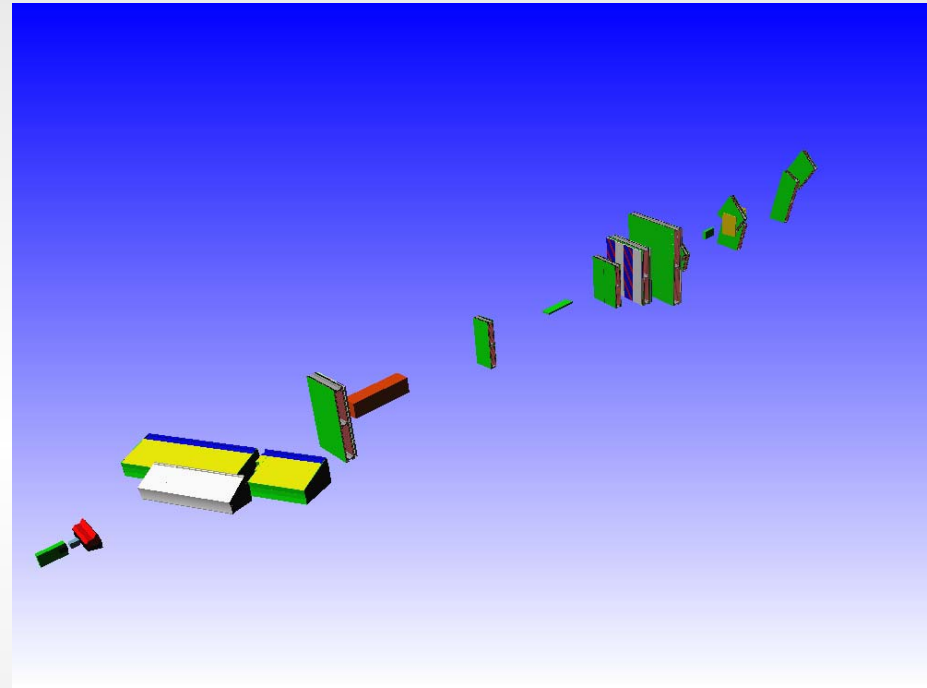


Status of Muon CTB 2004 Simulation

- *Environment*
- *CTB Simulation Status*
 - *The general environment*
 - *Details of the simulation*
- *Outlook and schedule*



Gabriella Gaudio & Pavia Simulation Group

Muon Week February 23th-27th 2004

Muon Software and Performance meeting

Environment

- *Athena release 7.6.0*
- *Simulation package:*
Simulation/G4Sim/CTB_G4Sim/CTB_G4Sim-00-00-05
- *Muon TB package:*
MuonSpectrometer/MuonG4/
./MuonG4TestBeam/MuonG4TestBeam-00-00-15
- *Database: amdb file*
amdb_simrec.H8_2004_CTB.a.01

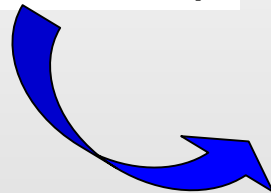
The CTB_G4Sim Package (M. Gallas, LCG)

For details see the official page of the CTB 04 Simulation with Geant4 (Athena) :
<http://atlas.web.cern.ch/Atlas/internal/Welcome.html> -> Computing-> Software Domains
-> Geant4 -> Combined TestBeam
or directly to the page: http://mgallas.home.cern.ch/mgallas/ctb_atlas/CTB.html

- **CTB_G4Sim** uses the **G4Sim** functionalities (volumes and envelopes definition, field, particle generation, tracking, POOL persistency...) and it integrates all the **CTB detector packages**

- **CTB_G4SIM** uses in a large extend the macro file facility (*.mac) to set up the CTB simulation.

