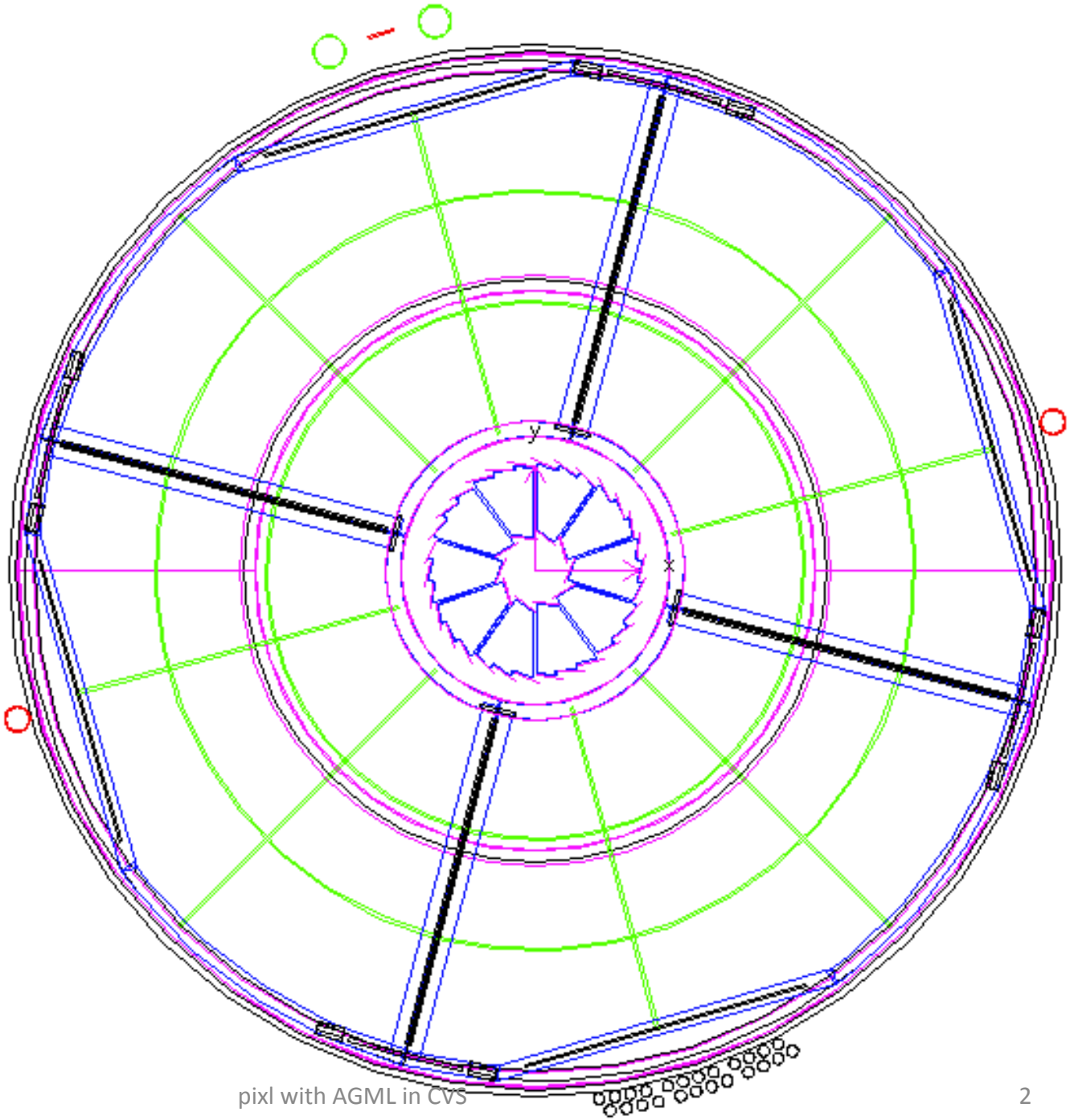
Pixel geometry with AGML (in CVS)

- The pixel geometry (10 sectors) is now in CVS under the tag ‘dev13’ geometry (library is ‘eval’)
- The sector is the version I’ve shown last week meeting:
  - Material is only ‘silicon’ for active ladder
  - Material is ‘carbon’ for the sector structure
- The new beam pipe is also included in CVS

