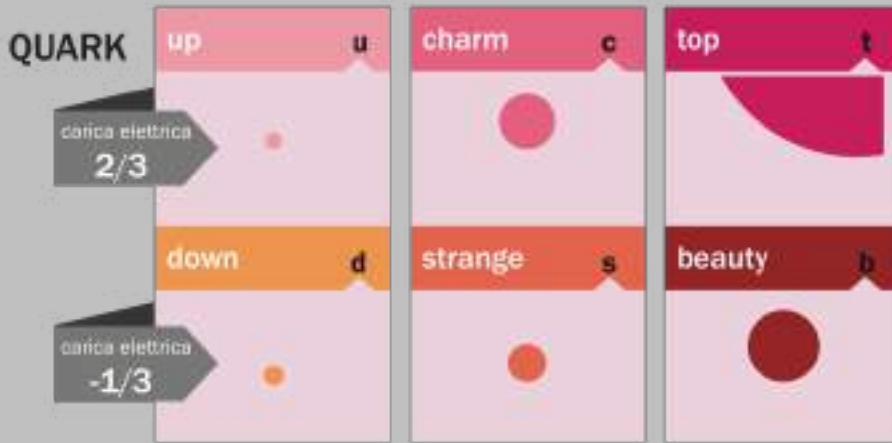
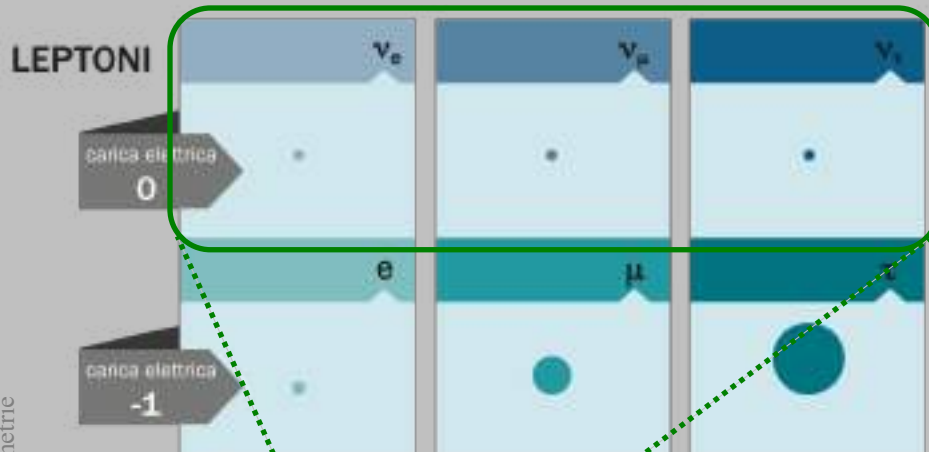


# Differenza tra materia e antimateria

[Enrico Sacchetti/Science Source]



スーパーカミオカンデ  
Super-Kamiokande

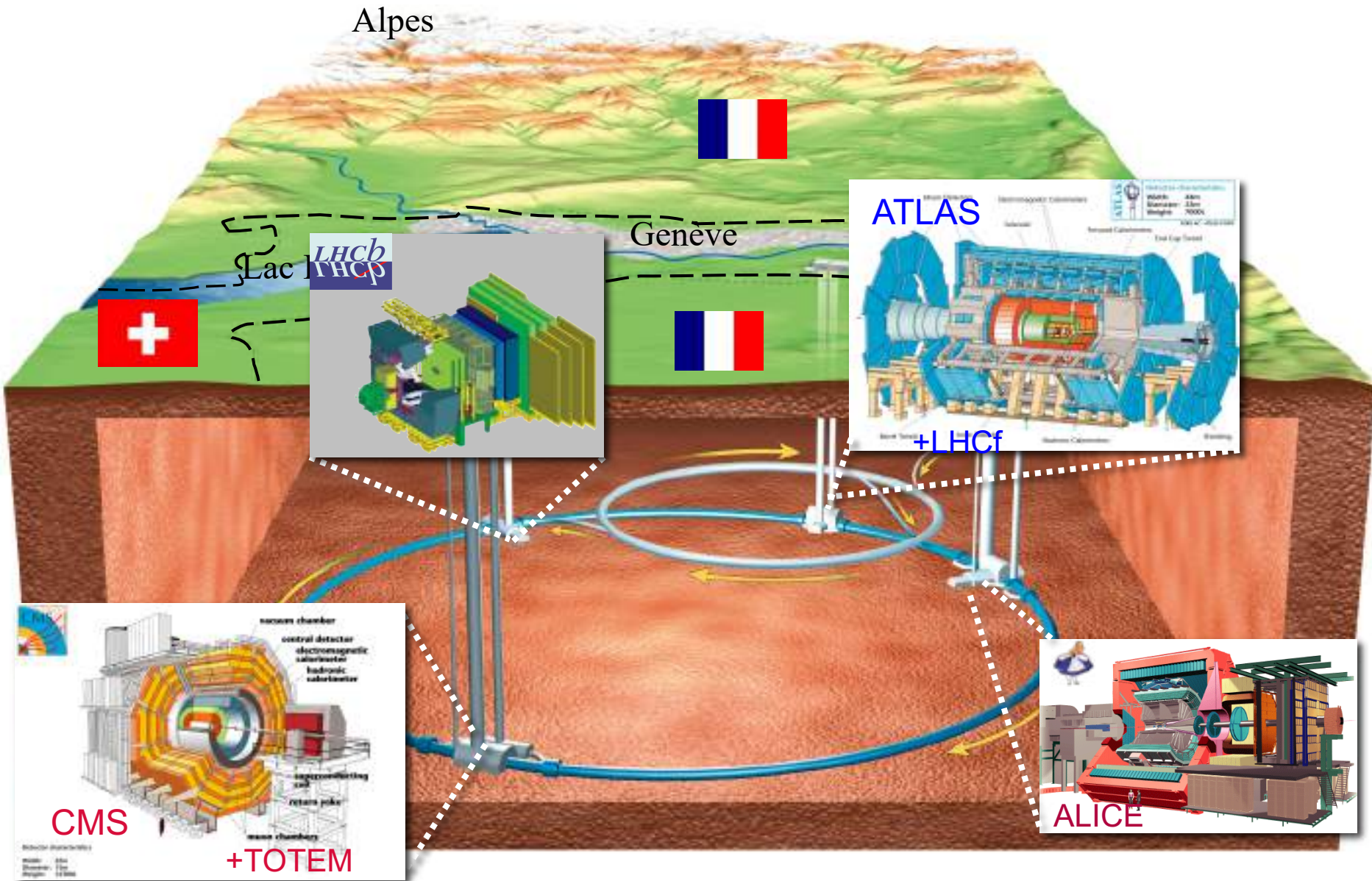


2020

# LHC @ CERN



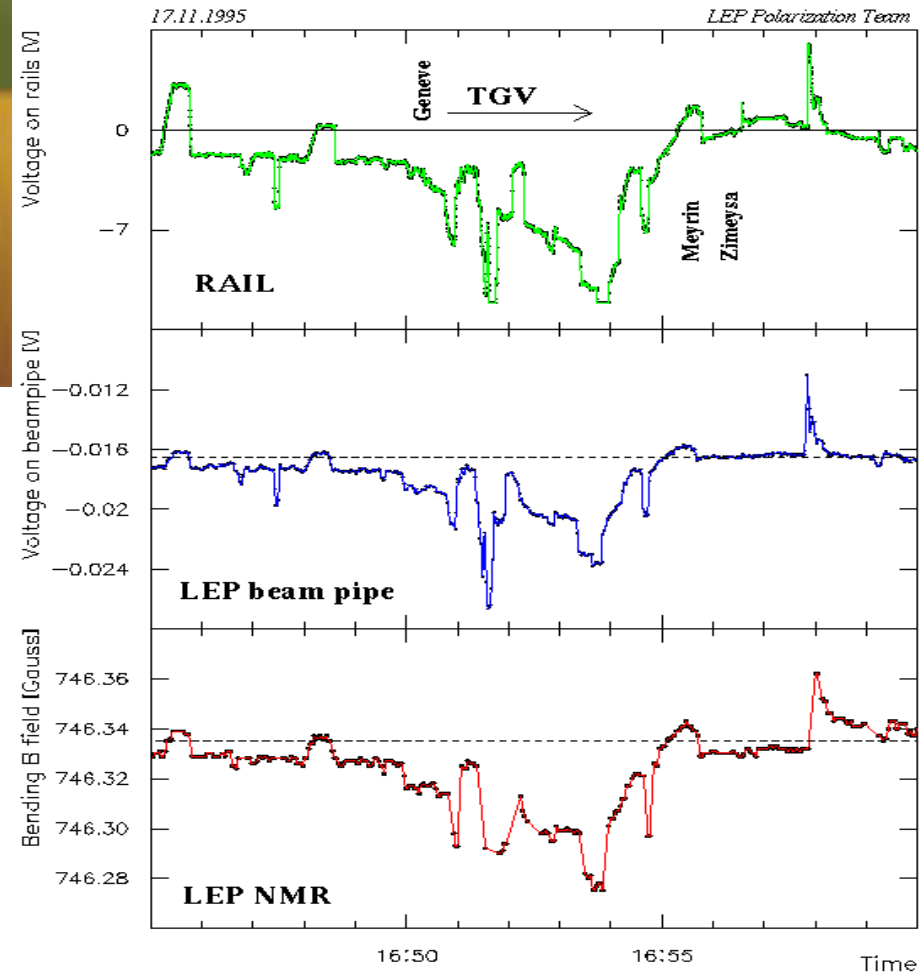
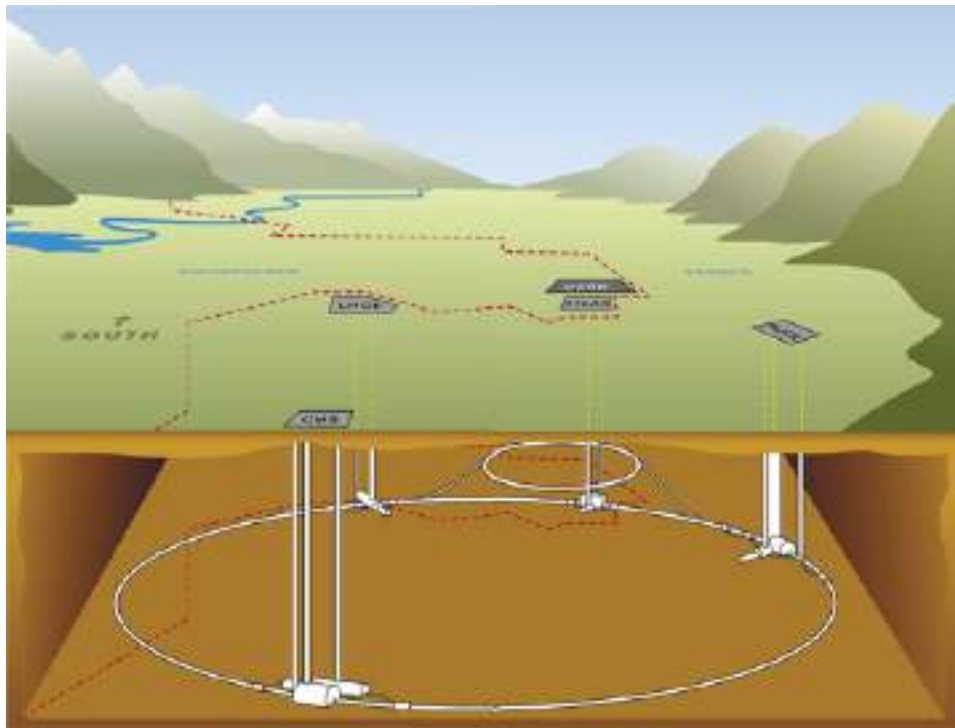
# LHC @ CERN



