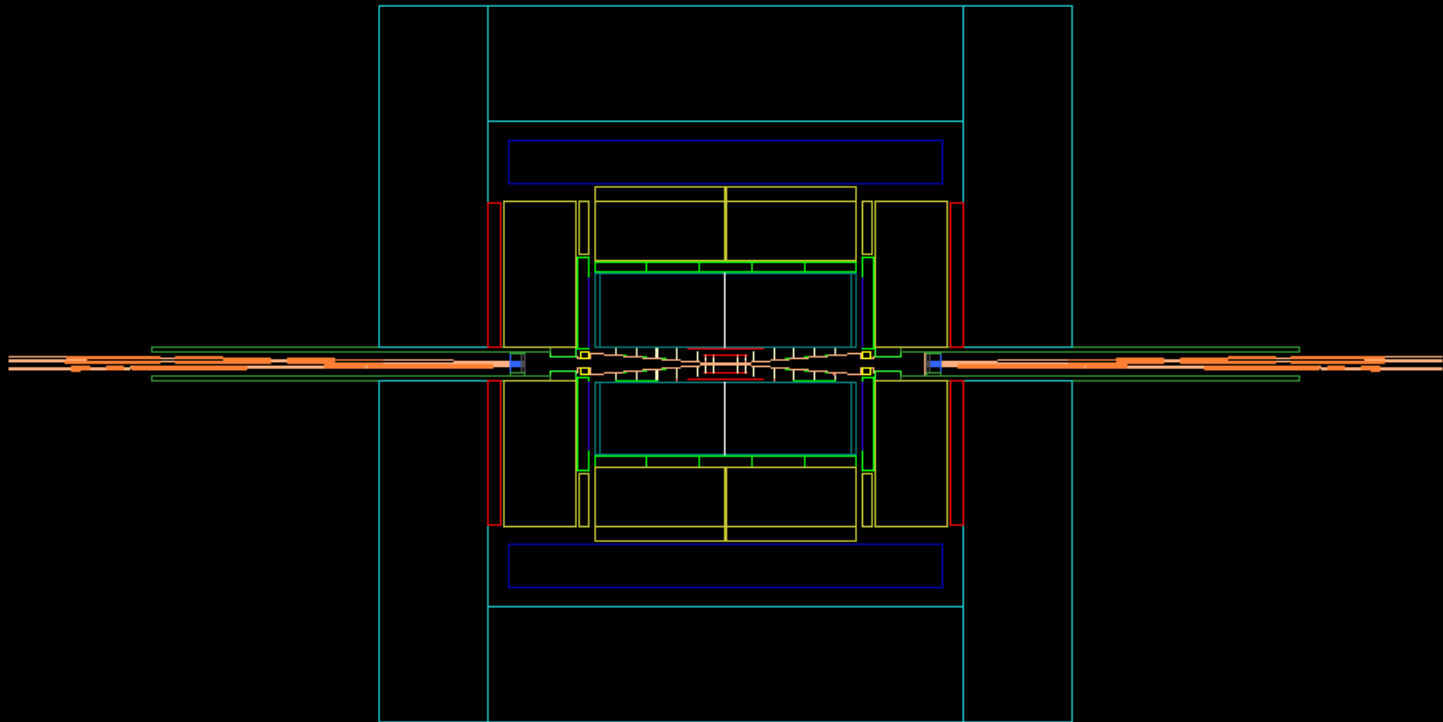


LDC/LDC' simulation state



The new Mokka models towards ILD:

LDC01_05Sc and *LDCPrime_01Sc*

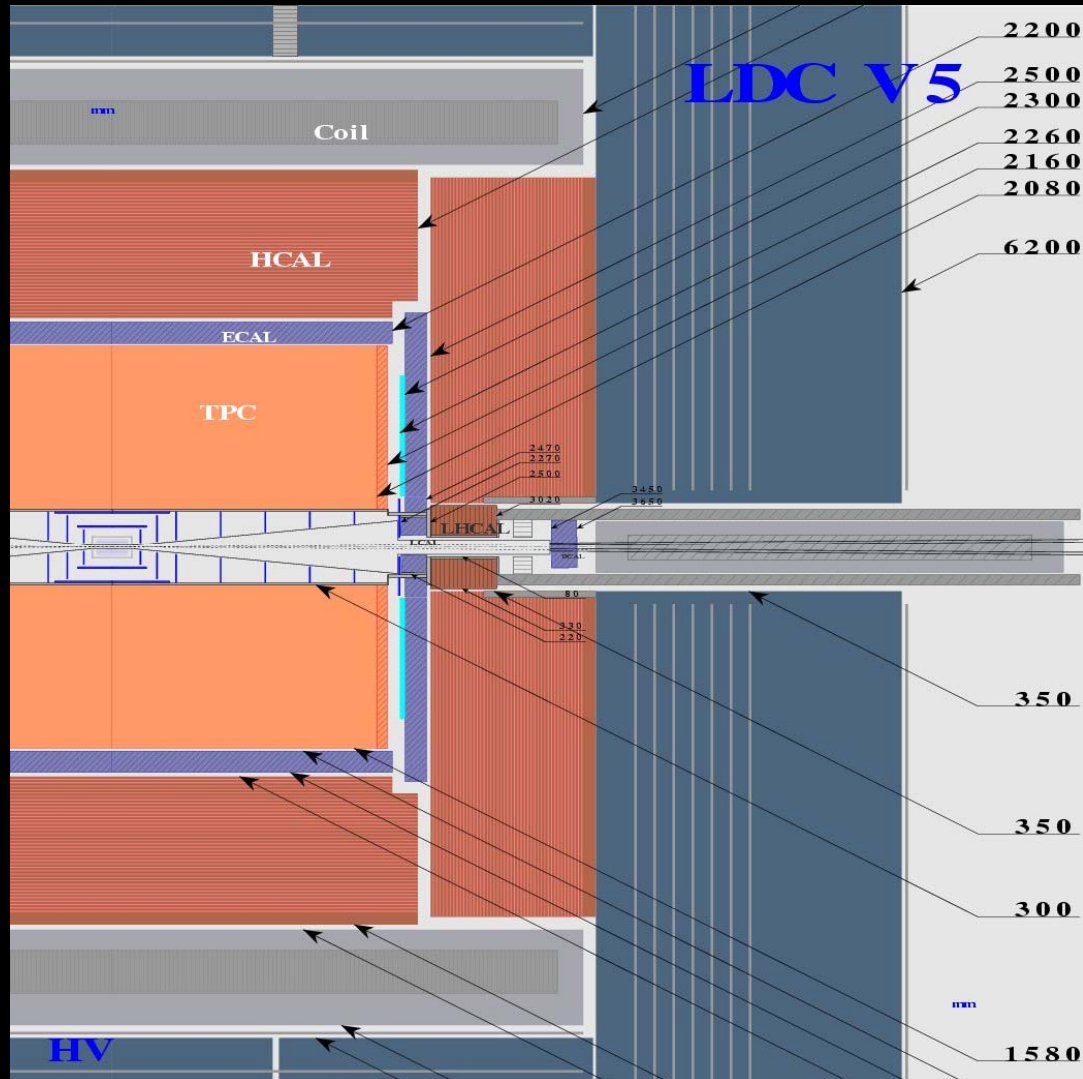
(Mora de Freitas – LLR Ecole polytechnique/IN2P3)

LDC01_05Sc:

the last LDC baseline in Mokka

- Design and dimensions following the detector integration by Henri Videau
- Takes in account the discussions via the ild-mokka-discussion@desy.de list
- Contributions from a lot of people (Applin, Gaede, Harder, LI, Vogel, Mora, Pawlik...)
- *LDC01_05Sc* is scalable, easy to play with for optimizations

LDC V5 as proposed by H.Videau



• Available at [http:// polywww.in2p3.fr/ ~LDC/](http://polywww.in2p3.fr/~LDC/)

LDC01_05Sc: inner components

- Beam pipe (by Vodel):
 - as implemented by Adrian Vogel, supporting crossing angles, masks, etc.
- LumiCal (by Pawlik):
 - Aligned automatically with the Ecal end cap face, follow the crossing angle
 - Inner radius = 8 cm, outer radius = 19.52 cm
- VXD:
 - inner radius = 1,5 cm, outer radius = 6 cm
- SiT (by Li):
 - Layers at radius = 16 cm & 27 cm
 - Correct Si and support layers, thanks to Hengne LI

