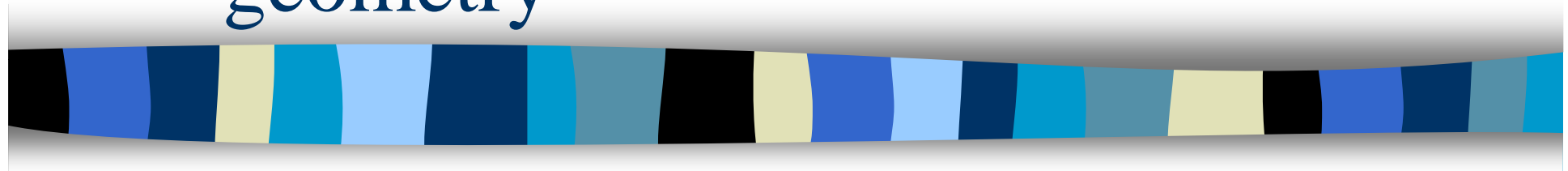


TOF code status report:

raw data

data visualization

geometry



A. De Caro for the TOF group



First two points...

- TOF raw data: no change from July 2007 (online/offline codes evolve together)
- TOF visualization:
 - TOF digits visualization: classes implemented from June 2007
 - TOF clusters and raw data visualization: to be implemented (I -involving also a new PhD student- plan to make it before the end of this year)



...and TOF geometry report

- I will report about the work I made in the last months on the TOF detector description, with the fundamental feedback of the TOF hardware people.



TOF weight

- TOF SuperModule (SM) real weight: 1400 Kg (± 100 Kg)
- TOF SM, as described in the simulation code used for the PDC '06 production, weighted ~ 370 Kg
- Now, in the head, the TOF SM weight is ~ 1390 Kg, as in the real life



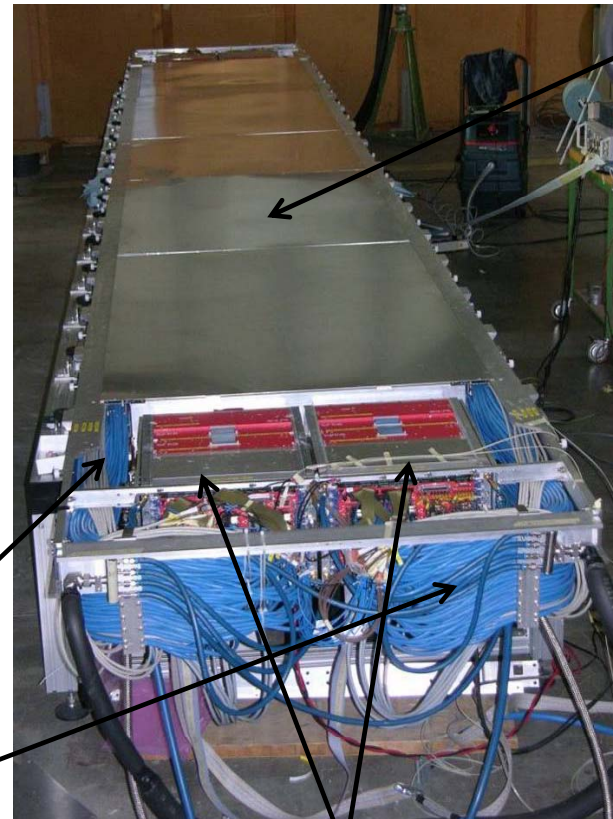
TOF weight: where are the differences? (1)

- TOF readout crates ($0.9 < |\eta| < 1.1$). TOF services ($0^\circ.5 < |\phi - i\text{Sector} * 20^\circ| < 3^\circ$, $i\text{Sector} = 0, \dots, 17$) and TOF SM cover were not been described in the TOF simulation code, till the AliRoot v4-05-Release
- Their contribute to the total TOF SM weight is ~ 700 Kg

TOF SM: services, readout crates and cover as in real life



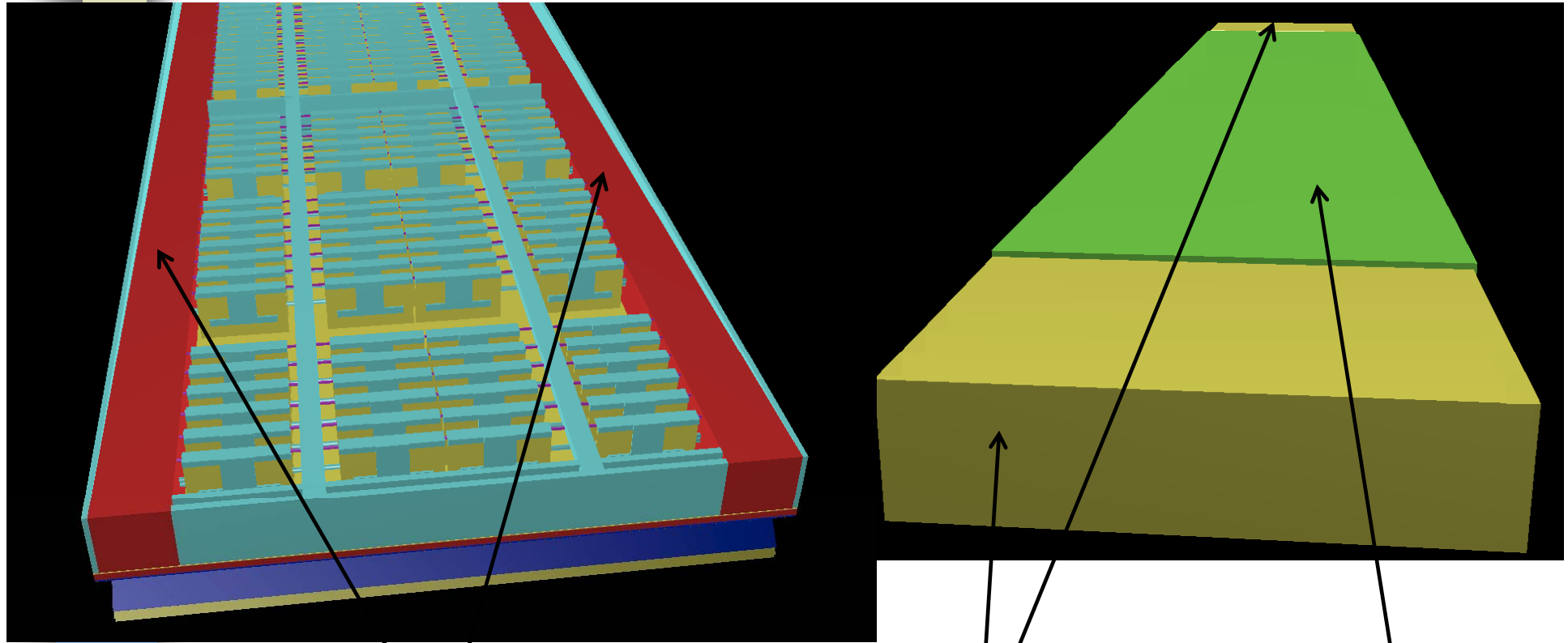
Services



**TOF SM
cover**

**Readout
crates**

TOF SM: services, readout crates and cover as described in AliRoot



Services

(Al, Cu, plastic mixture)

Readout crates

(Al, Cu, Ni, plastic mixture)

SM cover

(Al)



TOF weight: where are the differences? (2)

- TOF cooling support structure was not been described in the TOF simulation code, till the AliRoot v4-05-Release
- Its contribute to the total TOF SM weight is ~ 70 Kg

