



ILD

vers une lettre d'intention commune à GLD et LDC

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- Vers une LdI ILD
- Activité dans les groupes

Research Director (RD)

- RD
 - Responsible for the ILC experimental program
 - Sakue Yamada formally accepted the post.
 - Starting intensive activities
- Structures under RD
 - WWS co-chairs requested by RD to assist him
 - Having weekly phone conference
 - IDAG being selected by RD and WWS co-chairs
 - Reviews LOIs and advises RD
- LOI call was sent out by ILCSC (RD, WWS).



LOI Call (Sent out, Oct 5)

Dear Colleague,

The International Linear Collider Steering Committee (ILCSC) announces a call for Letters of Intent (LsOI) to produce reference designs for the two ILC detectors. These designs will be detailed in two Engineering Design Reports (EDRs) to be completed on the timeline of the machine EDR being prepared by the Global Design Effort. The guidelines for the LsOI are presented in the appended document and a public presentation of the WWS roadmap for detectors can be found in the LCWS07 web site. The LsOI should be sent to the ILCSC by **October 1, 2008** and will be reviewed by an advisory body appointed with the approval of ILCSC. This body, together with a management team led by the Research Director Sakue Yamada who has been appointed by ILCSC, will start a process leading to the formation of two groups capable of preparing the two engineering designs and the EDR documents.

Sincerely Yours,

Shin-ichi Kurokawa

Chairman of the International Linear Collider Committee

<http://physics.uoregon.edu/~lc/wwstudy/lois/LOIguidelines.pdf>



Why LOI call Now?

- Group formation process should be open
 - Give chance to all interested parties in HEP community
 - Avoid impression of decisions internal to ILC community
 - → LOI call
- Detector needs to be synchronized to accelerator
 - A practical requirement to start taking data when accelerator is ready:
 - Conventional assembly: late by ~2 years.
 - Surface assembly: barely in time, by assembling on surface while exp. hall is being dug and prepared
 - Start construction in 2012~3, EDR in 2010
 - → LOI call now, group formation in 2008



What is LOI?

- What LOI IS:
 - A basis to form two groups capable of producing EDR
 - Describes resource needs and their evolution in time
- What LOI is NOT:
 - It will not contain financial commitment
 - It will not exclude any other groups to produce EDRs in time for construction.
 - In such a case, the ‘ILC lab’ would decide final two groups.



LDC + GLD = ILD

- Pros
 - More manpower, more funds
 - Political critical mass
 - Revitalization of studies
 - Physics and detector optimization
 - Focused studies in the ‘horizontal collaborations’
- Cons
 - Need to unify the detector design
 - Can we work together?
 - Prides, regional priorities, political power share
- We have decided that pros outweigh cons
 - So we hope!



ILD Joint Steering Board

- JSB charge
 - Do whatever is necessary to produce the single LOI in time.
 - It is open after the LOI phase.

- JSB selection
 - Balanced regionally and in expertise
 - GLD provides 2 Asians and 1 American
 - LDC provides 2 Europeans and 1 American
 - GLD EB voted for candidates
 - Candidates not restricted to GLD EB
 - LDC took the current contact persons as candidates
 - 2 Asians and 2 Europeans decided as above
 - 2 Americans decided based on above+expertise



Activité dans les groupes:
Optimisation
Intégration et IDM
Elaboration du coût



Working Groups for LOI

- JSB meetings
 - Held every ~2 weeks
 - TV/phone meetings
 - Established two working groups
 - Optimization
 - MDI/integration
 - Set guidelines for the WG activities
- Two working groups + one
 - Optimization
 - Mark Thomson, Tamaki Yoshioka
 - MDI/integration
 - Karsten Büsser, Toshiaki Tauchi



Charge issued by the ILD Joint Steering Board:

- The MDI/working group is charged to produce a self-consistent design of the structure of the ILD detector from the viewpoint of machine-detector interface (MDI) and detector integration for the LOI that is to be submitted by October 1, 2008.
- Specifically, it covers the design of the beam pipes, magnets, iron return yoke, beam instrumentations, and their supports that require works by the detector group.
- Also, it should address general detector structure and assembly issues, where the aspects that affect the machine design will have initial priority. Beam background studies should be performed when necessary.
- The group should work closely with the machine people and the groups working on subdetectors that affect the structure of the ILD detector.

MDI/integration working group charge:

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Specifically, it covers the **design of the beam pipes, magnets, iron return yoke, beam instrumentations, and their supports** that require works by the detector group. Also, it should address **general detector structure and assembly issues**, where the aspects that affect the machine design will have initial priority. **Beam background studies** should be performed when necessary. The group should work closely with the machine people and the groups working on subdetectors that affect the structure of the ILD detector. In order to organize the needed activities, **two conveners** have been elected. They are to define necessary tasks and to organize subgroups to perform them. **The Steering Board will assist** the conveners in fulfilling the charges. **The timeline should be such that by May 2008, the relevant designs should be defined enough to start authoring the LOI.**

Optimisation working group charge:

Investigate the dependence of the physics performance of the ILD detector on basic parameters such as TPC radius and B-field. On the basis of these studies and the understanding of any observed differences, the WG will make recommendations for the optimal choice of parameters for the ILD detector. It is the responsibility of the WG conveners to organize this work, while the steering board will assist them in executing the charge.