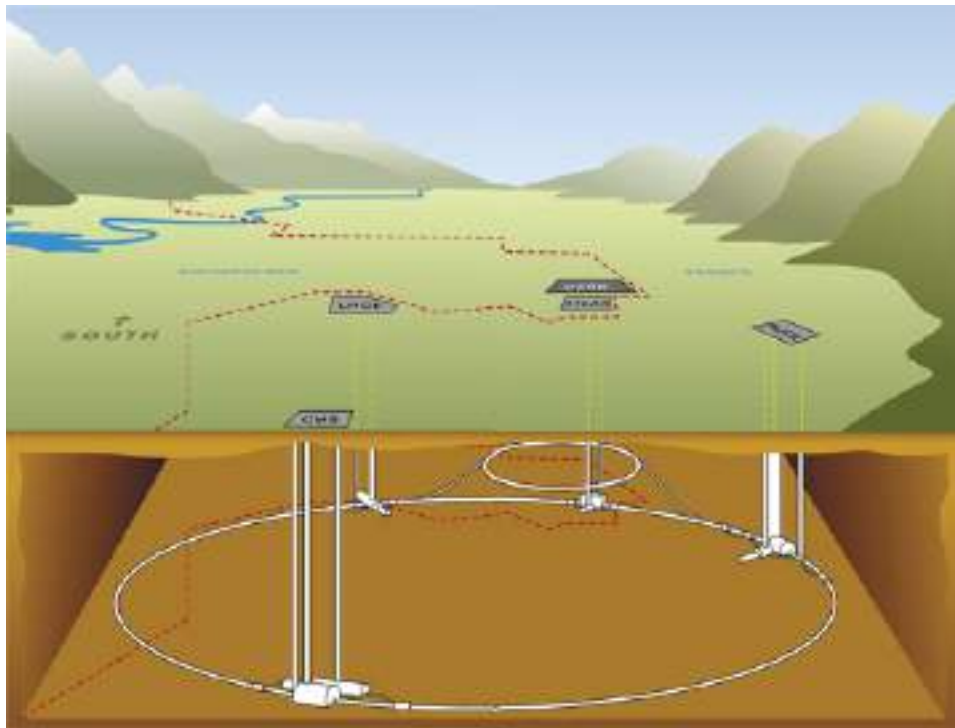
# LEP @ CERN

## Il TGV

Le correnti indotte dal passaggio del treno sulla beam pipe di LEP cambiano il campo magnetico.



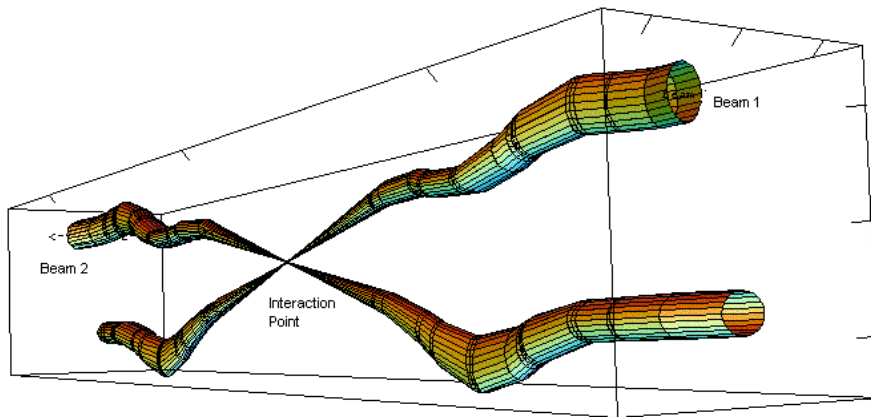
# LEP e LHC @ CERN



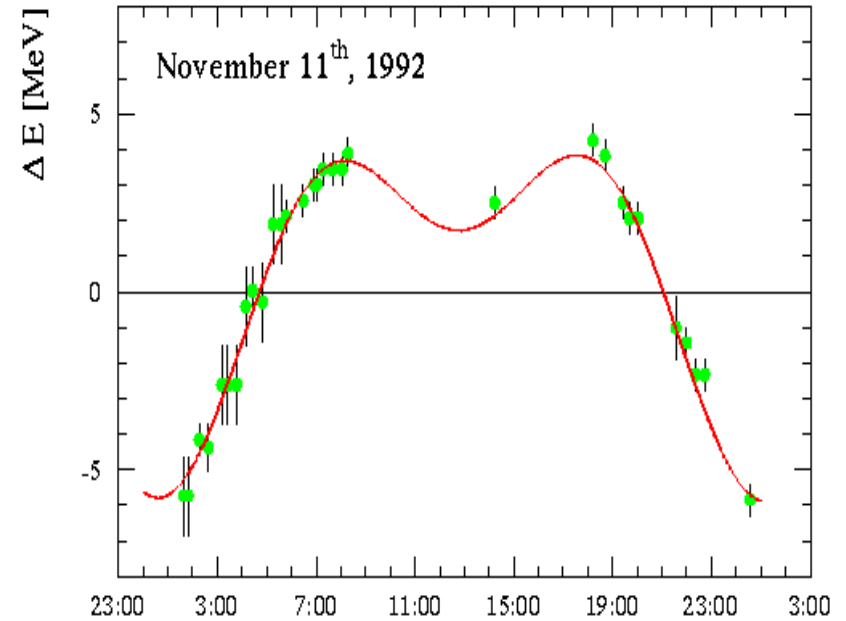
## LA LUNA

LEP a mezzanotte è circa  $\sim 300 \mu\text{m}$  più lungo che a mezzogiorno

- $e^\pm$  vedono meno campo magnetico
- $E$  e' piu' piccola



Relative beam sizes around IP1 (Atlas) in collision



LHC Page1

Fill: 6288

E: 6499 GeV

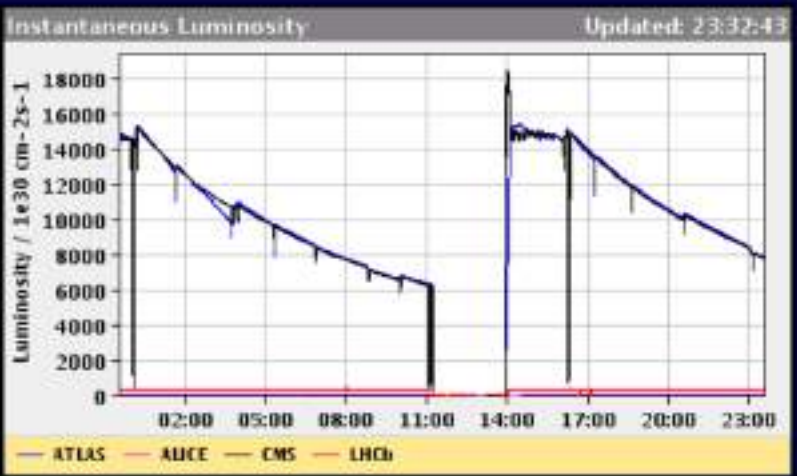
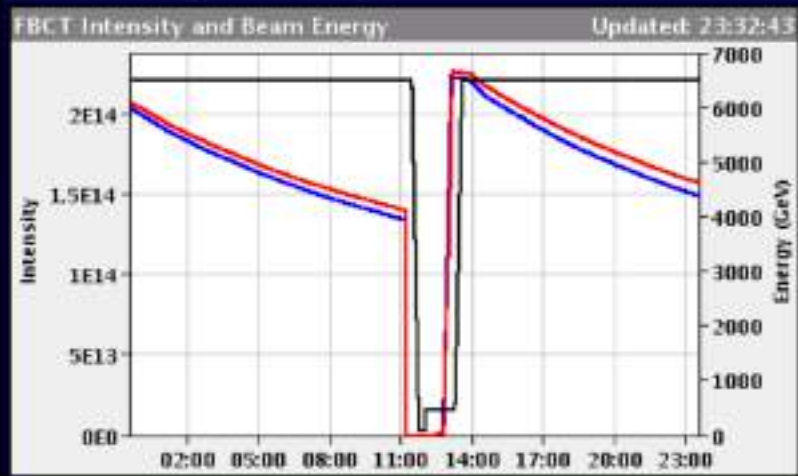
t(SB): 09:25:25