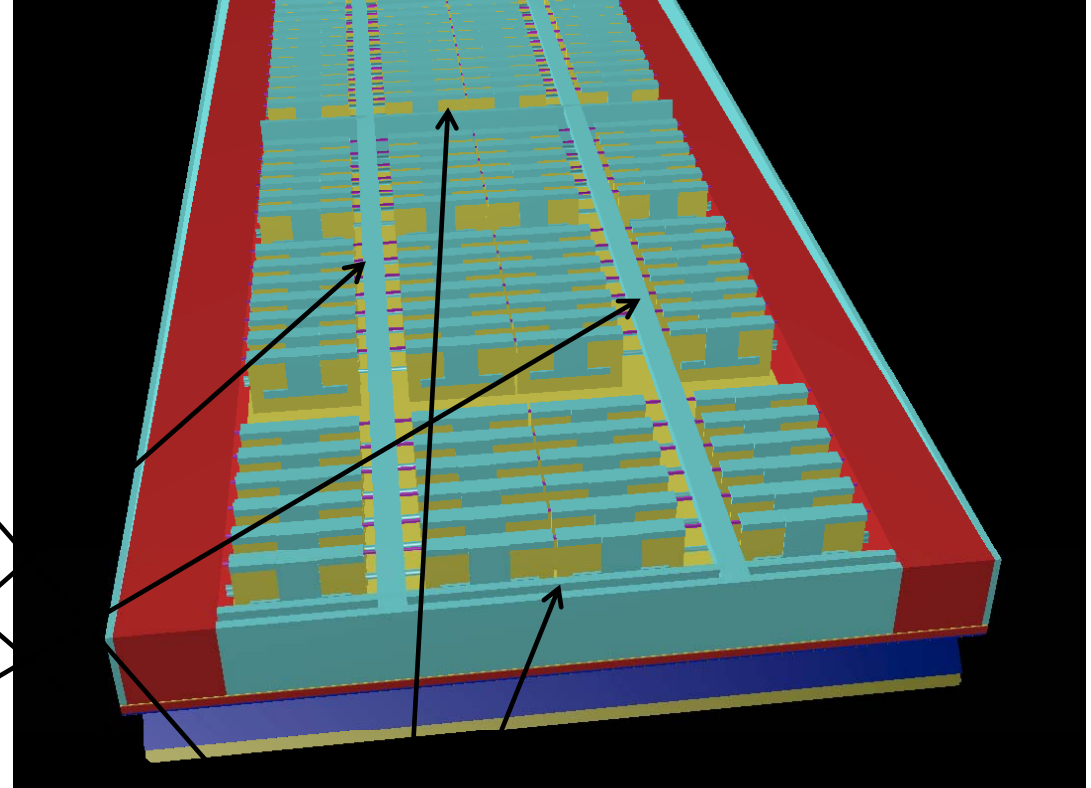
TOF SM: cooling support

real



2 'longheroni' (Al)

simulation



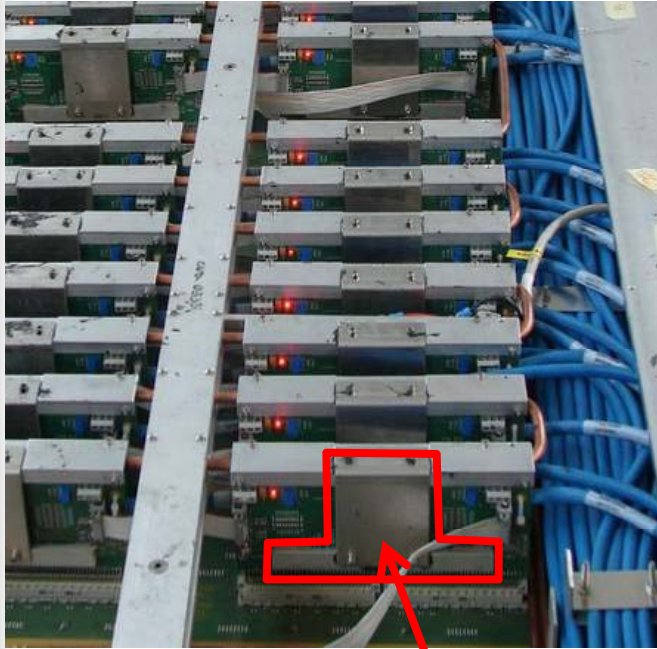
8 'traversi' (Al)



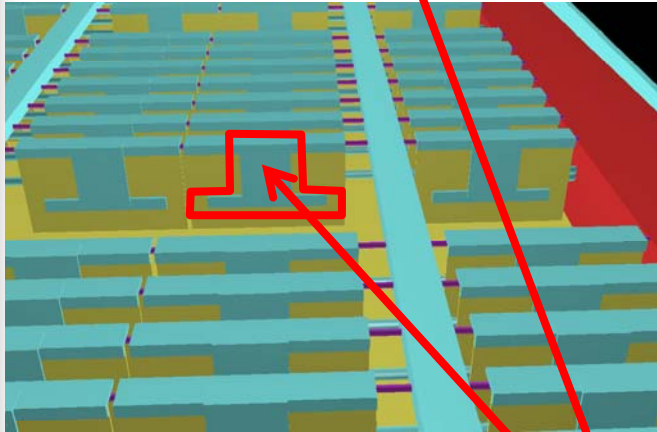
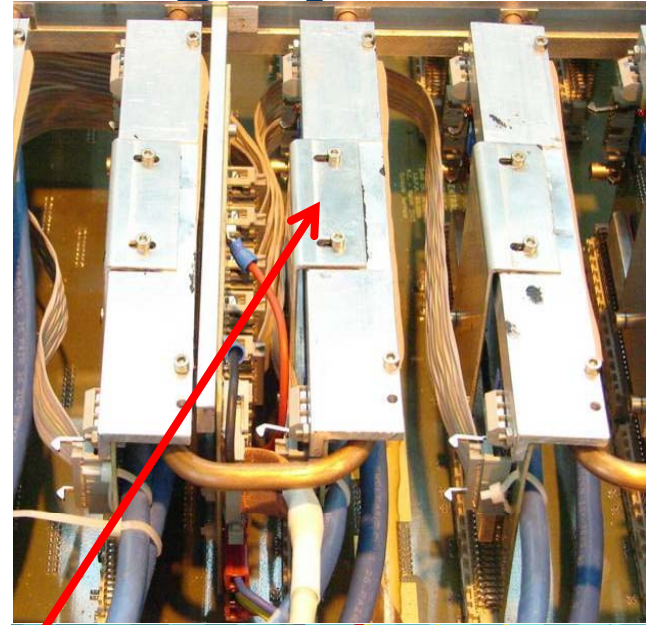
TOF weight: where are the differences? (3)

- TOF electronics cooling system, described in the TOF simulation code, was not updated to the more recent engineering designs, till the AliRoot v4-05-Release
- Its contribute to the total TOF SM weight is ~ 70 Kg

