



Cryomagnets Interconnections

❖ Consolidation of sector 4-5

Connection Cryostats

Plug-In Modules

Photometer

Overview - Status

❖ SC-RP samples

❖ Quick interconnection overview

❖ Mock-up



(Inter)Connection Cryostats Status

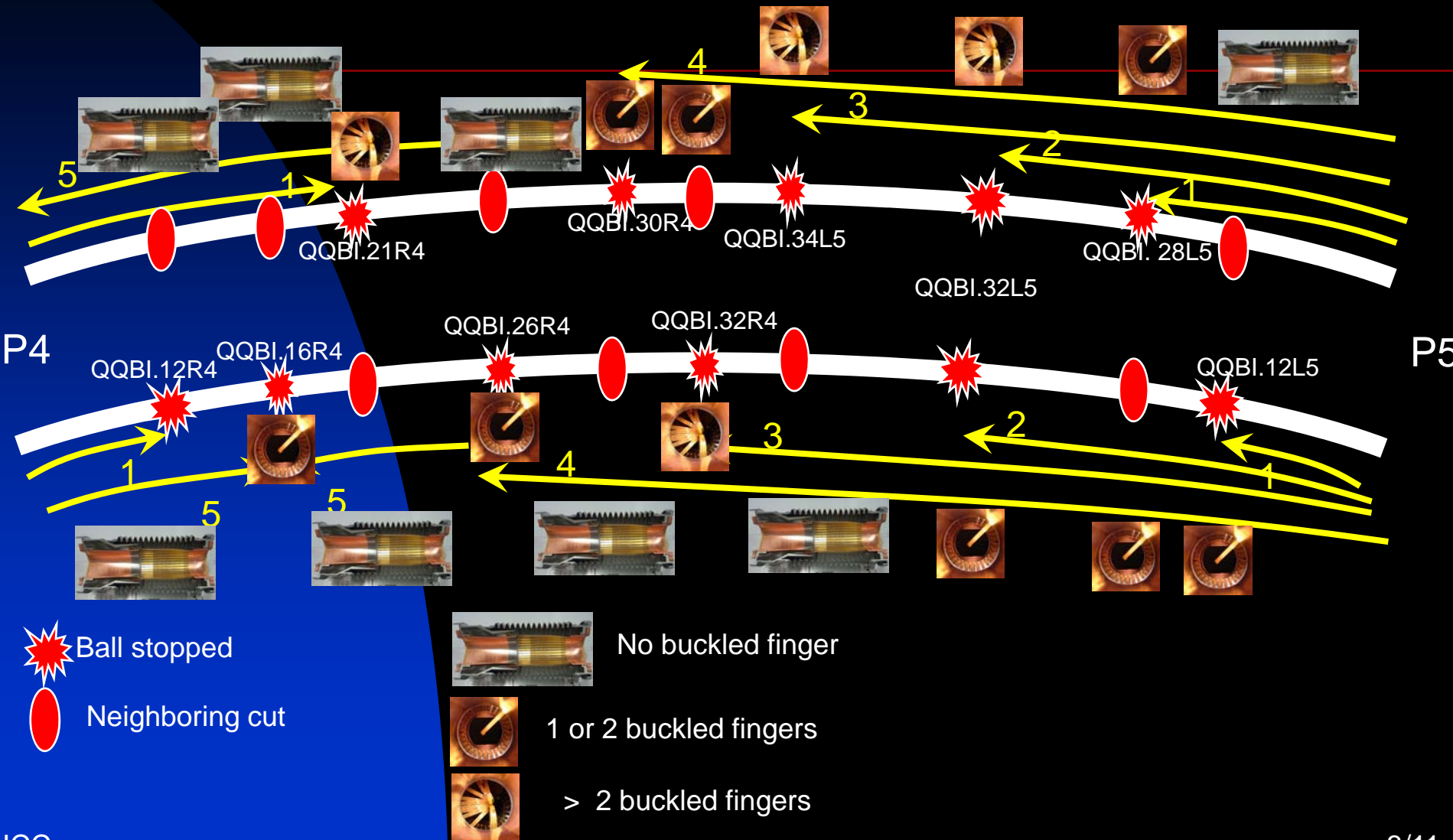
<u>Sector</u>	<u>Repair of ICCs</u>
1-2	Completed
2-3	Completed
3-4	Completed
4-5	Completed
5-6	At next warm-up - 3 units - Spare units to be built ?
6-7	Completed
7-8	Completed
8-1	Completed





