Subject: Strange shape for the cental part of beam pipe.
Posted by donghee on Tue, 11 Aug 2009 09:08:47 GMT
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Dear beampipe designer,

I have found the building block of beam pipe in pandaroot/passive/PndPipe.cxx
I'm specially interesting in the central part.

I have seen following argument and definition of beam pipe parameter at central region.
Quote:

```
  // The central part is totally filled because of the crossing operations
  Double_t parPipeCentral[12] = {    0., 360., 3,
        -32., 0.,   8.,
        -2., 0.,    .9,
        20., 0.,    .9};

Double_t parPipeVacuumCentral[12] = {    0., 360., 3,
       -32., 0.,   7.9,
       -2., 0.,    .873,
       20., 0.,    .873};
```

I'm wondering why the region -32 to 20cm in z direction was fully filled.
Even if you define the VacuumCentral afterward, I think that the defined vacuum doesn't use due to previous material definition.
This is something like overlap, which cannot report by compliler.
I assume that is a potential problem for the backward tracking in LHE tracking software.
Probably, that is the reason why we could not see enough tracks when we moving the interaction points to downstream or upstream during LHE tracking.

Do you have some other idea, or could you correct me!

Thank you.
Donghee Kang

Subject: Re: Strange shape for the cental part of beam pipe.
Posted by StefanoSpataro on Tue, 11 Aug 2009 14:22:05 GMT
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If you look in PndPipe, pipeCentral is not used as it is, but after some logical operations:

```
 TGeoCompositeShape *pipeCross       = new TGeoCompositeShape("pipeCross",
```

"(PIPE_CN+TRG_CN:r1) - (PIPEV_CN+TRGV_CN:r1)");
  TGeoCompositeShape *pipeVacuumCross = new
TGeoCompositeShape("pipeVacuumCross", "PIPEV_CN+TRGV_CN:r1");

In practice, totally filled beam+target pipe minus totally filled beam+target vacuum.
There is no overlap, simply logical subtraction of the volumes.

Subject: Re: Strange shape for the cental part of beam pipe.
Posted by donghee on Tue, 11 Aug 2009 19:22:04 GMT
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Dear Stepano,

Thank you for your kind correction.
I'm so sorry for careless reading.

Here comes one more question about the way of implementation of bending pipe.

When I check some geometry structure in ROOT TGeo class,
there are TPolgon as a polycone shape, which is used in the construction of beampipe at pandaroot.
It has 9 parameters.

But I think I couldn't change x and y position with this class.
I have to find another appropriate class to make a bending structure.
Do you have any idea which class could be suitable for this purpose.

For the box shape, maybe one can use TGeoXtru class, but for polygon shape, I don't know exactly what I need.

Thank you,
Donghee

Subject: Re: Strange shape for the cental part of beam pipe.
Posted by StefanoSpataro on Tue, 11 Aug 2009 20:25:03 GMT
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Maybe the torus could be a possible solution. I am not so sure how they plan to really build it, even because I think it is not so easy to build a "bent" pipe made of steel. However, maybe by knowing an hypothetical radius and arc of a thorus, one could have something valid.

But if I remember well, the torus can be used only with geant4 and not geant3 (or maybe the contrary), thus I am not so sure if this is really an option for us.