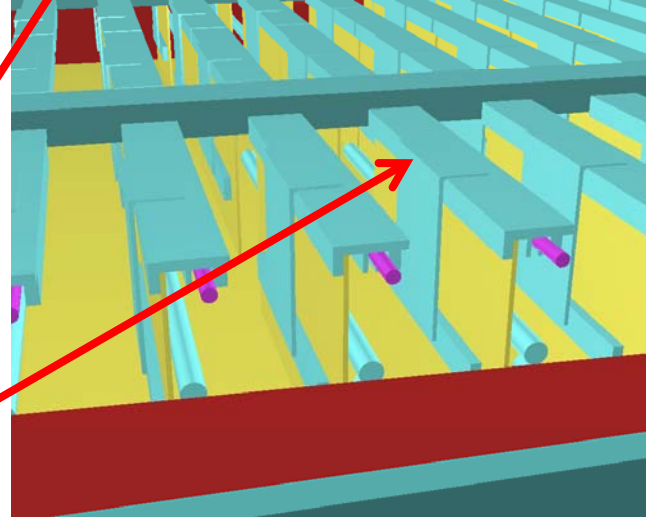
TOF electronics cooling system



real



simulation



**Finger to cool NINO ASIC
(mounted only on the first five TOF SM)**

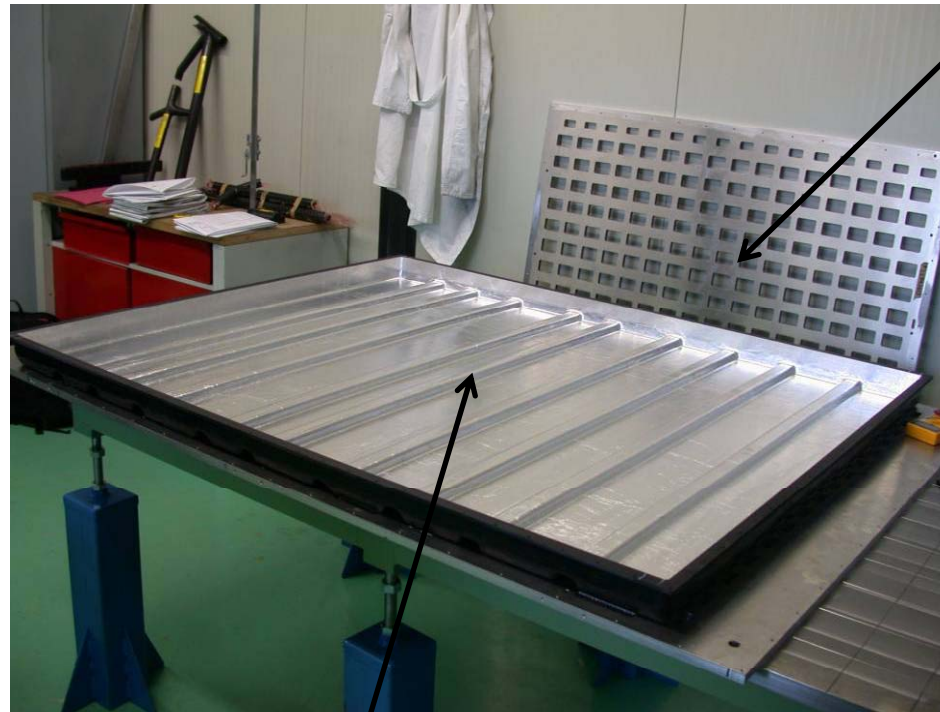


TOF weight: where are the differences? (4)

- TOF module covers and PCBs:
 - 1st implementation (PDC'06):
underestimate for the Al layer and PCB layers densities
 - 2nd implementation (v4-05-Release):
overestimate for density values of Al layer and PCB
- Their contribute to the total TOF SM weight is ~ 140 Kg

TOF module: gas box and cover

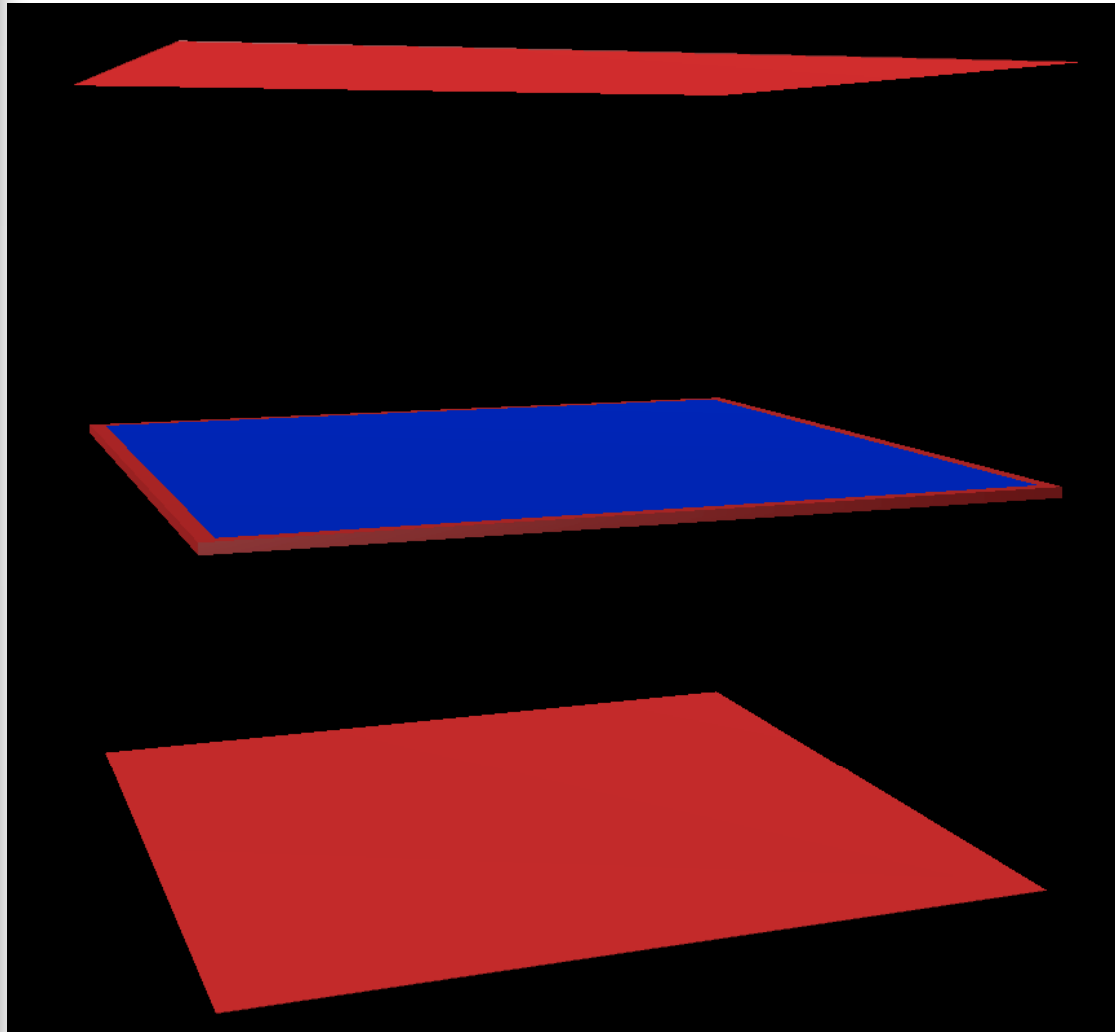
Cover (1.5cm layer)



