Mokka – recent developments

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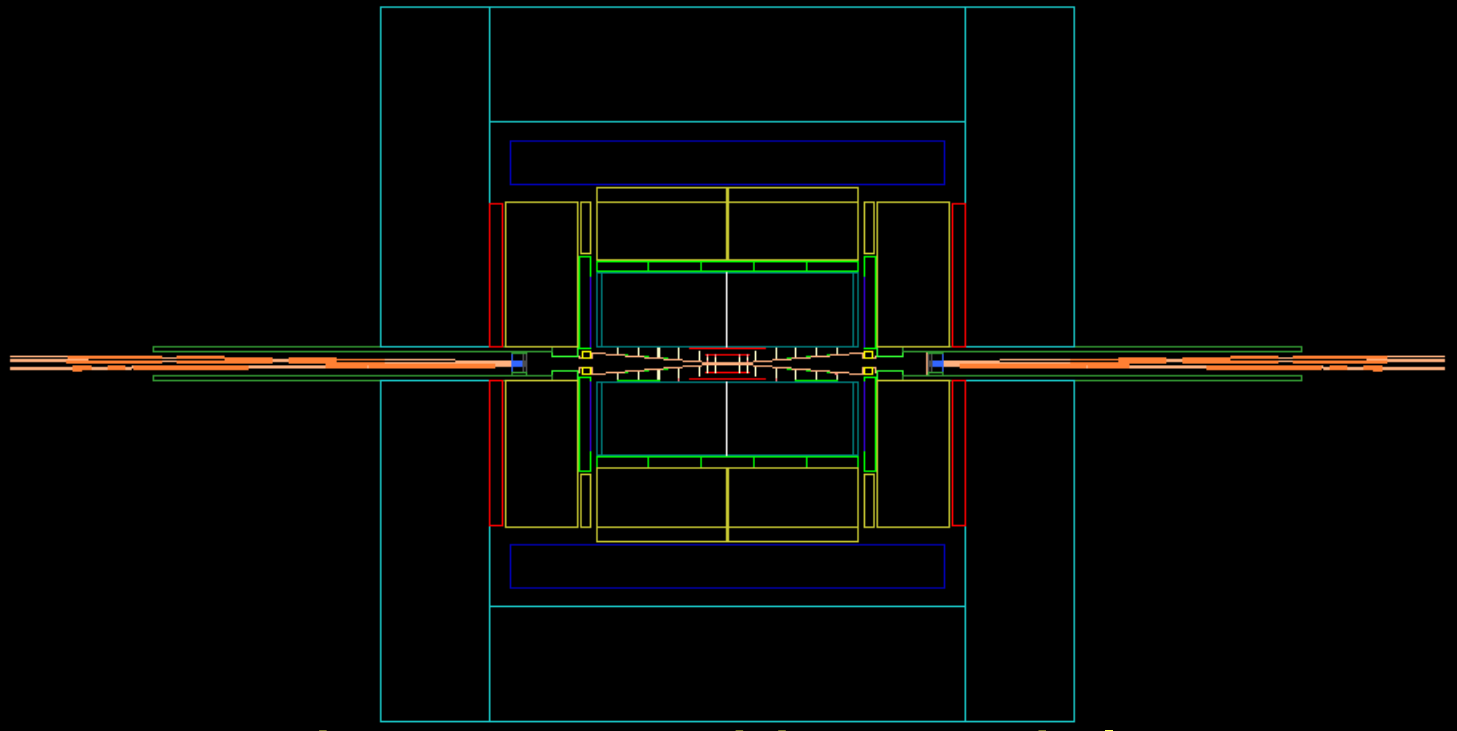
LDC/LDC' simulation status



The new Mokka models :

LDC01_06Sc and
LDCPrime_02Sc

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The new Mokka models : *LDC01_06Sc* and *LDCPrime_02Sc*

- Take into account the phone meetings and discussions via the

  ild-detector-optimisation@desy.de and

  ild-mokka-discussion@desy.de lists
- Contributions from many people (Mark Thomson, Henri Videau, Ties Behnke, Steve Applin, Frank Gaede, Kristian Harder, Adrian Vogel, Paulo Mora ...)