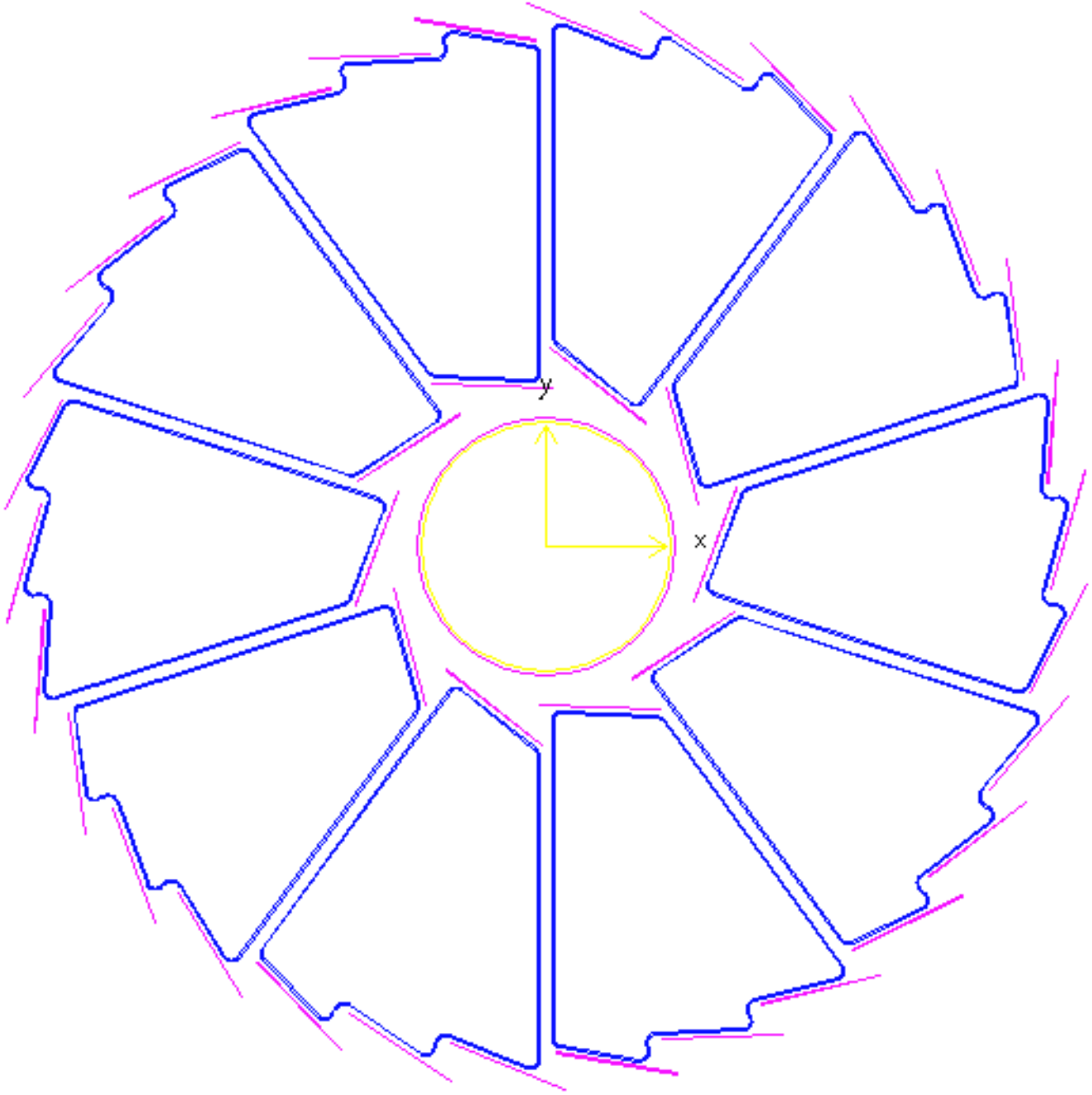
- Thanks to Jason for the help about overlaps and hidden volumes in the geometry.