Gas box

**(fibre-glass 0.3mm layer in front of the strips,
fibre-glass 0.6cm layer in the frame box)**

TOF module: cover detail



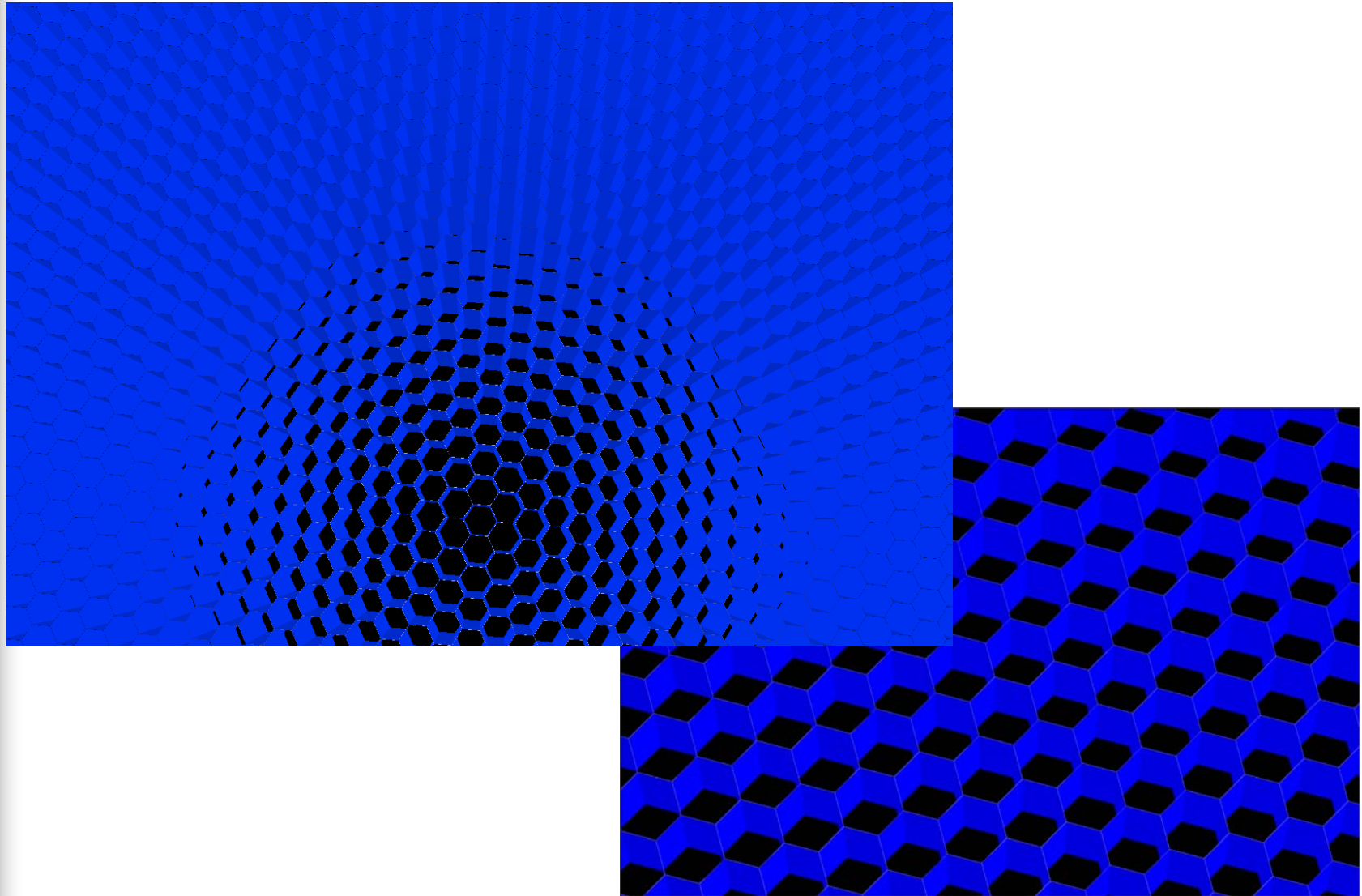
1 thin Al layer
(called skin): 1mm

Al 'frame':
width=2 cm
thickness=1.3 cm

Al honeycomb
'picture':
thickness=1.3 cm

1 thin Al layer
(called skin): 1mm

TOF module: Al honeycomb layer detail



TOF module: strips and flat cables

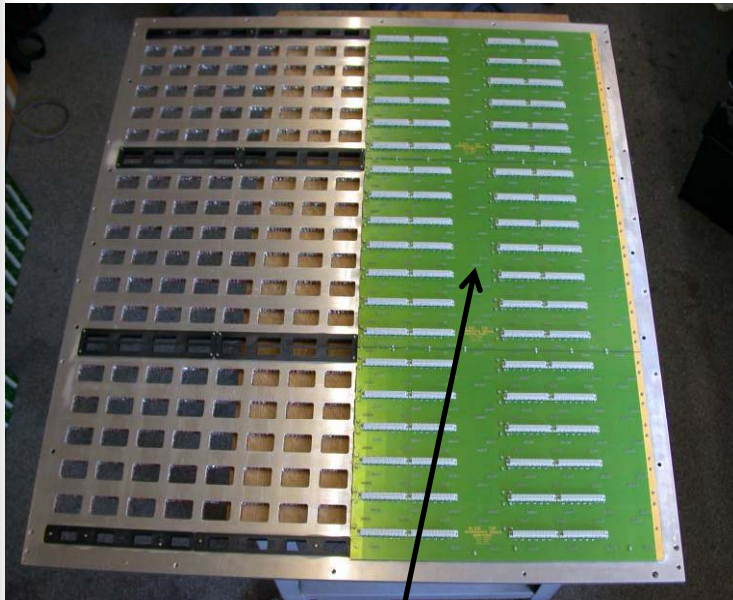


Flat cables (30Kg/SM)
(to pickup signals
from the strips and
to transport them toward
front-end electronics):
described as

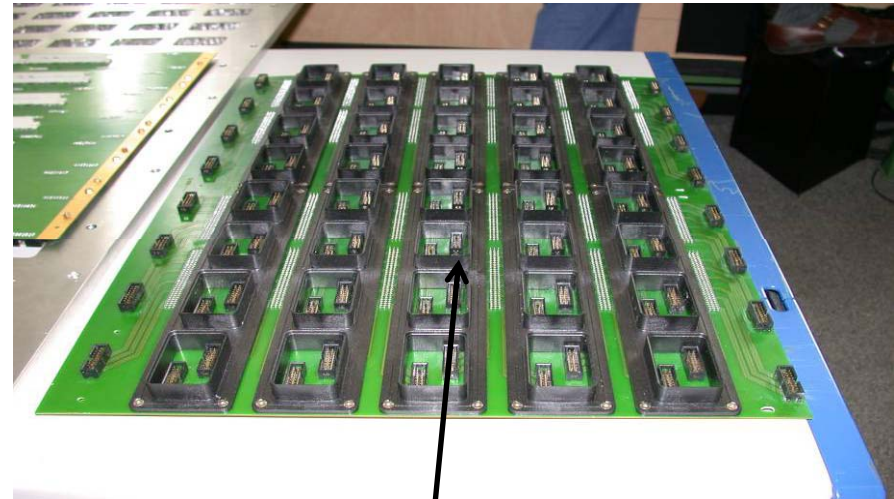
0.24cm plastic layer
+0.01cm Cu layer
uniformly distributed below
the TOF module covers

