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Subject: Geometry overlaps!!!!

Posted by [Mohammad Al-Turany](#) on Fri, 24 Apr 2009 07:36:52 GMT

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Hallo Detector experts,

It seems that there is a lot of problems in the Panda geometry which cause the simulation to crash specially when using new packages of ROOT and VMC (ROOT 5.23.2, Geant4.9.2.p1, etc). I attached to this mail 2 root files with:

overlaps.root:

obtained using the FullSolenoid.root file for the Soleniod and the macro run\_sim1.C.

in this file you will see 447 overlaps! mostly between MDT and Soleniod

V833\_overlaps.root:

the same as before with the PandaSolenoidV833.root as geometry file for the Soleniod. This has also 538 overlaps!

With this geometry as it is now it is almost impossible to run any simulation! I will try to investigate if this has anything to do with the new packages but please take a look also to the overlaps and check your detectors if the geometry is really correct!

To see the overlaps, simply open the attached root file, then open the root browser and double click the FAIRGeom object (TGeo) then you will see a folder Illegal overlaps:

inside this folder you can see the overlaps:

if you double click any of these overlaps you will get some info (names and so on) in the terminal and it will be drawn on a canvas:

Please check this, most of them are small overlaps which could be avoided by using better precision!

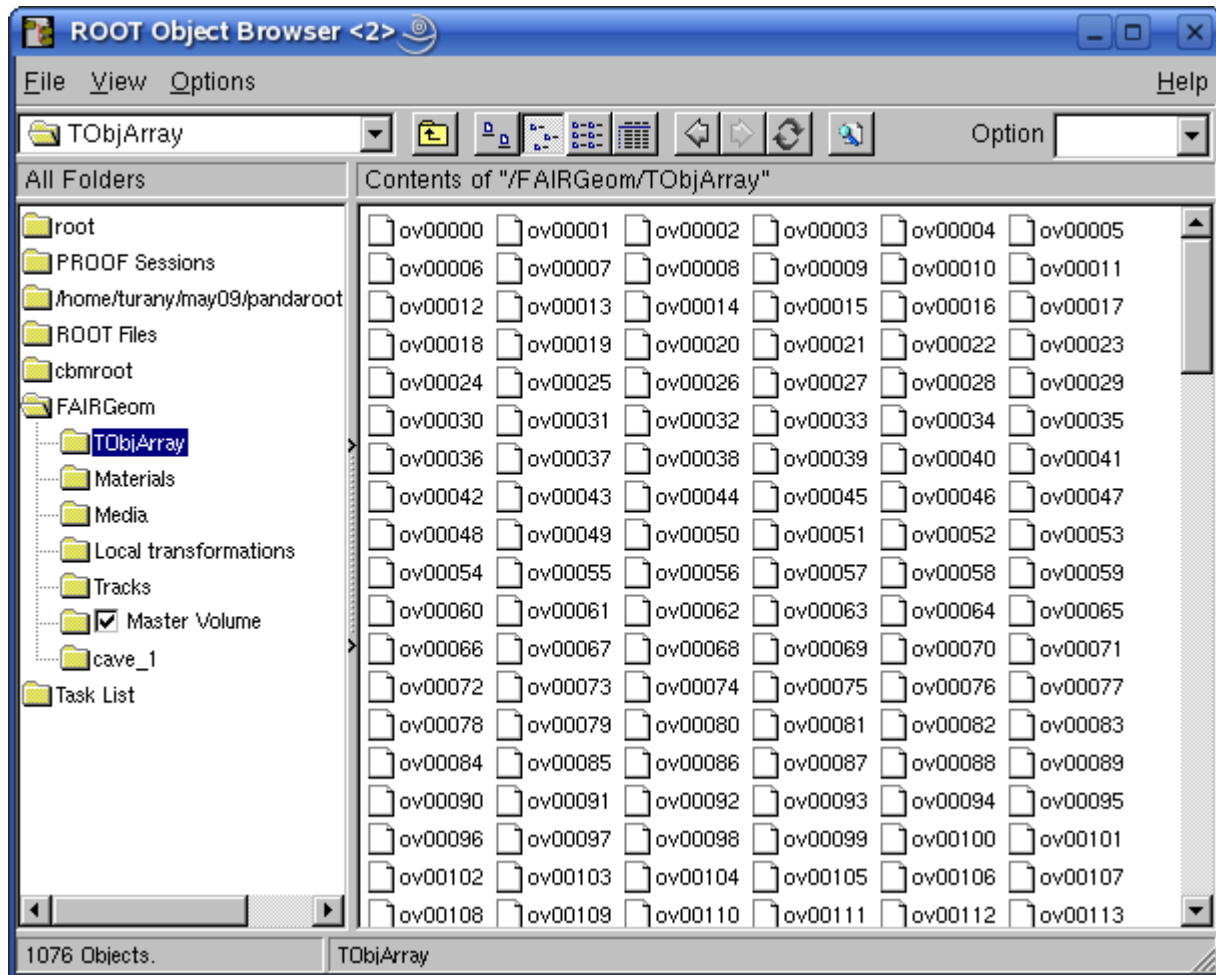
regards

Mohammad

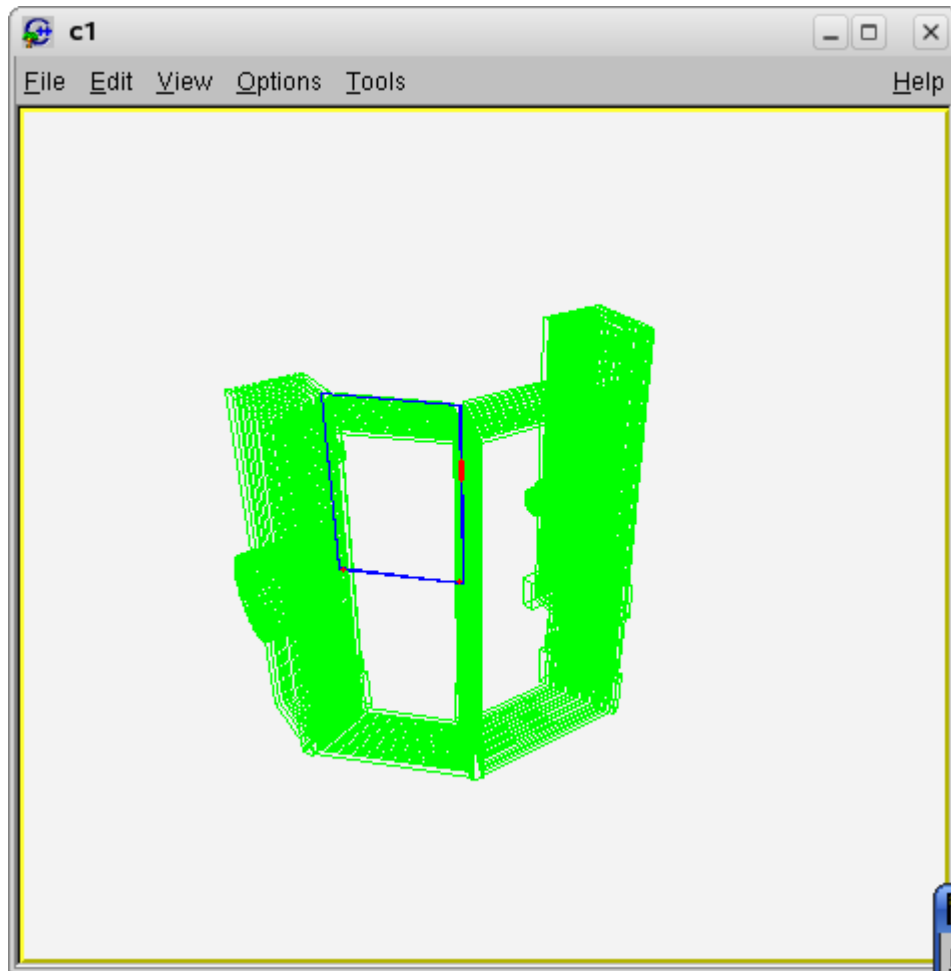
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File Attachments

