



ILD inner region integration meeting

30th of June and 1st of July 2010

- Welcome words
- Charge of the meeting
- The current concept
- Some constraints
- Some specific issues



Charge of the meeting

- ILD must write a DBD report for 2012(extract from RD's recom) :
 - **Complete basic mechanical integration of the baseline design accounting for insensitive zones**
 - **Develop a realistic simulation model of the baseline design, including faults and limitations**
- So a better understanding of the inner region is mandatory
 - **Critical area for the simulation (huge impact of material budget)**
 - **Less advanced mechanical concept**
- Goals of the meeting :
 - **Sketch first solution for the inner region integration**
 - **Define the material budget to be implemented in the simulation model**



The agenda

30th of June

14h00 – 15h30

Introduction (M. Joré – 20min) : *presentation of the current concept, the layout, some specific issues*

Beam pipe issues (H. Videau – 20 min) *mass, radiation length, hanging, distortions.*

VTX (J. Beaudot – 30 min): *the detectors, their electronics, the mechanical structure, power consumption, cooling, cryostat, cables, internal and external alignment needs, hanging, etc...*

Discussions (20min)

15h50 – 17h30

SIT (?? – 30 min): *same items as VTX, integration with VTX, etc...*

SIT/SET (?? - 15min) : *Presentation of the alternative supporting solution*

FTD (?) : *The interplay with SIT for the first disks, alignment needs*

FTD mechanical structure (D. Moya – 30 min): *, the mechanical structure, power consumption, cooling, cables. Can it support the beam tube?*

Discussions (30min)

1st of July

9h30 – 12h00

SIT/SET (?? - 15min) : *Presentation of the alternative supporting solution*

Fiber Optical Sensor based environmental and structural monitor (Ivan Vila – 20 min)

People with proposals for these topics should declare themselves, or propose other subjects?

How are these parts hanging together?

Discussions around the global structure handling the parts (VTX+SIT+FTD+BP)

Integration with TPC

Assembly and maintenance scenario

Are there options?