10-10-17 23:32:43

## PROTON PHYSICS: STABLE BEAMS

Energy:	6499 GeV	I(B1):	1.50e+14	I(B2):	1.57e+14
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Inst. Lumi [(ub.s) <sup>-1</sup> ]	IP1: 7875.67	IP2: 2.62	IP5: 7779.23	IP8: 334.15
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Comments (10-Oct-2017 23:06:55)

Xing angle now at 120urad

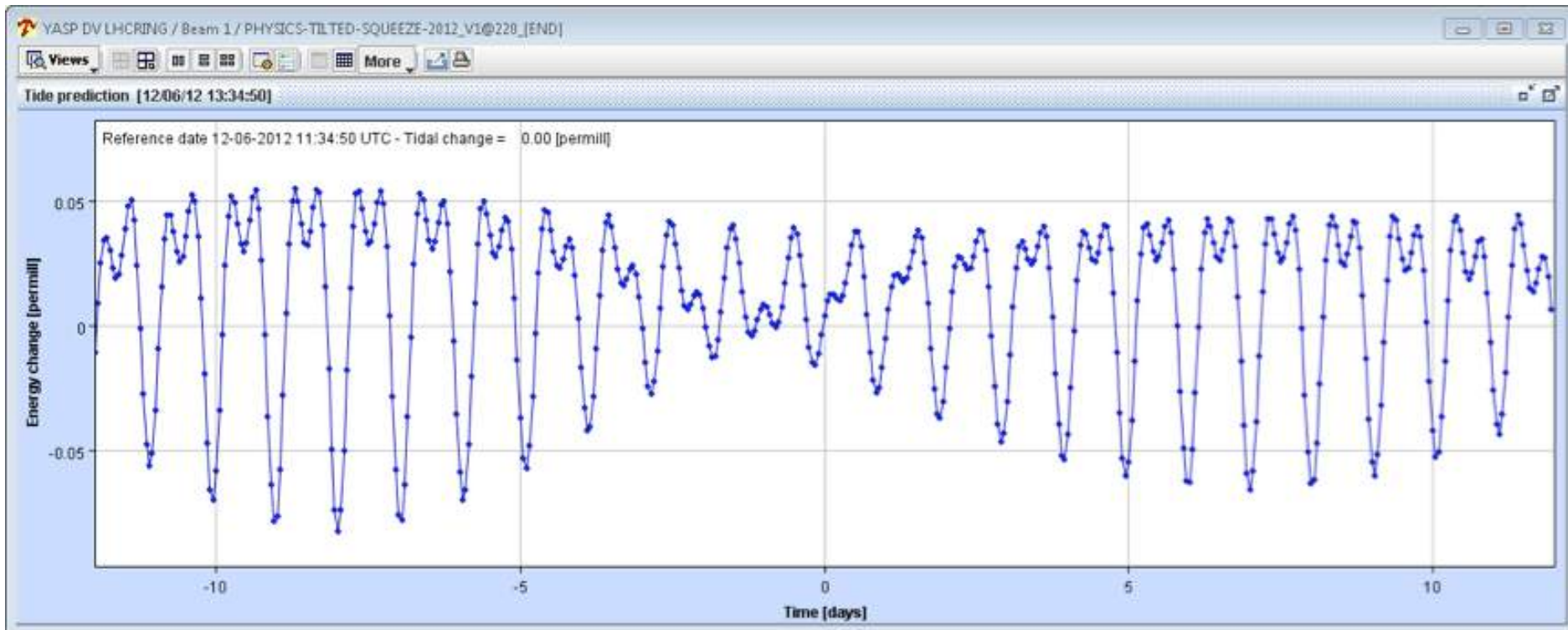
Dump foreseen around 2am

BIS status and SMP flags	B1	B2
Link Status of Beam Permits	true	true
Global Beam Permit	true	true
Setup Beam	false	false
Beam Presence	true	true
Moveable Devices Allowed In	true	true
Stable Beams	true	true

AFS: 25ns_1868b_1866_1089_1749_128bpl_1718b4e	PM Status B1	ENABLED	PM Status B2	ENABLED
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# *LHC: Moon correction*

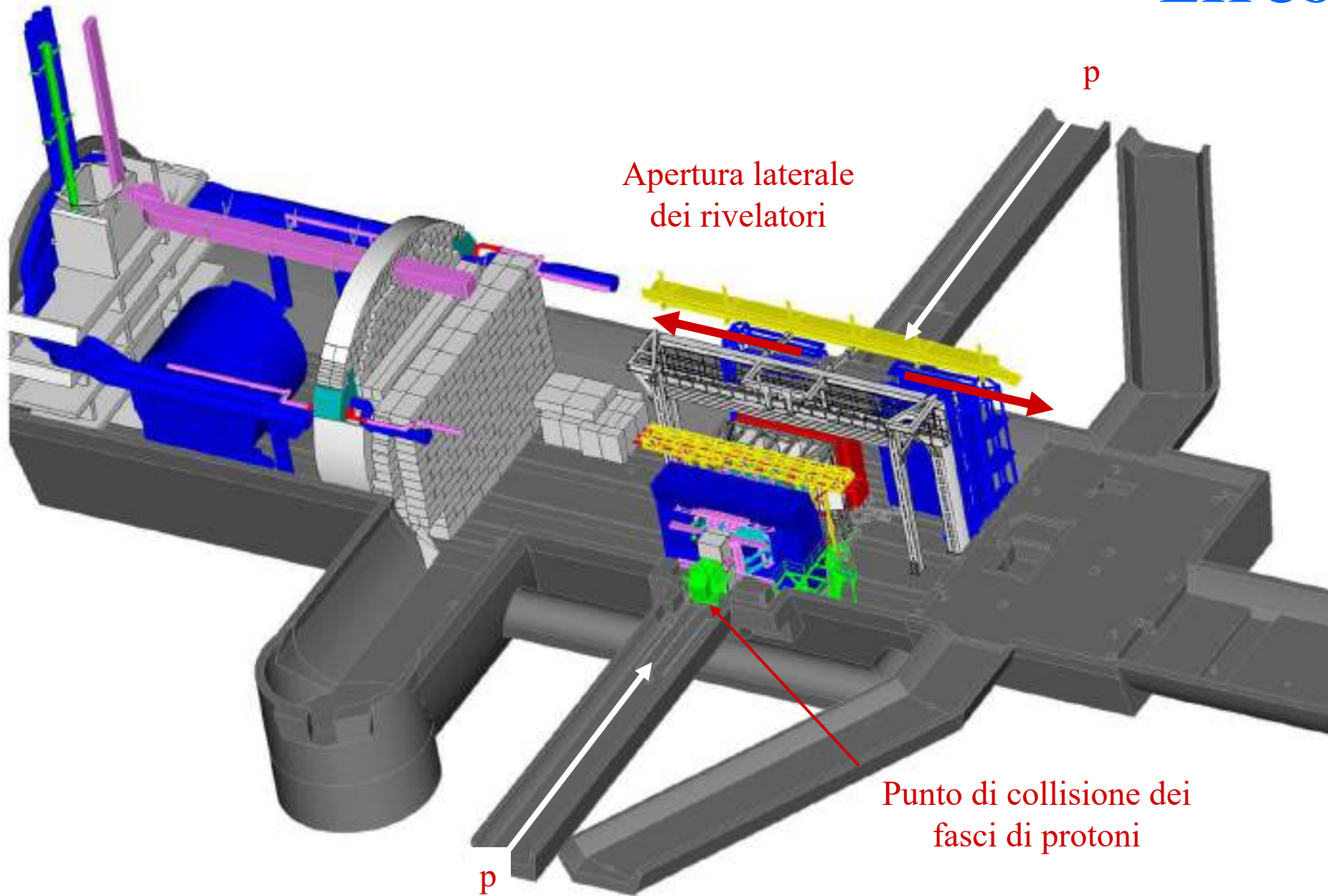
[“Moon corrections map”: small differences in gravitational force across LHC diameter.]

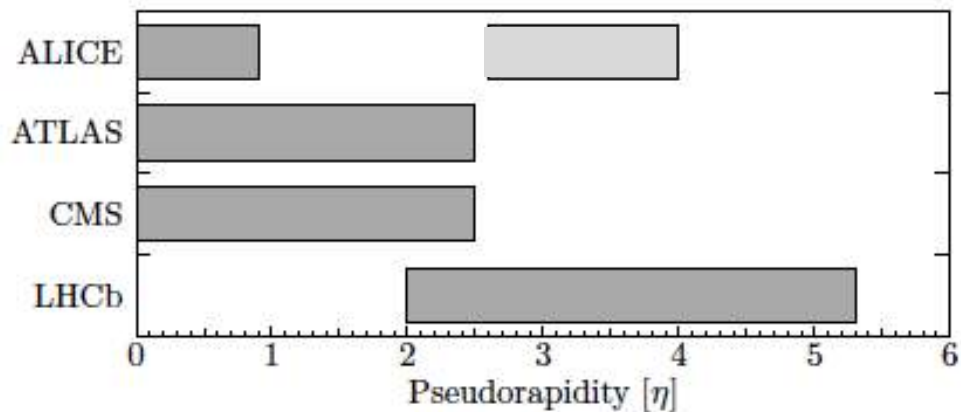
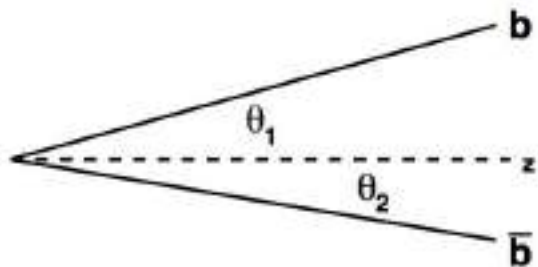