Consolidation of sector 4-5

PIMs





Consolidation of sector 4-5

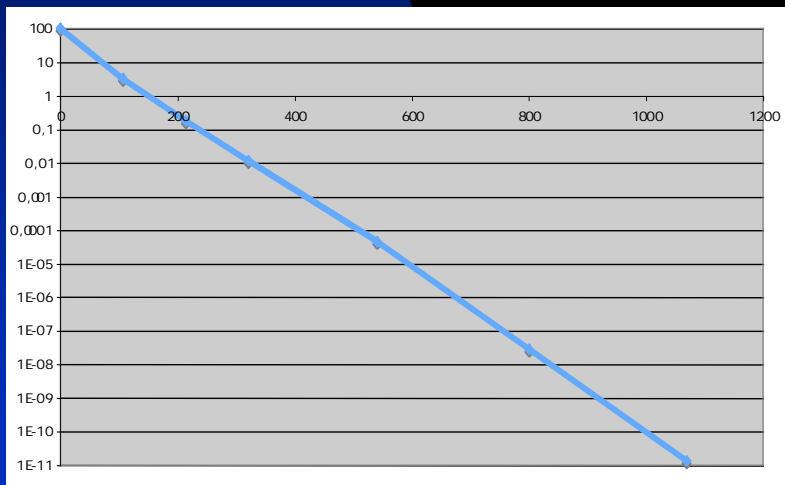
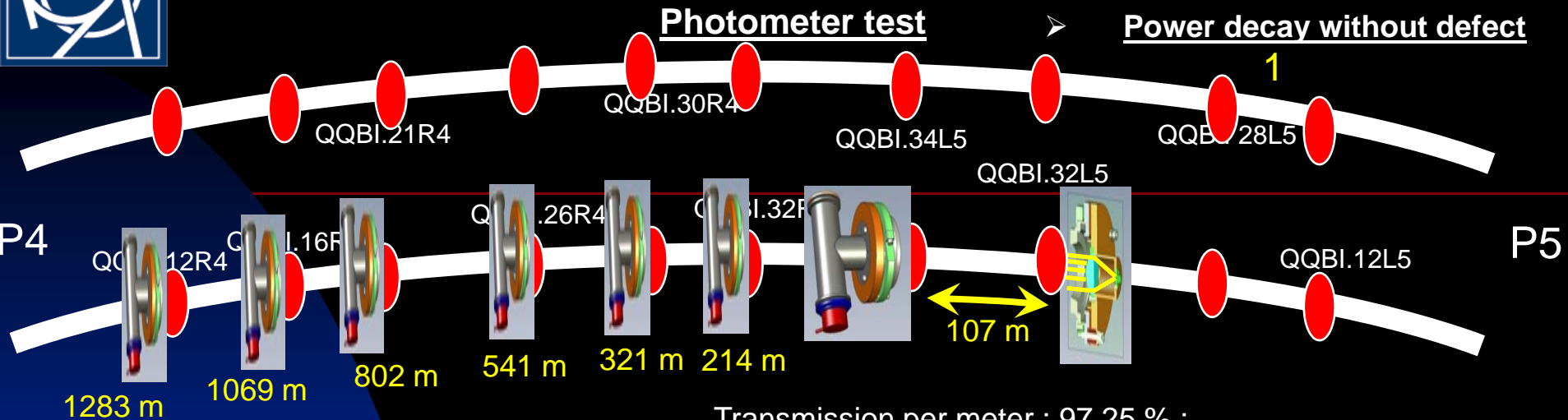
PIMs

❖ Conclusions

- + 12 failed PIMs in the sector
 - In 7-8 : 16 failures but 8 (7) expected (Wrong type of PIM installed)
Extrapolated to a whole sector : 9.6 (10.8) so similar failure rate
 - 8 PIMs with 1 or 2 buckled fingers / 4 PIMs with 6 to 9 buckled PIMs
- + Only QQBI-type PIMs failed
- + One “false” defect detected by ball test (12R4) so preferred direction
- + 3 IC with 2 failed PIMs (#6) / 6 ICs with 1 failed PIM (#6)
 - Parameters determining failure are coming both from IC “geometry” and PIM characteristics
- + 30 [of which 10 in 6 ICs for plastic inspection/removal] PIMs replaced
 - All in QQBI ICs
 - 28 % of this type of PIMs has been changed and are now conforming ones
- + Post-mortem analysis of PIMs in correlation with geometric measurements needs to be done**