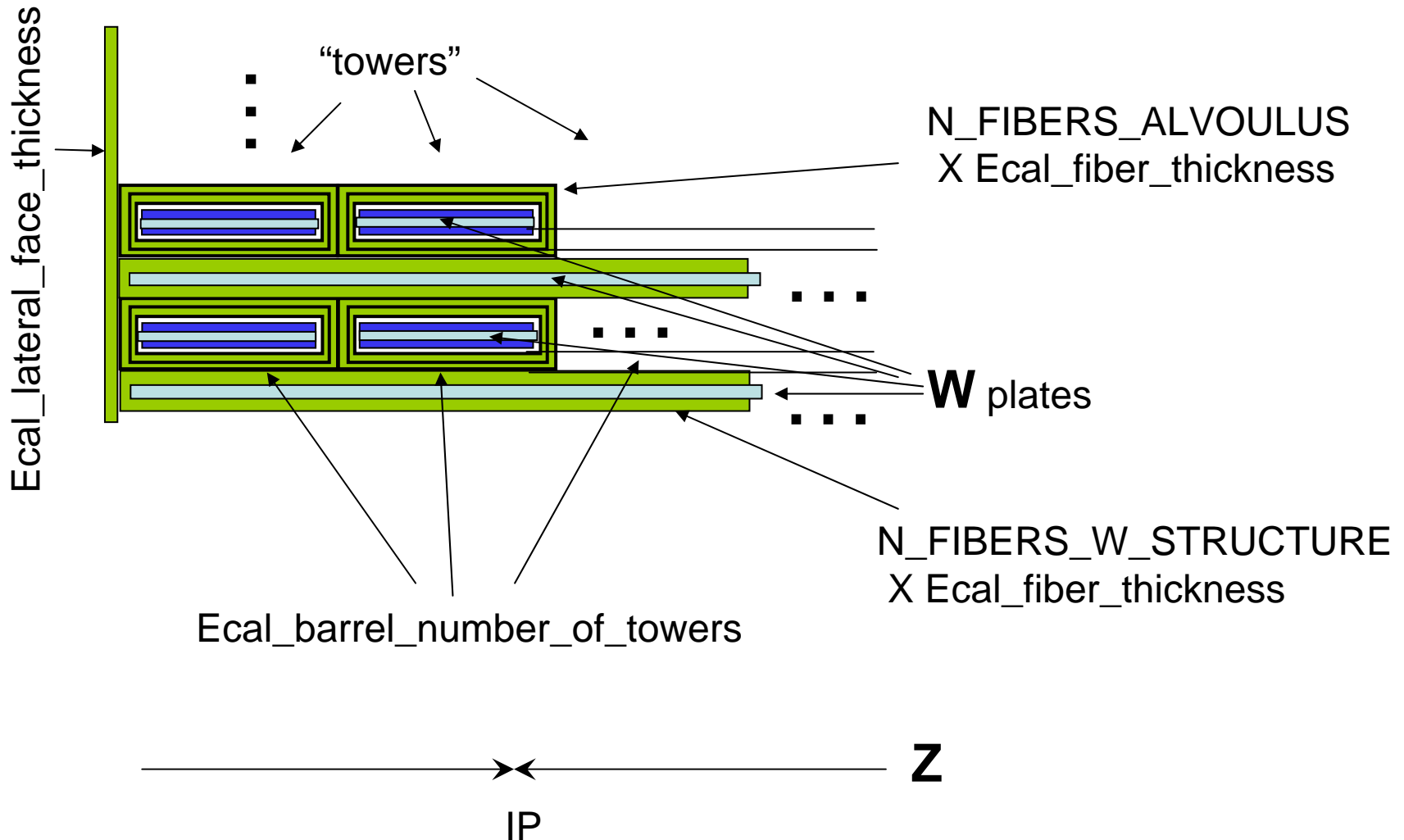
LDC01_05Sc: inner components

- TPC:
 - Inner radius = 30,5 and outer radius 158 cm
 - Half Z = 228,8 cm, Endplate = 10 cm
- ETD:
 - Just a Si disk placed automatically on the boundary of the Ecal end cap entering face
- FTD:
 - 7 Si disks, at Z = 22, 35, 50, 85, 120, 155 and 190 cm
 - Inner radius follow the crossing angle
- A better description for all the Si tracking devices in development by Marcelo Vos and Valeri Saveliev

