



ALICE

Code sprint: TOF report

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for the TOF group

CODE SPRINT (TOF/EMCAL)

At the beginning of July we (Sandro, Markus and myself) had a code sprint (TOF/EMCAL) in order to start with the porting of detector geometry in the O2.

A short report on the TOF status after the code sprint is reported in this presentation.

The goal was:

- to define/implement the detector stub class
- to implement/construct the detector geometry within the FairDetector interface
- to define hit object
- (hopefully) to be able to run a simulation including our detectors → hit creation!

→ Therefore we worked on simulation! (reconstruction will follow)

During the code sprint (3 full days) TOF completed all the steps including hit creation.

Structure of the TOF code

According to the conventions in O2:

- A TOF directory was created under Detectors main dir
- A TOF namespace (o2::tof) was defined and in this namespace classes were created:
 - base/Geo
 - simulation/detector
 - simulation/HitType (inherits from base structure BasicXYZHit)
 - prototyping → dir with some macros to check/draw the geometry

Geo → Define all the constants and methods connected to the TOF geometry (static class)

Detector → implements the TOF detector simulation (geometry, materials and media, ...)

Requirement: TOF detector is hosted in a common frame with TRD which implements the 18 sectors segmentation → to run a simulation with TOF **the FRAME structure (material, medium, geometry) was strictly required** (thanks to Sandro to having provided it!)

We implemented the same geometry as in AliRoot (AliTOFv6T0) because no changes are foreseen at Run-3.

More details can be found here:

<https://paper.dropbox.com/doc/EMCALTOF-code-sprint-4.7.-YJBdYed96EuX2G3mTARv7>

TOF detector simulation

We implemented all the methods needed to construct a single supermodule (in the configuration with/without holes for PHOS)

The method to add (mis/)alignment was provided but not used yet.

A method to fill all the sectors of the frame (B077) with a TOF supermodule is added in the chain.

Creation of a TOF supermodule

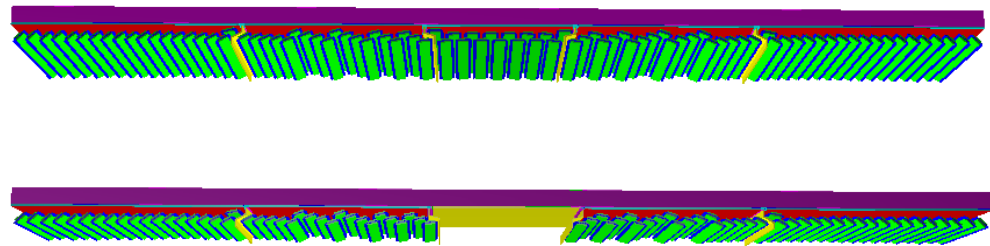
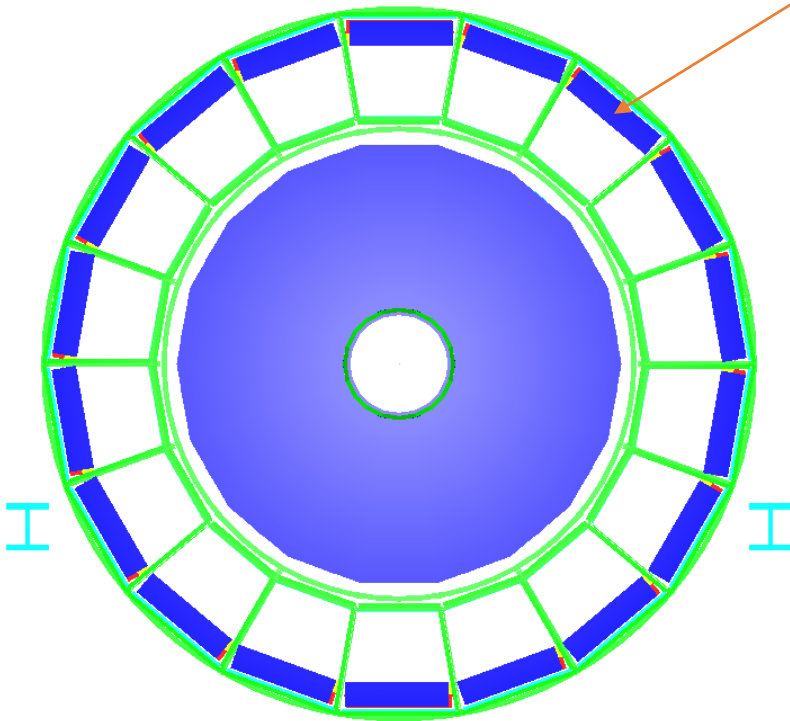
1. Creation of a single MRPC (definition of the active volumes, at the pad level)
2. Creation of the 5 TOF modules to be put along Z coord (91 strips)
3. Creation of a supermodule formed by 5 modules (4 modules for the sector in front of PHOS)