The WG should aim for have first results from detector optimization studies by the 1st of May 2008 in time for the ILD Letter of Intent to write an ILC Detector EDR. It is understood that the detector optimization studies will be an on-going effort throughout the EDR phase.



No charge for costing
A. M. H. V.



Subdetectors

Currently no new structure is set up for ILD

- Eventually needed to write the subdetector sections of LOI
- ILD subdetector groups
 - Relation to the horizontal collaborations?
 - More discussions at the 2nd ILD session



Calendar

- ILD workshop
 - First ILD workshop, ~2.5 days.
 - Jan 14-16, in Berlin
- TILC07 Sendai (ACFA/GDE) Mar 3~6, 08.
 - ILD meeting: 1.5 days.
 - www.awa.tohoku.ac.jp/TILC07 (currently blank)



Calendar

~May 2008

- Basic detector parameters defined for ILD
- Enough to start authoring LOI

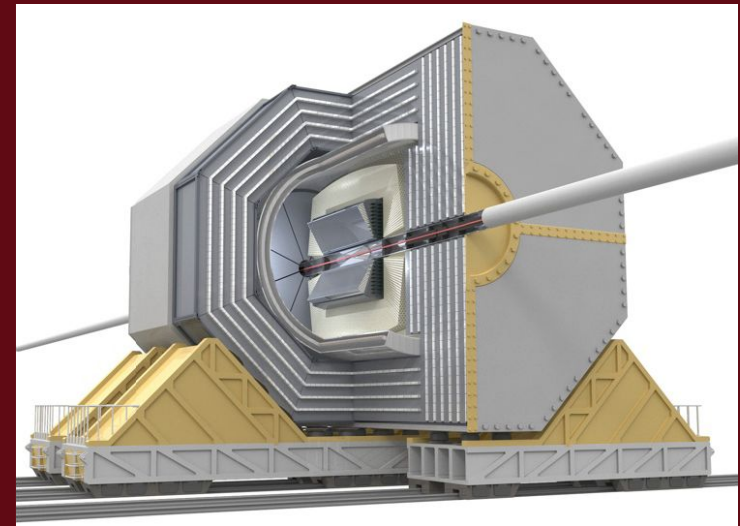
• Oct 1, 2008

- LOI submission
-

There is so much to be gained by joining forces.

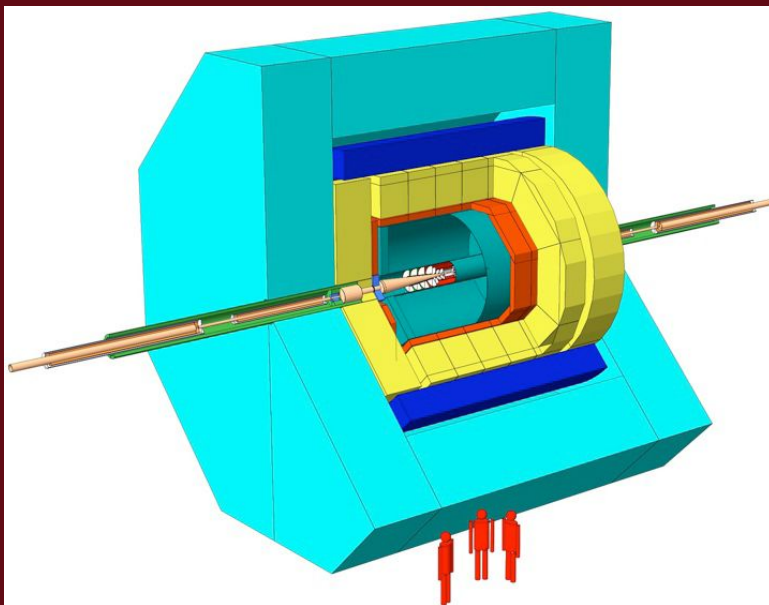
Let us focus on getting things done,

- and not on your own tribal prides, territorial interests etc.
- but respect those on the other side.

