Subject: G4 simulation: No MCPoint where one should be...
Posted by Simone Esch on Thu, 11 Apr 2013 09:07:31 GMT
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Dear PandaRoot Users,

in my simulation I found a problem with the creation of MCPoints.
I am simulating the decay ppbar ->Lambda Lambdabar -> pion_minus pion_plus proton antiproton.
Looking into the MC data I found a few cases, where a particle path crosses a sensitve material, but no MC Point was created (see pictures below).

We saw this in ~6 events.
I appeared something like in one event among 20 events and just for pions (plus and minus).
The output from the simulation is (Verbose=2):

```
>>> Event 7
-I- PndSdsDetector: Adding Point at (-1.26017, -9.74078, 39.485) cm, (-1.26333, -9.74761, 39.515) cm,  detector /cave_1/CombinedLambdaDisks_0/LambdaDisk_1/LargeRing_0/StripSensorActiveLargeTrap_6 0, track 2, energy loss 561.051 keV
-I- PndSdsDetector: Adding Point at (-1.31324, -9.85647, 39.985) cm, (-1.31648, -9.86339, 40.015) cm,  detector /cave_1/CombinedLambdaDisks_0/LambdaDisk_1/LargeRing_1/StripSensorActiveLargeTrap_5 0, track 2, energy loss 459.511 keV
-I- PndSdsDetector: Adding Point at (5.38529, -0.204025, 38.985) cm, (5.38924, -0.205889, 39.015) cm,  detector /cave_1/CombinedLambdaDisks_0/LambdaDisk_1/SmallRing_0/StripSensorActiveSmallTrap_21 0, track 1, energy loss 113.605 keV
-I- PndSdsDetector: Adding Point at (7.74768, -1.98032, 59.985) cm, (7.75052, -1.98347, 60.015) cm,  detector /cave_1/CombinedLambdaDisks_0/LambdaDisk_2/LargeRing_1/StripSensorActiveLargeTrap_8 0, track 1, energy loss 225.731 keV

-------- WWWW ------- G4Exception-START -------- WWWW -------
*** G4Exception : GeomNav1002
      issued by : G4PropagatorInField::ComputeStep()
Particle is stuck; it will be killed.
  Zero progress for 51 attempted steps.
  Proposed Step is 1.56268e-05 but Step Taken is 1.56268e-05
  For Particle with Charge = 1 Momentum = 253.548 Mass = 139.57
 in volume DipolePip
*** This is just a warning message. ***
-------- WWWW -------- G4Exception-END --------- WWWW -------

-I- PndSdsDetector: Adding Point at (3.06891, 9.56976, 59.985) cm, (3.06929, 9.57481, 60.015) cm,  detector /cave_1/CombinedLambdaDisks_0/LambdaDisk_2/LargeRing_1/StripSensorActiveLargeTrap_11 0, track 0, energy loss 192.765 keV
 DIGI EXECUTION **********************
-I- PndSdsDetector: 0 points registered in this event.
[INFO   ] FairPrimaryGenerator: (Event 9) 4  primary tracks from vertex (0.000000, 0.000000,
```

0.000000) Event Time = 0.000000 (ns)

So nothing is reported about this point.