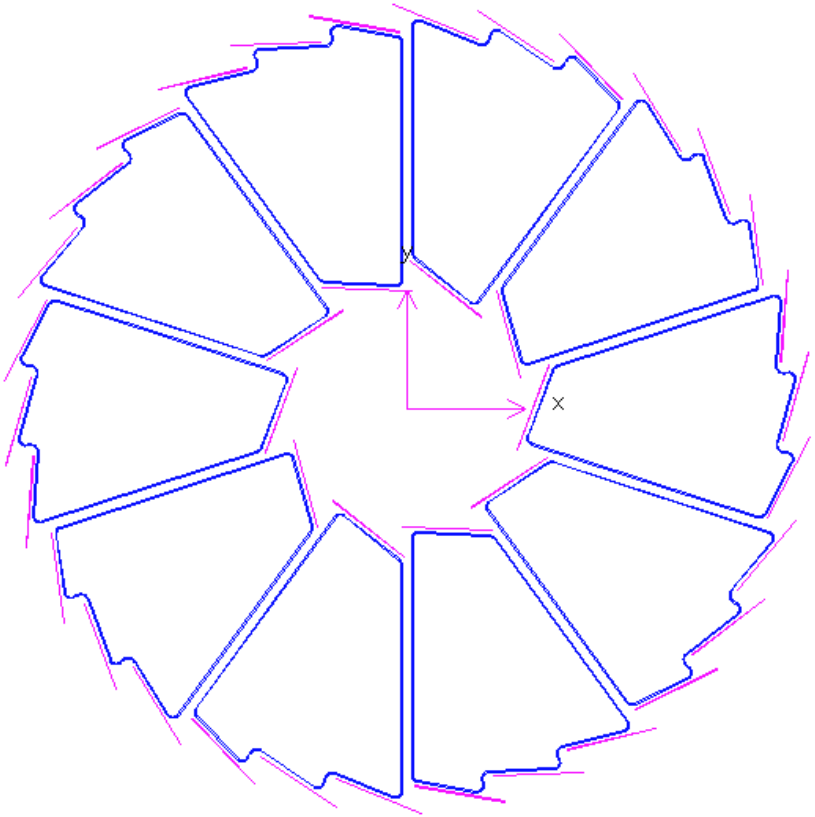
•The pixel is inside the IDSM.

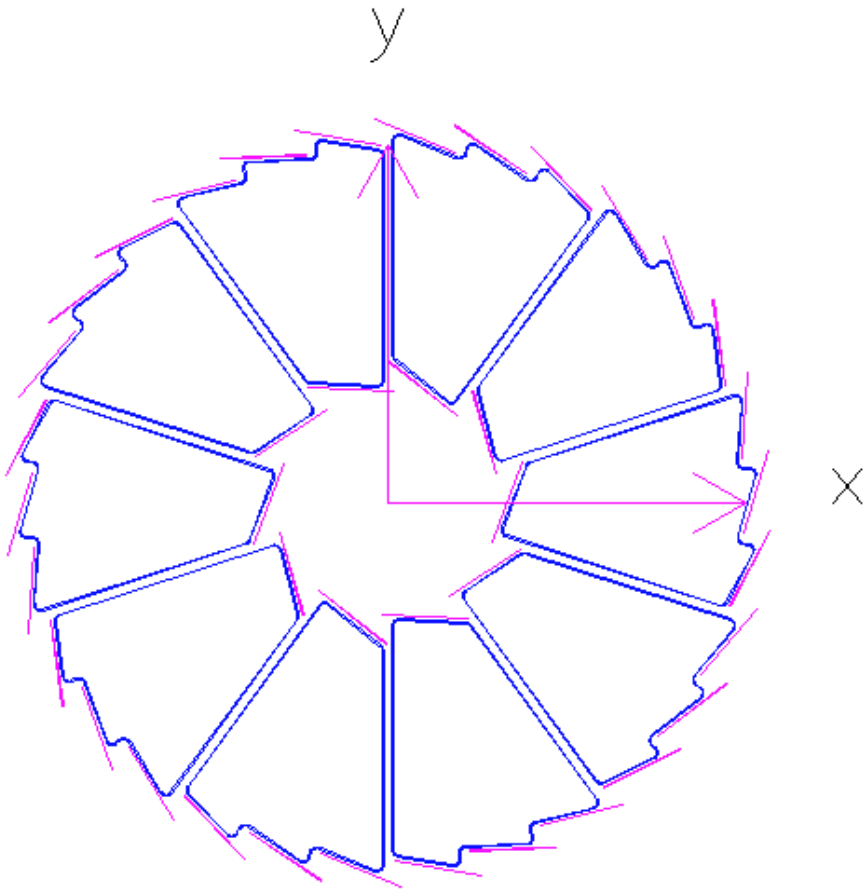
• We also see here the FGT quadrants.