Summary on the materials involved and the expected mass

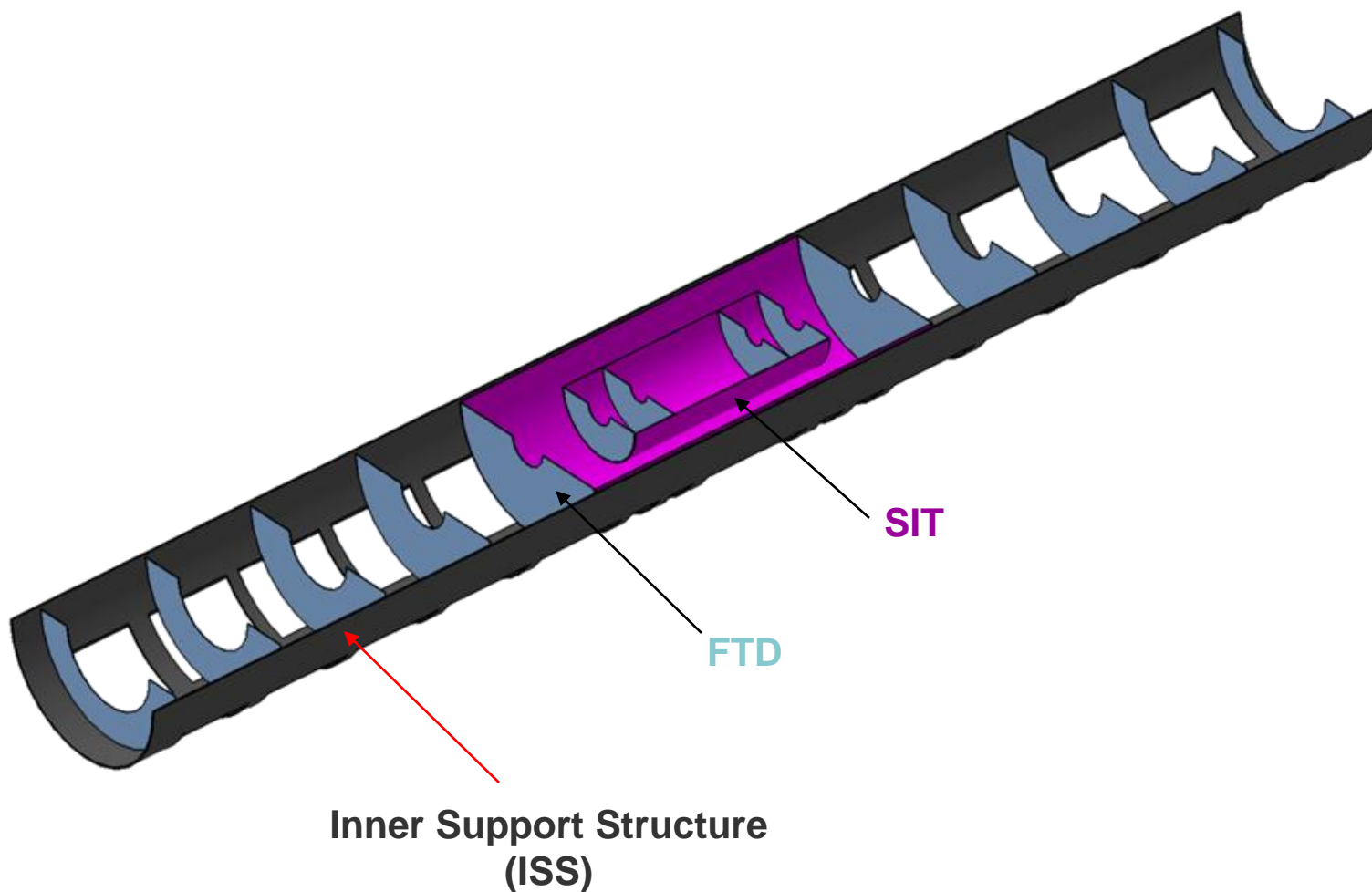
Conclusions

Plan for work.