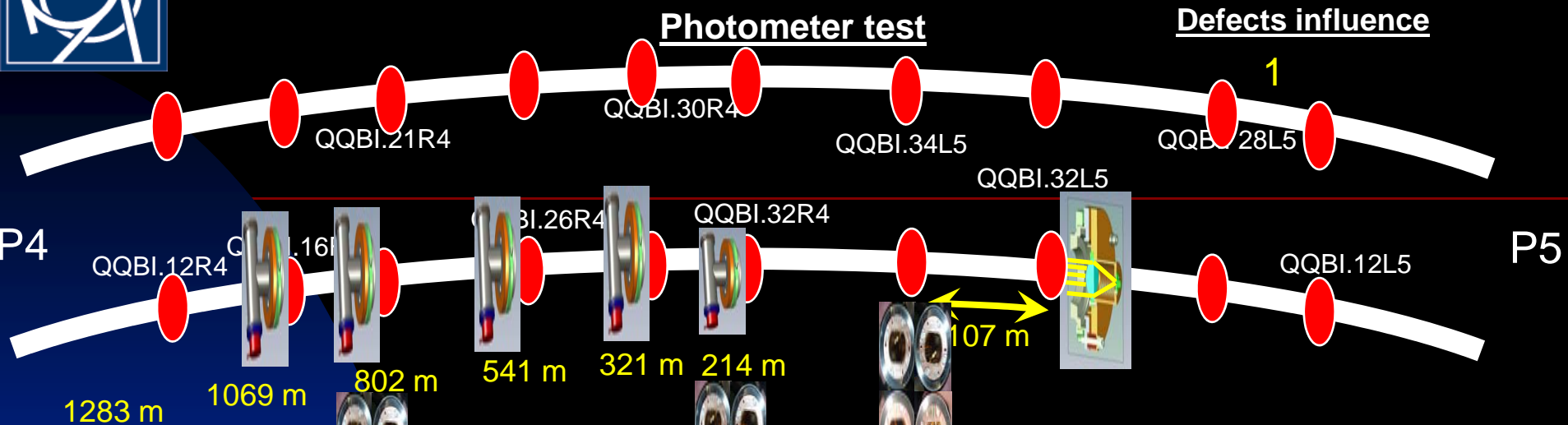
Consolidation of sector 4-5



Transmission per meter : 97.25 % ;
 Attenuation of 0.12 db/m [> 300 db/sector]
 1400 m : 200 W input would lead to $3.3 \cdot 10^{-15}$ W transmitted
 Not achievable one a whole sector



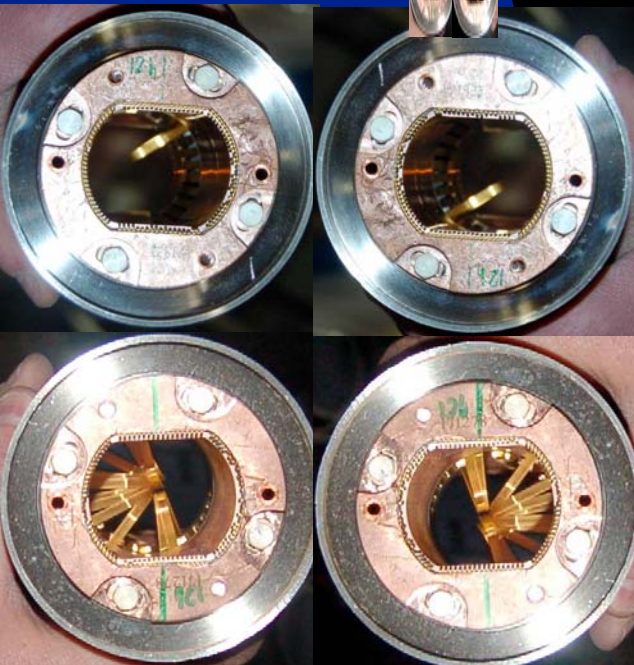
Consolidation of sector 4-5



- Not localisation method
- Sensitive to one defect (limit)
- Sensitive to orientation
- Similar to previous test (Sept 2007)

Preliminary conclusion (PIMWG yesterday)

- Not applicable for PIMs in the arc (stop investigation)
- Check implementation in LSSs





Consolidation of sector 4-5

Sector 4-5 Consolidation			<u>Schedule</u>	Remark
1	Plug-in modules	All IC reclosed	Critical	PIM WG 8/5/2008
2	Photometer test	Completed	OK	Positive results / To be analysed
3	Y lines	X lines leak tested / under closure	OK	Price reduction / Free staff availability
4	Helium guards	All repaired / under leak test	OK	In parallel with insulation vacuum test
5	Leaks	Repaired / under leak test	OK	
6	Triplet 5L	Completed / Pressure test OK	Critical	Final leak test next week
7	Q5R4	Closed	OK	Radial motion not yet understood
8	Connection Cryostats	Completed / under test	OK	
9	CC splices	Not critical	Done	
10	DFBs cables	Not to be done	NA	