- the beam pipe in this picture is the simplified beam pipe we used with UPGR15 geometry (it has the good radius)
- the yellow axis point at radius = 1.9 cm



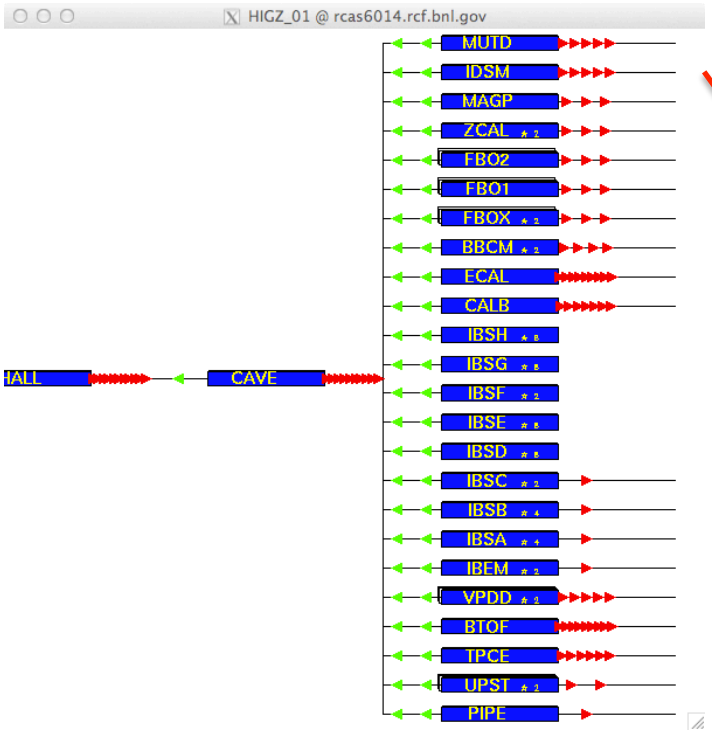


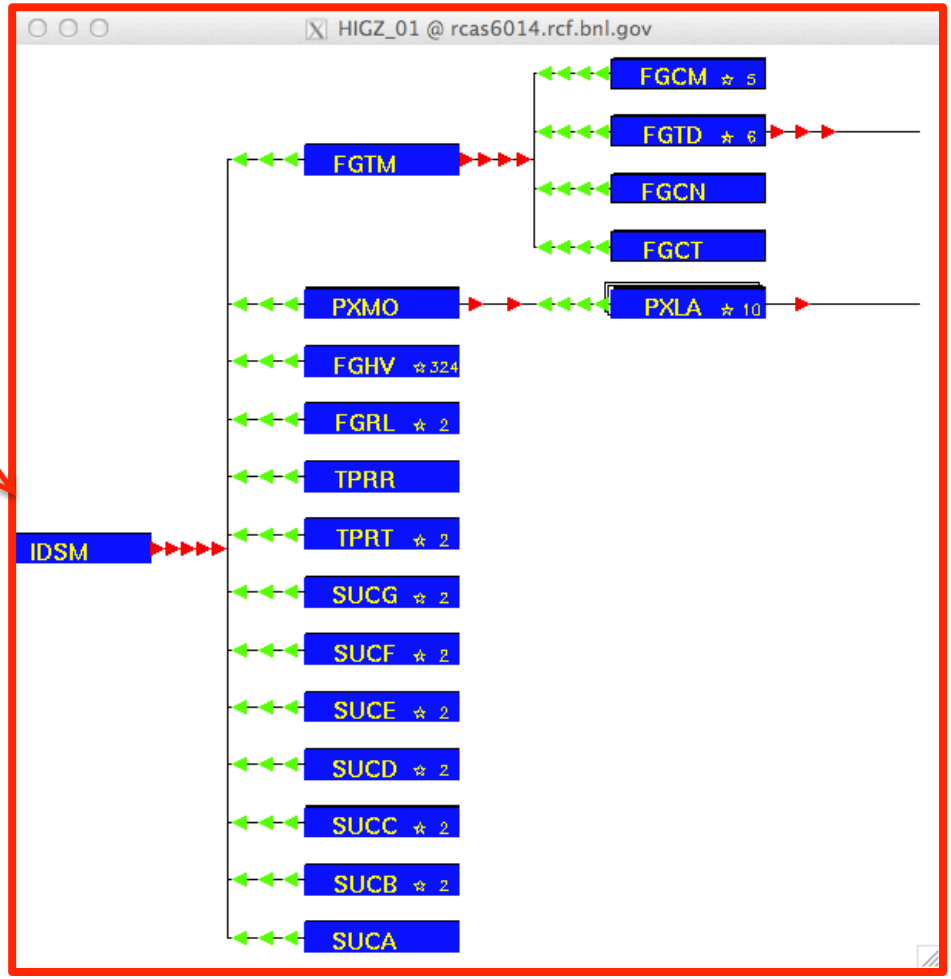


- the purple axis point at radius = 2.5 cm

- the purple axis point at radius = 8 cm

Pixel volumes/names in starsim





IDSM contains :