Strips

TOF PCBs



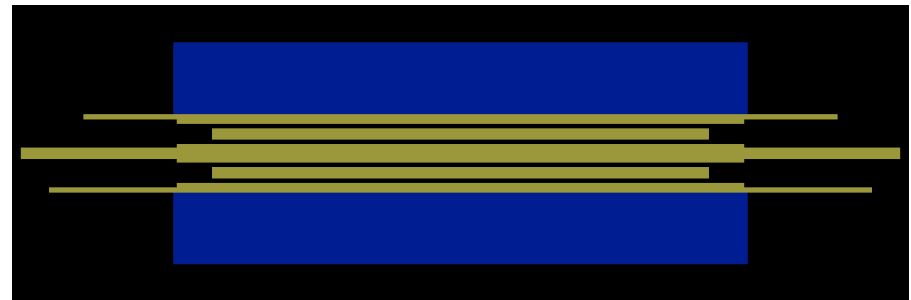
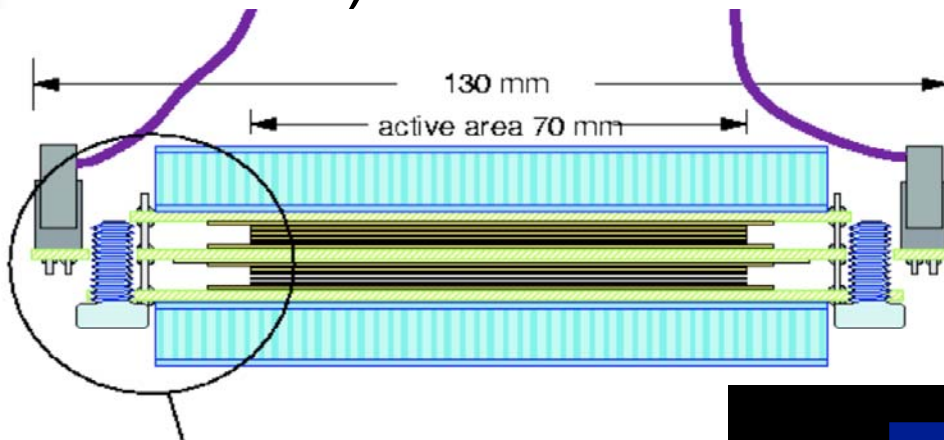
PCB upper side
(where the FEA cards are plugged)



PCB reversed side
(where the flat cables are plugged)

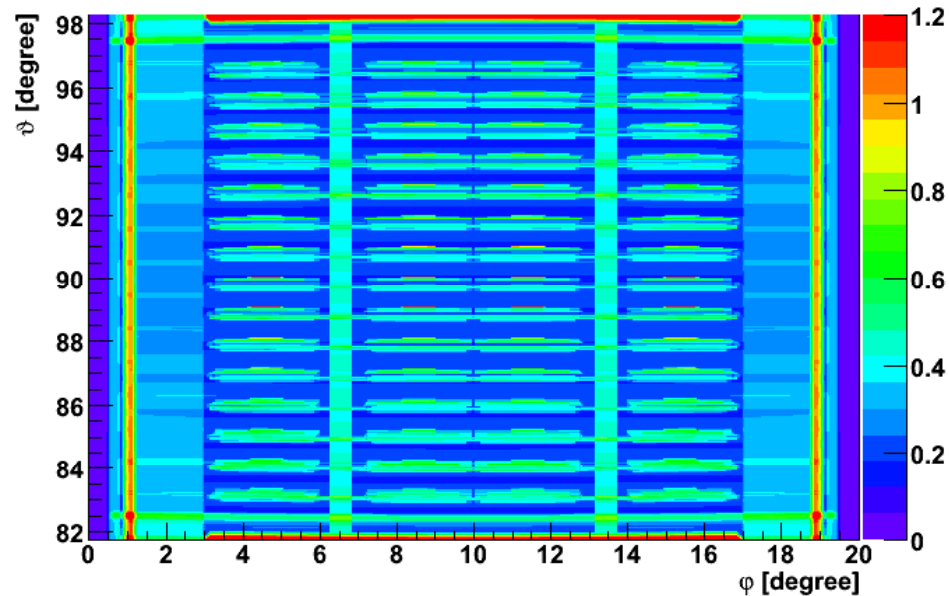
TOF weight: sensitive volumes

- The description of the TOF sensitive volumes, the double-stack MRPC strips, didn't changed so much. The density value of material constituent the 2 external strip layers (called nomex) is increased.

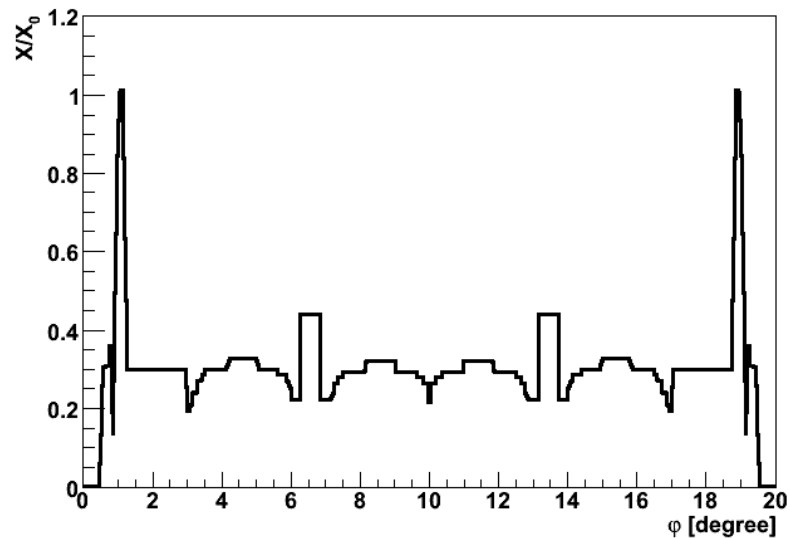


TOF radiation length: central module

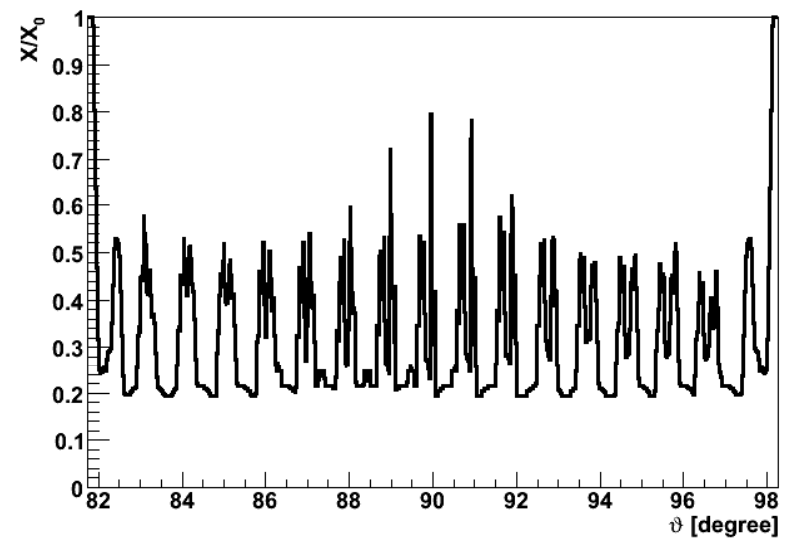
TOF central module. Radiation length map