(M. Gallas, CTB Meeting 18/02/04)



Feb., 24th 2004

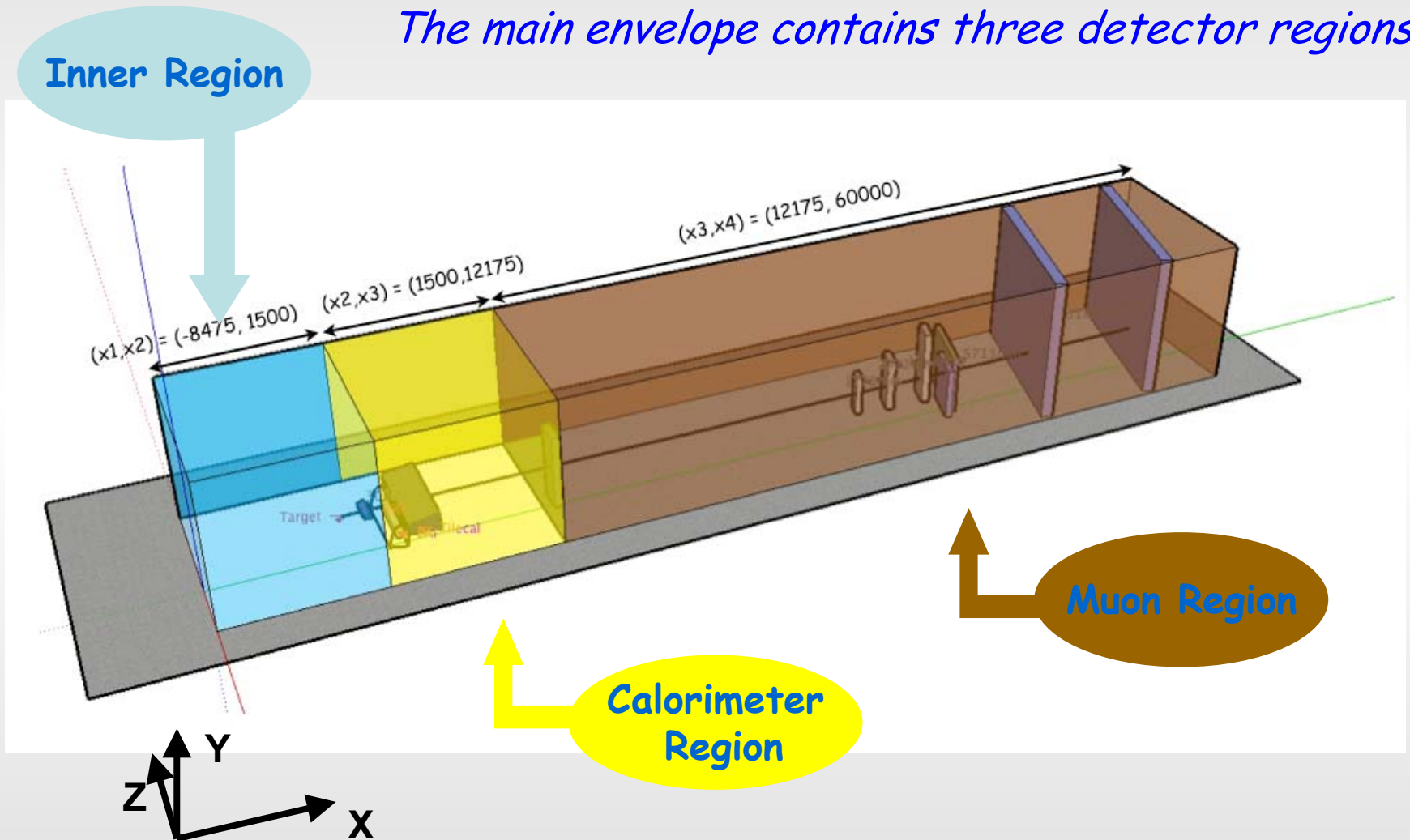
Gabriella
Muon Software and Pe

jobOptions.CTB_G4Sim.txt

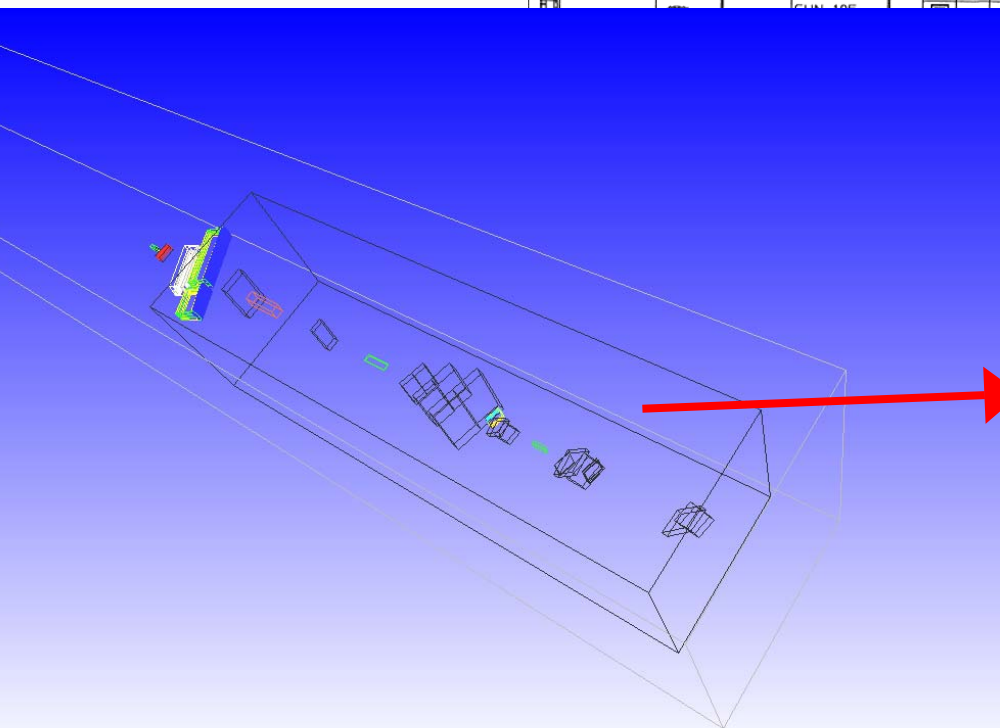
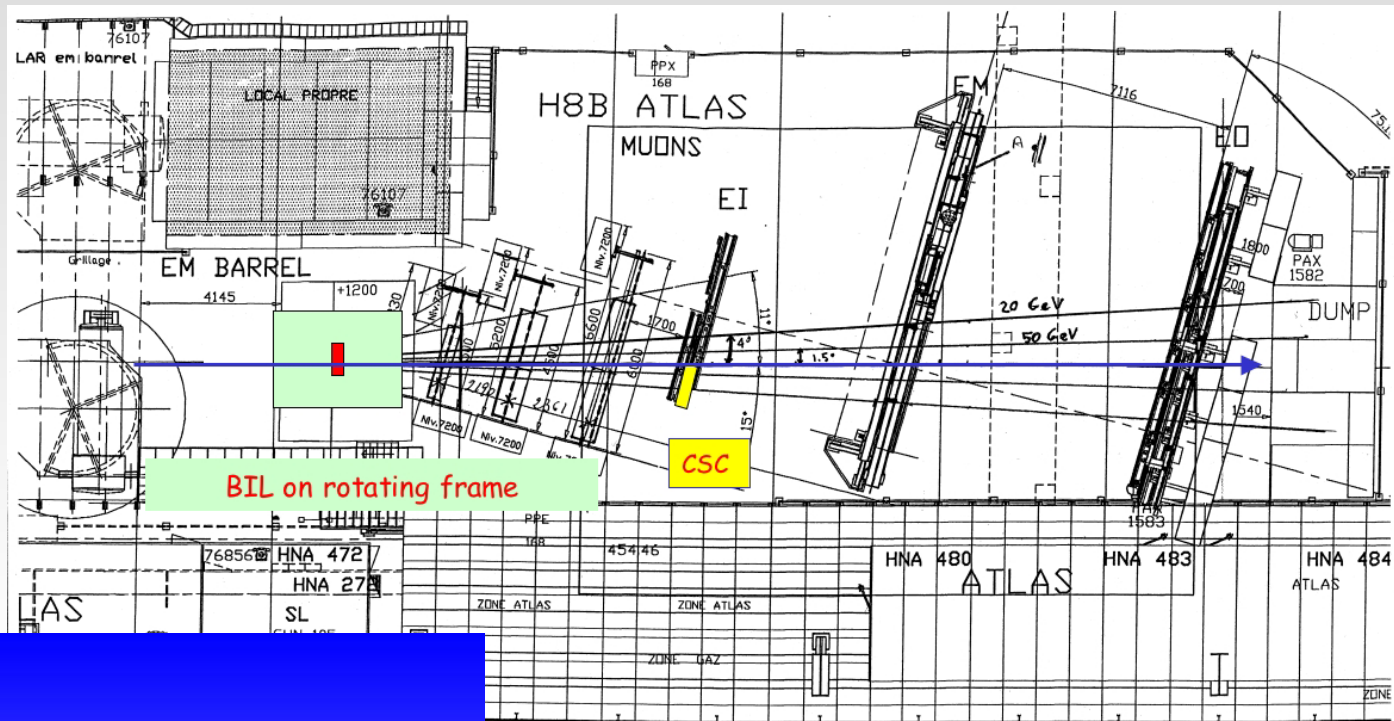
```
|  
|__ ctb_Atlas.mac  
|  
|__ ctb_envelopes.mac <-- always needed  
| ctb_PIXEL.mac  
| ctb_SCT.mac  
| ctb_TRT.mac  
| ctb_LArCal.mac  
| ctb_TileCal.mac  
| ctb_MuonSystem.mac  
|  
|- ctb_envirion.mac  
|- ctb_eventgraph.mac  
|- ctb_physicslist.mac  
|  
|_? ctb_visualization.mac  
|  
| ctb_PIXELVis.mac  
| ctb_SCTVis.mac  
|__ ctb_TRTVis.mac  
| ctb_LiArVis.mac  
| ctb_TileCalVis.mac  
| ctb_MuonSystemVis.mac
```

