
Subject: [SOLVED] PVertexFile

Posted by [Michael Kunkel](#) on Wed, 13 Jun 2012 21:01:24 GMT

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Greetings,

I had a question on the format of PVertexFile.
Is it one leaf of array vX:vY:vZ, or separate leaves?

I ask because I am trying to smear vertices along a target that is 400mm in length and 20mm in radius.

I create a uniform distribution of 50M events of a cylinder equally the dimensions mentioned, called vertex.root with separate leaves vX, vY, vZ, tree name "vertex" as prescribed in <http://www-linux.gsi.de/~hadeshyp/pluto/v5.40/PVertexFile.html>

When I attempt to use this

```
##include "loadPluto.h";  
//Program to generate multiple PLUTO root file  
//Author Michael C. Kunkel  
#include "TH1.h"  
#include "TH2.h"  
#include "TH3.h"  
#include "TChain.h"  
#include "TCanvas.h"  
#include "TF1.h"  
#include "/w/hallb/clasg12/mkunkel/PLUTO/pluto_v5.40/src/PParticle.h"  
#include "/w/hallb/clasg12/mkunkel/PLUTO/pluto_v5.40/src/PReaction.h"  
#include "/w/hallb/clasg12/mkunkel/PLUTO/pluto_v5.40/src/PBeamSmearing.h"  
#include "/w/hallb/clasg12/mkunkel/PLUTO/pluto_v5.40/src/PVertexFile.h"
```

```
void Vertex_Simulation(){  
  
    gROOT->Reset();  
  
    char nam1[60] = "/volatile/clas/clasg12/mkunkel/GG_ETA_SIM/PLUTO_GEN/eta_";  
  
    char nam2[25] = "_gammagamma_vertex";  
  
    for(int ij = 1; ij<=1; ij++){  
        char c[10];  
        sprintf(c, "%d", ij);  
        char creater[75];  
        sprintf(creater, "%s%s%s", nam1, c, nam2);  
        cout << creater<<endl;  
  
        double ebeam_min = 1.1725;  
        double ebeam_max = 5.44575;  
        PBeamSmearing *beam_smear = new PBeamSmearing("beam_smear", "Beam smearing");
```

```

TF1* beam_smear_fn = new TF1("beam_smear_fn", "1./x", ebeam_min, ebeam_max);

beam_smear->SetReaction("g + p");
beam_smear->SetMomentumFunction(beam_smear_fn);
makeDistributionManager()->Add(beam_smear);

PReaction my_reaction("_P1 = 2.2","g","p","p eta [g g]",creater,1,0,1,0);

//Construct the vertex container:
PVertexFile *vertex = new PVertexFile();

vertex->OpenFile("/w/hallb/clasg12/mkunkel/PLUTO/ETA_GAMMAGAMMA_SIM/VERTICES/v
ertex.root");
//add to prologue action
my_reaction.AddPrologueBulk(vertex);
// my_reaction.Print(); //The "Print()" statement is optional
my_reaction.Loop(50000);

}
}

```

I receive a segmentation fault, if I remove the vertex the code runs correctly.

Subject: Re: PVertexFile

Posted by [Michael Kunkel](#) on Thu, 14 Jun 2012 20:07:44 GMT

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I have tried various ways to fill a ntuple with vertex information.
Named the leafs vX, vY, xZ as prescribed in the link previously given. I have made it into array
of vertex[3], tried with and without seqNr and still when I run the PLUTO code previously given
I see this error

```

Info in <PParticle::operator+>: (ALLOCATION) The composite g + p has been added
Info in <PStaticData::AddDecay>: (ALLOCATION) Decay index 14001: g + p --> p + eta
Info in <PStdModels::GetModels>: Read std models
Info in <PDistributionManager::Attach>: Re-iteration of std plugin done
OPENING VERTEX FILE <<DONE with a COUT statement from code>>
PReaction: calculating widths in PData...

```

```

*** Break *** segmentation violation

```

Any help is appreciated.

Thanks

Michael C. Kunkel

Subject: Re: PVertexFile

Posted by [Ingo Froehlich](#) on Fri, 15 Jun 2012 10:45:40 GMT

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Dear Michael,

just for testing I have created a small script for generating the vertex events as follows:

```
TFile *f = new TFile("Vertex.root", "RECREATE");
TNtuple *ntuple = new TNtuple("vertex", "Vertex data", "vx:vy:vz");

PReaction my_reaction;
my_reaction.Do("vz = sampleFlat() * 400 - 200;");
my_reaction.Do("loop: vx = sampleFlat() * 20 - 10; vy = sampleFlat() * 20 - 10; ");
my_reaction.Do("if ((vx*vx + vy*vy) > 100); goto loop");
my_reaction.Output(ntuple);

cout << my_reaction.Loop(10000) << " vertex events created" << endl;

f->cd();
ntuple->Write();
f->Close();
At least running a part of your script:
```

```
PReaction my_reaction("_P1 = 2.2","g","p","p eta [g g]","delme",1,0,1,0);

//Construct the vertex container:
PVertexFile *vertex = new PVertexFile();
vertex->OpenFile("Vertex.root");
//add to prologue action
my_reaction.AddPrologueBulk(vertex);
// my_reaction.Print(); //The "Print()" statement is optional
my_reaction.Loop(10000);
seems to work for me...
```

Subject: Re: PVertexFile

Posted by [Ingo Froehlich](#) on Fri, 15 Jun 2012 10:51:51 GMT

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Just for additional info:

one can of course combine the scripts and access the vertex info directly via the variables `_event_vertex_*`:

```
PReaction my_reaction("_P1 = 2.2","g","p","p eta [g g]","delme",1,0,1,0);
my_reaction.Do("vz = sampleFlat() * 400 - 200;");
my_reaction.Do("loop: vx = sampleFlat() * 20 - 10; vy = sampleFlat() * 20 - 10; ");
my_reaction.Do("if ((vx*vx + vy*vy) > 100); goto loop");
my_reaction.Do("_event_vertex_x=vx; _event_vertex_y=vy; _event_vertex_z=vz; ");
my_reaction.Loop(10000);
```

Subject: Re: PVertexFile

Posted by [Michael Kunkel](#) on Fri, 15 Jun 2012 11:46:09 GMT

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I will attempt this. One more question that might seem silly. What units are required and outputted for vertex information? I seem to not see this in documentation.

Thanks Again

Subject: Re: PVertexFile

Posted by [Ingo Froehlich](#) on Fri, 15 Jun 2012 11:50:17 GMT

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I also had to search, and found in PParticle.h that it should be in mm