Completed according to the schedule

Thanks to knowledge / experience

Availability of trained / competent staff (CERN, FSU, Contractor)

In the arc, 7/14 sectors are leak tight ; other ones are under test

33 ICs have been opened and reclosed



Insertion of Material Samples for the Experimental Verification of Induced Radioactivity

L Ulrici/ L Nicolas SC/RP

Engineering Change Request LHC-LI-EC-0001:

Comments in new version ; Approved ; available in EDMS

In the interconnections (# 22) :

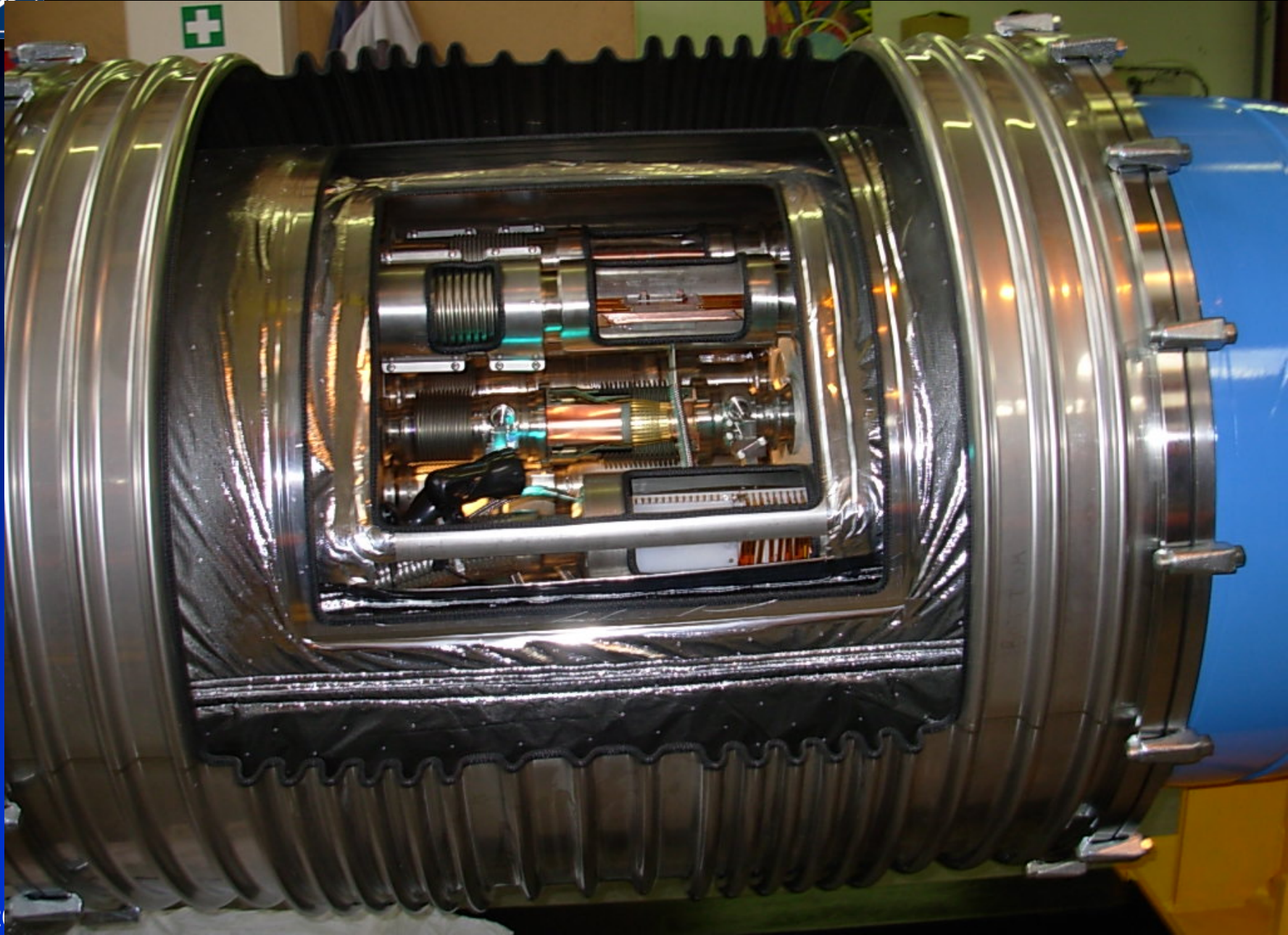
A set of samples :

- Non magnetic collars
- Stainless steel
- SC cable
- Polyimide





Mock-up @ SMI2





30th of april 2008 @ 11:16 am :
All the LHC interconnections are closed at the same time for the first time !