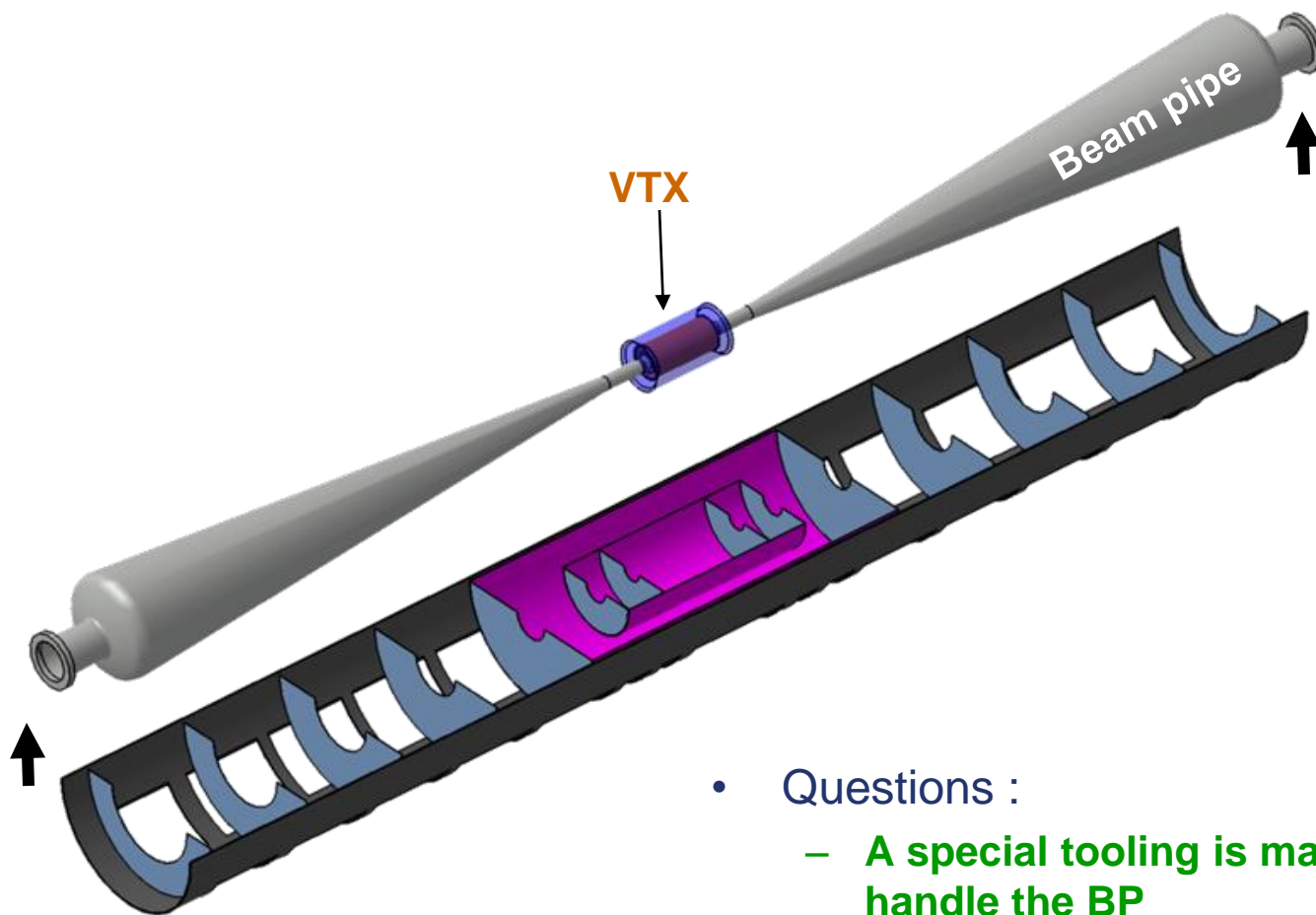
14h00 – 17h00

Free time available for discussions

- Step 1 : half FTD/SIT shell

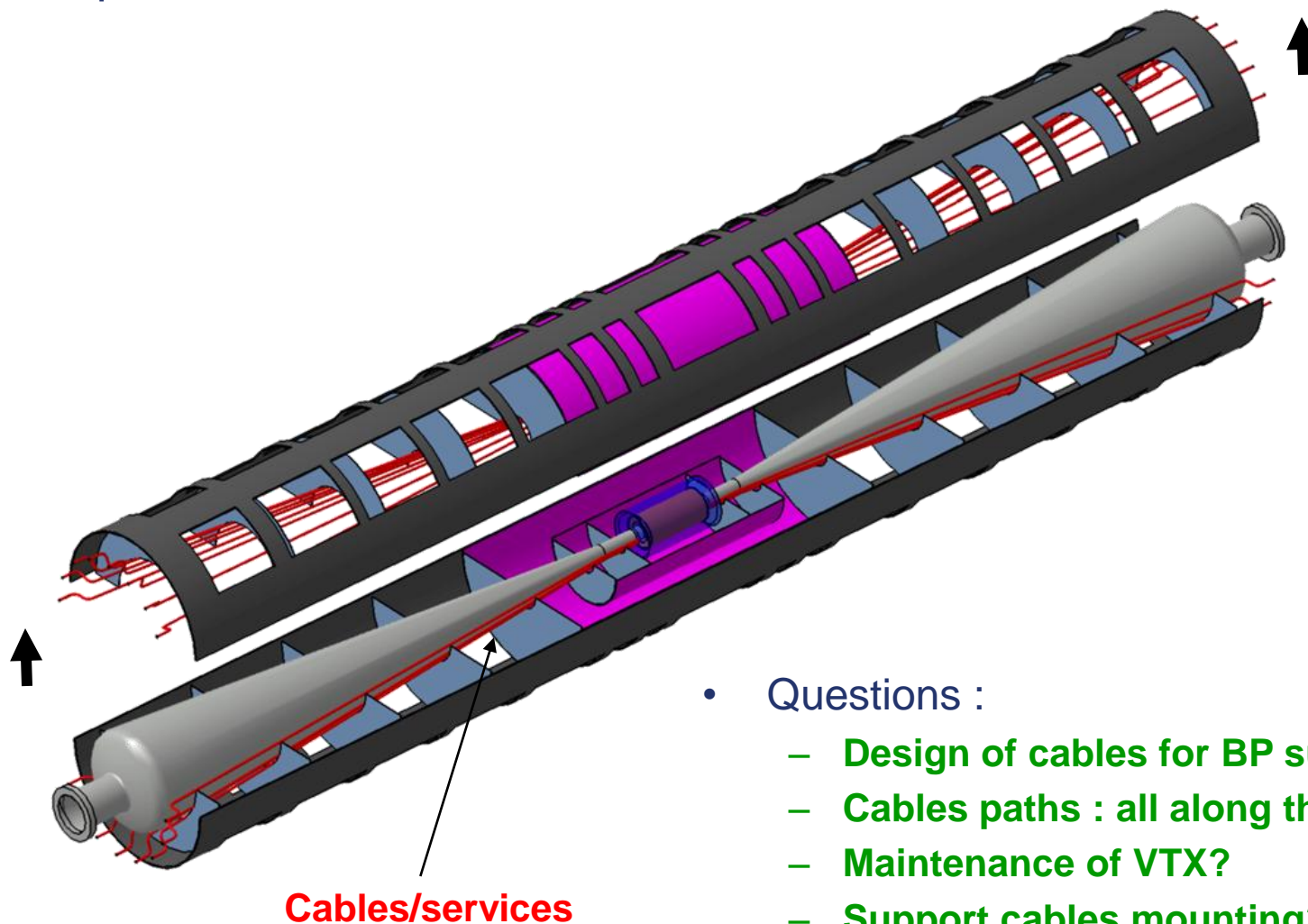


- Step 2 : BP & VTX

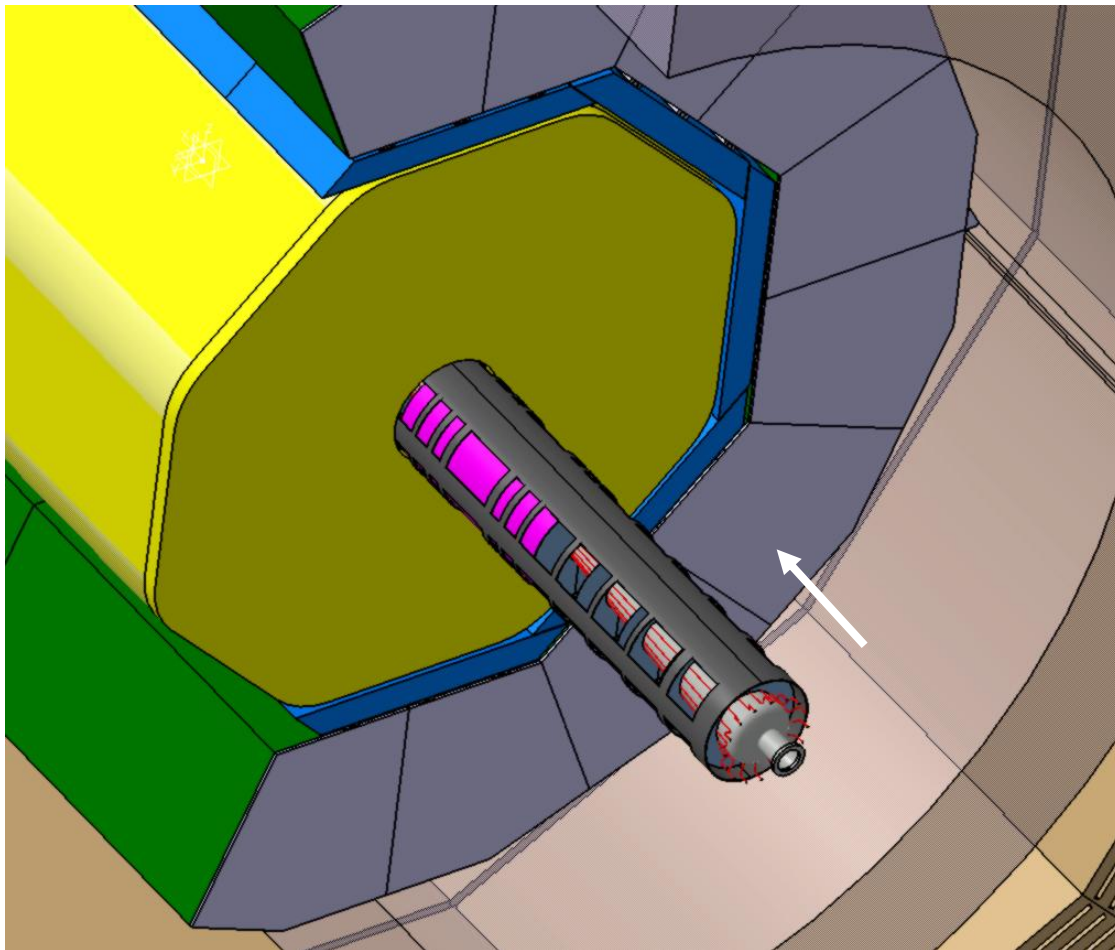


- Questions :
 - A special tooling is mandatory to handle the BP

- Step 3 : second half shell

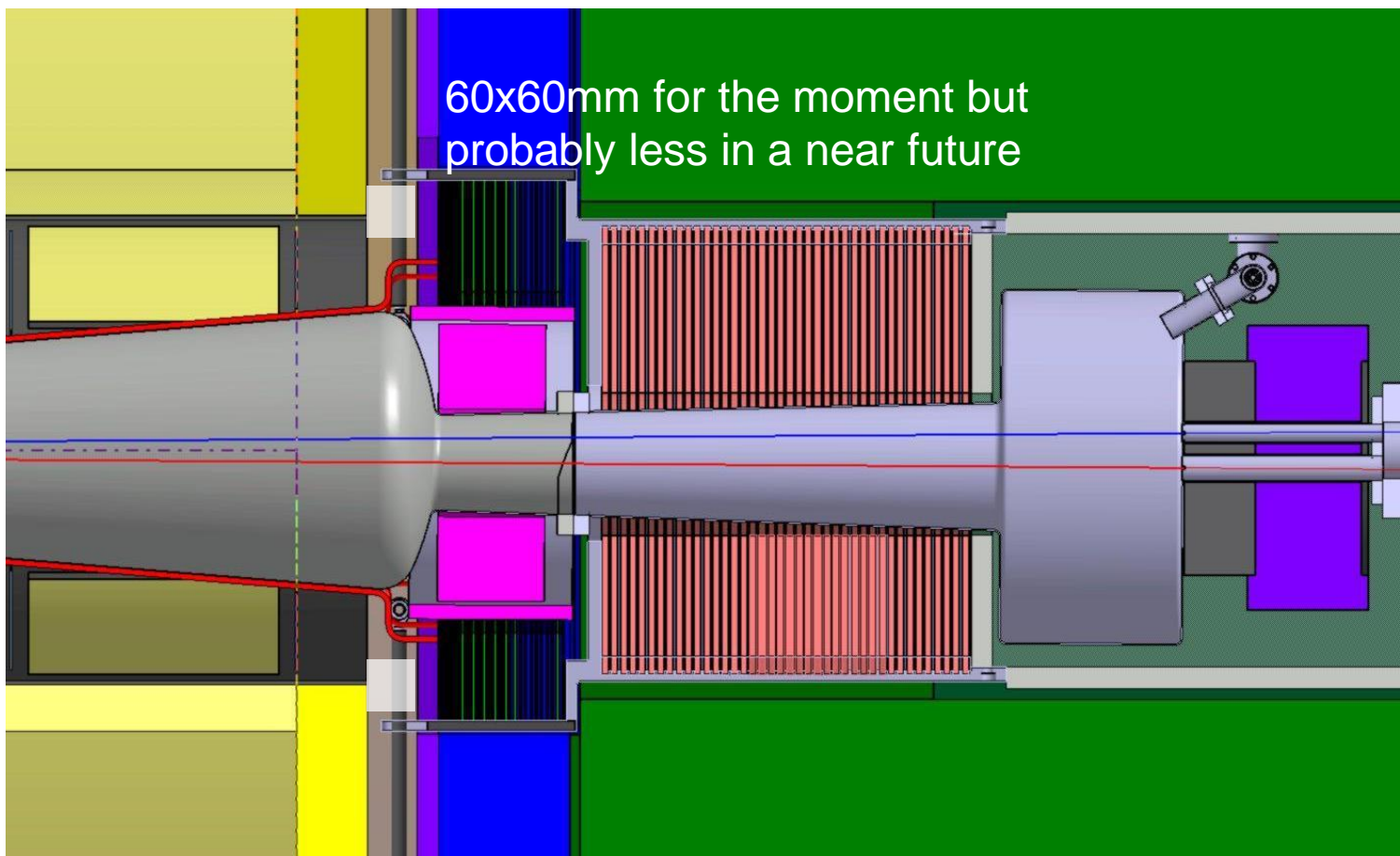


- Questions :
 - Design of cables for BP support
 - Cables paths : all along the BP ?
 - Maintenance of VTX?
 - Support cables mounting?



- A tooling would be used for insertion in the TPC

- Lowest material budget of course
- Space is limited for the fixation to the TPC Endplate





The constraints (2)

- Allow the exchange of the VTX (once a year?)
- Allow movement of the BT
- Could be mechanically adjusted
- Stable
- Stiff enough to be inserted in the TPC



The issues

- Cables paths?
 - **In the inner region :**
 - Along the BT?
 - Along the TPC inner radius?
 - **In the detector :**
 - Patch panel behind the LHCal?
 - Along the TPC EndPlate
 - **Rough idea about the cables and services amount?**
 - Inputs are needed for improving the ILD simulation model
- Cooling
 - **What kind?**
 - Is there a cryostat for the VTX?
 - **All the subdetectors need to evacuate the heat power they have created (integration rule = each detector are adiabatic)**
 - **Common cooling system?**



The issues

- How would be your mechanical support?
 - **For each subdetectors**
- Alignment : how do you do?
 - **Mechanical precision you need?**
 - **What would be the reference?**
 - **What relative precision you need between elements?**
 - Silicon disks, VTX
 - **What precision you need in the position measurements?**
 - **What kind of monitoring you foresee?**
 - Laser tracking?
- Integration of SIT and FTD :
 - **Do we merge the first 2 disks of FTD with SIT?**
 - **How to support these 2 first disks?**
- ...