CTB Envelopes

The main envelope contains three detector regions



The Muon Region

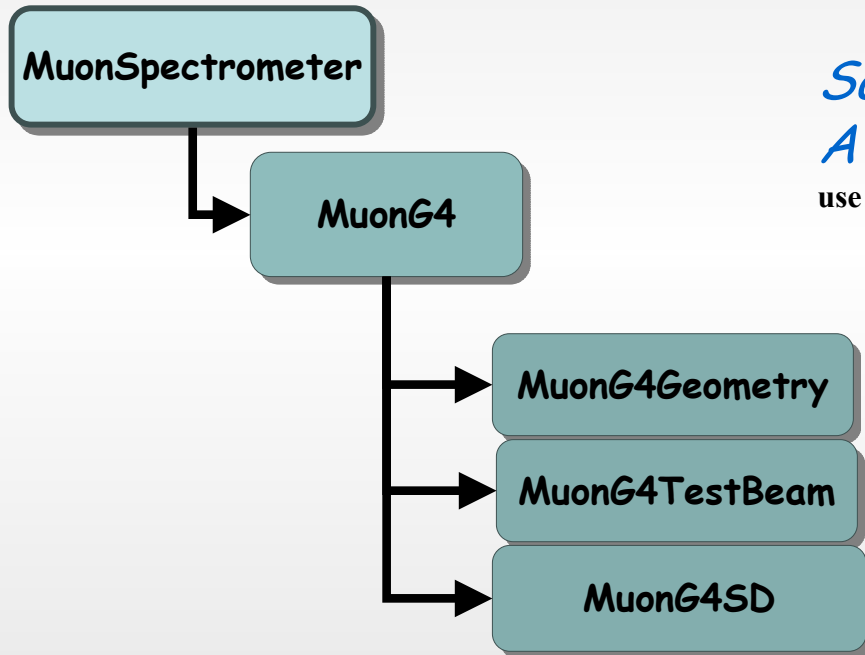


MuonSystem envelopes provided by the CTB_G4Sim package is implemented as:

```
ResizableBox CTBMUONSYSTEM  
SetDx= 2200. cm  
SetDy= 600. cm  
SetDz= 600. cm  
MoveTo 3417.5 0. 0. cm
```

