

# The ILD\_01pre00 model and MOKKA work in progress

ILD Software Working Group Phone  
Meeting

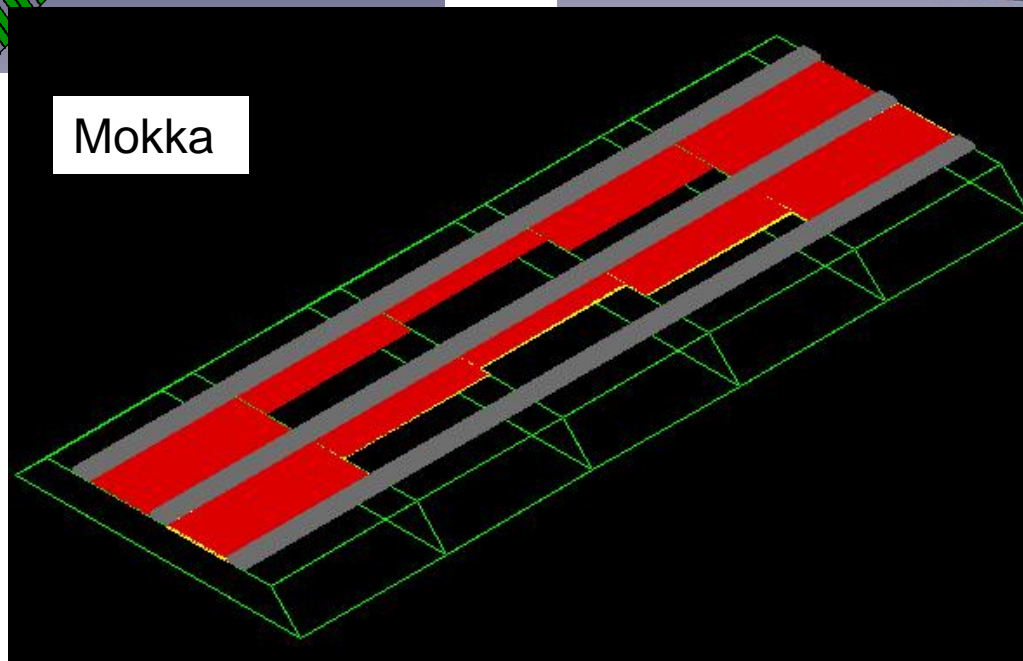