- the FGT (**FGTM**)
- the PIXEL (**PXMO**) made of 10 sectors (**PXLA**)

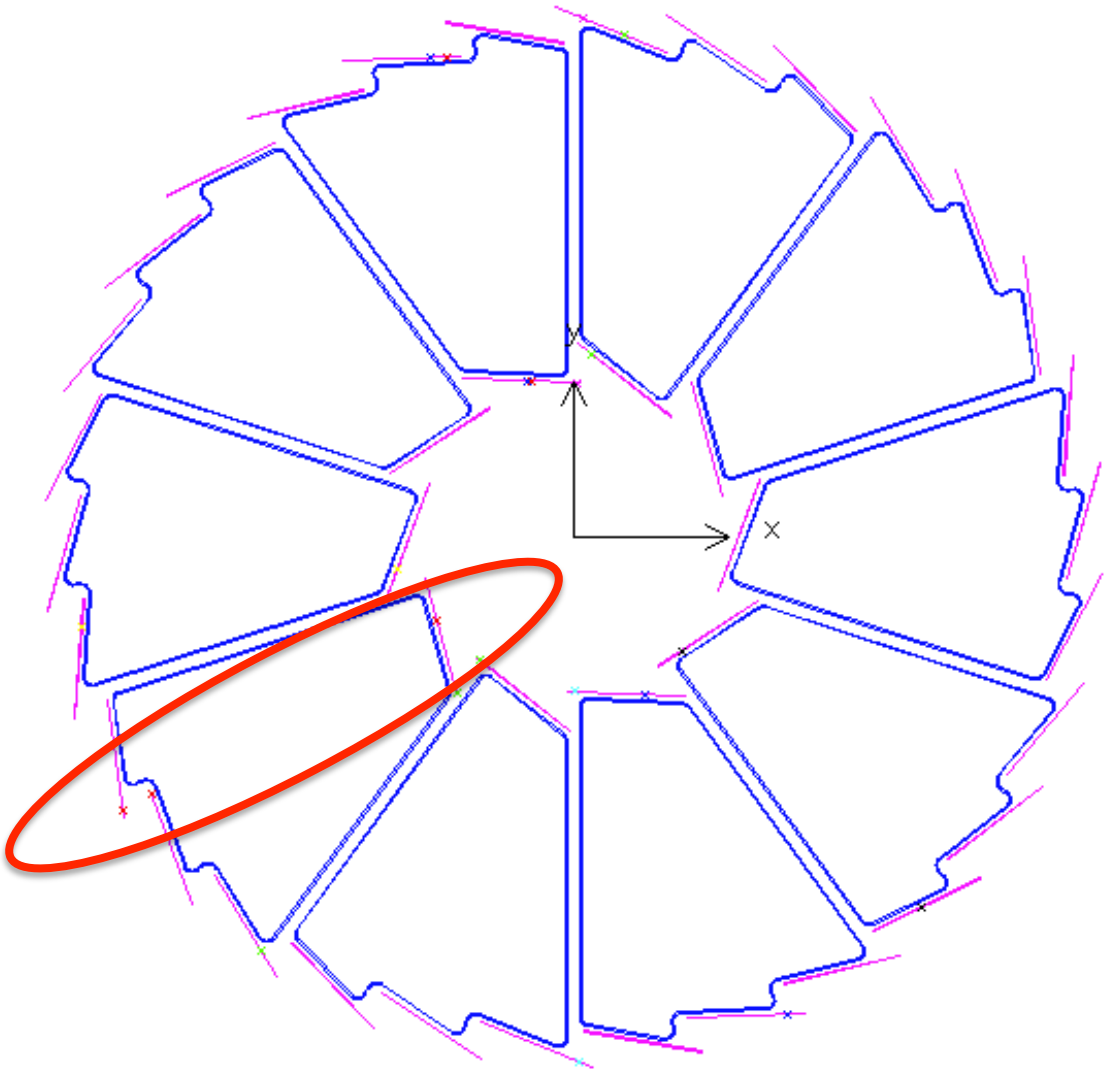
Pixel volumes/names in starsim

A sector contains :

- 4 active silicon ladders (**PLAC**)
- 16 others pieces : ladder structure

Running starsim

- 1 event with 10 pions
- ✓Hits are found on the inner and outer layer.
- •Tracks can have 3 hits because of the overlaps between ladder.