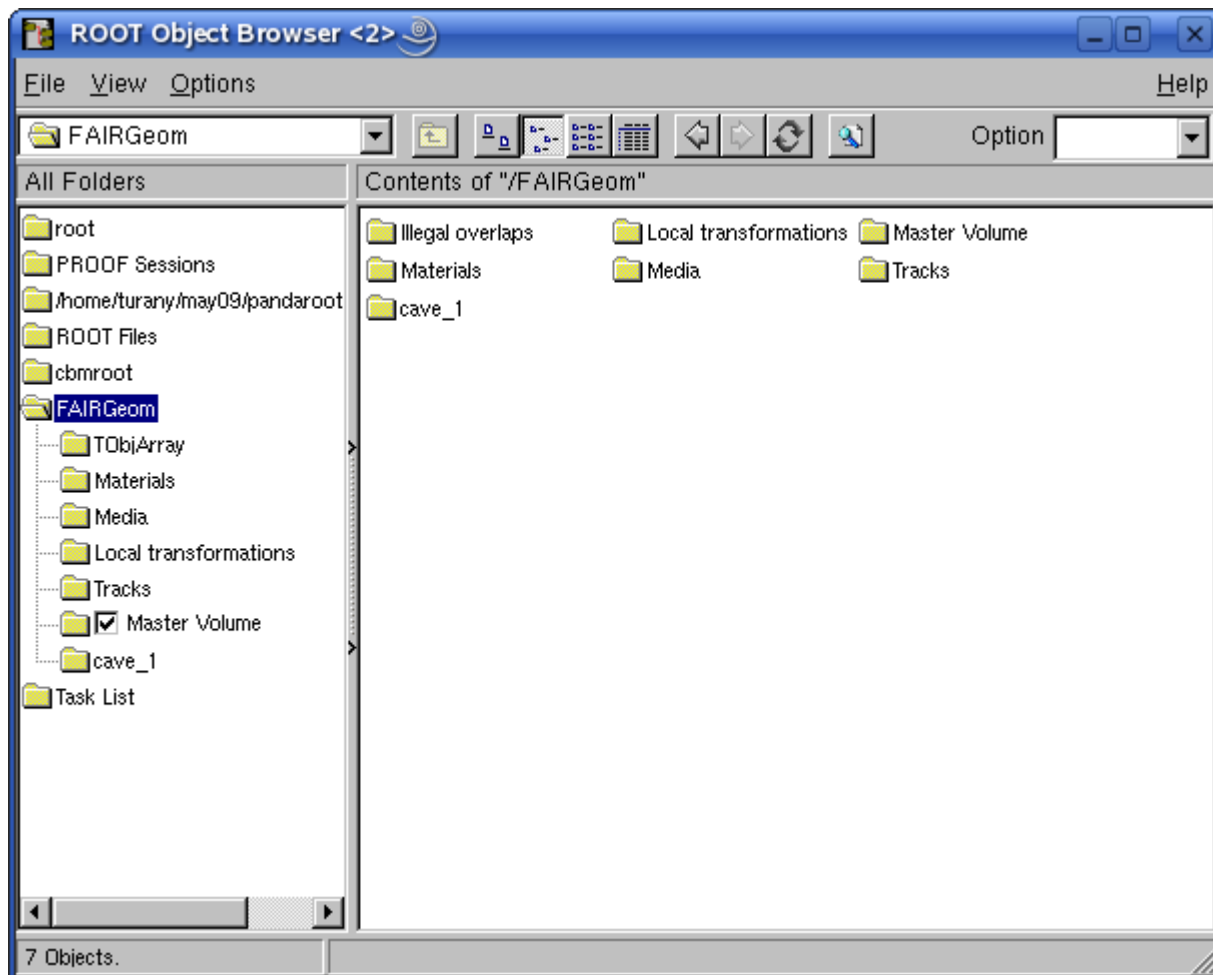
1) [snapshot2.png](#), downloaded 983 times



2) [snapshot3.png](#), downloaded 893 times



3) [snapshot1.png](#), downloaded 646 times



- 4) [v833\\_overlaps.root](#), downloaded 426 times
- 5) [overlaps.root](#), downloaded 422 times

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Subject: Re: Geometry overlaps!!!!

Posted by [Stefano Spataro](#) on Fri, 24 Apr 2009 07:41:53 GMT

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As far as I know, the mdt geometry inside svn is an old one with overlaps, and it was never updated for the new solenoid design.

For this reason I would suggest to skip mdt from the global sim macro, waiting that the geometry is fixed.

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Subject: Re: Geometry overlaps!!!!