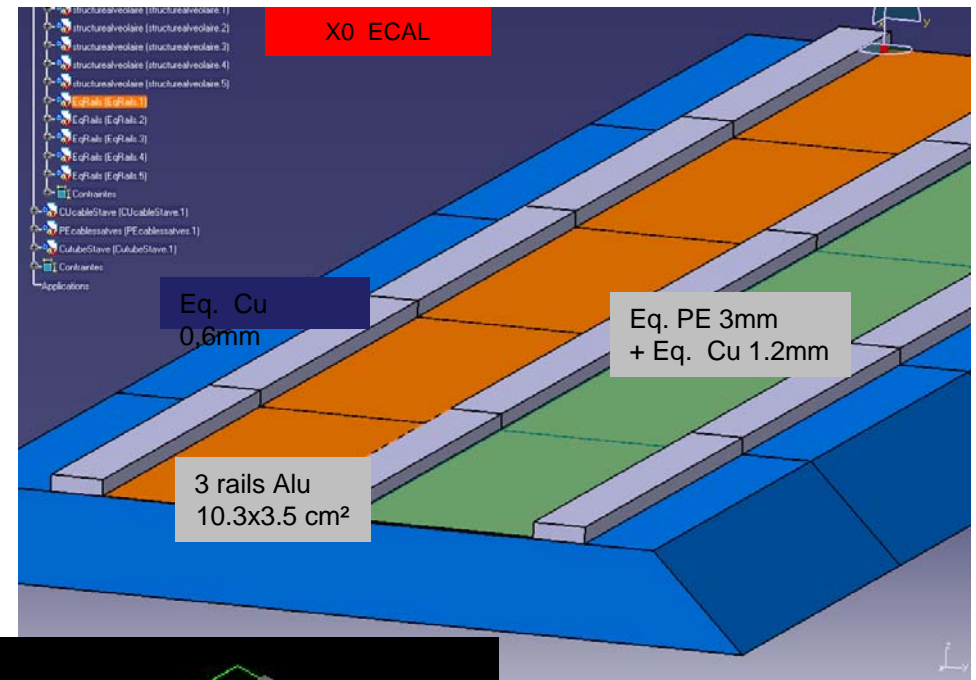
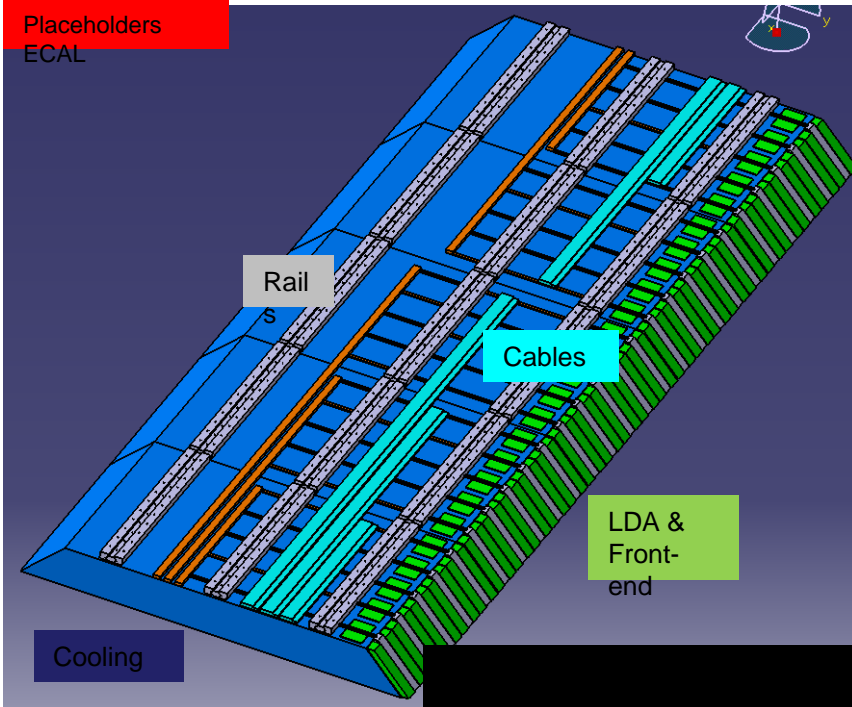
Wednesday 08 December 2010