Next steps

- Try to run the BFC chain :
  - We need the proper path to the silicon ladders in the PixelFastSimMaker
  - I've checked with the Tgeo volume :
    - sector id will go from 1 to 10
    - ladder id (inside a sector) will go from 16 to 19.
    - For example, active ladders for sector 1 will have the following names

HALL_1/CAVE_1/IDSM_1/PXMO_1/PXLA_1/PLAC_16
HALL_1/CAVE_1/IDSM_1/PXMO_1/PXLA_1/PLAC_17
HALL_1/CAVE_1/IDSM_1/PXMO_1/PXLA_1/PLAC_18
HALL_1/CAVE_1/IDSM_1/PXMO_1/PXLA_1/PLAC_19

- Update the given geometry now in CVS (pixel is still flying in the middle of the IDSM w/o any support structure) with additional material (passive silicon layer, electronics, kapton,…etc)

How to build the geo

- Following Jason's instructions (under starver eval):

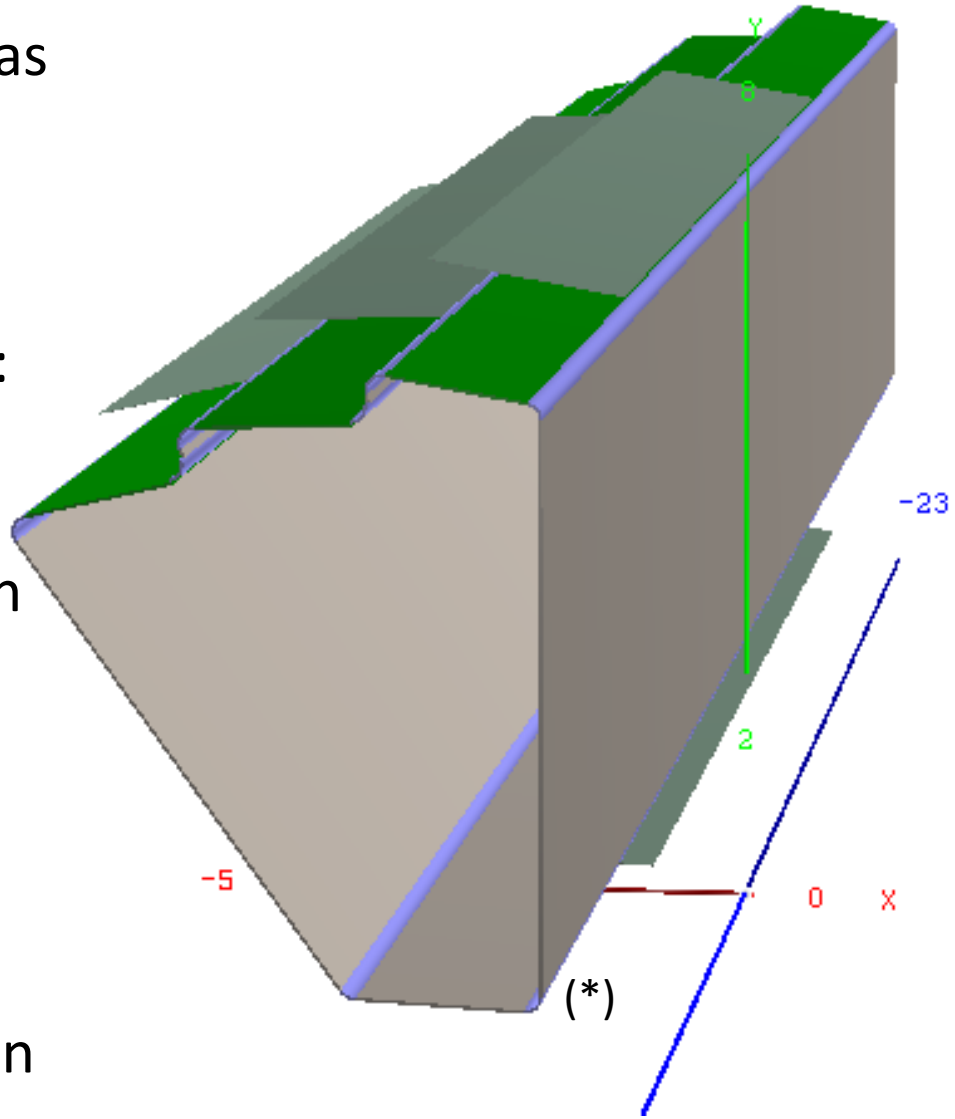
```
starsim> detp geom dev13
starsim> gexe $STAR_LIB/xgeometry.so
```

