Implementation of missing TGEANT elements for 2008/2009 geometry

Henri Pekeler

HISKP, Bonn University

March 5, 2021

2008

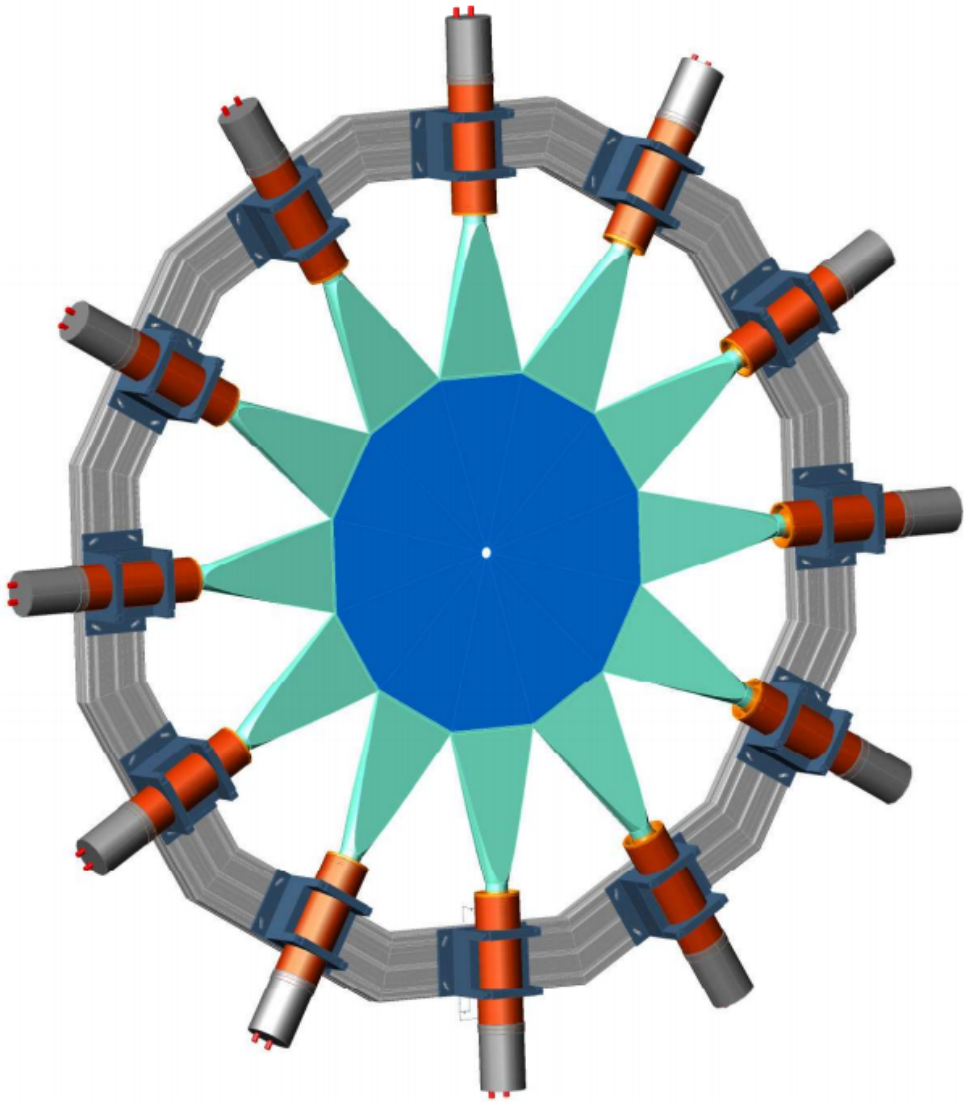
Mainz Counter (Cover hole in Sandwich veto)
https://wwwcompass.cern.ch/compass/publications/theses/2007_dpl_wuttke.pdf
Forward Hodoscope (Match MC predicted fast hadron occupancies in central prod. events), no literature found $\Rightarrow$ disregarded