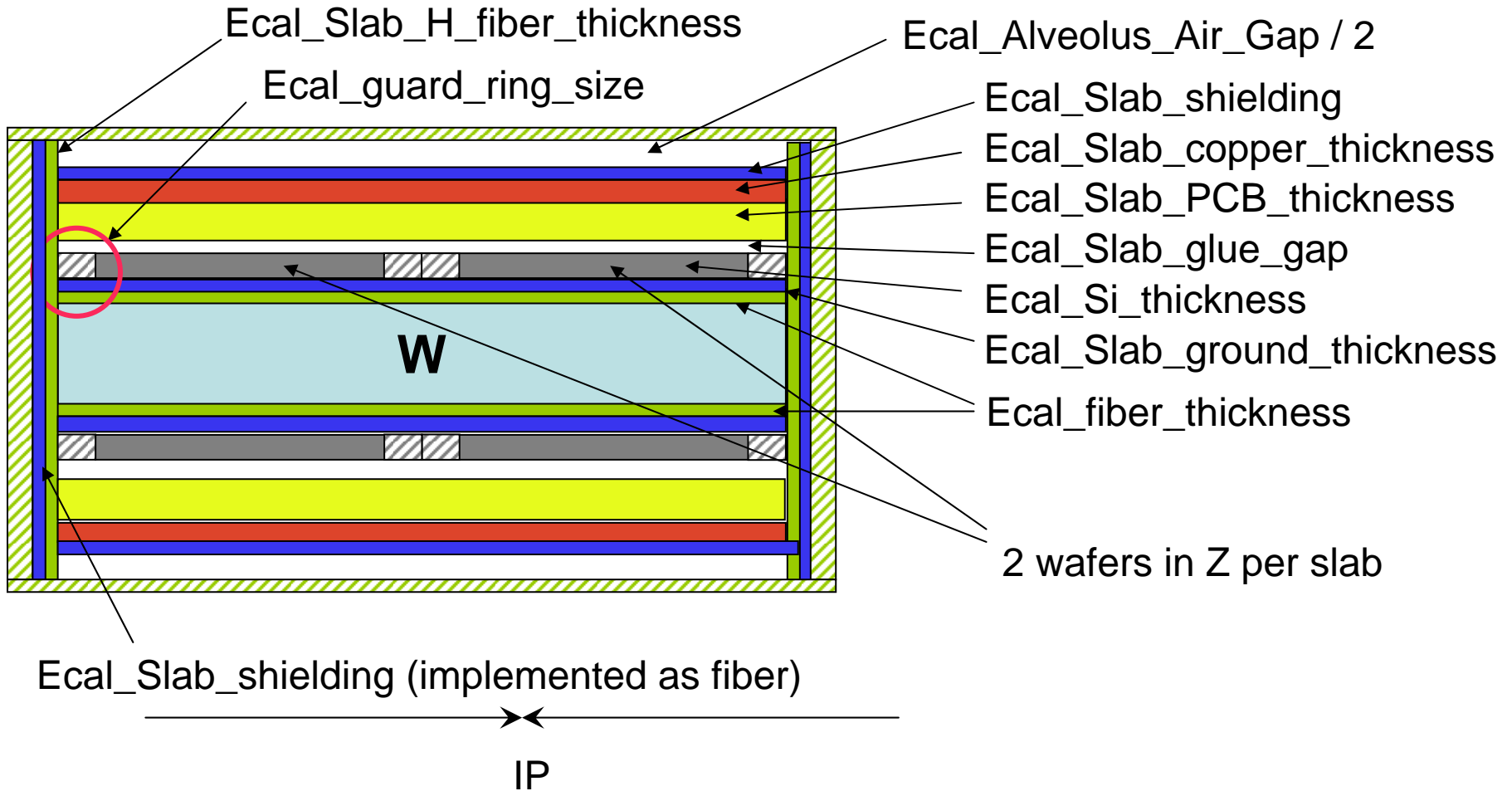
LDC01_05Sc: the new Ecal

- Barrel:
 - Inner radius = 160, outer radius = 178,53 cm
 - Half Z = 228,8 cm (for wafers of 9 cm²)
 - 8 staves, 5 modules each, 3 towers per module
 - Si as the first layer (pre-shower collection hits)
- End caps:
 - Starts at Z = 238,8 cm (gap of 10 cm for cables)
 - Same structure as the barrel (wafers, slabs, towers...)
- Very detailed description, following the current Eudet design: individual wafers with guard rings, gaps, fiber walls...

Ecal: 3 “towers” in barrel modules (1 slab per alveoli, 2 wafers per slab in Z) :

