LArSoft - Bug #17250

Adding geo::kX view and TimeOffsetX to DetectorProperties for rotated dual phase geometry gives segmentation faul from trajcluster and pmtrack

07/21/2017 09:46 AM - Christoph Alt

Status:	Closed	**Start date:**	07/21/2017
Priority:	Normal	**Due date:**	
Assignee:	Gianluca Petrillo	**% Done:**	100%
Category:	Geometry	**Estimated time:**	0.00 hour
Target version:		**Spent time:**	1.00 hour
Occurs In:	v06_43_00, v06_44_00	**Co-Assignees:**	
Experiment:	-		

Description

Hi,

When loading the rotated protodune dual phase geometry (dunetpc/dune/Geometry/gdml/protodunedphase_rot.gdml) with drift in y and views in x (geo::View_t = geo::kX = 4) and z (geo::View_t = geo::kZ = 2), I got the following error:

```
%MSG-s ArtException:  lar 16-May-2017 23:18:17 CEST JobSetup
cet::exception caught in art
---- OtherArt BEGIN
 ServiceCreation
 ---- CalculateXTicksParams BEGIN
   Bad view = 4
 ---- CalculateXTicksParams END
 cet::exception caught during construction of service type detinfo::DetectorPropertiesServiceStand
ard:
---- OtherArt END
%MSG
```

The problem is that the geo::kX case (and TimeOffsetX) is not implemented in DetectorProperties.
I added them, see branch feature/chalt_XPlaneForRotatedDPGeometry in lardata.
Files I changed:
detectorproperties.fcl
DetectorPropertiesStandard.h
DetectorPropertiesStandard.cxx
DetectorProperties.h

The rotated geometry is loading with this fix (I can't test much more right now since the drift in y is not implemented yet at the g4 stage), but:

When loading the **unrotated** dual phase geometry (dunetpc/dune/Geometry/gdml/protodunedphase.gdml, with drift in x and views in y and z) with this fix, I get a segmentation fault from trajcluster and pmtrack (linecluster works). To reproduce, checkout my branch in lardata and do:

reco with raw hit finding and trajcluster:

```
lar -c srcs/dunetpc/fcl/protodunedp/gen/prod_protodunedp.fcl -n 1 -o gen.root (no problem)
lar -c srcs/dunetpc/fcl/protodunedp/g4/standard_g4_protodunedp.fcl gen.root -o g4.root (no problem
)
lar -c srcs/dunetpc/fcl/protodunedp/detsim/standard_detsim_protodunedp.fcl g4.root -o detsim.root
(no problem)
lar -c srcs/dunetpc/fcl/protodunedp/reco/rawhitfinding_reco_protodunedp.fcl detsim.root -o reco.ro
ot (segmentation fault from trajcluster)
```

reco with gauss hit finding and linecluster:

```
lar -c srcs/dunetpc/fcl/protodunedp/gen/prod_protodunedp.fcl -n 1 -o gen.root (no problem)
```

```
lar -c srcs/dunetpc/fcl/protodunedp/g4/standard_g4_protodunedp.fcl gen.root -o g4.root (no problem
)
lar -c srcs/dunetpc/fcl/protodunedp/detsim/standard_detsim_protodunedp.fcl g4.root -o detsim.root
(no problem)
lar -c srcs/dunetpc/fcl/protodunedp/reco/standard_reco_protodunedp.fcl detsim.root -o reco.root (s
egmentation fault from pmtrack)
```

Both reconstructions work fine without the fix.

Let me know if you need more information!

Thanks,
Christoph

P.S.: using v06_44_00

History

#1 - 07/21/2017 02:45 PM - Gianluca Petrillo

- Status changed from New to Assigned

- Assignee set to Gianluca Petrillo

Thank you for reporting this, Christoph.

Actually, the work was already done, but was lying on a feature branch that has been forgotten: feature/gp_AddViewXsupport in lardata.
I have picked a couple of changes that I had missed (or that I had opted not to adopt, but that make sense to me *now*).
I have *not* picked the changes to the FHiCL file. In fact, I wish I could safely remove the other TimeOffset# settings from that FHiCL file: they are detector-specific and it makes no sense to have them in a generic configuration.

Now testing.

#2 - 07/24/2017 09:42 AM - Gianluca Petrillo

- % Done changed from 0 to 100

Testing was successful.
Experiment repositories included ArgoNeuT, DUNE, Icarus, LArIAT, MicroBooNE and SBND.

#3 - 07/24/2017 09:47 AM - Gianluca Petrillo

- Description updated

- Status changed from Assigned to Resolved

- Occurs In v06_44_00 added

#4 - 07/24/2017 09:48 AM - Gianluca Petrillo

- Description updated

#5 - 07/25/2017 07:08 AM - Christoph Alt

Hi Gianluca,

Thank you! Are you planning on merging this feature branch into develop?

#6 - 07/25/2017 09:59 AM - Gianluca Petrillo

It is scheduled for merge in the coming release: I will not merge it directly to develop branch, but the merge should happen by tomorrow.

#7 - 09/13/2017 11:26 AM - Gianluca Petrillo

- Status changed from Resolved to Closed