The MuonG4TestBeam Package

The MuonG4TestBeam package creates a mother volume (with the same dimensions of the CTB_G4Sim Muon envelope) in which the detectors are positioned



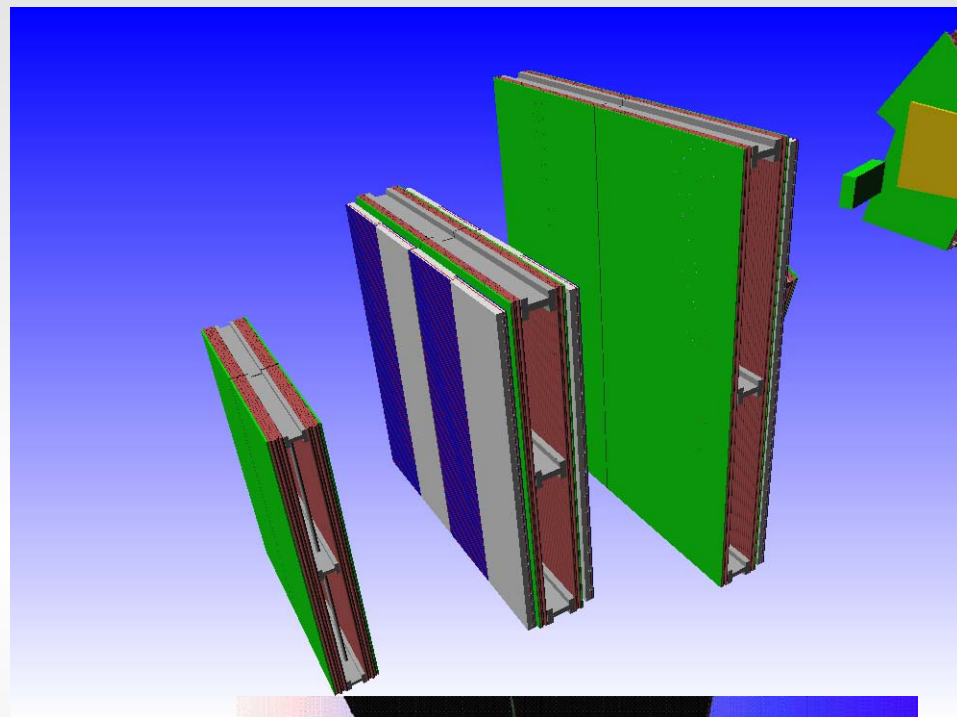
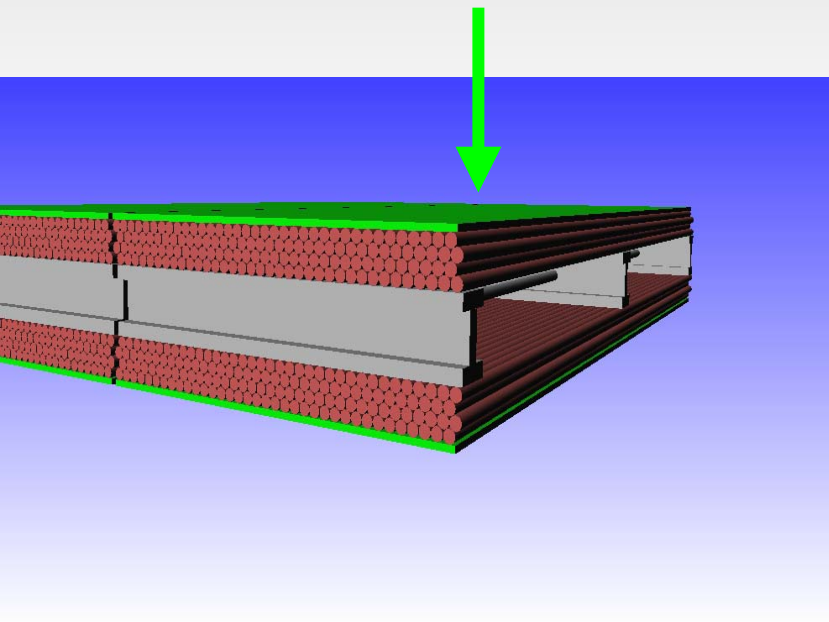
Same geometry implementation as the Atlas Muon Spectrometer