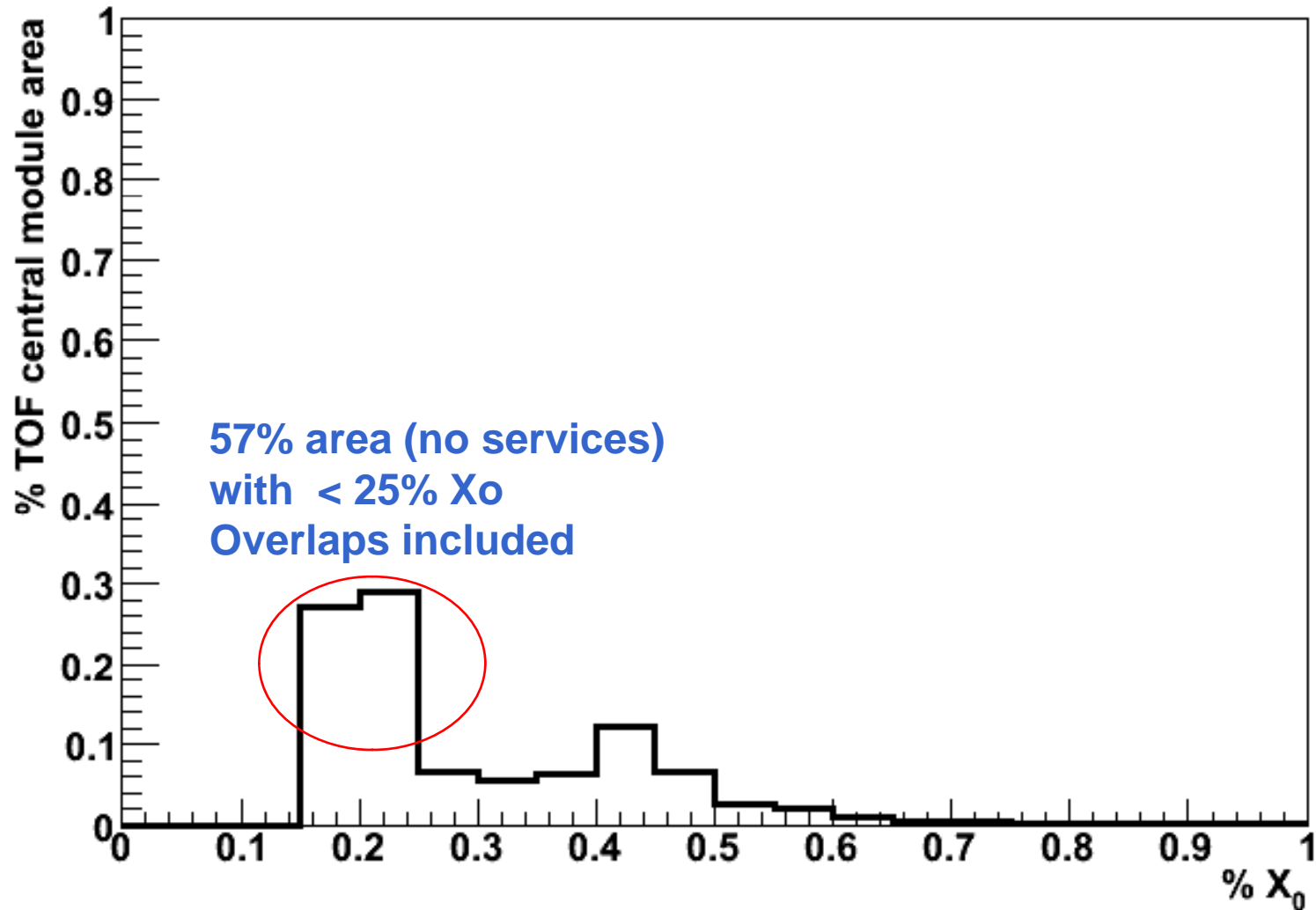
TOF central module. Radiation length: $85.6^\circ < \vartheta < 94.3^\circ$



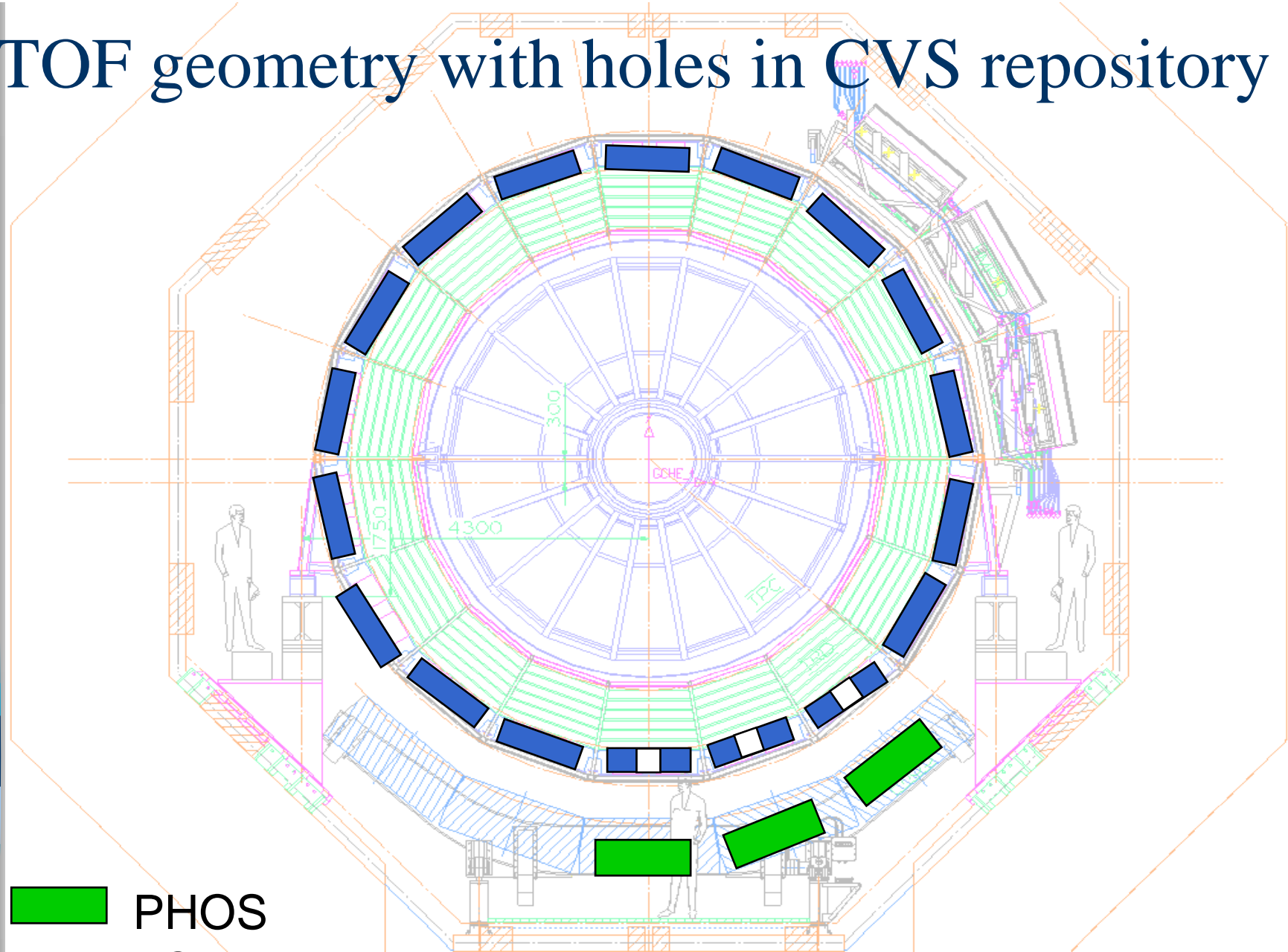
TOF central module. Radiation length: $3^\circ < \varphi < 17^\circ$

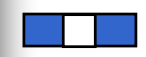


TOF central module: $\theta \in [85^\circ.6; 94^\circ.3]$ and $\varphi \in [3^\circ; 17^\circ]$