20 days

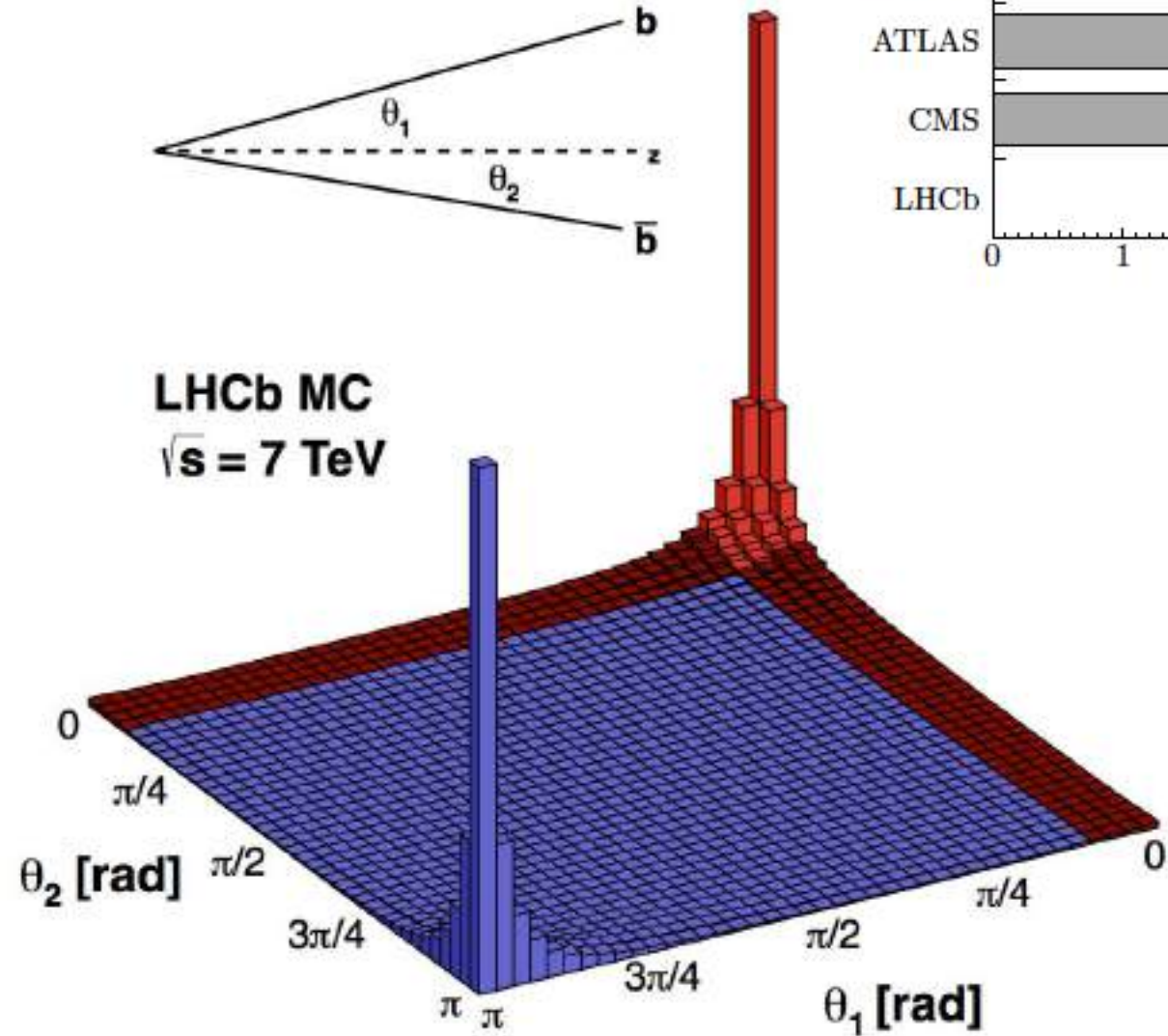


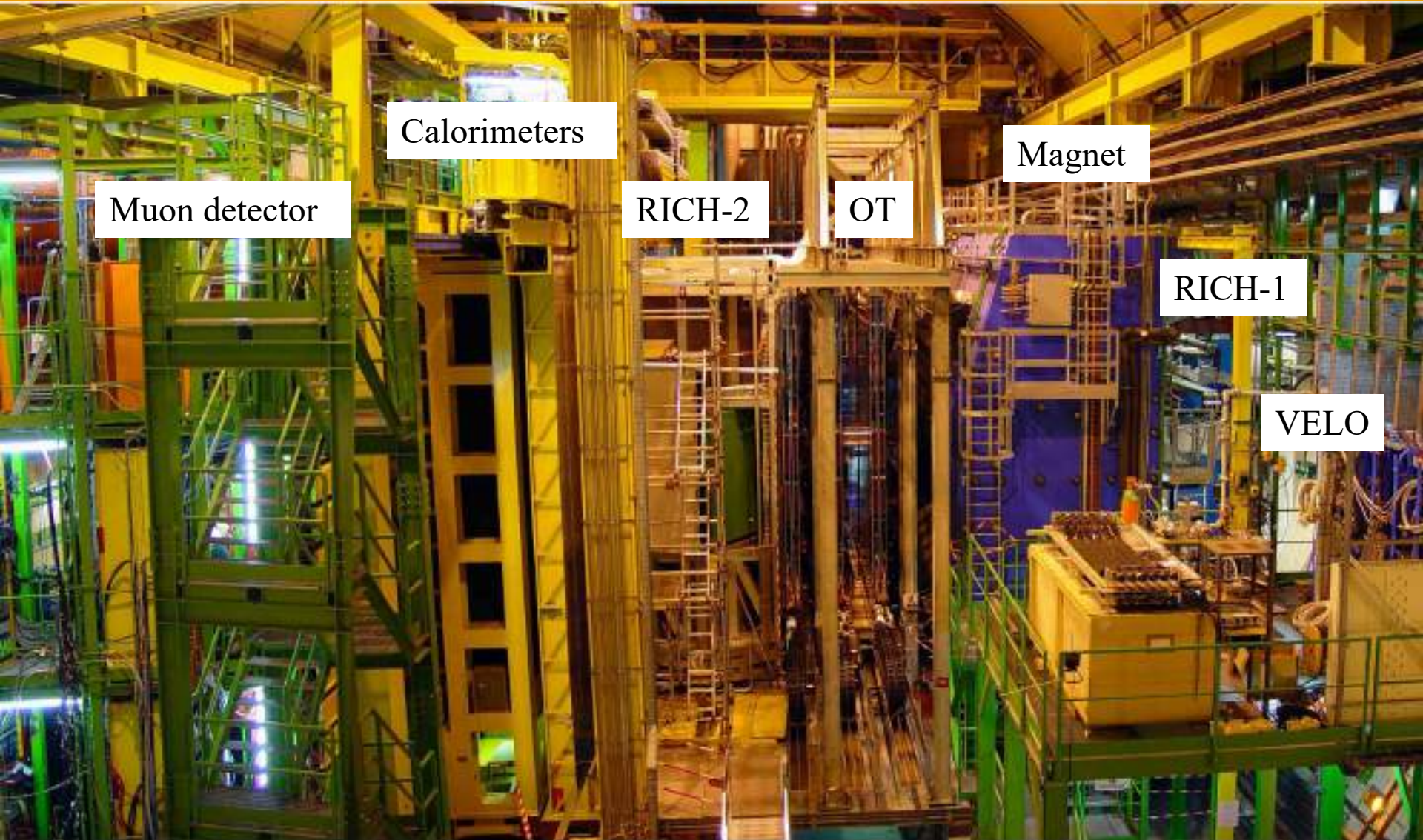






**LHCb MC**  
 $\sqrt{s} = 7 \text{ TeV}$





Muon detector

Calorimeters

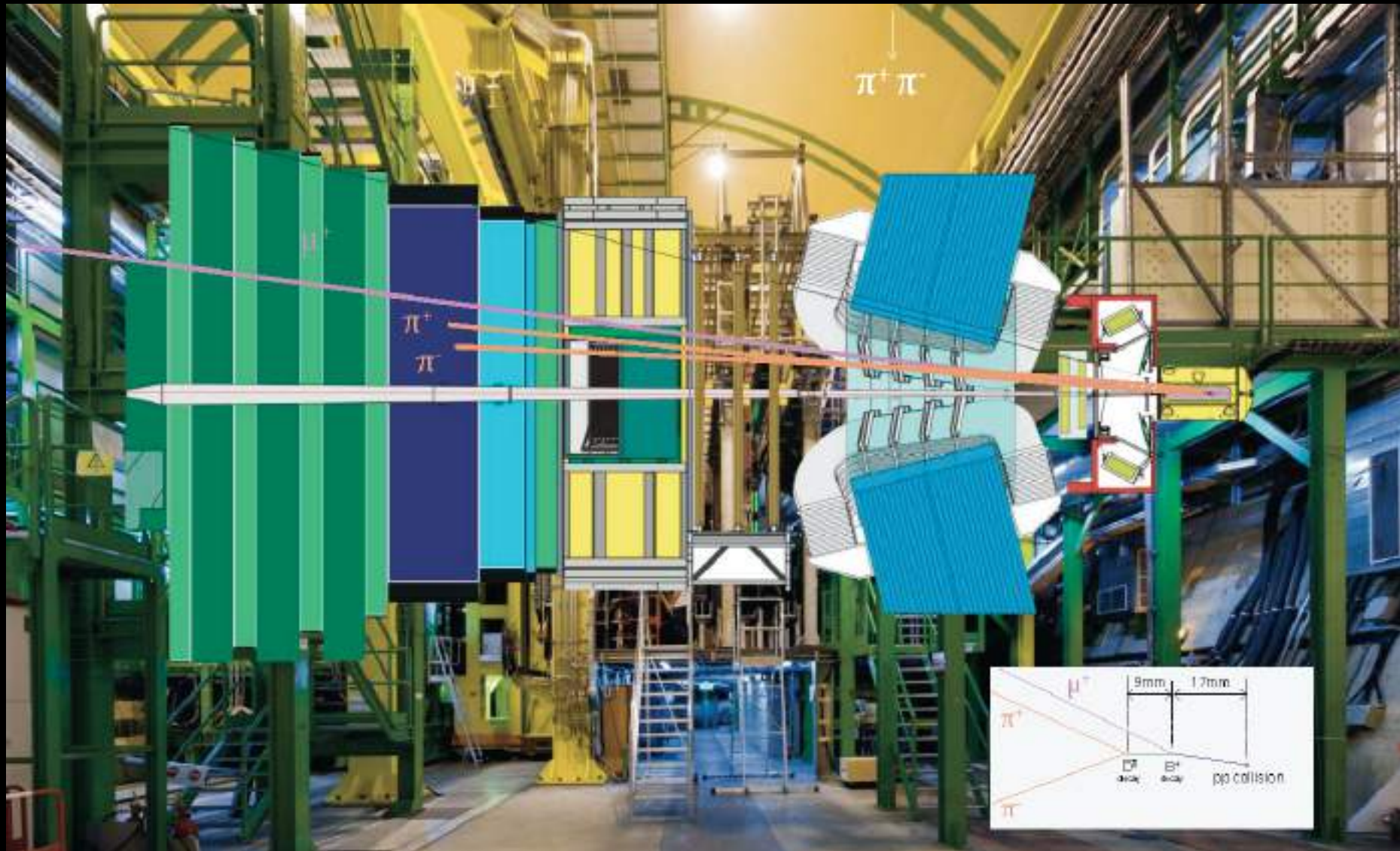