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New SEcal03 super-driver (Paulo Mora de Freitas)

- Fixes of known bugs in SEcal02 (hits in EndCaps, incorrect propagation of z_begin parameter to LCal01)
- Si cells in wafers are forced to be squared. Cell size calculated for integer number of cells in Z, depending on params (barrel-half-z, nb of towers, ..)
- New sensitive detector SEcalSD03

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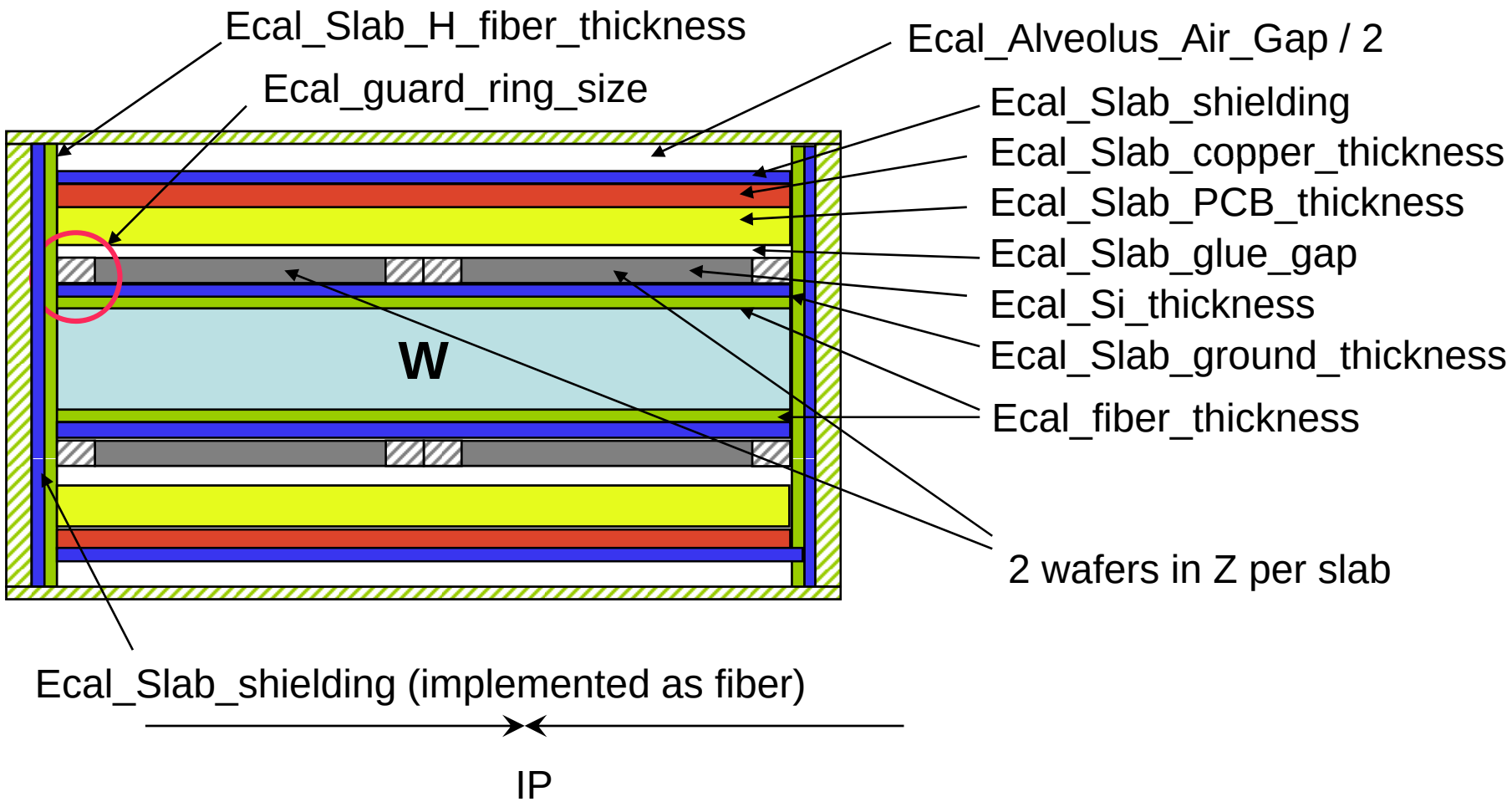
Ecal: Detail Alveoli with the “H” slab structure:



Paulo Mora de Freitas

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New Hcal implementation (Angela Lucaci)

- New super-driver SHcalSC01 and sensitive detectors SDHcalBarrel and SDHcalEndcaps
- Detailed implementation (including gaps) of a scintillator Hcal
- Cell size = 30 mm (fractional cells at the edges)

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New SiLC drivers (Valeri Saveliev, Steve Aplin)

- Valeri: new implementation for all Si inner tracking devices : SSit02, SFtd04, SEtd01, SSet01
- Steve: new superdriver SFtd03 (self scaling) replacing the pair SFtd02 - ftd01. z positions of the disks set relative to the length of the TPC. Inner radius is function of the TUBE_opening_angle (0.07876). Beamtube_clearance set to 5 mm