TOF Geometry

TOF sectors hosted in a volume shared with TRD → B077

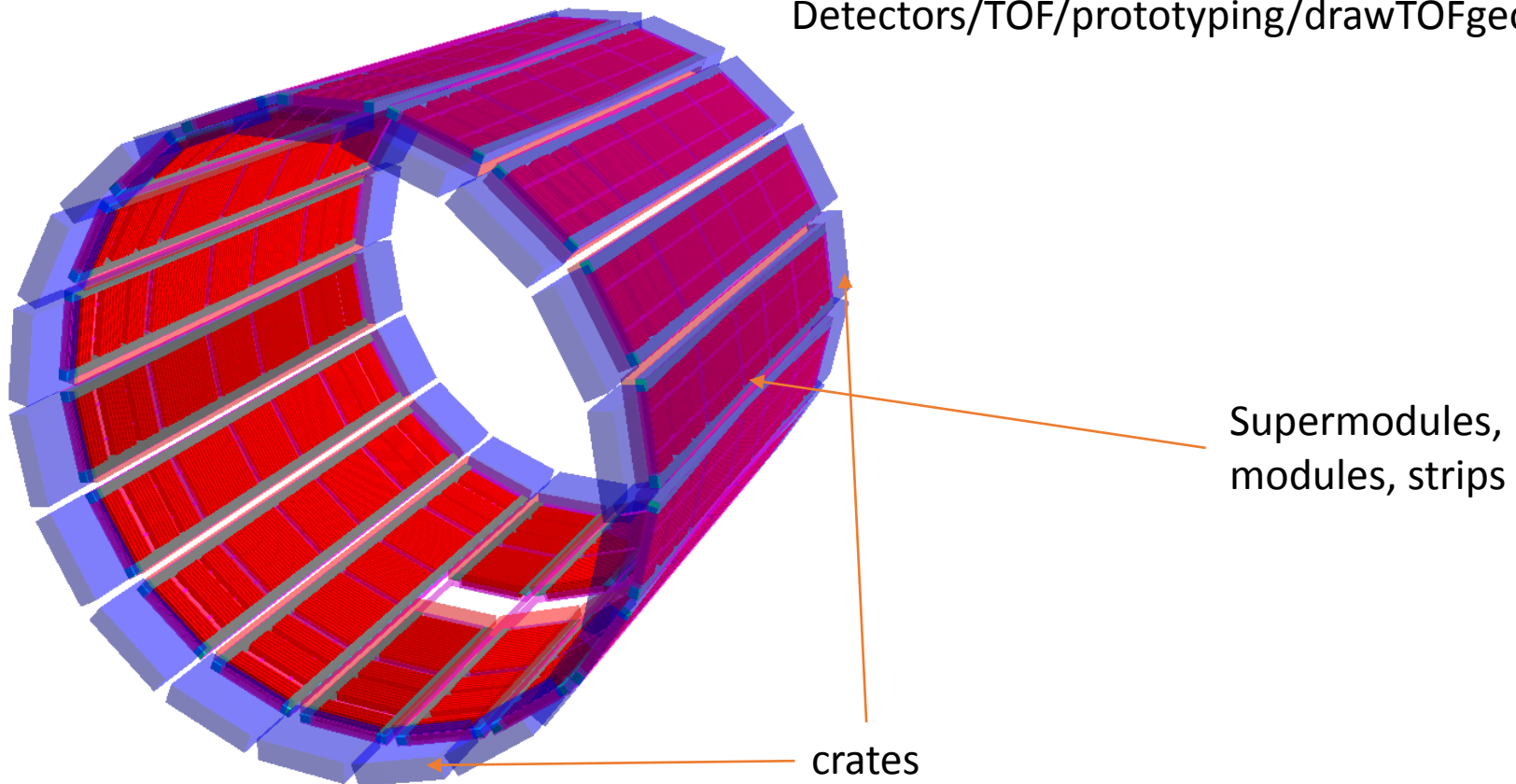
B077 divided in 18 sectors BSEGMOX

TOF supermodules replicated in all sectors (with same special treatments in the sectors in front of PHOS → holes)



Drawing TOF

Macro added to draw TOF in
Detectors/TOF/prototyping/drawTOFgeometry.C



TOF hits (100000 particles sim)

TOF hits infos: track_ID, (x,y,z), time, Edep, detID