RICH-2

OT

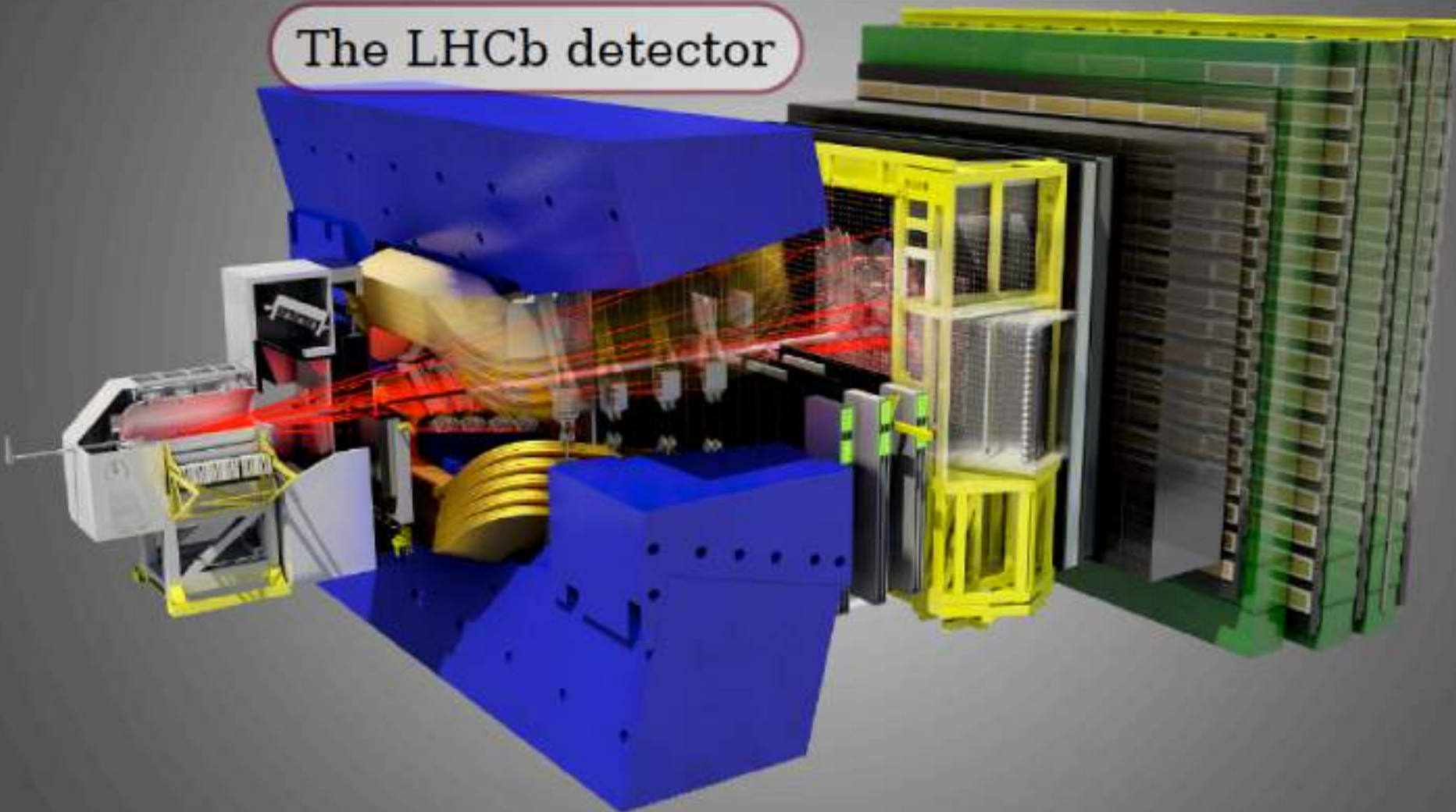
Magnet

RICH-1

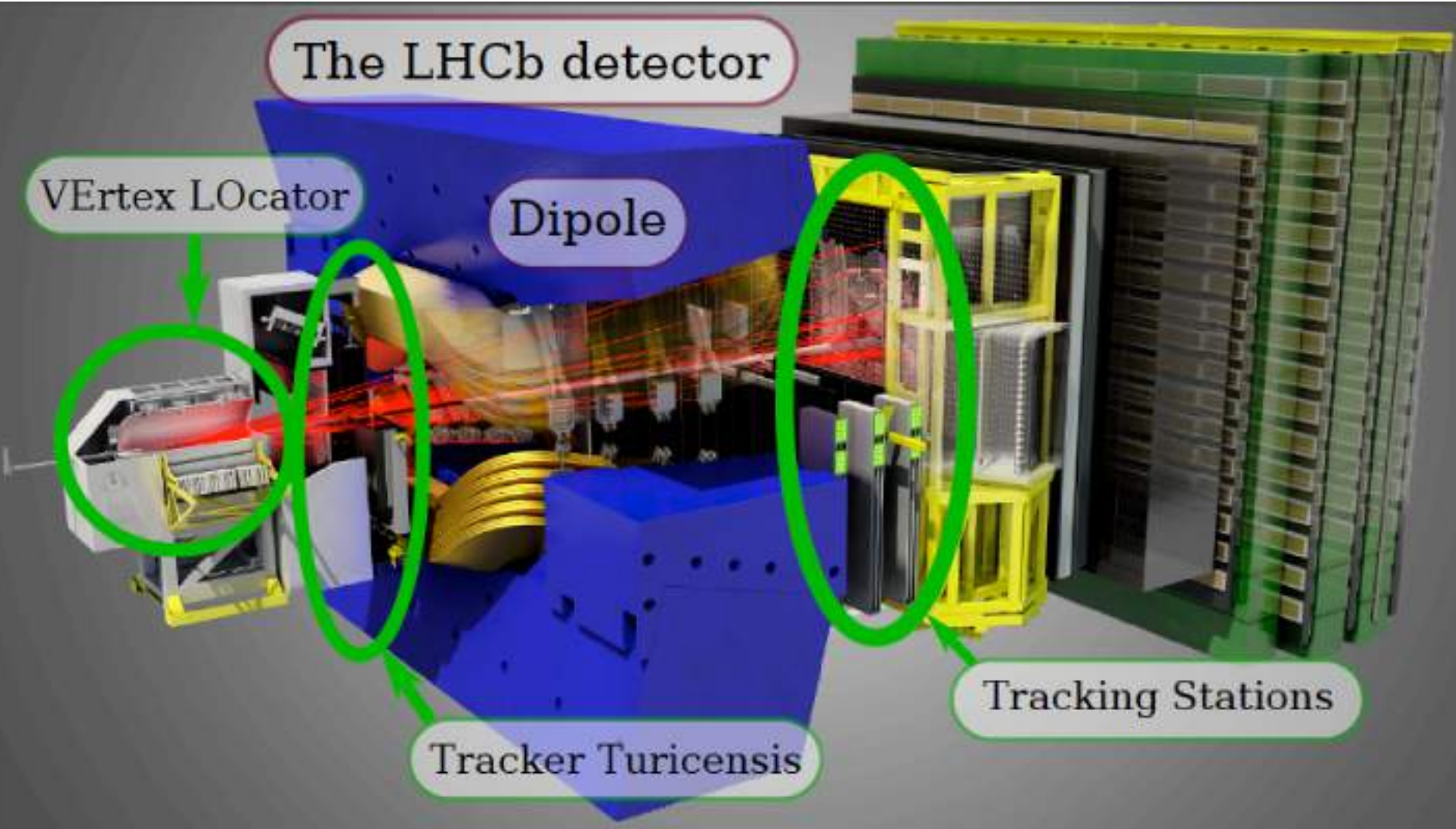
VELO

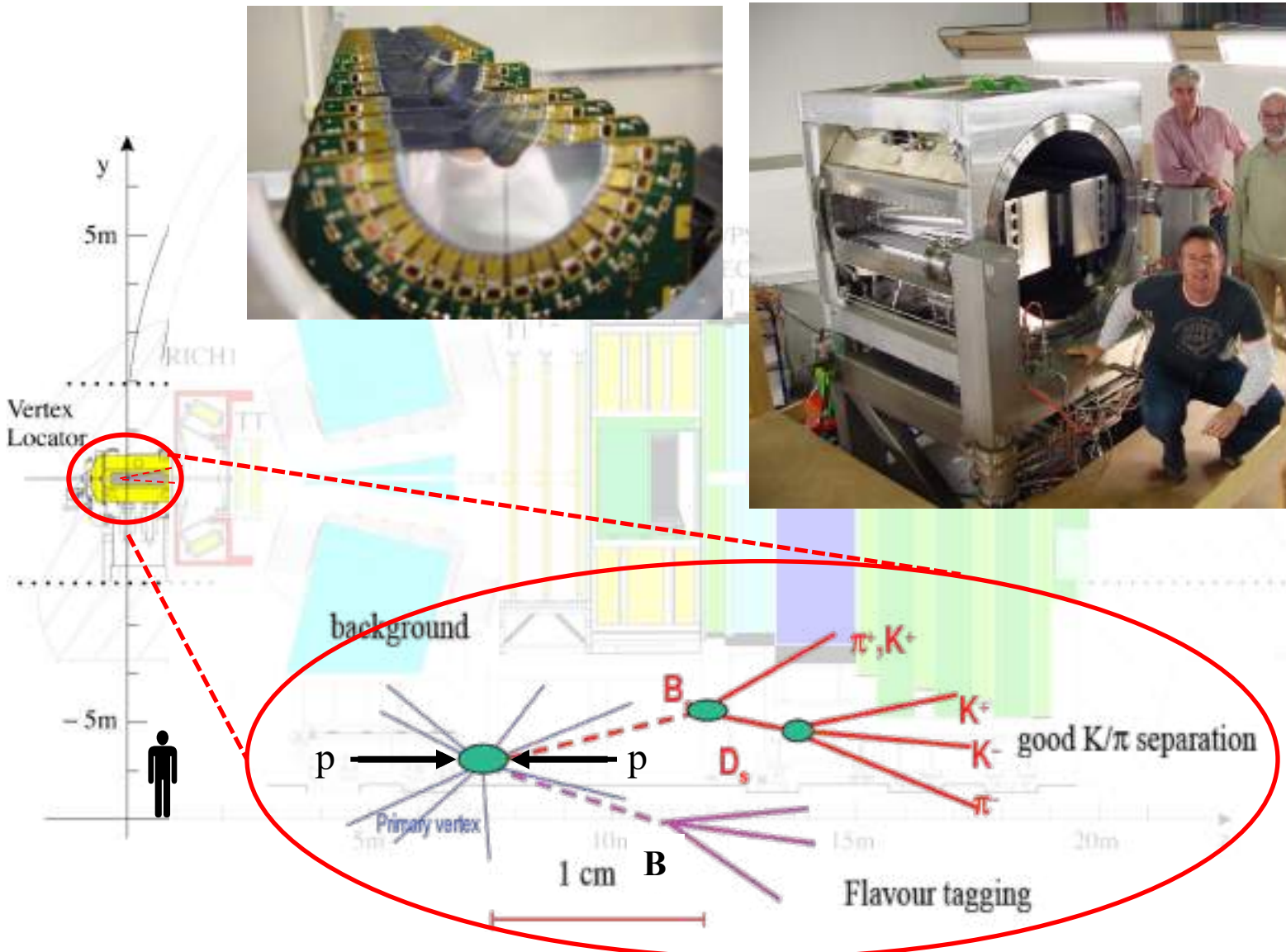


The LHCb detector