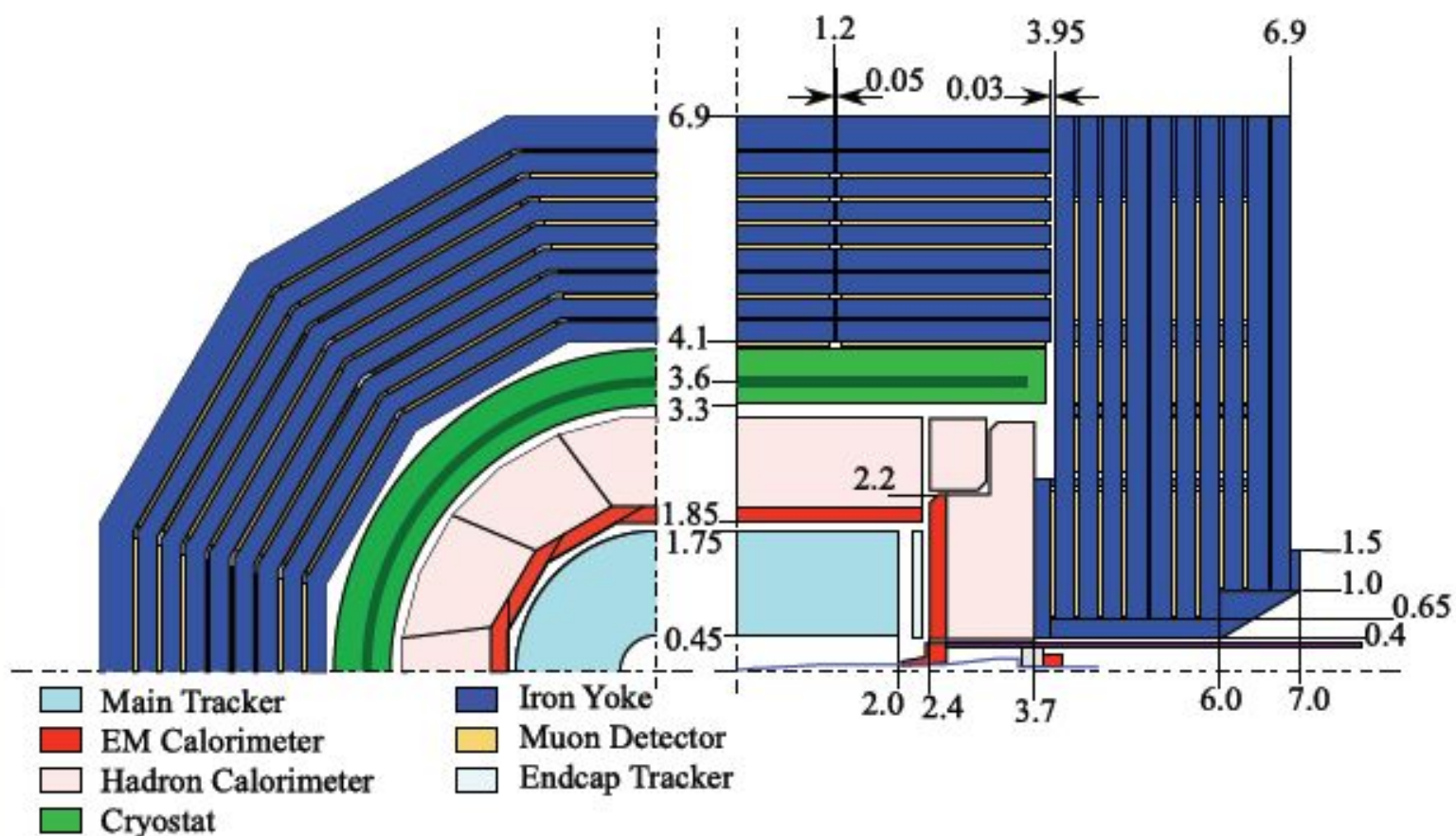


Design et integration


avant de définir ILD, convergeons sur GLD' and LDC'



Compact GLD (GLDc)



Sub-detector	GLD	LDC
Vertex det.	FP CCD	CPCCD/CMOS/DEPFET/ISIS/SOI/...
Si inner tracker	Si strip (4-layers)	Si strip (2-layers)
Si forward trk.	Si strip/pixel (?)	Si strip/pixel (?)
Main trk.	TPC	TPC
Additional trk.	Si endcap/outer trk. (option)	Si endcap/external trk.
EM CAL	W-Scintillator	W-Si
HCAL	Fe(Pb)-Scintillator	Fe-Sci./RPC*/GEM*
Solenoid	3T	4T
Muon det.	Scintillator strip	Sci strip/PST/RPC
Iron yoke	(25cm + 5cm) x 9/10	(10cm+4cm) x 10 + 1m
Forward CAL	W-Si/Diamond	W-Si/Diamond



			GLD	LDC	GLD'	LDC'
TPC		Rin (m)	0.45	0.3	0.45	0.3
		Rout (m)	2.0	1.58	1.8	1.8
		Zmax (m)*	2.5	2.16	2.35	2.35
Barrel	ECAL	Rin (m)**	2.1	1.6	1.85	1.82
		Material	Sci/W	Si-W	Sci/W	Si-W
	HCAL	Material	Sci/W	Sci/Fe	Sci/W	Sci/Fe
EndCap	ECAL	Zmin (m)***	2.8	2.3	2.55	2.55
B-Field (T)			3	4	3.5	3.5
VTX		Inner Layer (mm)	20	16	18	18


Region between VTX and TPC unchanged in both cases.