`use MuonG4Geometry MuonG4Geometry -* MuonSpectrometer/MuonG4`

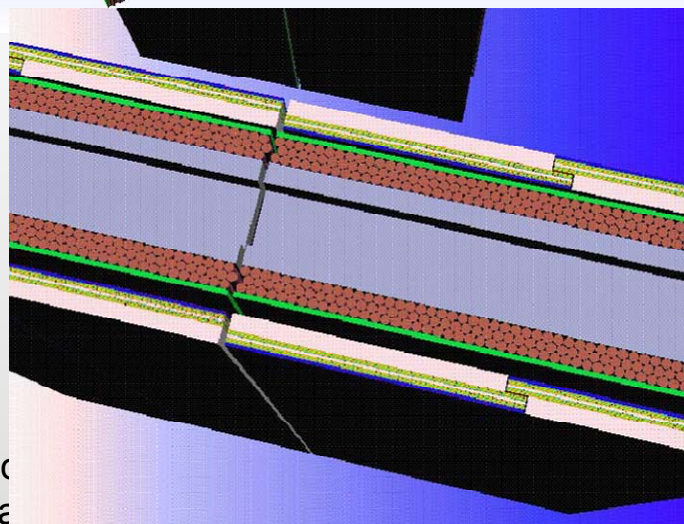
- *upgrades in the geometry code are always up-to-date*
- *different geometrical configurations coexist*