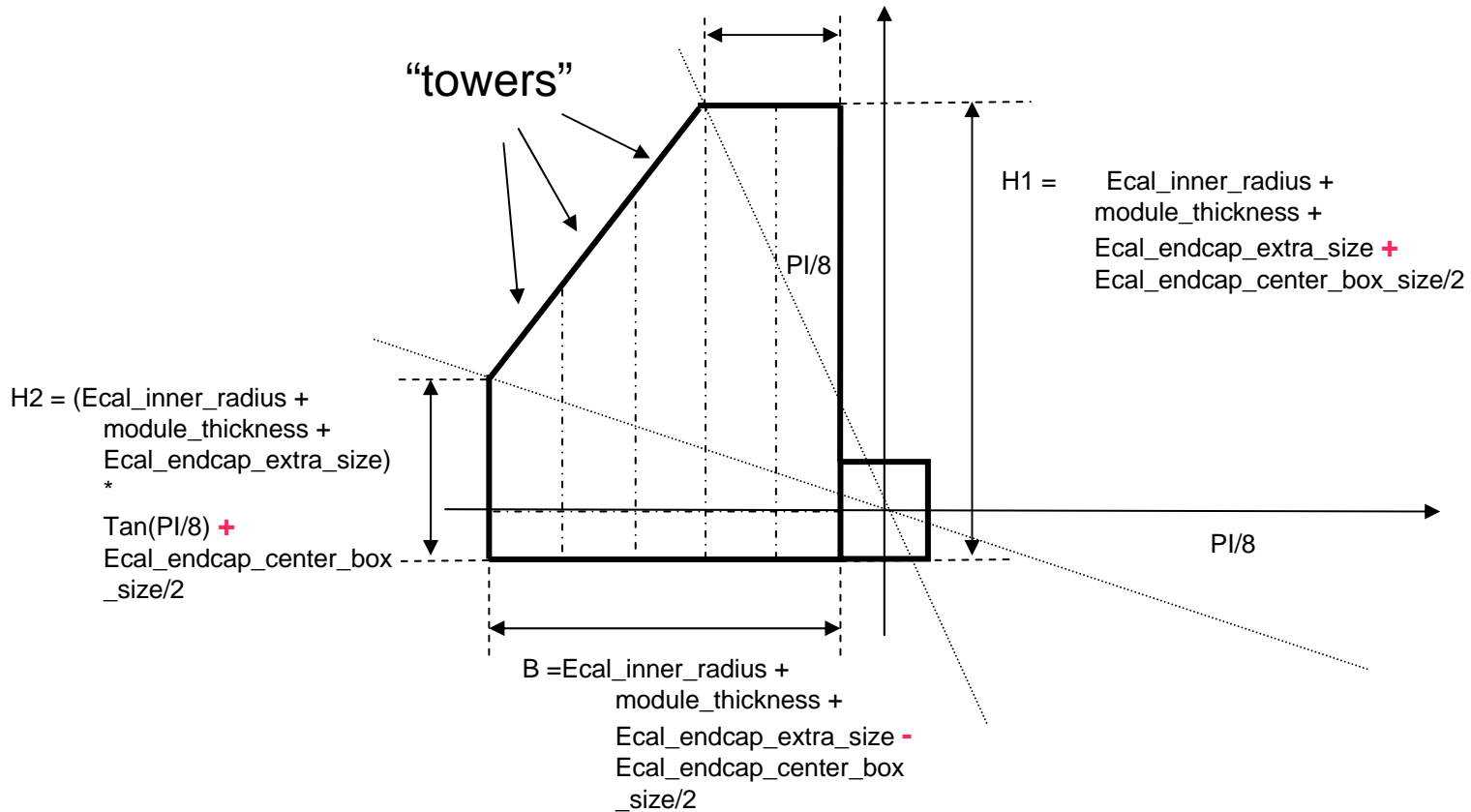


Detail Alveoli with the “H” slab structure:



Ecal, Module Endcap

$$T = (Ecal_inner_radius + module_thickness + Ecal_endcap_extra_size) * \tan(\pi/8) - Ecal_endcap_center_box_size/2$$