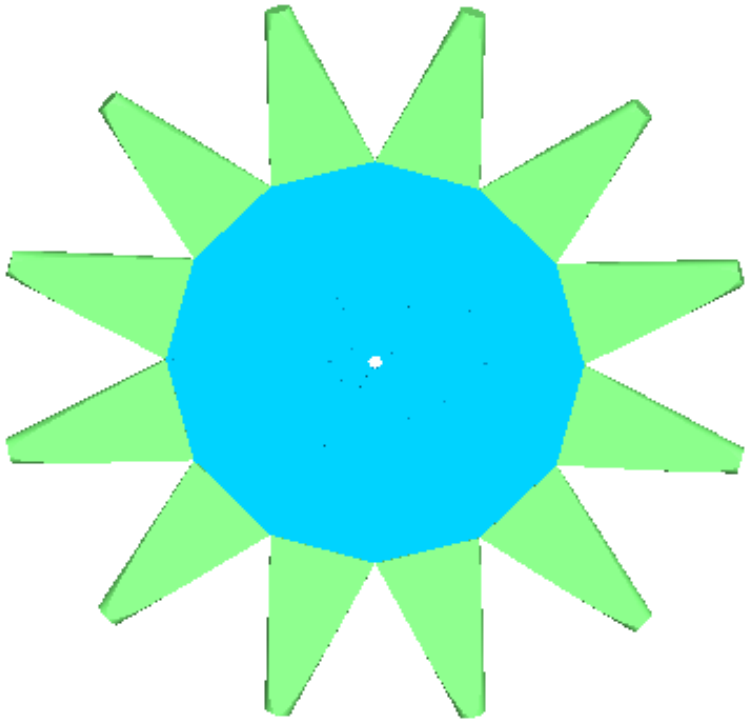
2009

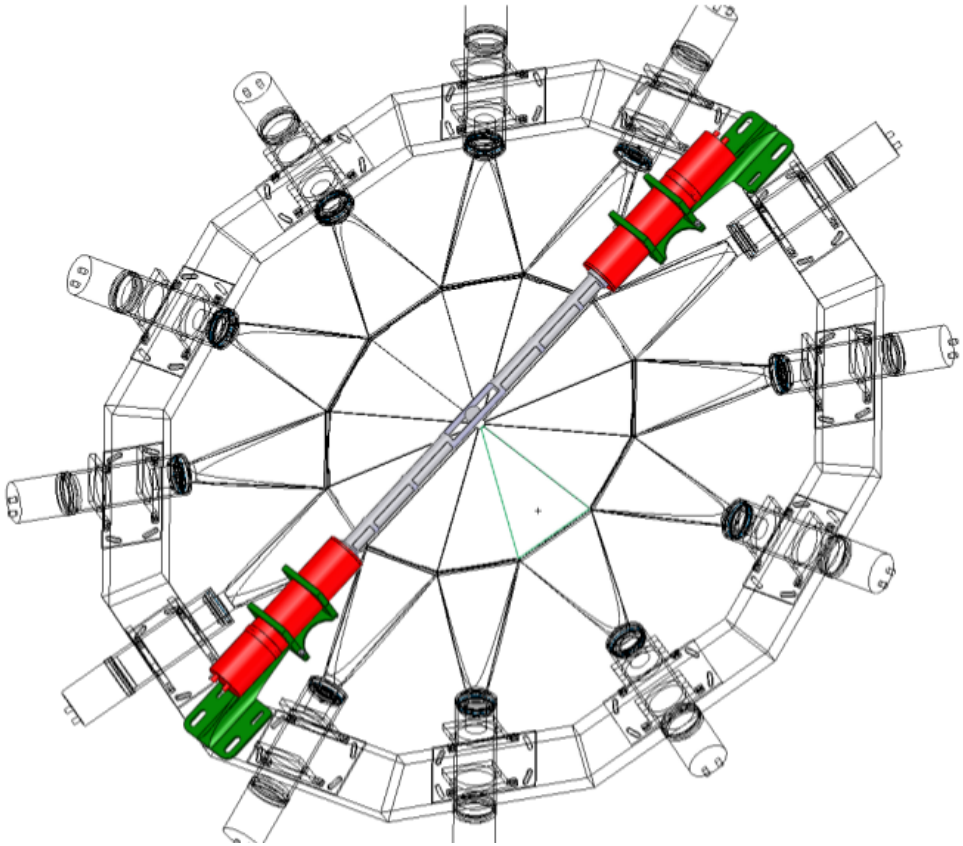
Munich Counter (cover hole in Mainz Counter)
lxplus.cern.ch:/afs/cern.ch/compass/HadronGroup/HadronAnalysis/20090920-24_PWA-Workshop/mtasior_hweing_municg_counter.