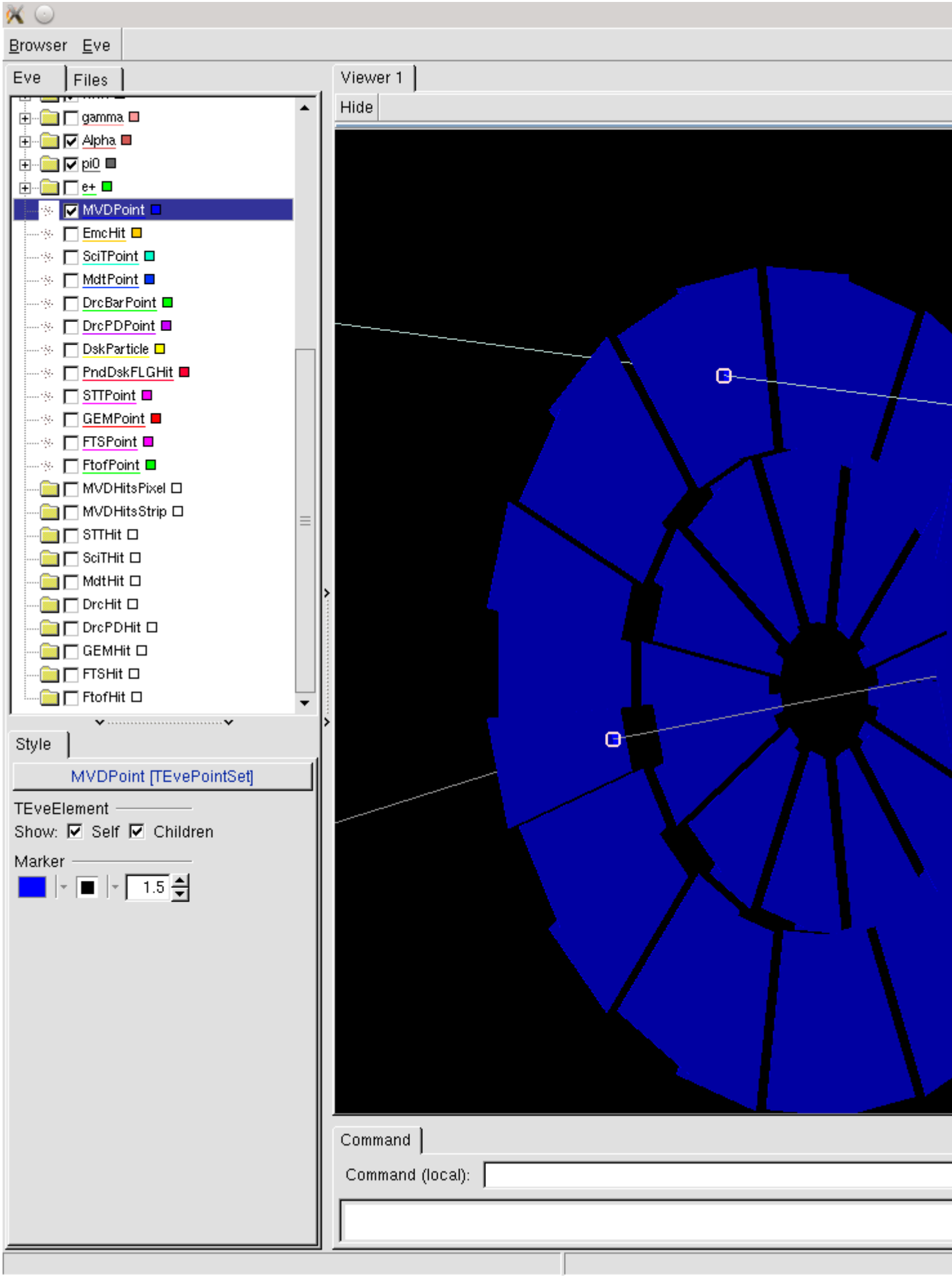
My system is:
openSUSE 12.2 Mantis - Kernel
external packages sep12
pandaroot rev 18841