Posted by [Tobias Stockmanns](#) on Fri, 24 Apr 2009 08:00:07 GMT

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Hi Mohammad,

can you test if the simulation crashes only with the solenoid and without the MDT?

Thank you,

Tobias

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Subject: Re: Geometry overlaps!!!!

Posted by [Mohammad Al-Turany](#) on Fri, 24 Apr 2009 10:10:06 GMT

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Hallo Tobias,

without the MDT it runs, but still some overlaps (36), the root file is attached!

Mohammad

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#### File Attachments

1) [overlaps\\_withoutMDT.root](#), downloaded 393 times

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Subject: Re: Geometry overlaps!!!!

Posted by [Aleksandra Wronska](#) on Thu, 30 Apr 2009 12:41:34 GMT

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Dear Mohammad,

I have just created a new version of the dch geometry file dch.root. It is in line with the PANDA model ver. 912 (so pretty recent). I tested it for overlaps with magnets and found three overlaps with the dipole:

- = Overlap ov00000: cave/ms16\_0 overlapping cave/dchVol4\_0 ovlp=7
- = Overlap ov00008: cave/ms17\_1 overlapping cave/dchVol4\_0 ovlp=2
- = Overlap ov00009: cave/ms17\_2 overlapping cave/dchVol4\_0 ovlp=2

A fast and dirty way to eliminate these overlaps (which cause crashes of simulations) would be to remove the ms16\_0, ms17\_1, ms17\_2 volumes from the dipole.geo file. A better solution would be to update the dipole geometry file to have it in line with the current design version. Another argument in favour of the second solution is that there seem to be overlaps even between the dipole volumes:

- = Overlap ov00001: cave/ms16\_0 overlapping cave/ms17\_1 ovlp=2.96703
- = Overlap ov00002: cave/ms16\_0 overlapping cave/ms17\_2 ovlp=2.96703
- = Overlap ov00003:

DownstreamoEndcapoV833/DownstreamEndcap1o1oPartAss\_1/DownstreamEndcap1o1\_1 overlapping

DownstreamoEndcapoV833/PlatesOuterCircumferenceo3oPartAss\_1/PlatesOuterCircumferenceo3\_1 ovlp =2.96386

- = Overlap ov00004:

DownstreamoEndcapoV833/DownstreamEndcap1o3oPartAss\_1/DownstreamEndcap1o3\_1 overlapping

DownstreamoEndcapoV833/PlatesOuterCircumferenceo3oPartAss\_1/PlatesOuterCircumferenceo3\_1 ovlp =2.95181

= Overlap ov00005:  
DownstreamoEndcapoV833/DownstreamEndcap1o2oPartAss\_1/DownstreamEndcap1o2 \_1  
overlapping  
DownstreamoEndcapoV833/PlatesOuterCircumferenceo3oPartAss\_1/PlatesOuterC  
ircumferenceo3\_1 ovlp =2.89157  
= Overlap ov00006:  
DownstreamoEndcapoV833/DownstreamEndcap1o5oPartAss\_1/DownstreamEndcap1o5 \_1  
overlapping  
DownstreamoEndcapoV833/PlatesOuterCircumferenceo3oPartAss\_1/PlatesOuterC  
ircumferenceo3\_1 ovlp =2.87952  
= Overlap ov00007:  
DownstreamoEndcapoV833/DownstreamEndcap1o4oPartAss\_1/DownstreamEndcap1o4 \_1  
overlapping  
DownstreamoEndcapoV833/PlatesOuterCircumferenceo3oPartAss\_1/PlatesOuterC  
ircumferenceo3\_1 ovlp =2.79518  
= Overlap ov00010: cave/md05\_3 overlapping cave/md07\_2 ovlp=1.86286  
= Overlap ov00011: cave/md05\_2 overlapping cave/md07\_1 ovlp=1.86286  
= Overlap ov00012: cave/md05\_1 overlapping cave/md07\_1 ovlp=1.86286

Will you take care of that?  
cheers,  
ola

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Subject: Re: Geometry overlaps!!!!  
Posted by [Mohammad Al-Turany](#) on Thu, 30 Apr 2009 21:33:27 GMT  
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Hallo Ola,

if somebody send me the actual geometry of the dipole in TOSCA then yes (but first in the second half of May), and if it is only available as STEP file, then I would ask Tobias if he can convert it.

cheers.

Mohammad

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