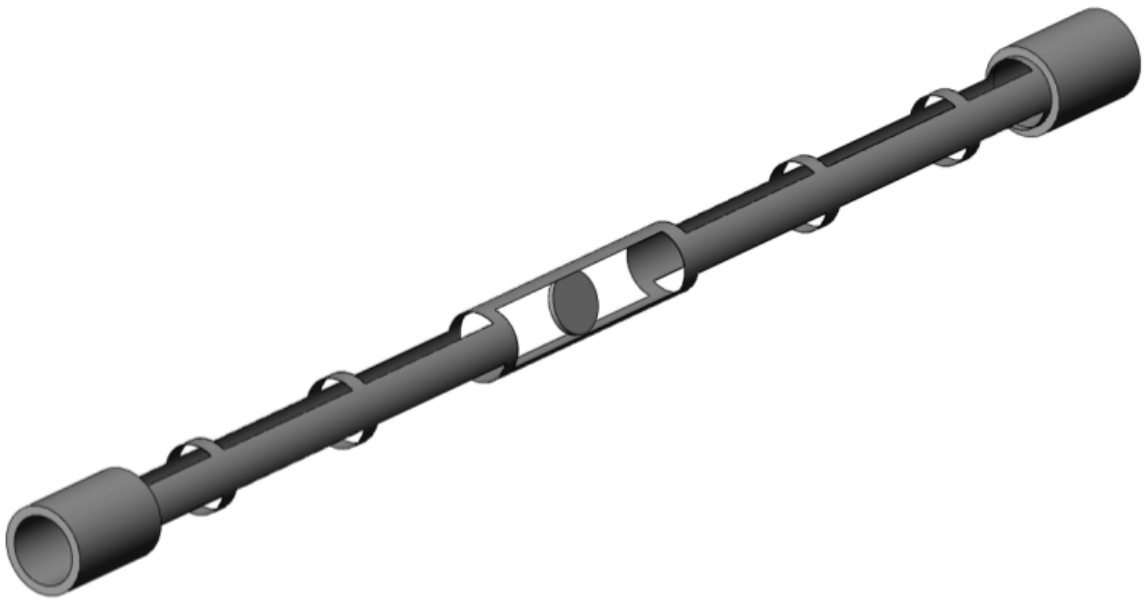
Goal

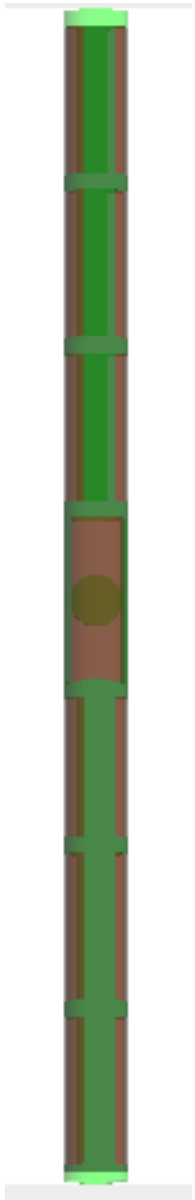
Only implement material which is inside sandwich acceptance
Trigger usage secondary but should be done (not done until now)