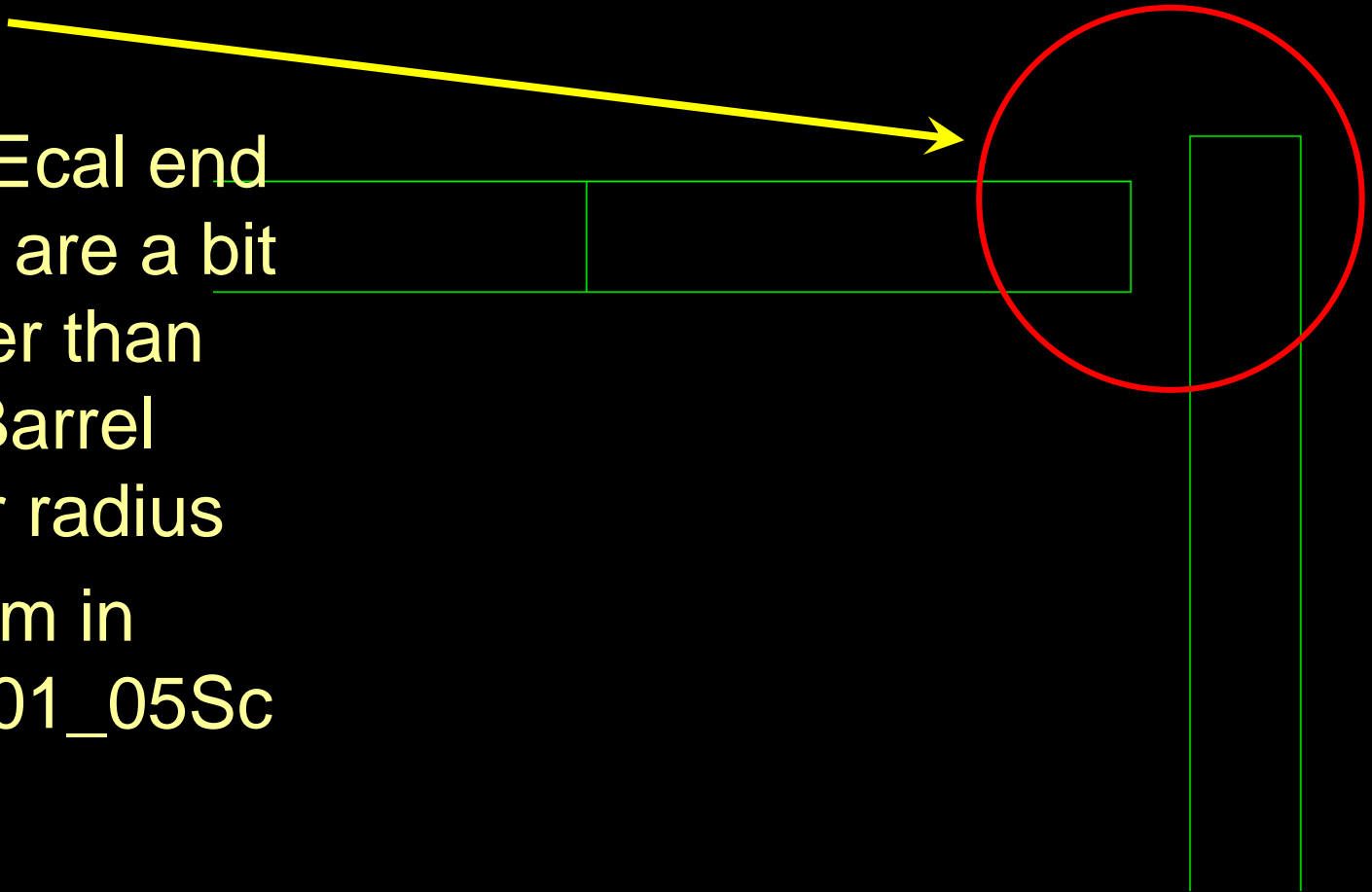


LDC01_05Sc: Ecal end caps

- End cap extra size

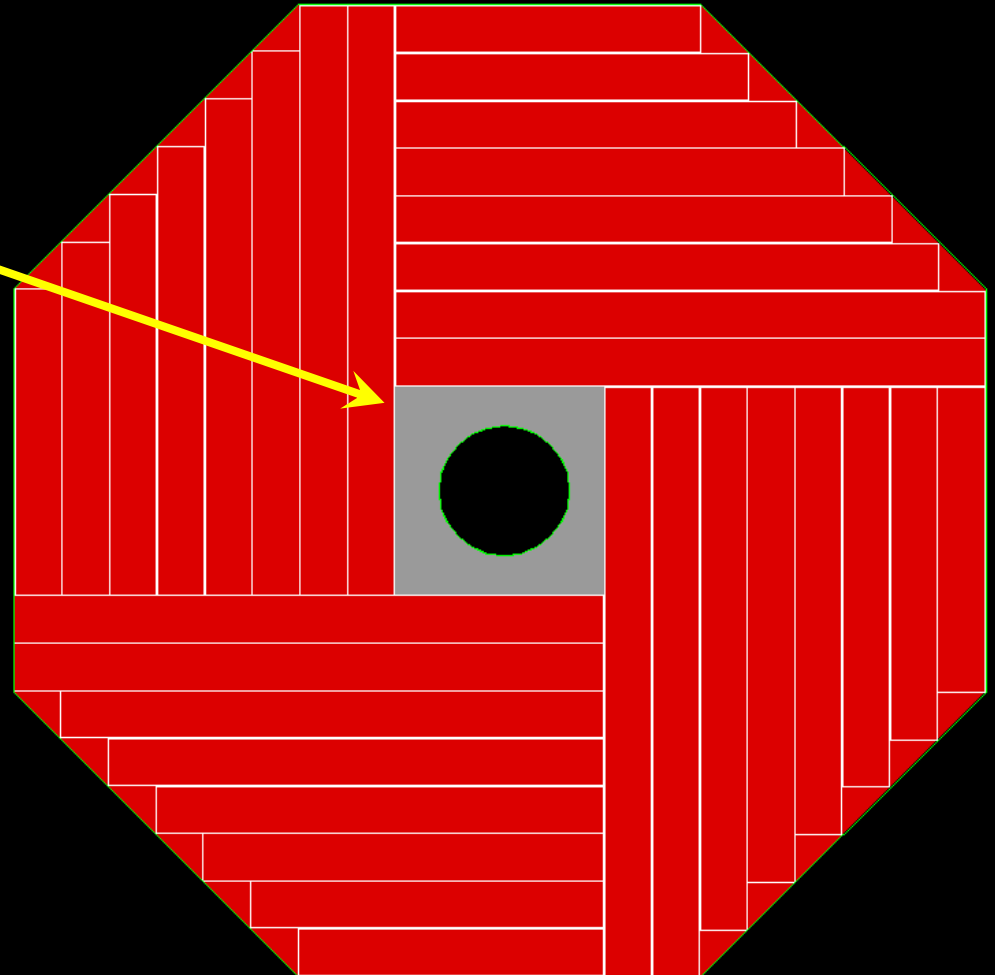
- The Ecal end caps are a bit bigger than the Barrel outer radius

- 7,7 cm in LDC01_05Sc



LDC01_05Sc: Ecal rings

- Ecal end cap Ring
 - Follows the Lcal position
 - The same layers as the Ecal end caps
 - Si just as flat plates