Paulo Mora de Freitas – LLR

# Towards the ILD model for DBD

- Full implementation for the Si inner tracking devices (FTD, SIT, SET & ETD), including internal support and electronics;
- A new TPC driver with the correct material budget, including the electronic endplates;
- Full implementation for the AHcal electronics between barrel and end caps;
- Full implementation for the services (cables, cooling, supports, etc.) between the TPC, the Ecal and the AHcal.

# Ecal-Hcal



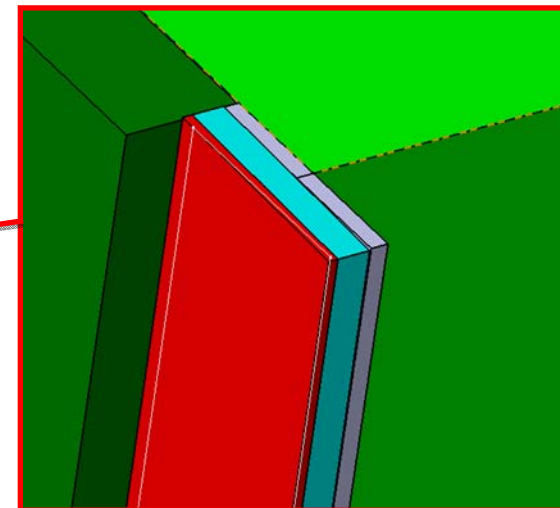
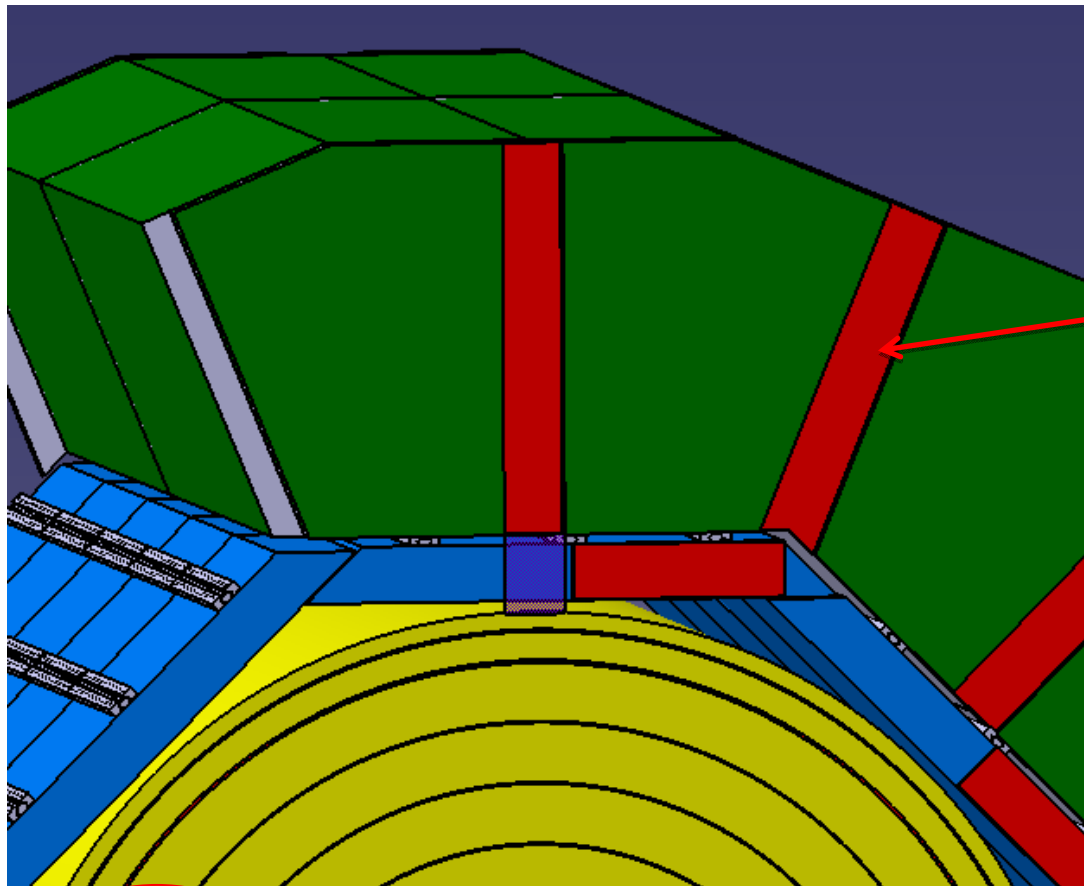
C.Clerc

In the 16 ways in front of Hcal

- Support SS 1.5 cm thick
- Polyethylene
- Cu

	Z-	Z+	Average
Cu (mm)	0,82	0,74	0,78
Cu XO	57,01%	51,41%	54,21%
PE	2,75	2,56	2,65
PE XO	5,85%	5,44%	5,65%

In MOKKA !



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Barrel services : dead materials