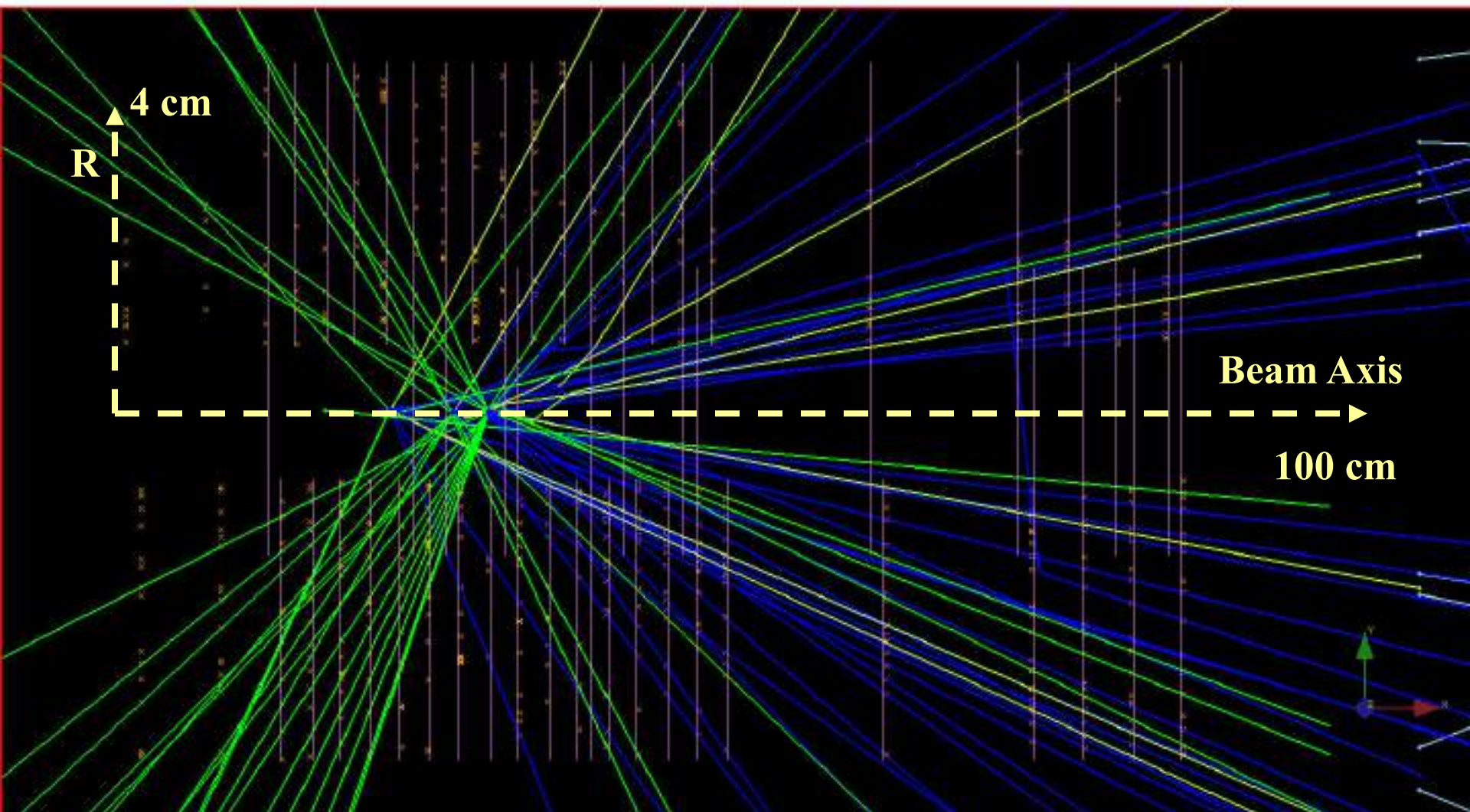


# *LHCb detector: tracking system*



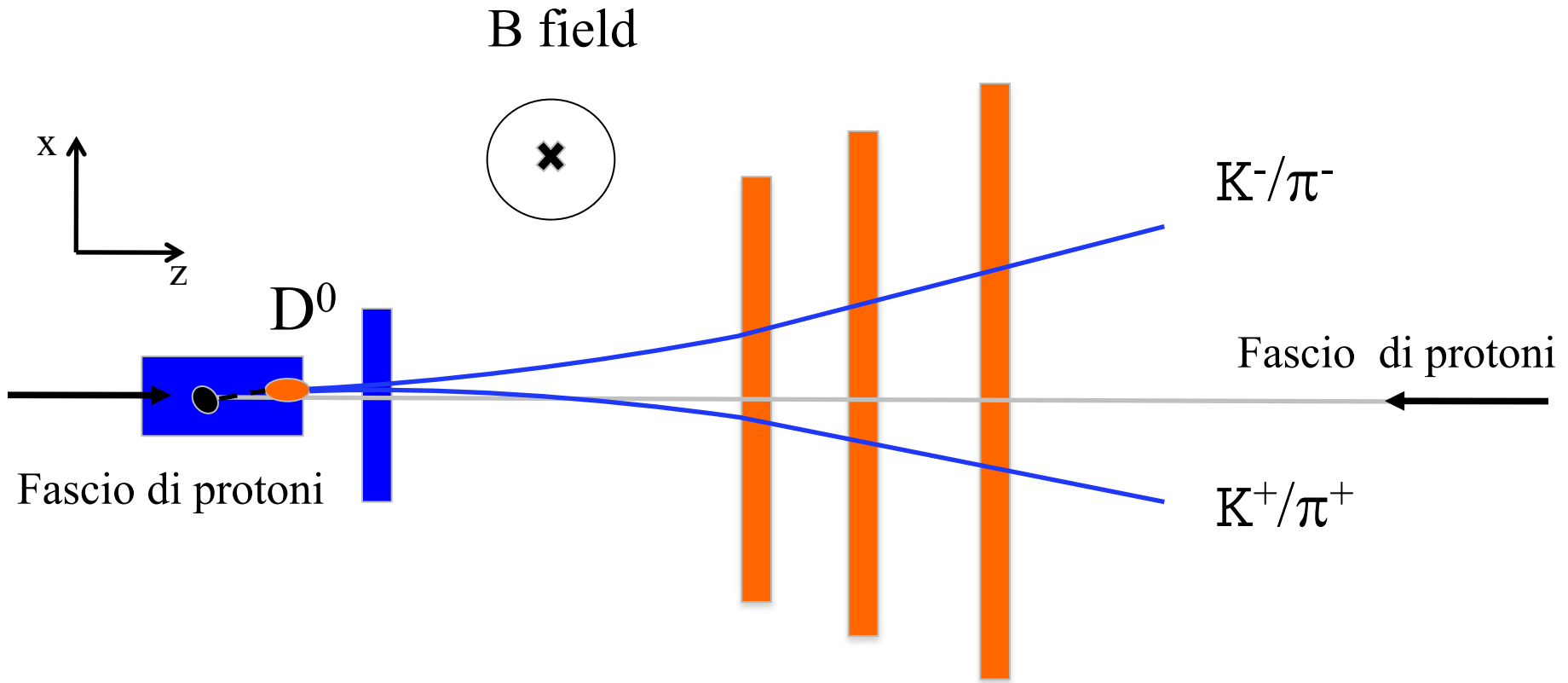


# VELO rz view





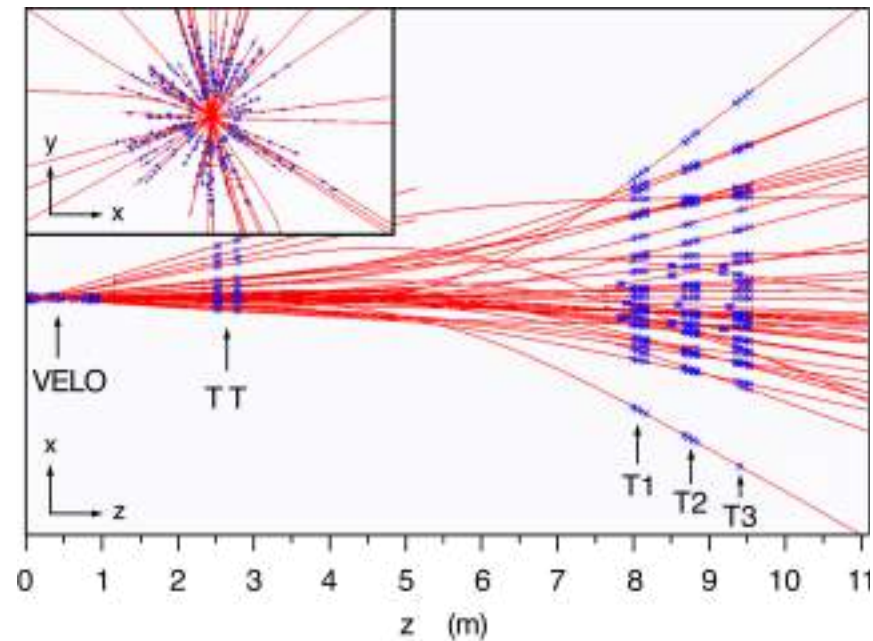
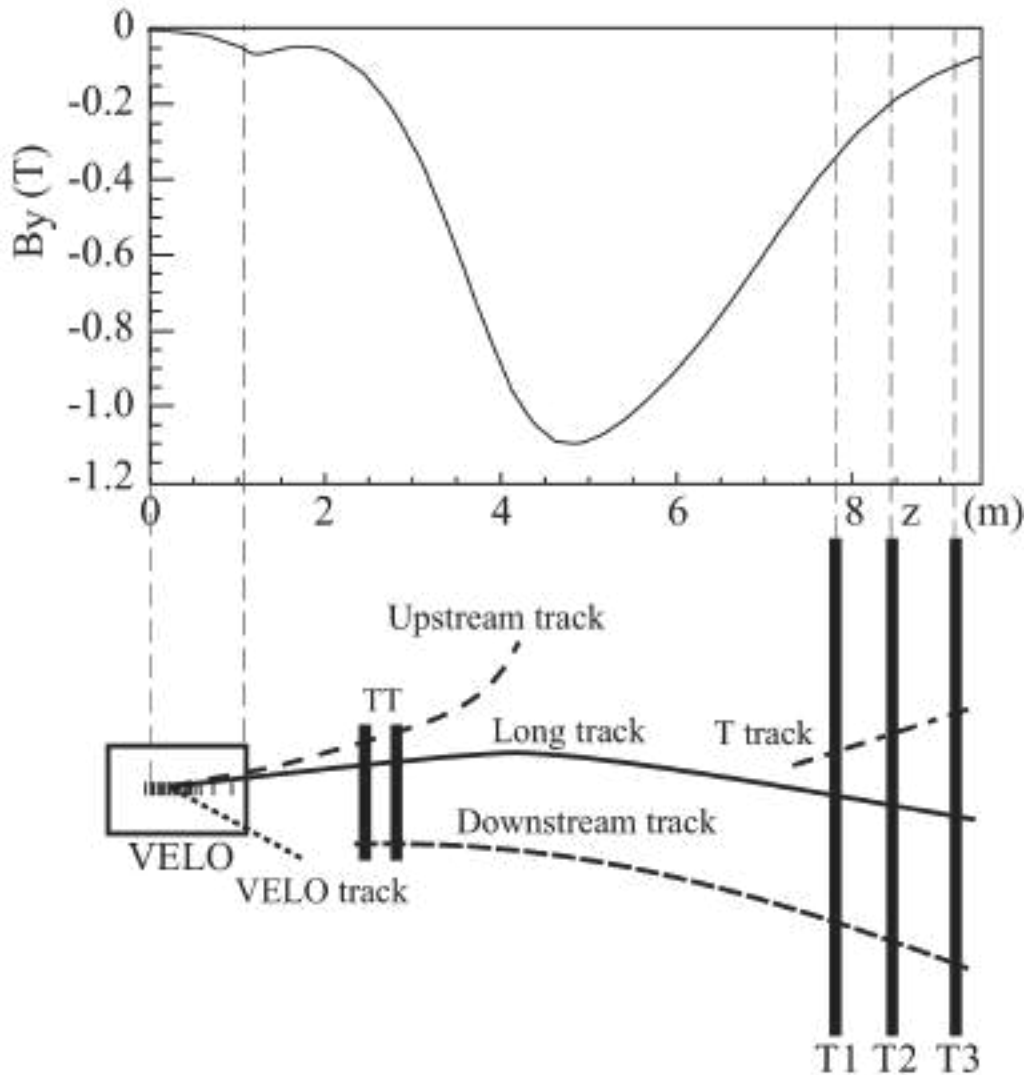