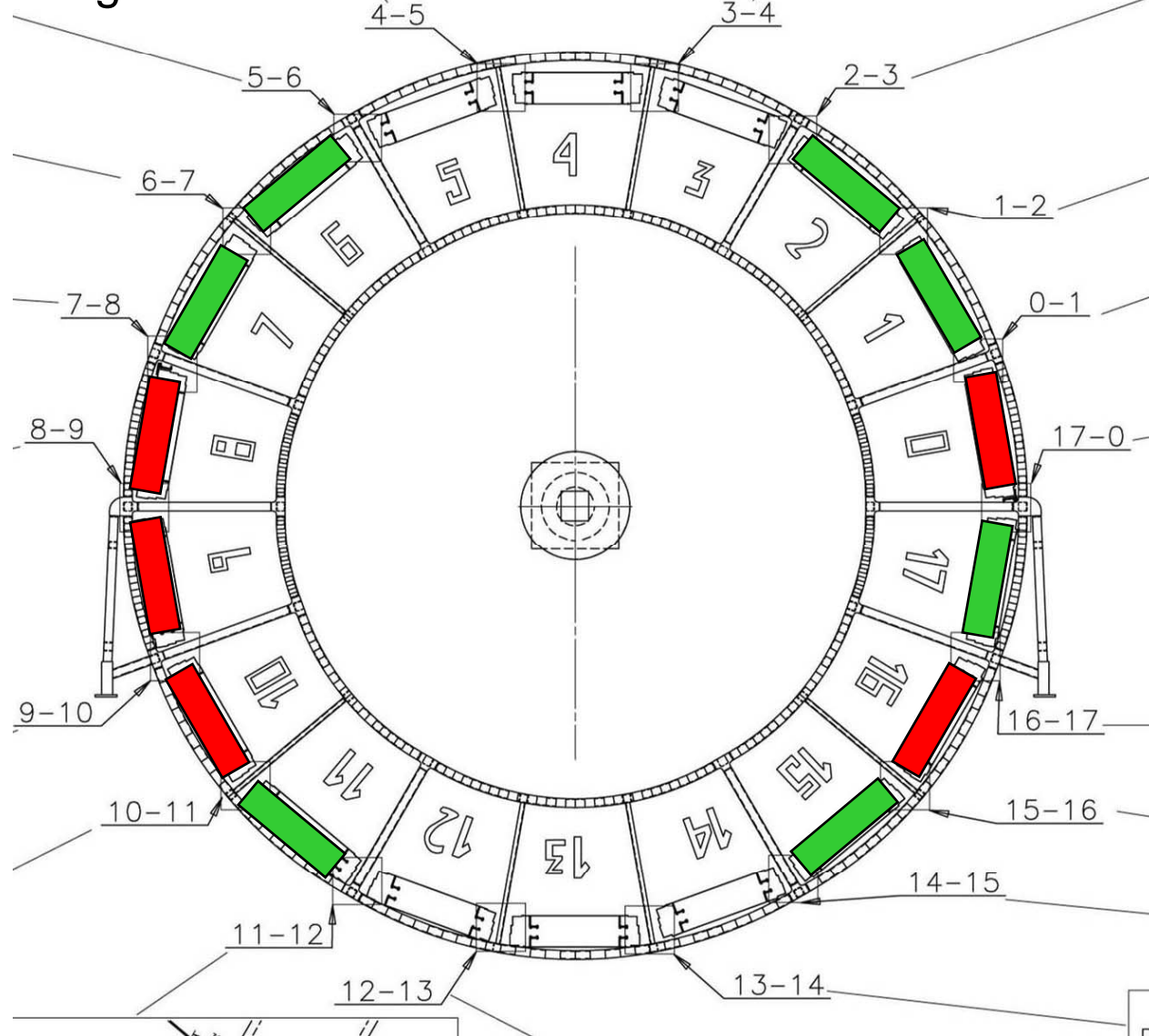
TOF geometry with holes in CVS repository



-  PHOS
-  TOF
-  TOF without the central module (hole)

TOF geometry: to be done

-  without fingers/masks to cool the Nino ASICs on the FEA
-  cards with fingers/masks to cool the Nino ASICs on the FEA cards





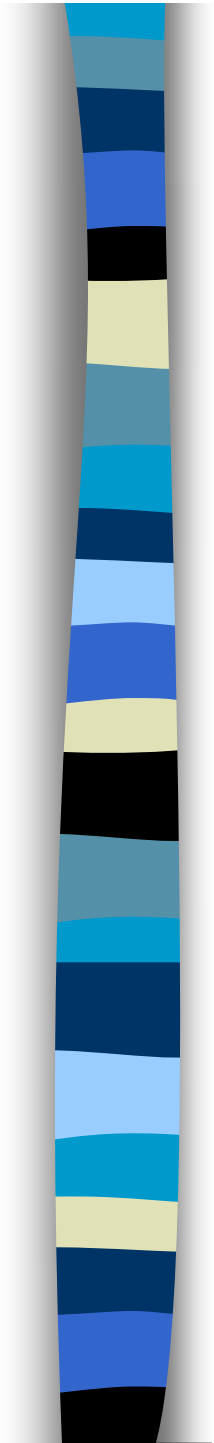
In the configuration file

- Staging TOF geometry:
 - `Int_t TOFSectors[18] =`
`{-1,0,0,-1,-1,-1,0,0,-1,0,0,0,0,-1,-1,0,0,0};`
 - `TOF->SetTOFSectors(TOFSectors);`
- TOF geometry with holes in front of PHOS (3 central TOF modules removed):

```
static PprGeo_t geo = kHoles;  
  
...  
AliFRAMEv2 *FRAME = new AliFRAMEv2("FRAME",  
"Space Frame");  
if (geo == kHoles) FRAME->SetHoles(1);  
else FRAME->SetHoles(0);
```