The Barrel chambers

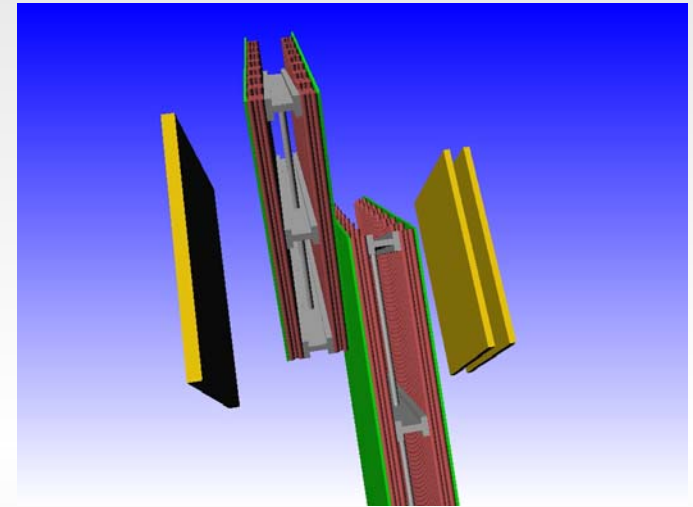
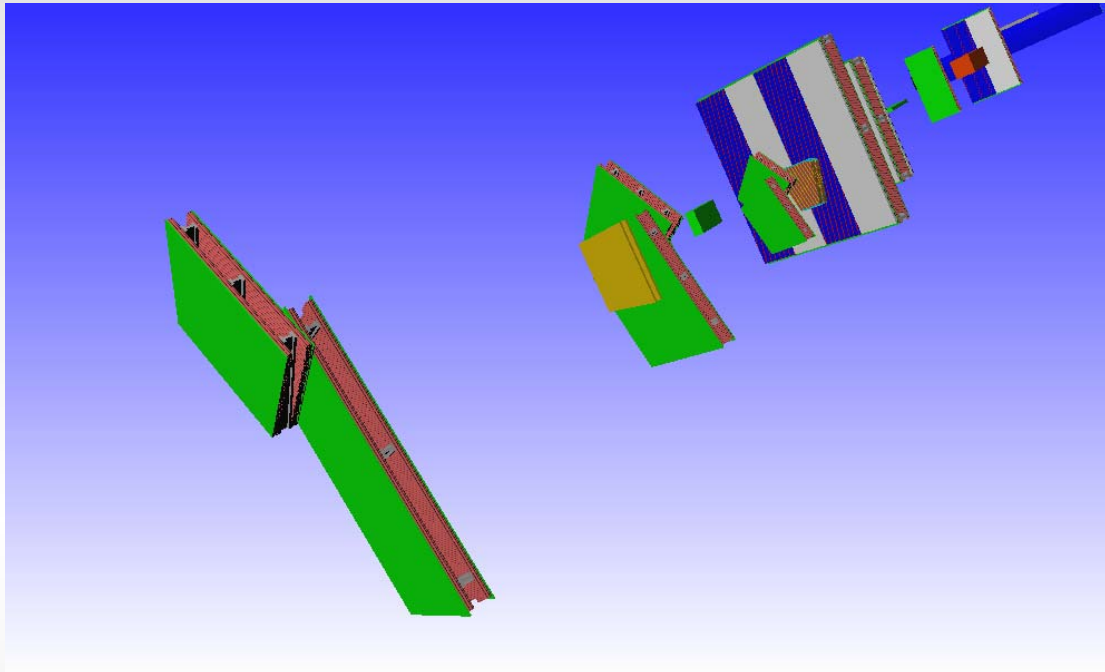
2 BIL chambers



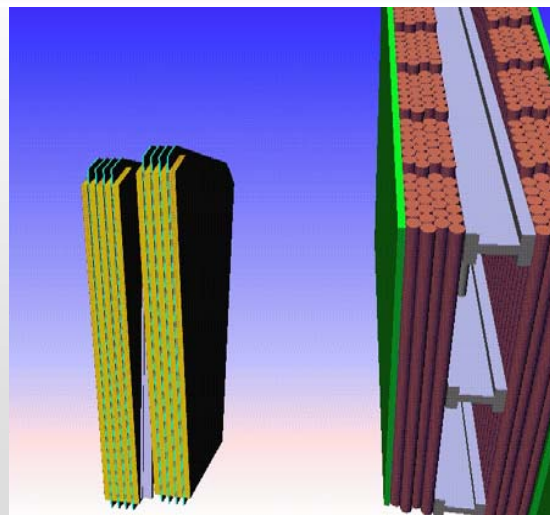
- 2 BML chambers with RPC's
- 2 BOL chambers with RPC's