* Note for GLD $Z_{max} = 2.3 + 0.2$ m for TPC readout. This is included in the standard LDC TPC Z_{max}

** LDC allows less space between TPC and ECAL than GLD

–here let TPC outer radius fix ECAL Rin and all subsequent radii

*** propose to fix ECAL Zmin and let this define the exact details of the TPC endplate region



- Generator Issues

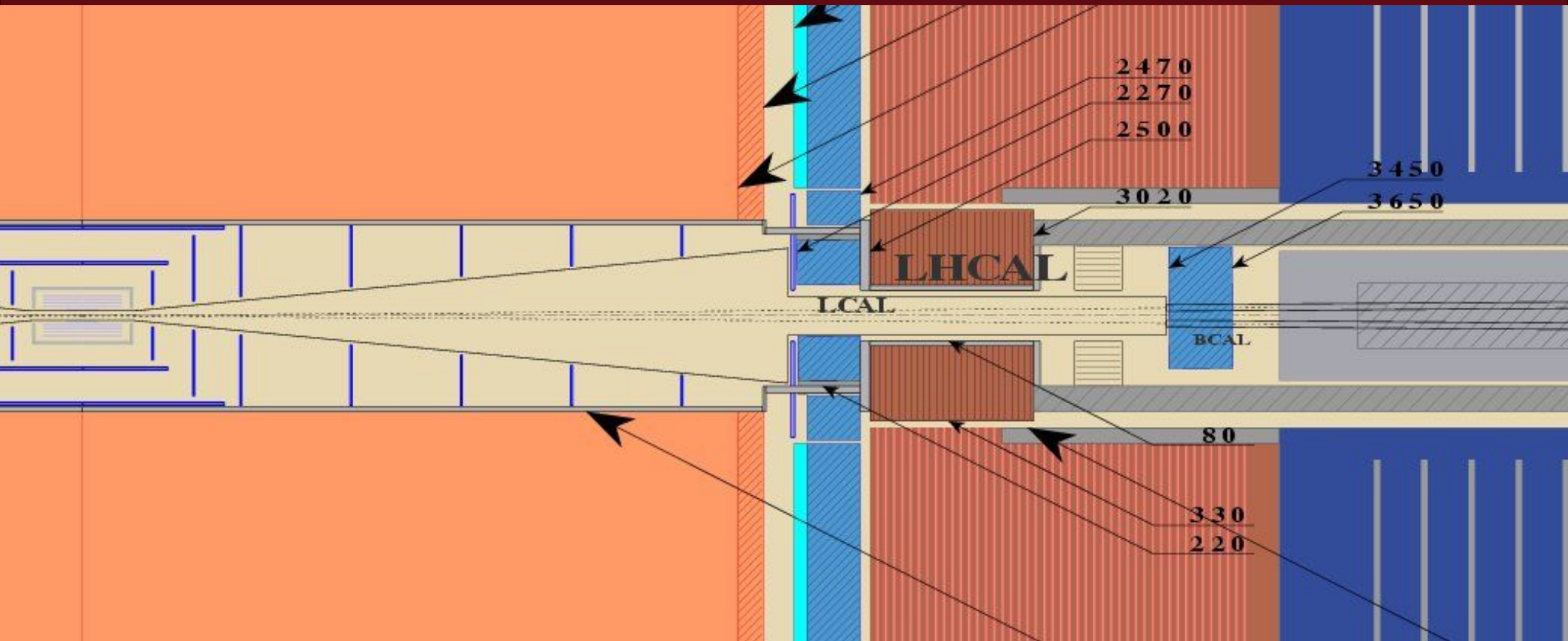
- It was agreed in principle that, all physics studies should be based on SLAC generated STDHEP files. However, Jupiter is currently not able to read STDHEP files and this needs to be addressed in the near future.

- Analysis Tools

- It was agreed to perform studies in both the LDC Marlin framework and GLD Satellites framework.
 - We can compare the performance at the common parameter point.
 - LCIO interface has been implemented to Jupiter.