# Misura dell'impulso



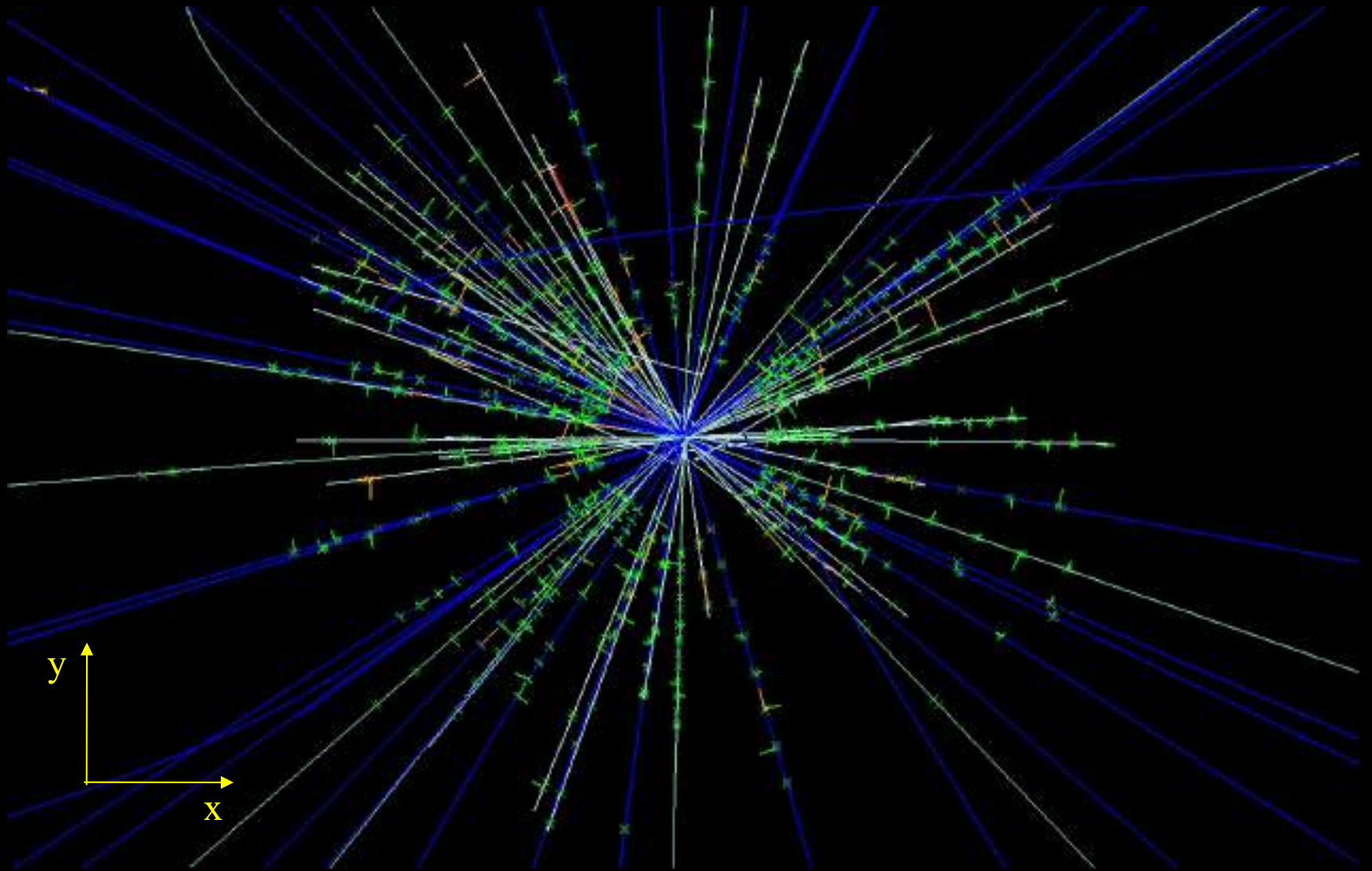
# Track reconstruction

Dipole magnet implies an intrinsic charge asymmetry (left-right differences in the detector).