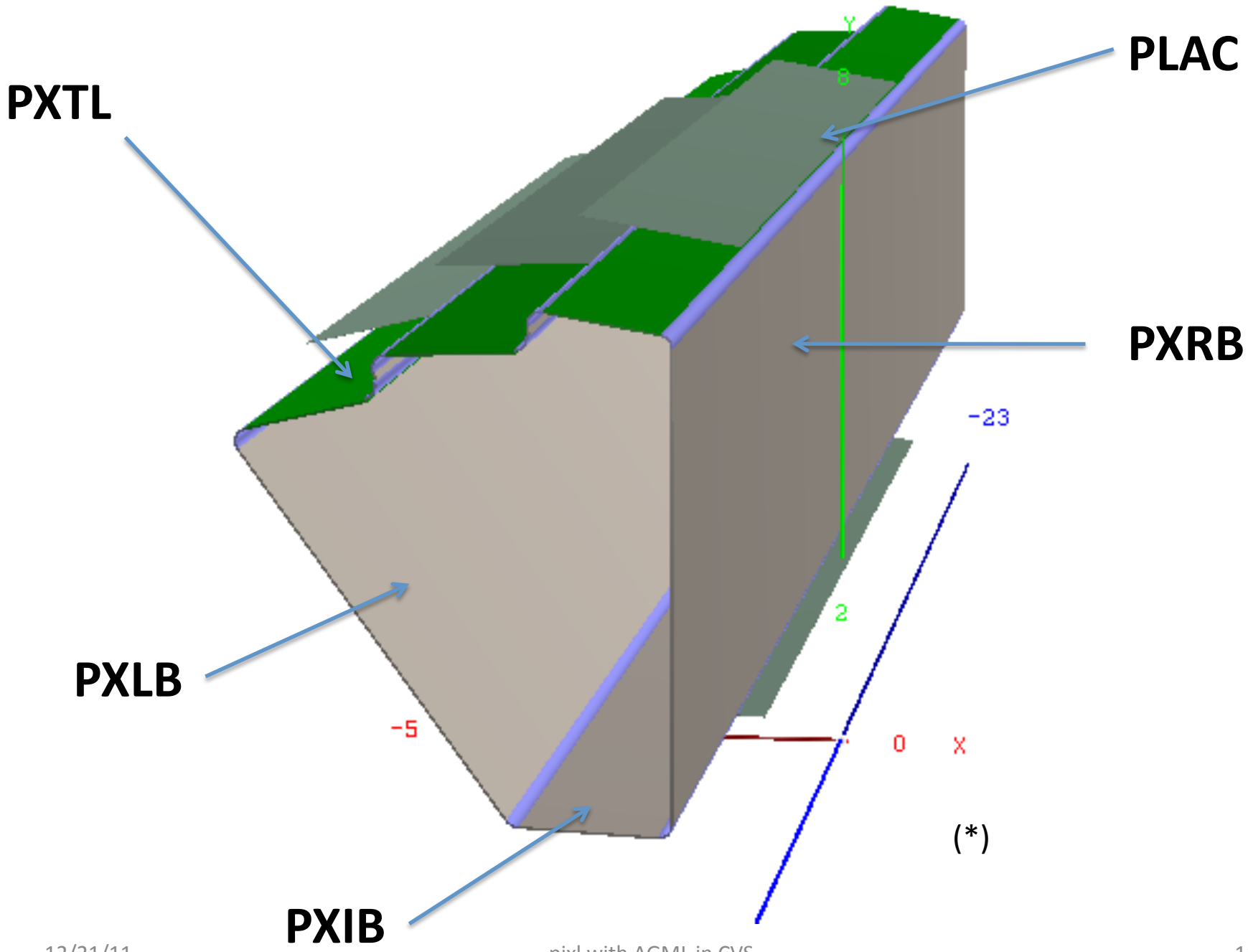
ⓘ For today only the library has to be rebuilt so one has to checkout the code and run