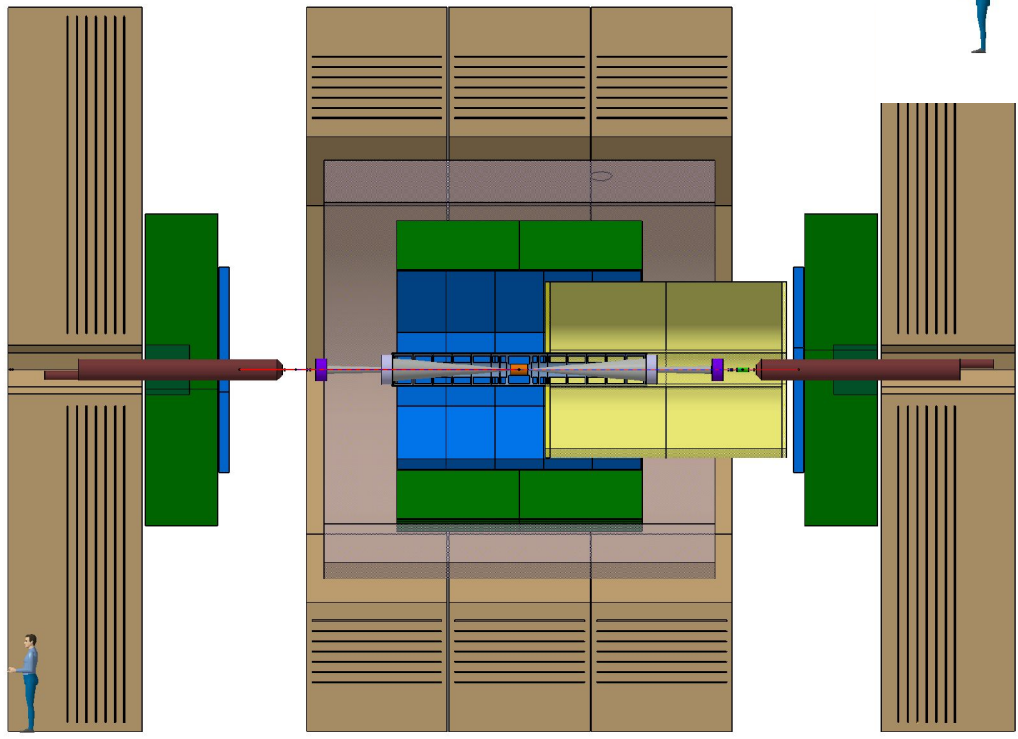
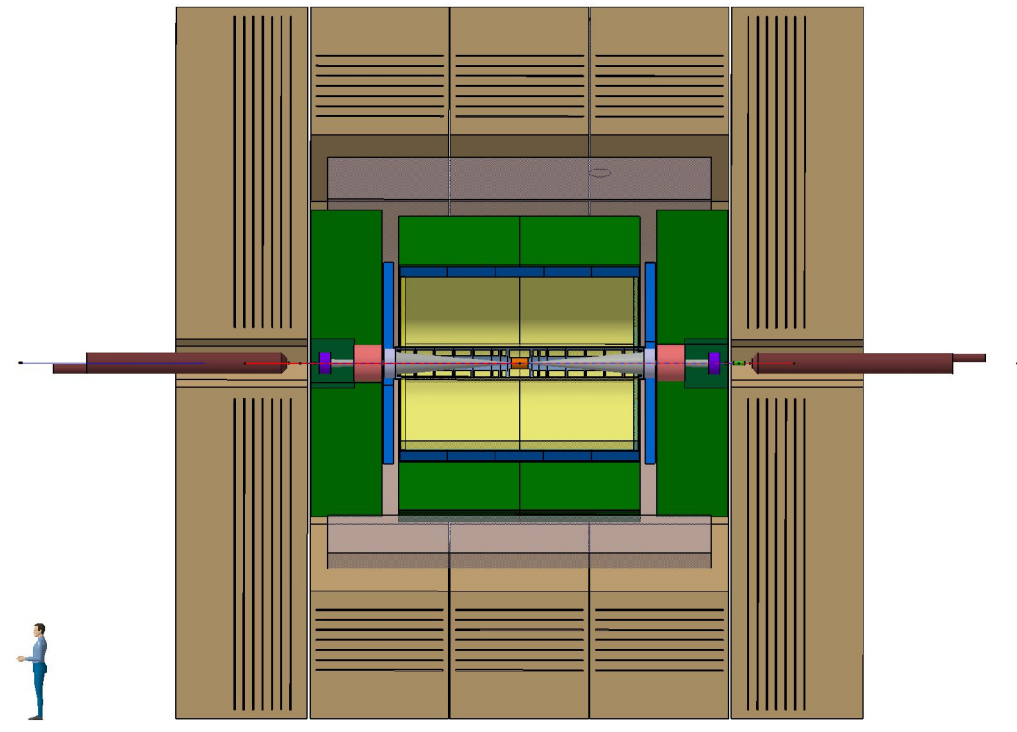
not include backgrounds in the first round of optimisation

- $e^+e^- \rightarrow Zh \rightarrow llX$,
 $m_h = 120 \text{ GeV}$, $E_{cm} = 250/350 \text{ GeV}$
 \rightarrow Test of tracker momentum resolution
- $e^+e^- \rightarrow Zh$; $h \rightarrow cc, \tau\tau, WW^*$,
 $m_h = 120 \text{ GeV}$, $E_{cm} = 350 \text{ GeV}$
 \rightarrow Test of heavy flavor tagging (vertex performance)
- $e^+e^- \rightarrow$ selectron pair at Point 1, $E_{cm} = 500 \text{ GeV}$
 \rightarrow Test of tracker momentum resolution
- $e^+e^- \rightarrow$ chargino pair/neutralino pair at Point 5,
 $E_{cm} = 500 \text{ GeV}$
 \rightarrow Test of Particle Flow (WW/ZZ separation)
- $e^+e^- \rightarrow tth$