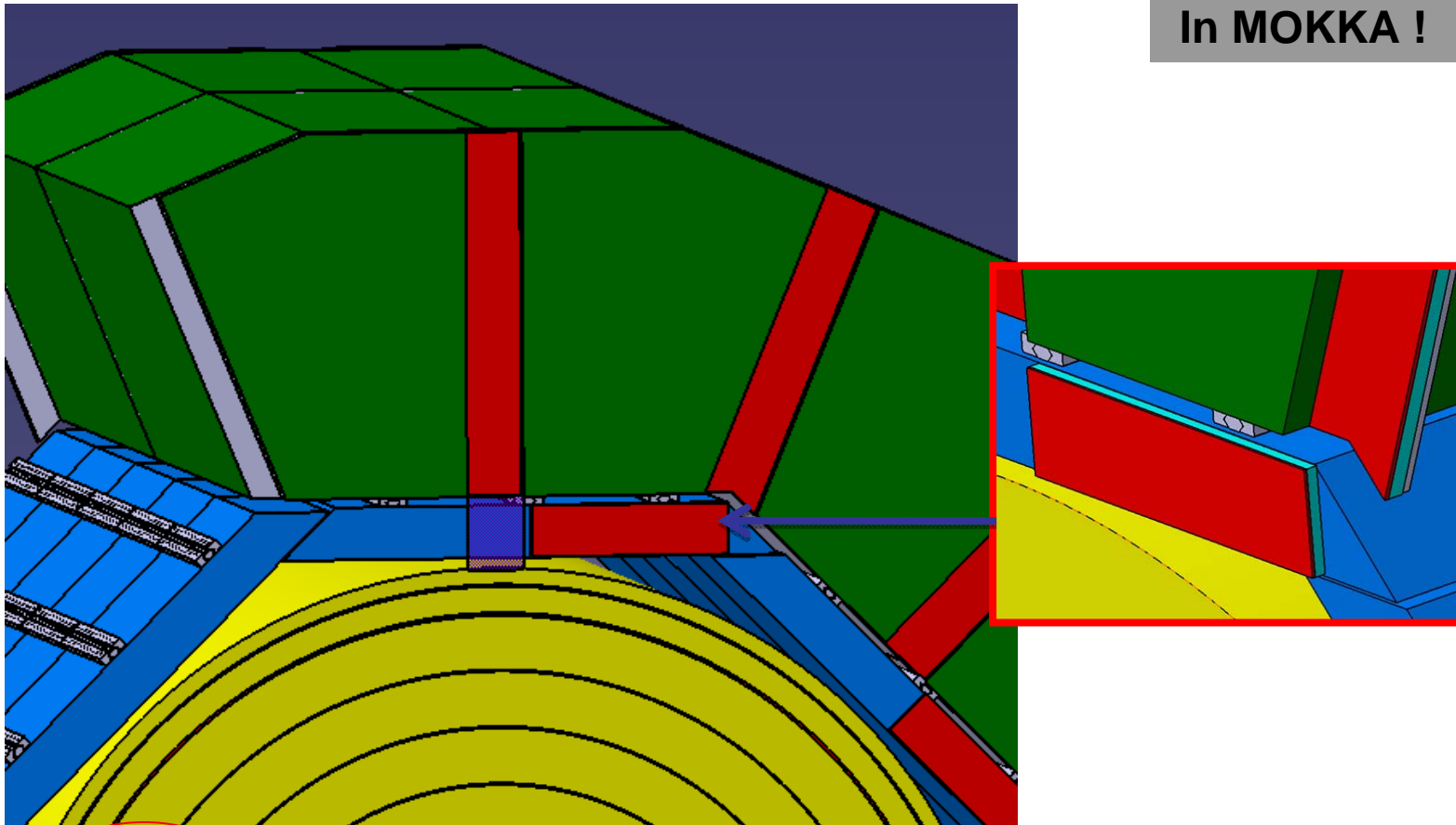
In the 8 ways in front of Ecal stave

- Polyethylene
- Cu

Ecal front part

	Z-	Z+	Average
Cu (mm)	0,52	0,35	0,44
Cu X0	36,34%	24,22%	30,28%
PE	1,24	0,83	1,04
PE X0	2,65%	2,20%	2,43%