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New vertex detector geometries (Damien Grandjean, Frank Gaede)

- Three new VXD implementations:
  - vxd03: 5 layer, LDC like;
  - vxd03_sensin: 5 layer LDC like, sensors placed at bottom of support ladder
  - Vxd04: 3 double layer GLD like
- Very flexible: user can change many parameters in steering file (see ReleaseNotes 6.6 for details)

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New DHcal implementation (Emmanuel Latour)

- New super-driver SHcal04
- Only barrel modules are changed, Endcap and EndcapRings like in SHcal03
- Not included in the last LDC/LDC' models
- Detailed description at:
  - http://polzope.in2p3.fr:8081/MOKKA/detector-models/ldc/DHCALdoc.pdf

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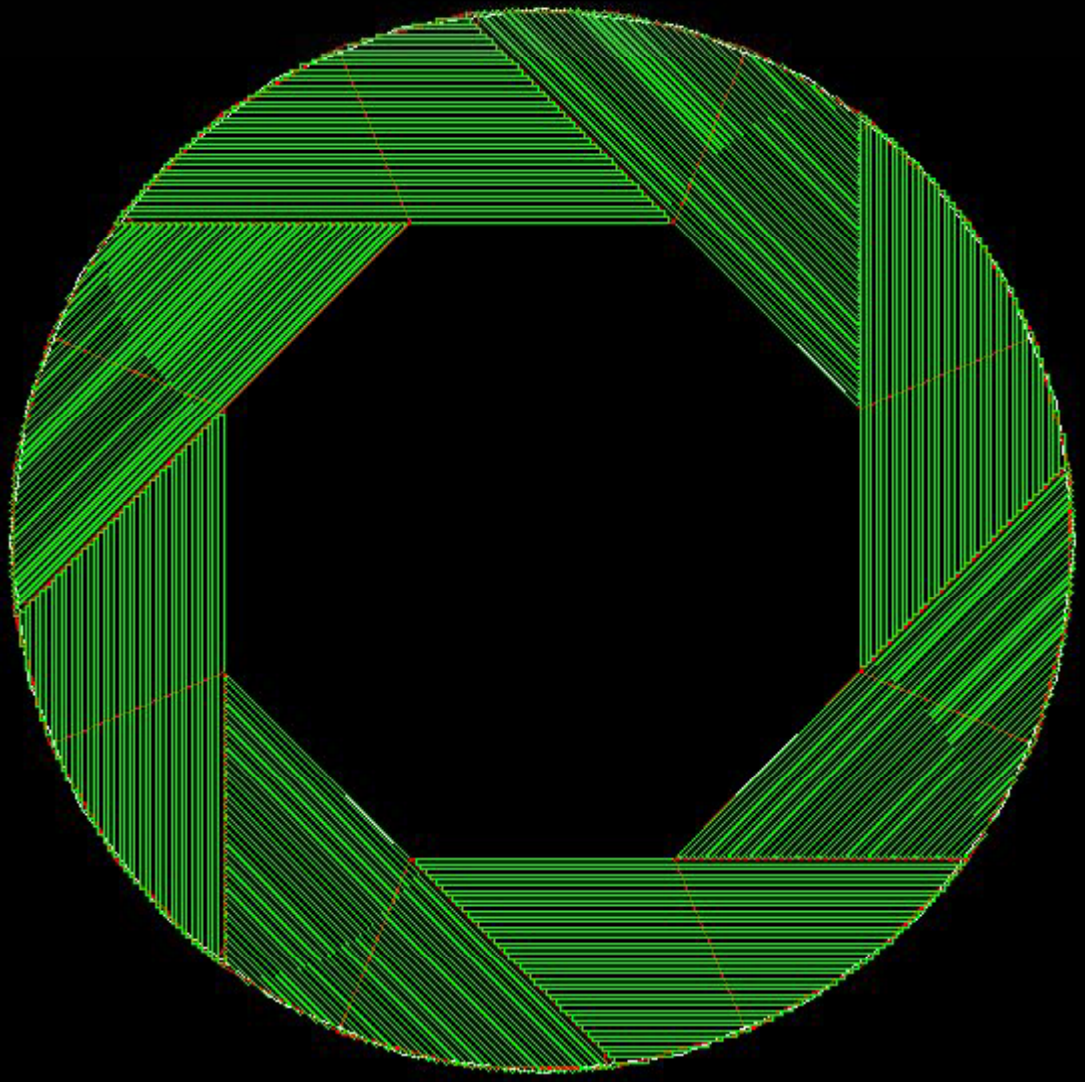
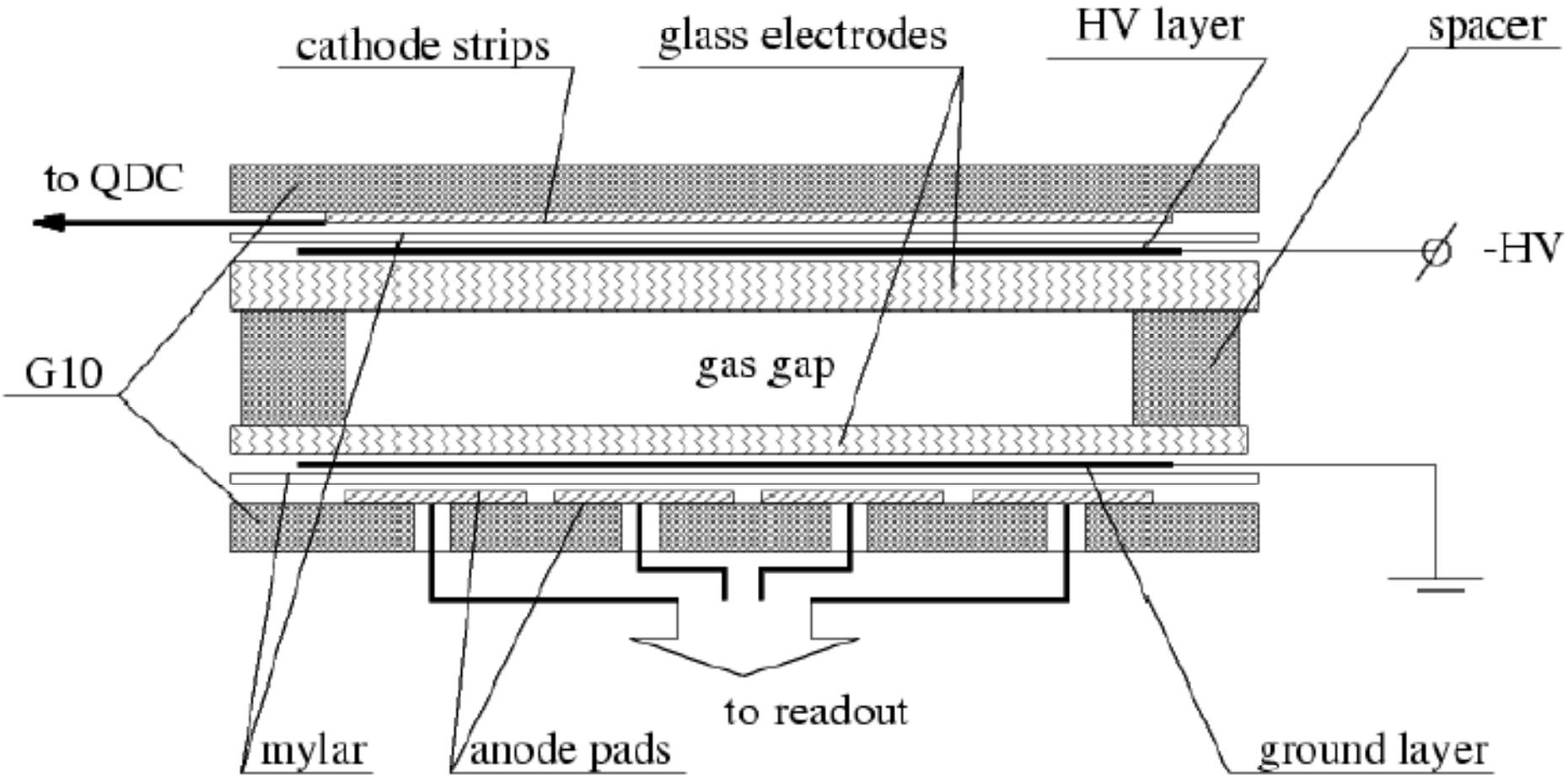
DHcal barrel
proposed by Henri Videau



DHcal : improved RPC description



Other improvements (I)

- New steering cmds to change FieldMgr params:
  /Mokka/init/userDeltaIntersection 3e-5 mm
  /Mokka/init/userDeltaOneStep 3e-4 mm
- Steve, Alexei and Frank noticed that the default vaules produced errors in the momentum of reconstructed tracks
- TPC_max_step_length set to 10mm