The EndCap Chambers

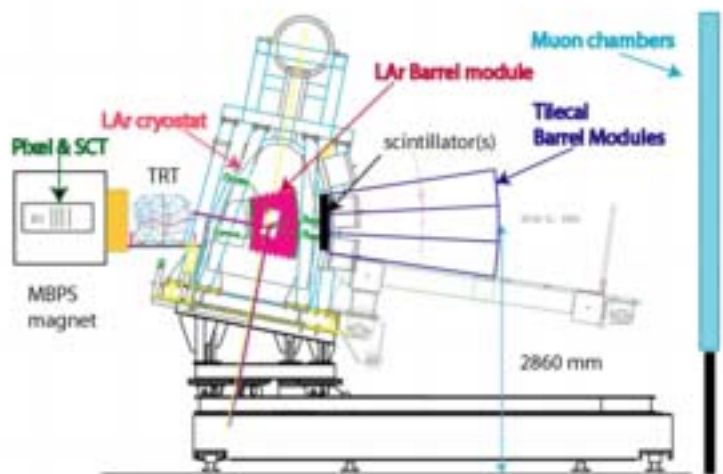


EML-EMS chambers and TGC

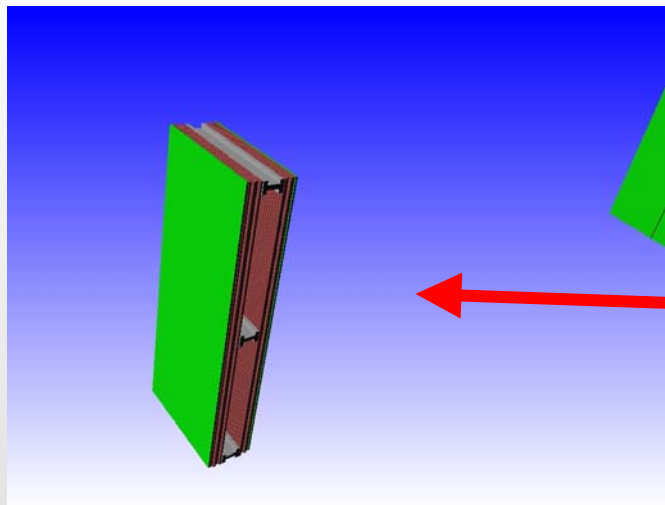
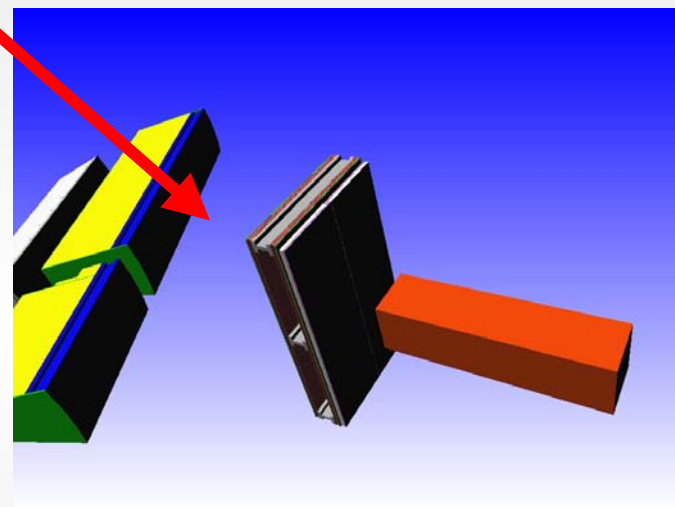


EIL and CSC

BOS and BIL3 chambers



BOS chamber will go behind the Tilecal module



BIL 3 chamber

Status of the Simulation

- *Reading of Amdb file for CTB 04 implemented:*
 - *Chamber Rotations and Traslations with respect to the reference system are implemented in the lines starting with "A" letter*
 - *Dedicated methods to retrieve information and apply positioning correction have been implemented*
- *Geometry check has been performed on CTB*
- *MuonG4TestBeam will be committed in cvs along with upgrades in MuonG4Geometry as soon as tests for geometry have been concluded*
- *SD for MuonG4TestBeam package :*
 - *Writing hits to StoreGate*
 - *Check reading hits from StoreGate using Rear MuonSpectrometer/MuonDigitization/Muon*
 - *Histogramming*

*Preliminary
test*

Next Steps & Schedule

- *The schedule for the Muon simulation in the CTB will follow the milestones presented at the CTB meeting on February, 18th (AF):*
 - *Athena release 8.0.0 (March, 17th)*
First version of combined simulation
 - *Athena release 8.1.0 (April ,7th)*
First version of combined reconstruction
 - *Athena release 9.0.0 (June, 9th)*
Final combined simulation, reconstruction and ConditionDB

M. Gallas :

- *Sensitive part of the detector: before end of february*
- *Digitization : before mid march*