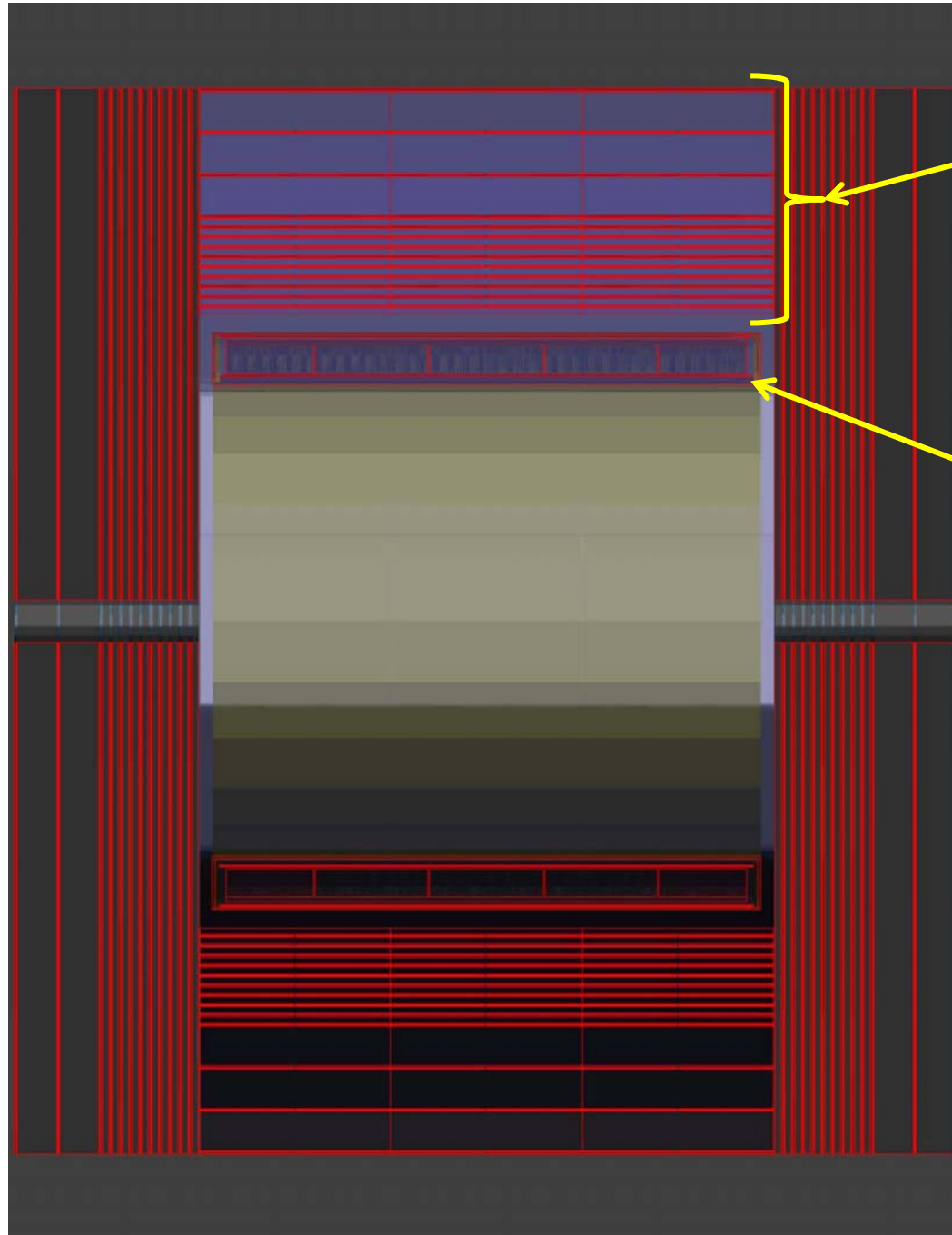
In MOKKA !



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# Several improvements

- Optional Ecal Si-Sc mixing available;
- New implementations for the Coil and the Yoke, with a more detailed description and new instrumentation for the muon system;
- A new and faster driver for the LumiCal;
- A new driver for the BeamCal for a better implementation and performance;
- Bug fix in the return field in the yoke region.



Muon chambers  
inside Yoke in  
the right place?