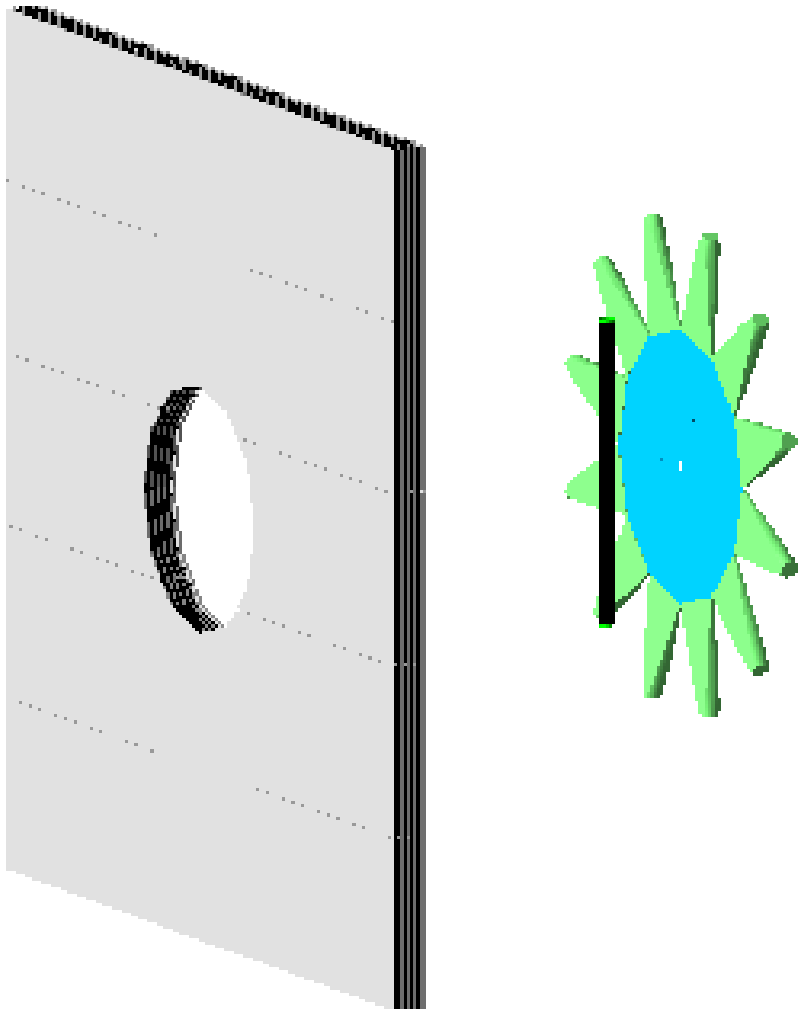












Code in ...

$TGEANT/src/simulation/geometries/trigger/

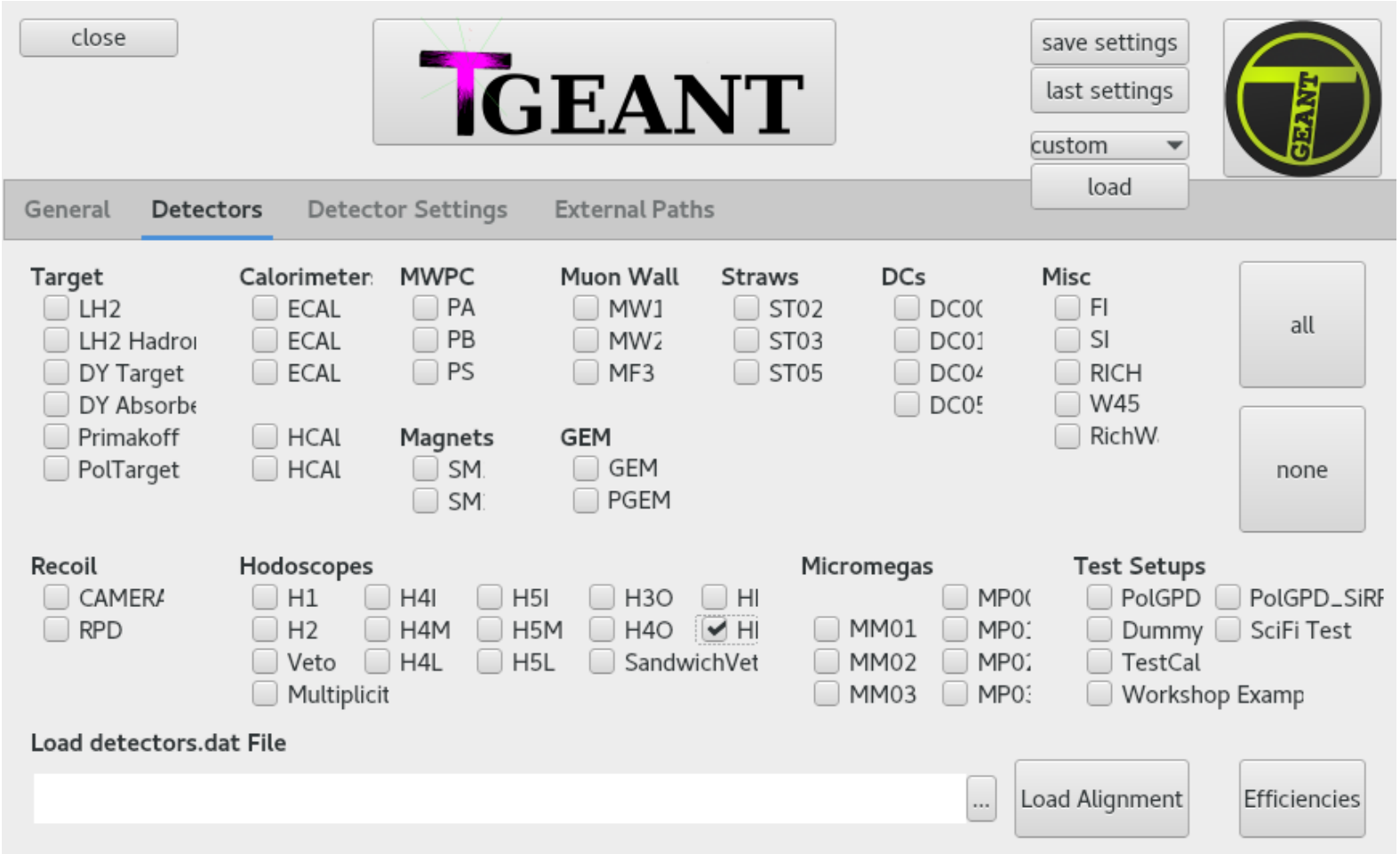
- include/T4MainzCounter.hh
- src/T4MainzCounter.cc