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Other improvements (II)

- Improved FieldMap implementation in Field00: CPU time reduced by about 2.5-3%
- Bug fix in RunManager to avoid memory leak from many /run/beamOn ‘s
- New steering cmd to set the MC run number of every LCEvent: /Mokka/init/mcRunNumber (not the same as /Mokka/init/dataRunNumber – sets the number of the corresponding TB run)

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CERN 2007 TB Models

- Three new models for Jully and August 2007 TB's:
- -TBCern07 : Fully instrumented Ecal
- -TBCern0707 : Ecal with all slabs except the 6 front bottom slabs
- -TBCern0807 : Ecal with all slabs except the 3 front bottom slabs having only W

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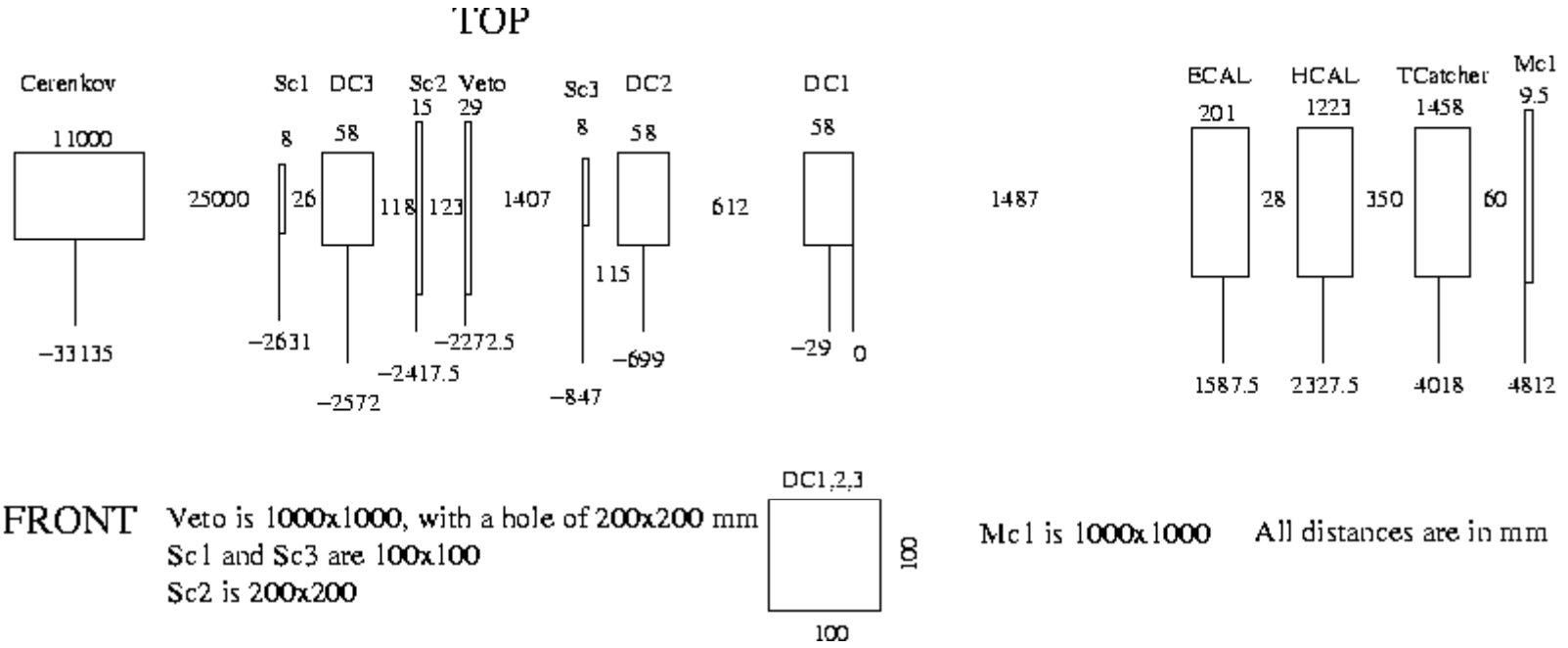
CERN 2007 TB Models



Cern 2007 TB Models

- Removed overlap occuring at non normal incidence between Hcal and TCMT : corrections of drivers TBcatcher06 and TBmuoncount03 (adjusted relative position of HCal, TCMT, MC)

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Cern 2007 TB Models

- Correction of the definition of the hit position in all scintillators drivers (Fabrizio)

- Bug fix in TBhcal06 for the density of the PCB (1.7*g/cm3 instead of 1.025*g/cm3) (Angela)

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