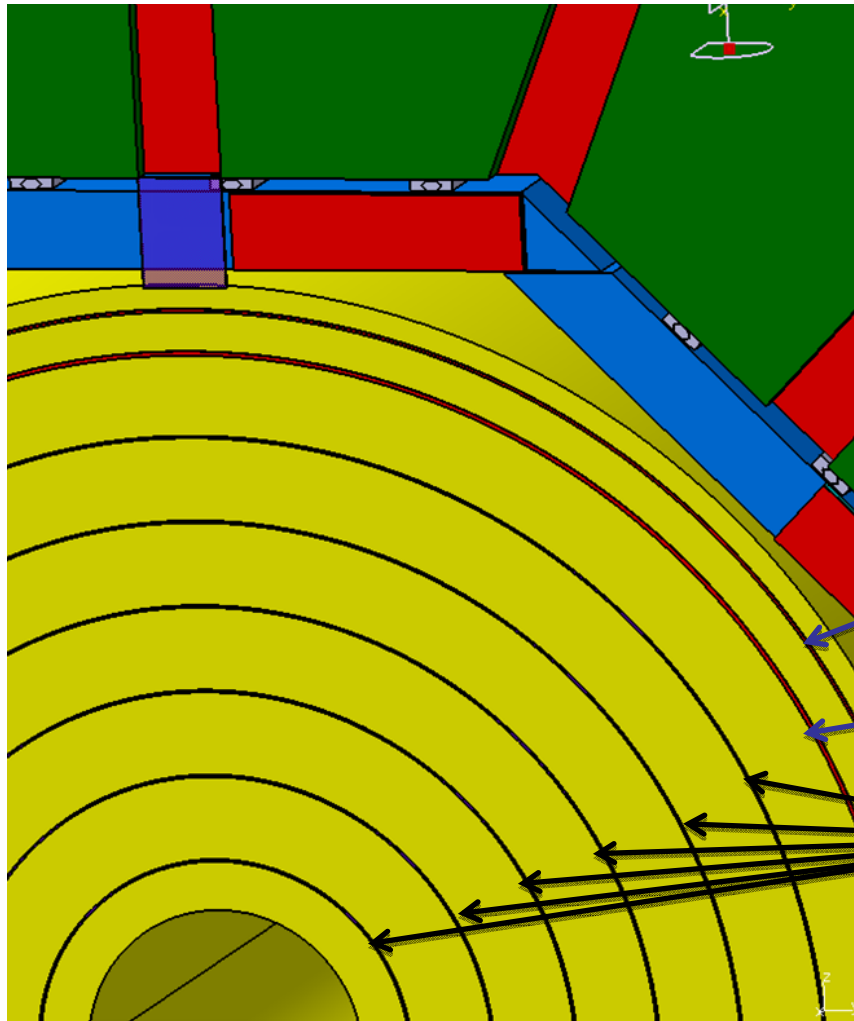
Detailed Coil,  
but with muons  
chambers  
inside?

# Still missing for ILD\_01

- The supports, cables and services for the :
  - VXD;
  - Si tracking devices (FTD, SIT, SET and ETD);
  - TPC, between TPC and ETD (only the cooling system is implemented);
  - forward region devices;
- New designs for the beam pipe, LHcal and masks;
- The DHcal option;
- Detailed field for forward region studies.



Barrel services : dead materials



rings of equivalent thickness  
in copper

Liquid supply ring 7x2.7 mm<sup>2</sup>

Vapor return ring 10x2.8 mm<sup>2</sup>

6 Cooling tubes 4x1.9 mm<sup>2</sup>

**IN MOKKA !**

# Mokka To-do List 1, to

- User requirements
  - Check tracking of long-lived particles like B meson in Mokka; (J. List, N. Graf)
  - User should be able to define the max step allowed depending on particle type and process which created it (Akiya)
- Interfaces
  - Review GDML structure for Gear/TGeo input
  - Review VRML structure, dumping per detector
  - Magnetic field in the return yoke in GEAR file

# Mokka To-do List 2, to

- Support
  - Automatic indexing for the release notes
  - Mokka Web page up dates
  - Detailed pdf 3D files for all models
- Kernel reengineering
  - SQLite stand-alone distribution
  - Scaling mechanism review
  - Forking performance tests

# Conclusions

- Work in progress for
  - The ILD\_01 model the reference for the DBD studies
    - Depending mainly on the integration group feedback and mechanical designs
  - The MOKKA kernel itself
    - A best effort approach, depending on manpower
- For both, your feedback and help are welcome