Thanks

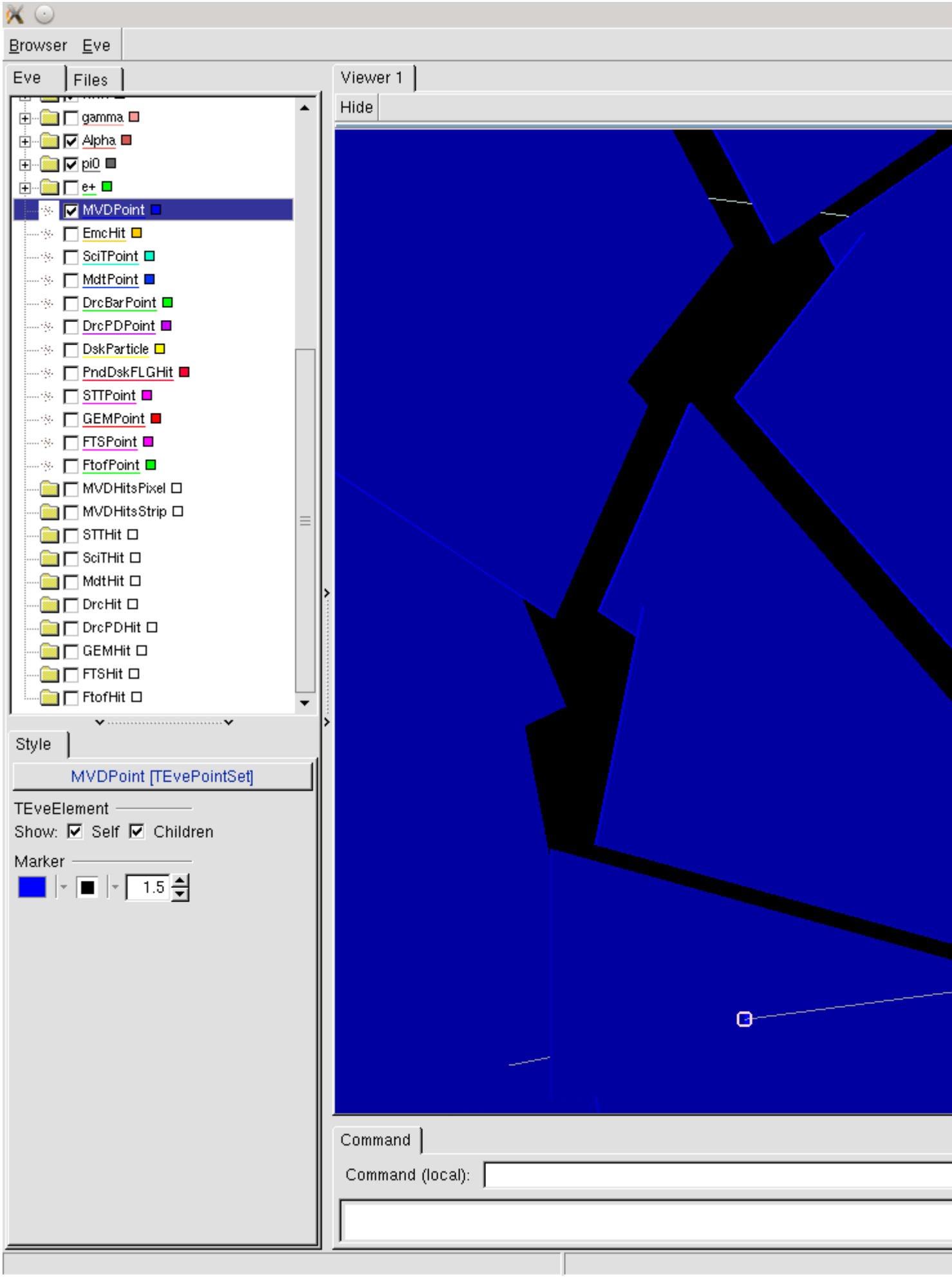
Simone

File Attachments

1) eventDisplay_Screenshot_Event7.png, downloaded 1754 times


Browser
Eve
Eve
Files
gamma
Alpha
pi0
e+
MVDPoint
EmcHit
SciTPoint
MdtPoint
DrcBarPoint
DrcPDPoint
DskParticle
PndDskFLGHit
STTPoint
GEMPoint
FTSPoint
FtofPoint
MVDHitsPixel
MVDHitsStrip
STTHit
SciTHit
MdtHit
DrcHit
DrcPDHit
GEMHit
FTSHit
FtofHit
Style
MVDPoint [TEvePointSet]
TEveElement
Show:
Self
Children
Marker
1.5
Viewer 1
Hide
Command
Command (local):

2) eventDisplay_Screenshot_Event7_zoom.png, downloaded 1757 times


Browser
Eve
Eve
Files
gamma
Alpha
pi0
e+
MVDPoint
EmcHit
SciTPoint
MdtPoint
DrcBarPoint
DrcPDPoint
DskParticle
PndDskFLGHit
STTPoint
GEMPoint
FTSPoint
FtofPoint
MVDHitsPixel
MVDHitsStrip
STTHit
SciTHit
MdtHit
DrcHit
DrcPDHit
GEMHit
FTSHit
FtofHit
Style
MVDPoint [TEvePointSet]
TEveElement
Show:
Self
Children
Marker
1.5
Viewer 1
Hide
Command
Command (local):

Subject: Re: G4 simulation: No MCPoint where one should be...
Posted by StefanoSpataro on Thu, 11 Apr 2013 14:07:01 GMT
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Can you try with verbose level 3?
From the ProcessHits I can see that particles are stored in points only if the energy lows is different from 0, and maybe this is the case.

Still I do not understand the geant4 warning, since "DipolePip" I suppose is far from MVD. Can you check where this volume is exactly? I think the two things are different, the stopped particle and the missed point.

Subject: Re: G4 simulation: No MCPoint where one should be...
Posted by Simone Esch on Thu, 18 Apr 2013 09:12:42 GMT
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Hello stefano,

Tobias thought about this also, and inserted an output to check this.
Unfortionally something with the seed-setting is wrong, so we could not simulate the exactly the same events. But we saw the not existing MCPoint on other events where we are sure that energy was deposit.

But I can post another event with a higher verbose level.

Concerning the geant4 warning, the track goes further downstream and stops then at some point far away from the MVD, this are really two different things.

Greetings

Simone