Naming

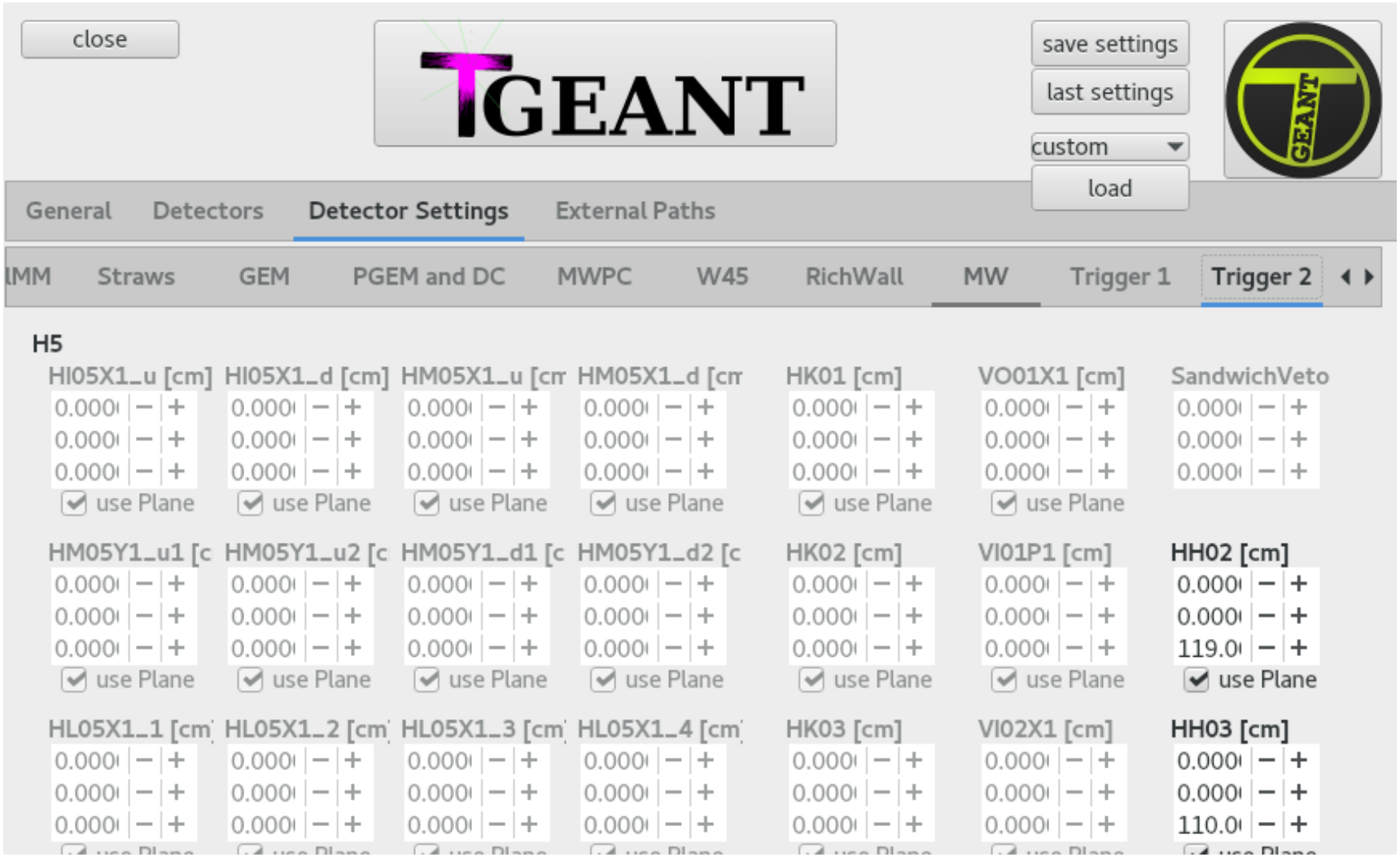
Mainz: MainzCounter02
Munich: MainzCounter03
⇒ change the names?