LDC01_05Sc: the Hcal

- The same since Tesla TDR but:

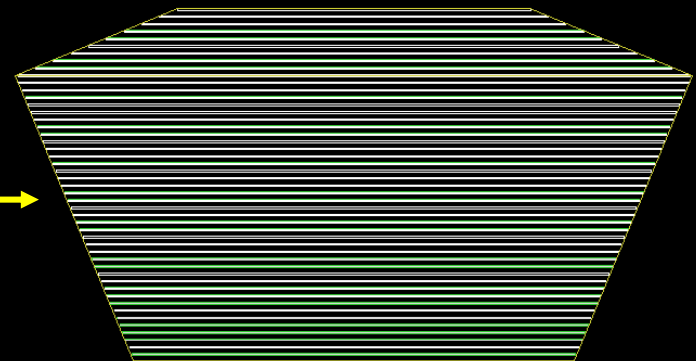
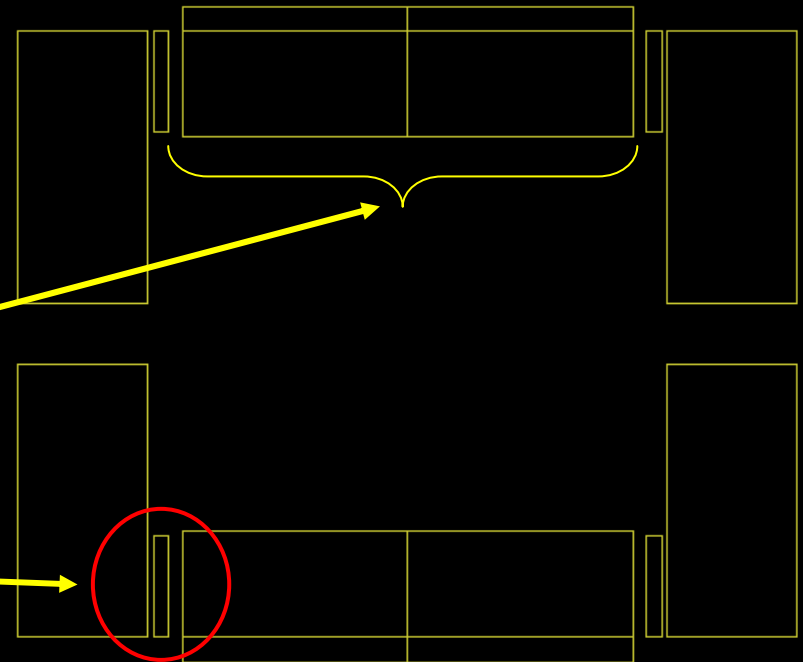
- Just 2 modules per stave

- A ring plugged on the end caps

- Warning: a very simple description !!!

- just big chambers filled with scintillator or RPC

- 48 layers!



LDC01_05Sc: Coil, yoke, field

- The same since Tesla TDR but:
 - All implemented with super drivers, which follow the new dimensions for LDC V5
 - Yoke implements a plug
 - Yoke implements simple muon chambers (thanks to Predrag)
 - Field = 4 T, simple mapping as for the last TDR models

LDCPrime_01Sc: first LDC model towards ILD

- The same as *LDC01_05Sc* but:
 - VXD inner radius = 1,8 cm
 - TPC outer radius = 180 cm
 - Ecal half Z = 235 cm
 - Ecal end cap extra size = 8,35 cm
 - Field = 3.5 T
- Provides a simple way to compare Mokka with Jupiter, as it should implement also a similar GLD' model

Towards the first ILD model in Mokka

- As soon we have a ILD design:
 - Si tracking devices: work in progress by Marcelo Vos and Valeri Saveliev
 - Missing a BHcal (*Who?*)
 - TPC: some improvements needed concerning the field cage (*Who?*)
 - Hcal:
 - too parfait to be true (no gaps, etc.) (*Who?*)
 - The same for a RPC version (Latour/Lyon)
 - Yoke: has to be reviewed (*Who?*)
 - Field: need a better field mapping (*Who?*)

That's all, folks