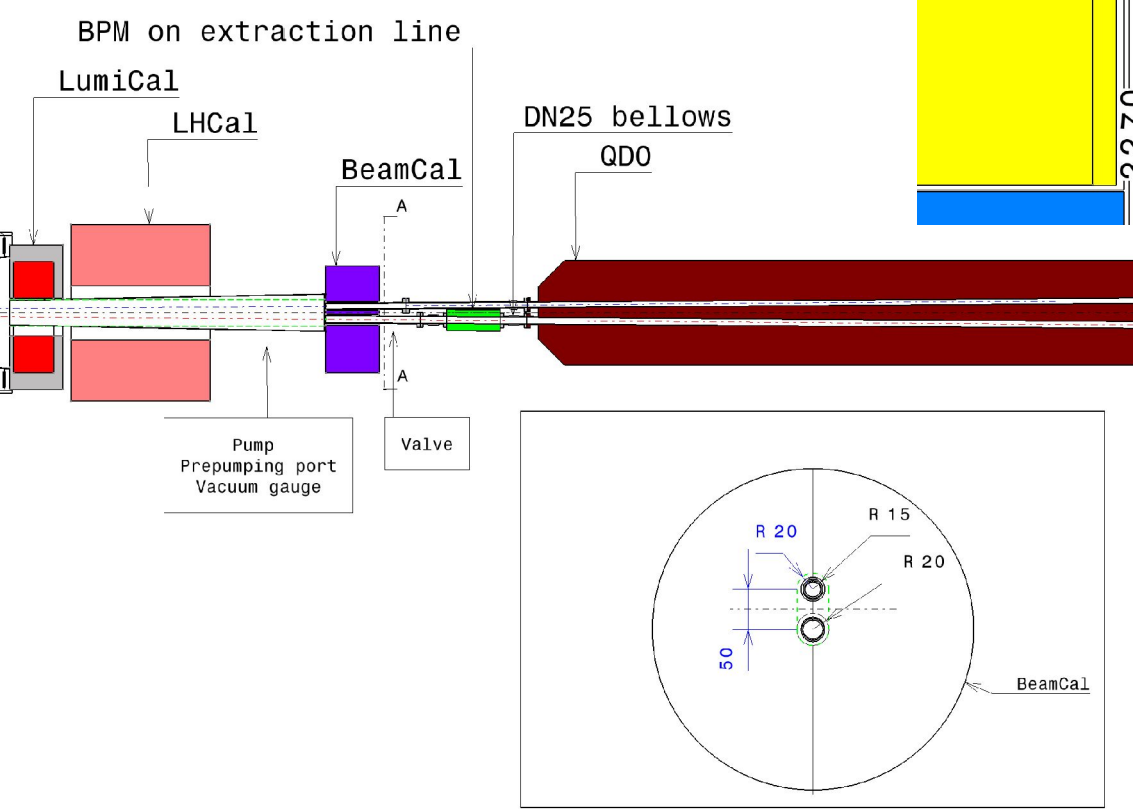
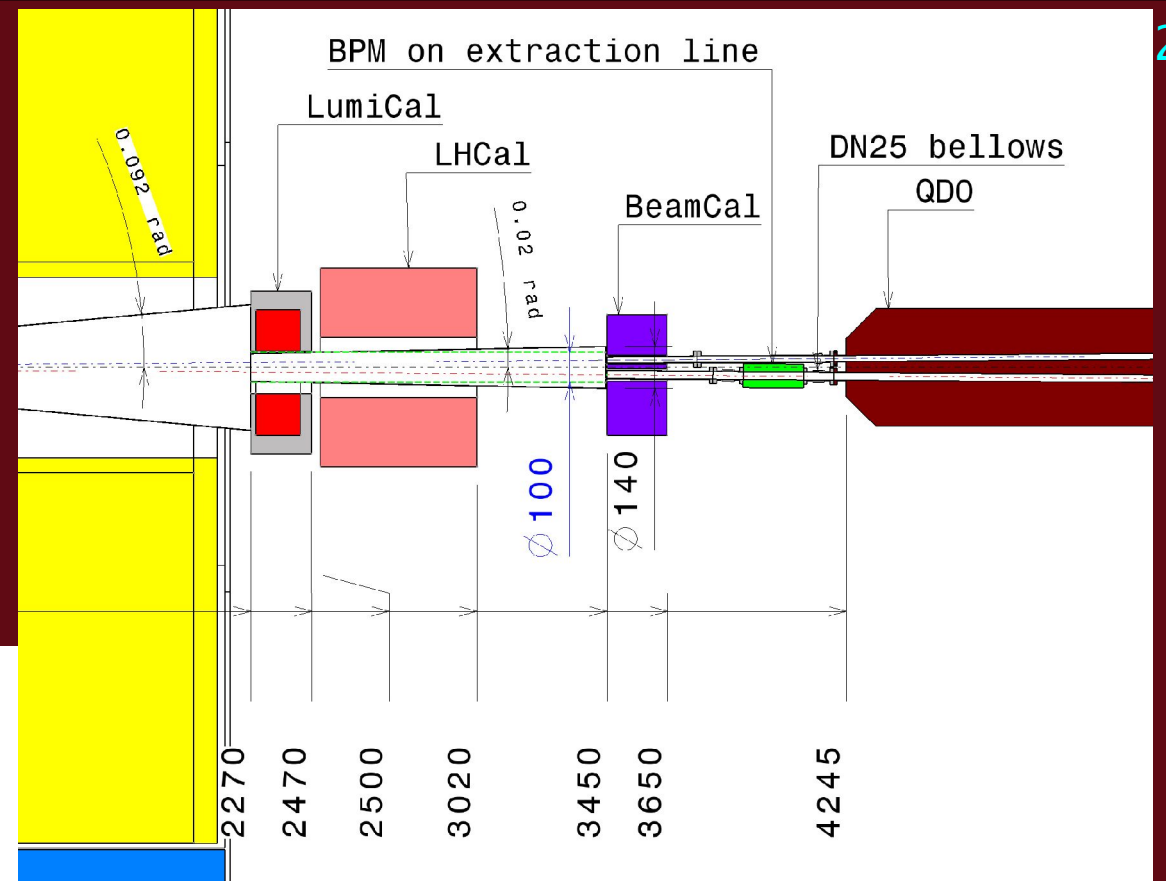