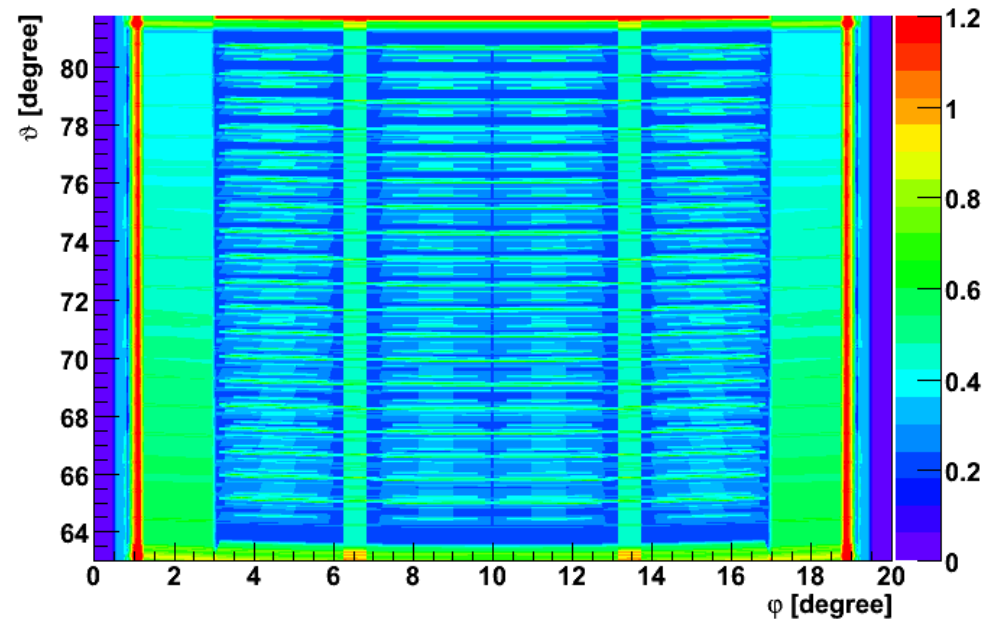
I thank
all TOF group components



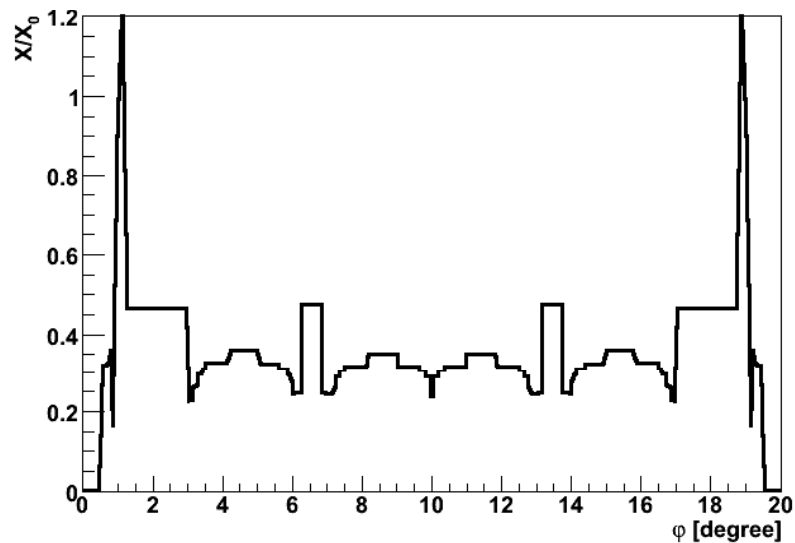
Backup

TOF radiation length: intermediate module

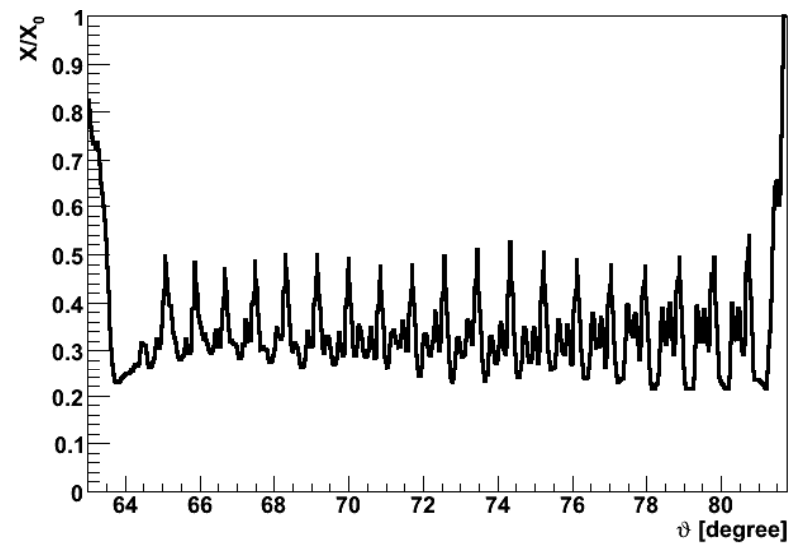
TOF intermediate module. Radiation length map



TOF intermediate module. Radiation length: $67^{\circ}.75 < \vartheta < 77^{\circ}.20$

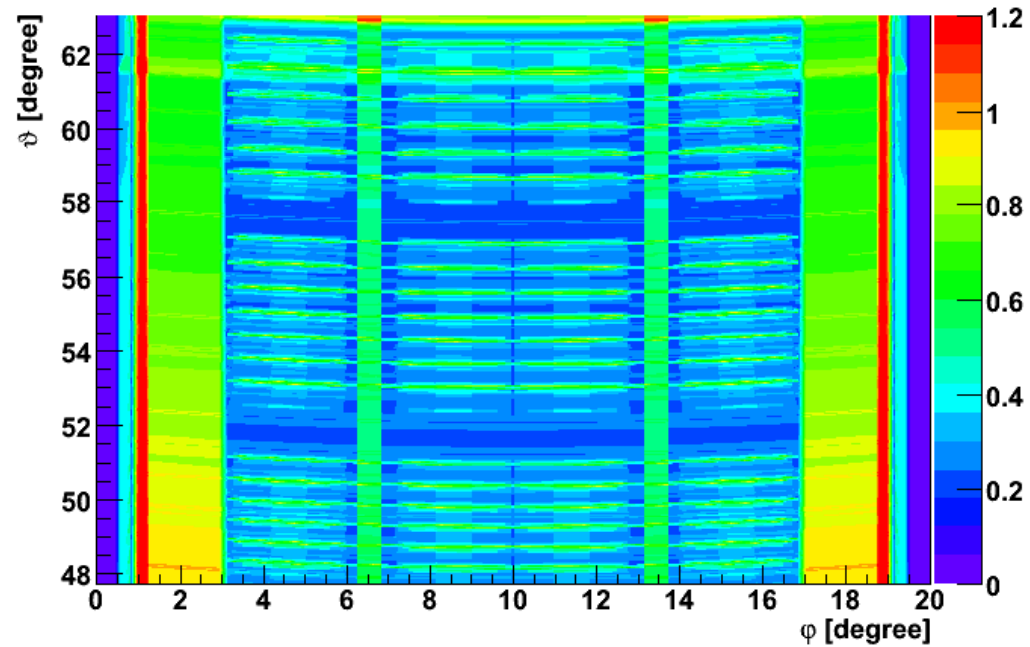


TOF intermediate module. Radiation length: $3^{\circ} < \varphi < 17^{\circ}$

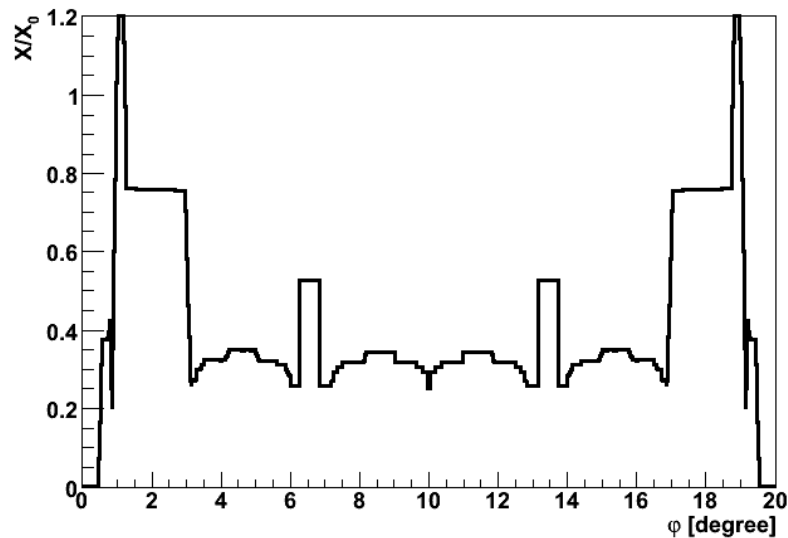


TOF radiation length: external module

TOF external module. Radiation length map



TOF external module. Radiation length: $50^{\circ}.80 < \vartheta < 58^{\circ}.94$



TOF external module. Radiation length: $3^{\circ} < \varphi < 17^{\circ}$