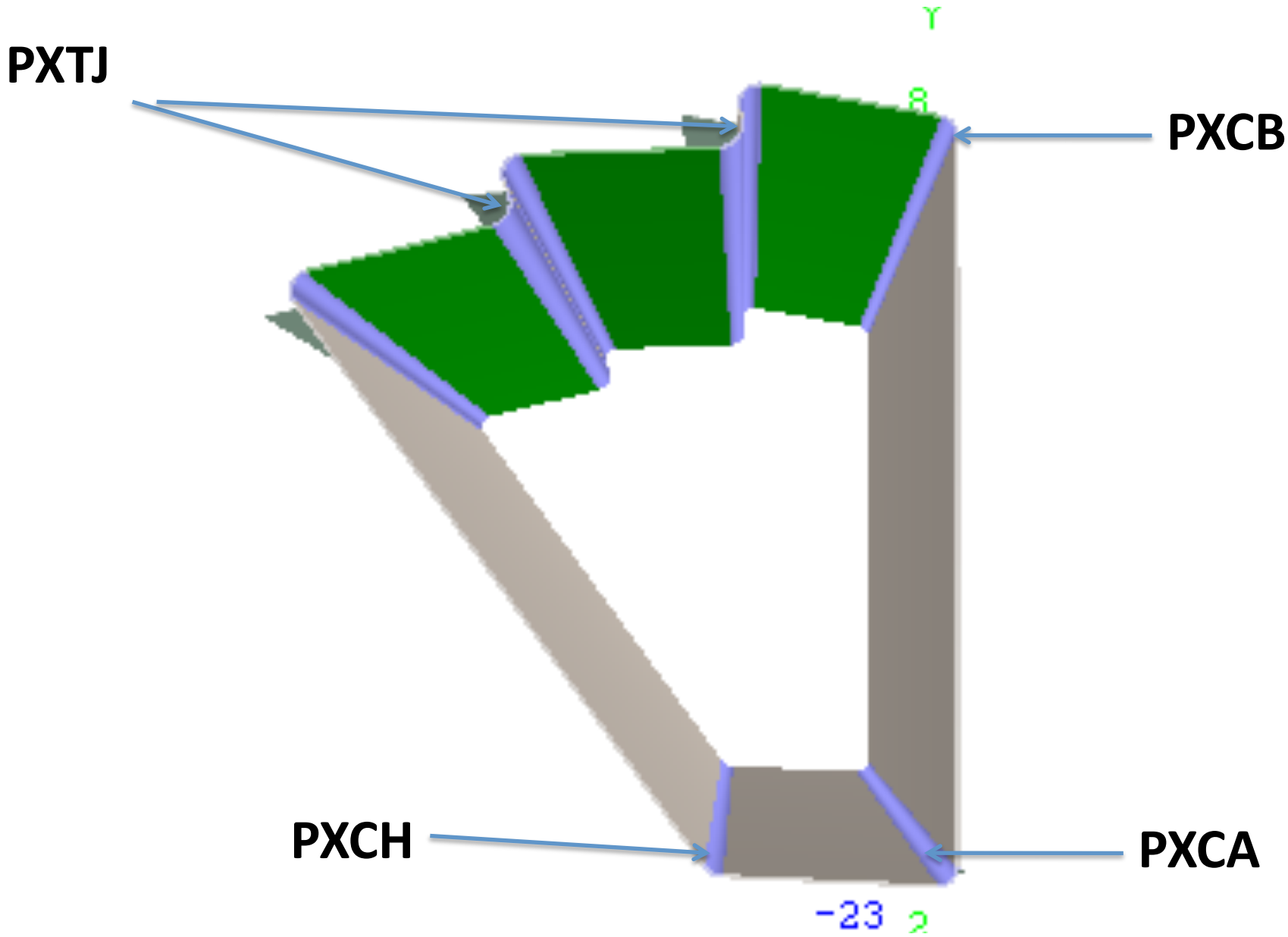
```
starsim> detp geom dev13
starsim >gexe .$STAR_HOST_SYS/lib/xgeometry.so
```

Volume naming convention

- PLAC =active silicon ladder : it was the name used in UPGR15
- PXCA-PXCB-PXCC-PXCD,PXCE PXCF,PXGH,PXCH are the corners, starting from the bottom right (*) : **P**i**X**el **C**orner **A** …
- PXTR-PXT-PXTL are the planes supporting the active silicon on the top : **P**i**X**el **T**op **R**ight ,etc…
- PXTJ are the 2 planes joining the planes on the top : **P**i**X**el **T**op **J**oin
- PXLB, PXRB, PXIB are the planes on front of the beam pipe and between 2 sectors




PXTL
PLAC
PXRB
PXLB
PXIB
Y
8
2
-23
-5
0
X
(*)


PXTJ
PXCB
PXCH
PXCA
Y
8
-23
2