How to activate?

GUI ⇒ Detectors ⇒ checkBox "HH"
GUI ⇒ Detector Settings ⇒ Trigger2 ⇒ "HH02" and "HH03"
Mainz Munich



Could we make better resizing for the GUI? Above HH is HK, but no chance to see that in GUI.


close
TGEANT
save settings
last settings
custom
load
General
Detectors
Detector Settings
External Paths
lMM
Straws
GEM
PGEM and DC
MWPC
W45
RichWall
MW
Trigger 1
Trigger 2
H5
HI05X1_u [cm]
HI05X1_d [cm]
HM05X1_u [cm
HM05X1_d [cm
HK01 [cm]
VO01X1 [cm]
SandwichVeto
use Plane
HM05Y1_u1 [c
HM05Y1_u2 [c
HM05Y1_d1 [c
HM05Y1_d2 [c
HK02 [cm]
VI01P1 [cm]
HH02 [cm]
119.0
HL05X1_1 [cm
HL05X1_2 [cm
HL05X1_3 [cm
HL05X1_4 [cm
HK03 [cm]
VI02X1 [cm]
HH03 [cm]
110.0

Mainz

Scintilator: BC404 / BC408? In TGEANT only BC408 at the moment.
Optical or non optical? Difference?
Light guide: plexi glass? What about the foil around it?

Munich

Scintilator: PVT, what is that? $\%X_0$=0.7 and %I=0.38
Optical or non optical? Difference?
Light guide: Air, 200μm PVC, inner walls with aluminized mylar foil, outer black foil
How to use black foil? Material not in TGEANT.

Orientation

Global rotation of the elements?
At the moment 15° and Munich just along y

GEANT4

Part of logical volume
G4LogicalVolume::SetSensitiveDetector(new
T4SensitiveDetector(tbName, 0, TGEANT::TRIGGER, detectorId)

Physics

What does it mean?
Is tracking or whatever only done with sensitive detectors of that type?
How is material treated then?

GEANT4

Is every physical volume used during the simulation?
Can one place a volume just as reference and set to disregarded?

TGEANT

Can i use my own TBName for Mainz / munich?
Are there rules? HH02R1__ and HH03R1__ from efficiency file
What about wire detector information for these detectors?
When i am done, i would like someone to cross check the code

Memory management

I need to delete any memory allocated or solids, logical volumes, physical volumes, sensitive detectors, rot matrix deleted during deletion of world volume (properties of that) as with ROOT?
Is this documented somewhere?