi=@0xa200b14, Di=@0xa200ae8,
    trklength=@0xa200b38) at /u/asanchez/FairJan09/trunk/geane/CbmGeanePro.cxx:554
#13 0x44e13158 in CbmGeanePro::Propagate (this=0xa2008f0, TStart=0xbf804980,
TEnd=0xbf804460,
    PDG=1000010020) at /u/asanchez/FairJan09/trunk/geane/CbmGeanePro.cxx:180
#14 0x441dd9f8 in GeaneTrackRep::extrapolateToPoca (this=0xa432300, pos=@0xa25e874,
statePred=@0xbf8050f0, covPred=@0xbf804ff0, pl=@0xbf805220)
    at /u/asanchez/FairJan09/trunk/trackrep/GeaneTrackRep.cxx:297
#15 0x441dbb06 in GeaneTrackRep::getVirtualDetPlane (this=0xa432300, hit=@0xa25e874)
    at /u/asanchez/FairJan09/trunk/trackrep/GeaneTrackRep.cxx:97
#16 0x4418af2f in SpacepointHitPolicy::detPlane (this=0xa25e870, hit=0xa25e570,
rep=0xa432300)
    at /u/asanchez/FairJan09/trunk/genfit/SpacepointHitPolicy.cxx:94
#17 0x44174696 in RecoHitLfc<SpacepointHitPolicy>::getDetPlane (this=0xa25e570,
rep=0xa432300)
    at RecoHitLfc.h:39
#18 0x44176099 in Kalman::processHit (this=0xbf806560, hit=0xa25e570, rep=0xa432300,
hitIndex=0)
    at /u/asanchez/FairJan09/trunk/genfit/Kalman.cxx:167
#19 0x441758cb in Kalman::continueTrack (this=0xbf806560, trk=0xa9e9268, direction=1)
    at /u/asanchez/FairJan09/trunk/genfit/Kalman.cxx:92
#20 0x441756ad in Kalman::processTrack (this=0xbf806560, trk=0xa9e9268)
    at /u/asanchez/FairJan09/trunk/genfit/Kalman.cxx:48
#21 0x44f8adfd in PndHypDKalmanTask::Exec (this=0x9e3b4c0, opt=0x43d55440 "")
    at /u/asanchez/FairJan09/trunk/hyp/hypTracking/PndHypDKalmanTask.cxx:165
#22 0x401b16af in TTask::ExecuteTasks (this=0x86a0390, option=0x43d55440 "")
    at core/base/src/TTask.cxx:298

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#23 0x401b14b1 in TTask::ExecuteTask (this=0x86a0390, option=0x43d55440 "")
  at core/base/src/TTask.cxx:261
#24 0x43cd89a0 in CbmRunAna::Run (this=0x86a0308, Ev_start=0, Ev_end=4917)
  at /u/asanchez/FairJan09/trunk/base/CbmRunAna.cxx:195
#25 0x43d192de in G__CbmDict_531_0_5 (result7=0xbf80da70, funcname=0x869e508
"\001", libp=0xbf807bf0,
  hash=0) at /u/asanchez/FairJan09/build/base/CbmDict.cxx:9268
#26 0x407b6126 in Cint::G__ExceptionWrapper (funcp=0x43d191da
<G__CbmDict_531_0_5>, result7=0xbf80da70,
  funcname=0x869e508 "\001", libp=0xbf807bf0, hash=0) at cint/cint/src/Api.cxx:364
#27 0x408757f5 in G__execute_call (result7=0xbf80da70, libp=0xbf807bf0, ifunc=0x869e508,
ifn=0)
  at cint/cint/src/newlink.cxx:2305
#28 0x40875ed8 in G__call_cppfunc (result7=0xbf80da70, libp=0xbf807bf0, ifunc=0x869e508,
ifn=0)
  at cint/cint/src/newlink.cxx:2471
#29 0x40855818 in G__interpret_func (result7=0xbf80da70, funcname=0xbf80d670 "Run",
libp=0xbf807bf0,
  hash=309, p_ifunc=0x869e508, funcmatch=1, memfunc_flag=1) at
cint/cint/src/ifunc.cxx:5245
#30 0x40834ca1 in G__getfunction (item=0xbf8104c6 "Run(0,nEvents)", known3=0xbf80fd0c,
memfunc_flag=1)
  at cint/cint/src/func.cxx:2534
#31 0x40940b6b in G__getstructmem (store_var_type=112, varname=0xbf80dd00 "",
  membername=0xbf8104c6 "Run(0,nEvents)", tagname=0xbf80df10 "fRun",
known2=0xbf80fd0c,
  varglobal=0x409ebec0, objptr=2) at cint/cint/src/var.cxx:6623
#32 0x409329d7 in G__getvariable (item=0xbf8104c0 "fRun->Run(0,nEvents)",
known=0xbf80fd0c,
  varglobal=0x409ebec0, varlocal=0xbf812a10) at cint/cint/src/var.cxx:5252
#33 0x40825f01 in G__getitem (item=0xbf8104c0 "fRun->Run(0,nEvents)") at
cint/cint/src/expr.cxx:1884
#34 0x4082387b in G__getexpr (expression=0xbf811d90 "fRun->Run(0,nEvents)")
  at cint/cint/src/expr.cxx:1470
#35 0x4089fde5 in G__exec_function (statement=0xbf811d90 "fRun->Run(0,nEvents)",
pc=0xbf8121bc,
  piout=0xbf8121b4, plargestep=0xbf8121a4, preresult=0xbf811d60) at
cint/cint/src/parse.cxx:601
#36 0x408af2a6 in G__exec_statement (mparen=0xbf8126dc) at cint/cint/src/parse.cxx:6972
#37 0x408587a3 in G__interpret_func (result7=0xbf818eb0, funcname=0xbf818ab0 "runReco",