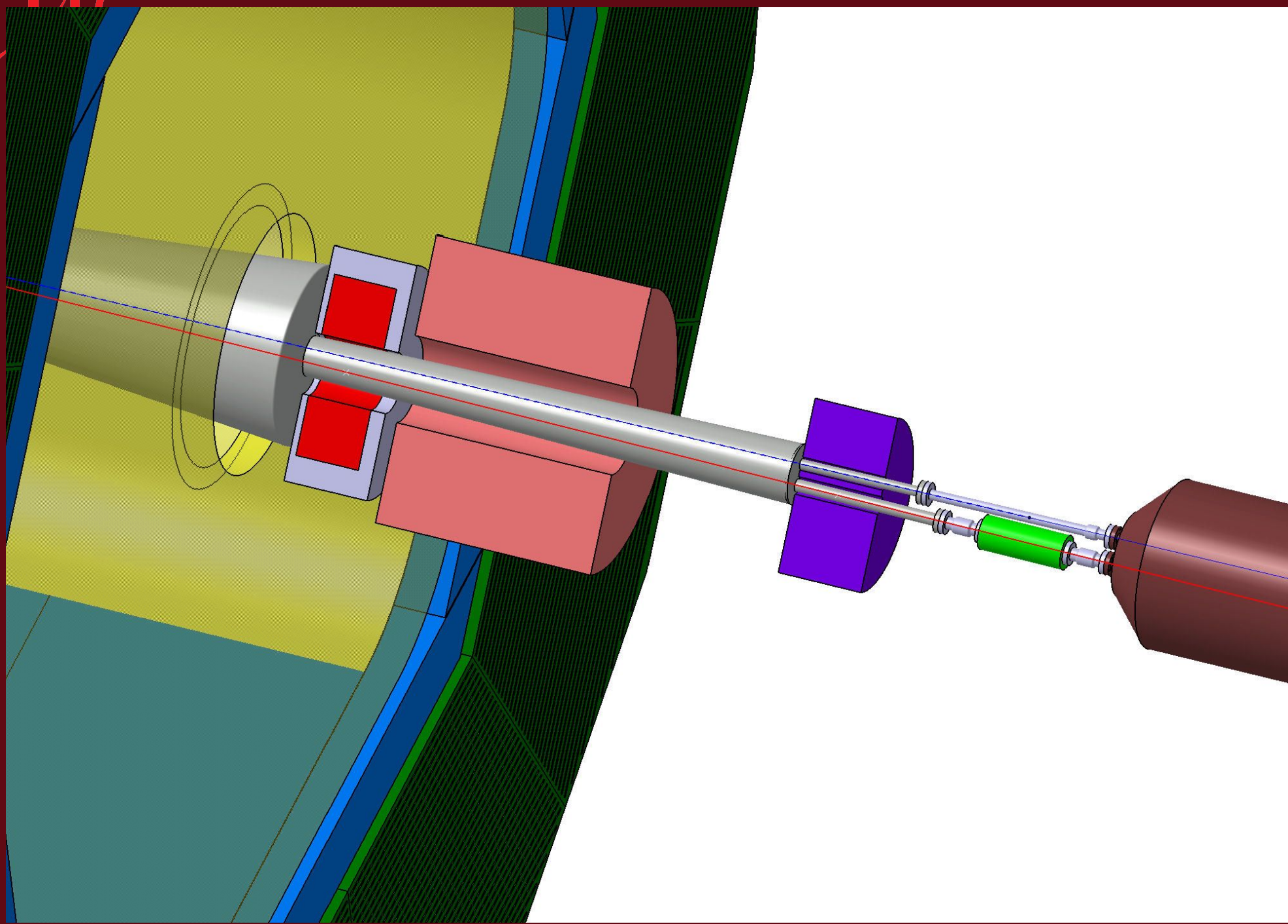
coupes fermée et ouverte de LDV V5

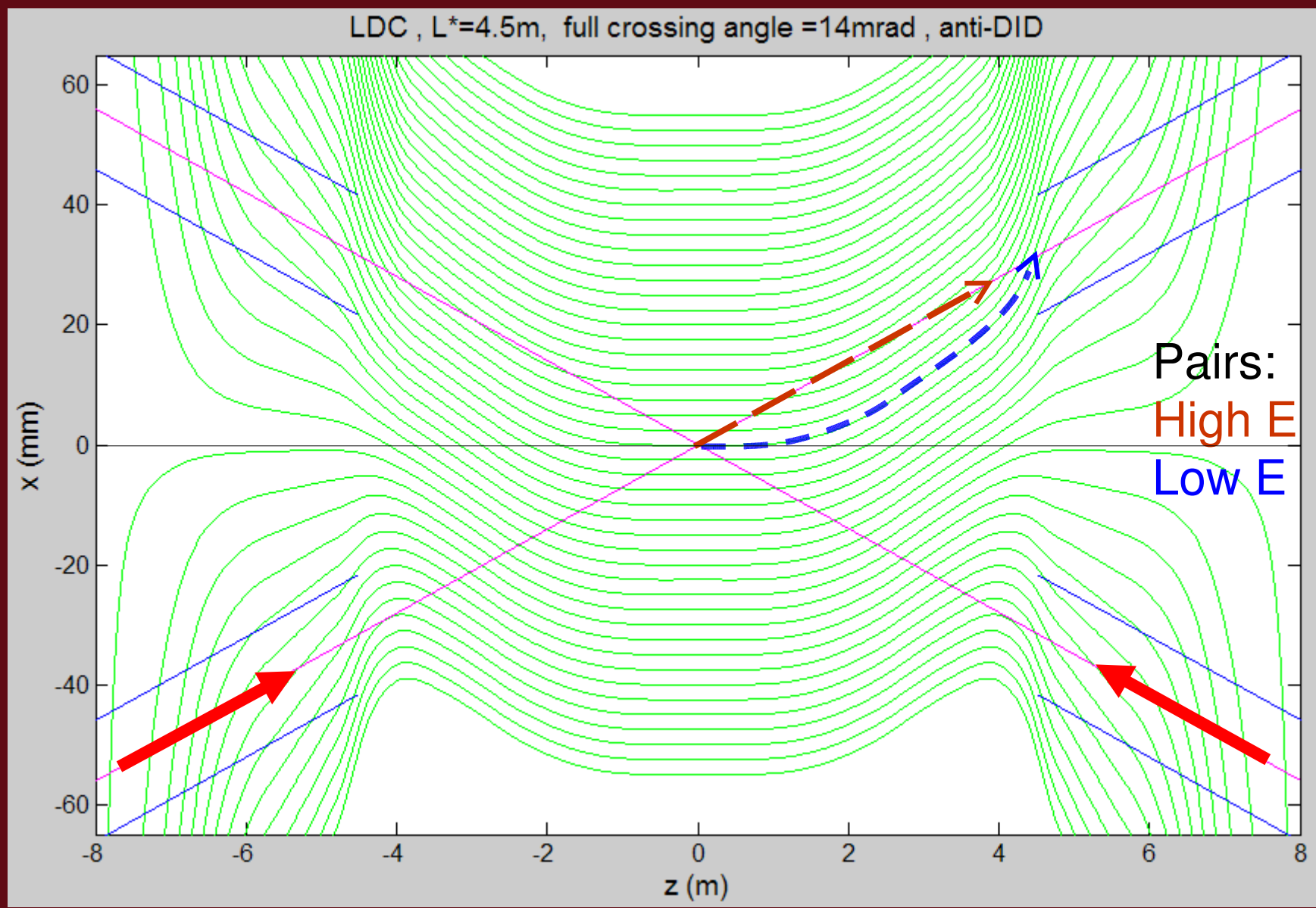


M. Joré
d'une maquette de M. Anduze



LLR





Conclusions

les réunions téléphoniques continuent à un rythme soutenu pour le JSB et les WG.

Nous avons besoin d'aide pour le dessin général, l'intégration la structure interne

Nous devons nous mêler d'optimisation.