  libp=0xbf813030, hash=734, p_ifunc=0x82b5048, funcmatch=1, memfunc_flag=0)
  at cint/cint/src/ifunc.cxx:6080
#38 0x4083584a in G__getfunction (item=0xbf8197b0 "runReco()", known3=0xbf818ffc,
memfunc_flag=0)
  at cint/cint/src/func.cxx:2745
#39 0x40826044 in G__getitem (item=0xbf8197b0 "runReco()") at cint/cint/src/expr.cxx:1896
#40 0x4082387b in G__getexpr (expression=0x810ba88 "runReco()") at
cint/cint/src/expr.cxx:1470
#41 0x408114ff in G__calc_internal (exprwithspace=0xbf81cf00 "runReco()") at
cint/cint/src/expr.cxx:1061
#42 0x408b7d27 in G__process_cmd (line=0x406e9b0e "elize", prompt=0x80e6264 "",

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more=0x80e625c,  
  err=0xbf81d77c, rslt=0xbf81d780) at cint/cint/src/pause.cxx:2234  
#43 0x4021e958 in TCint::ProcessLine (this=0x80e6240, line=0x406e9b0e "elize",  
error=0xbf81ff84)  
  at core/meta/src/TCint.cxx:339  
#44 0x4021ed70 in TCint::ProcessLineSynch (this=0x80e6240, line=0x406e9b0e "elize",  
error=0xbf81ff84)  
  at core/meta/src/TCint.cxx:406  
#45 0x4013581a in TApplication::ExecuteFile (file=0xbf81df23 "runReco.C", error=0xbf81ff84)  
  at core/base/src/TApplication.cxx:938  
#46 0x40135094 in TApplication::ProcessFile (this=0x81078b8, file=0xbf81df23 "runReco.C",  
error=0xbf81ff84) at core/base/src/TApplication.cxx:825  
#47 0x40134fd7 in TApplication::ProcessLine (this=0x81078b8, line=0xbf81df20 ".x  
runReco.C",  
  sync=false, err=0xbf81ff84) at core/base/src/TApplication.cxx:798  
#48 0x4101d78c in TRint::Run (this=0x81078b8, retrn=false) at core/rint/src/TRint.cxx:355  
#49 0x08048ece in main (argc=1, argv=0xbf820044) at main/src/rmain.cxx:29  
Root > Function runReco() busy flag cleared
```

It seems that geane doesn't recognise the particule deuteron even if it already defined.

By looking in geant3/erdecks/ertrack.F and in geant3/gcons/gpart.F i realized that indeed the array NPART which contains the id of the defined particles, doesn't contains the id for the deuteron, alpha, helium, ..etc.

But if you look into the TGeant3.cxx and TGeant4.cxx these ions are already defined.

So my question is,

Is geane taking as defined particles only what is provided by gpart.F?

I thought, that the particles aleready defined for the montecarlo simulation should be also recognised by geane.

thanks a lot

ALicia