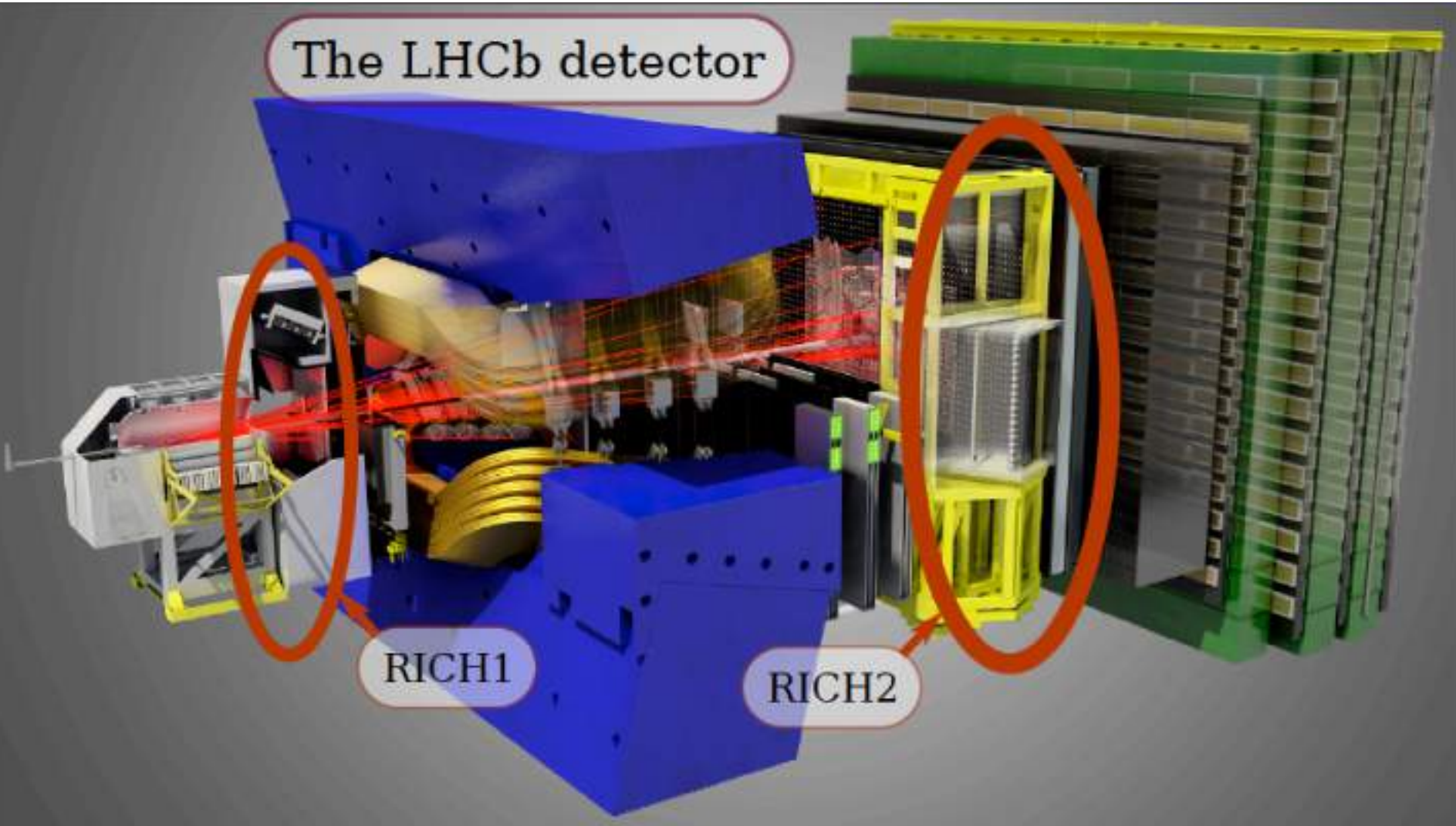
**Direction of magnetic field changed regularly and data sets combined.**



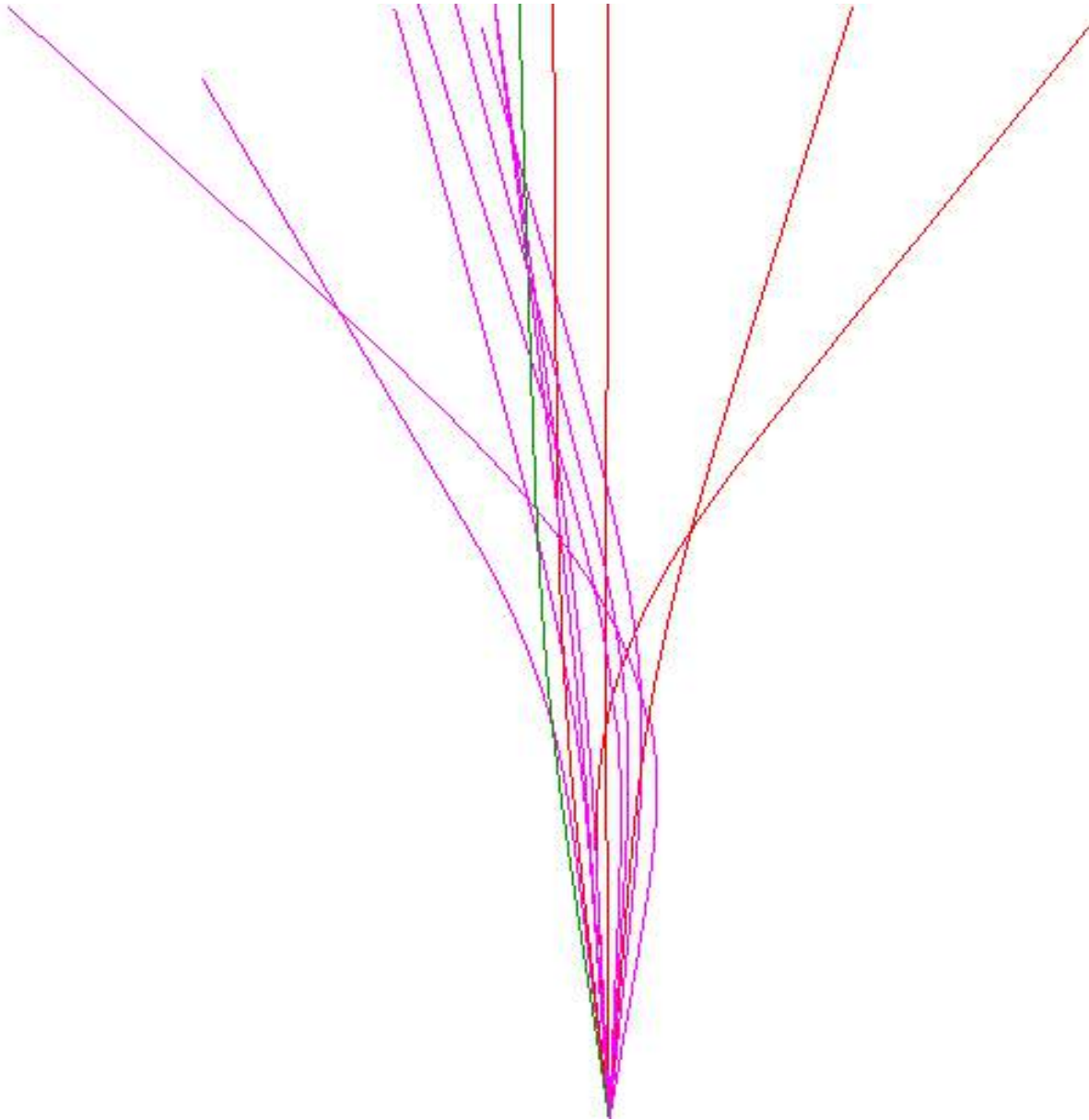
# *Evento a LHCb*



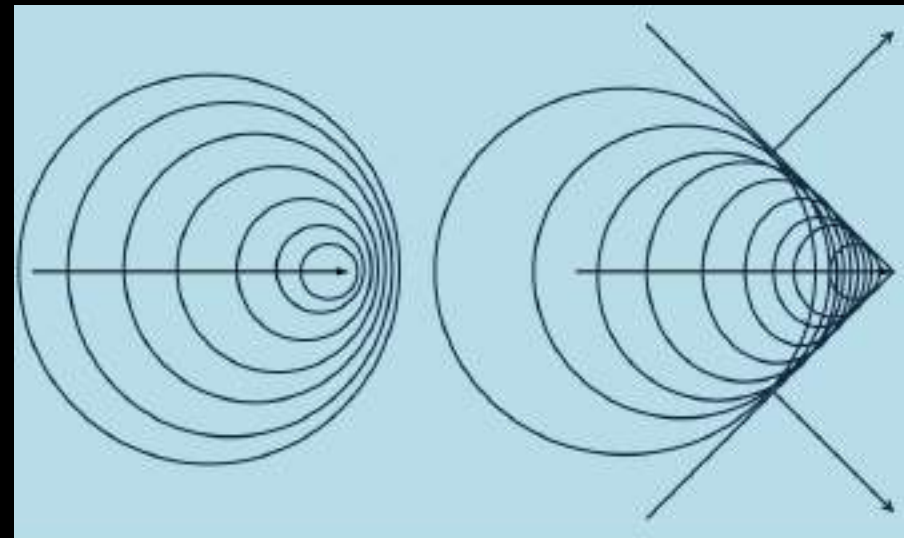
# *LHCb detector: RICHs*



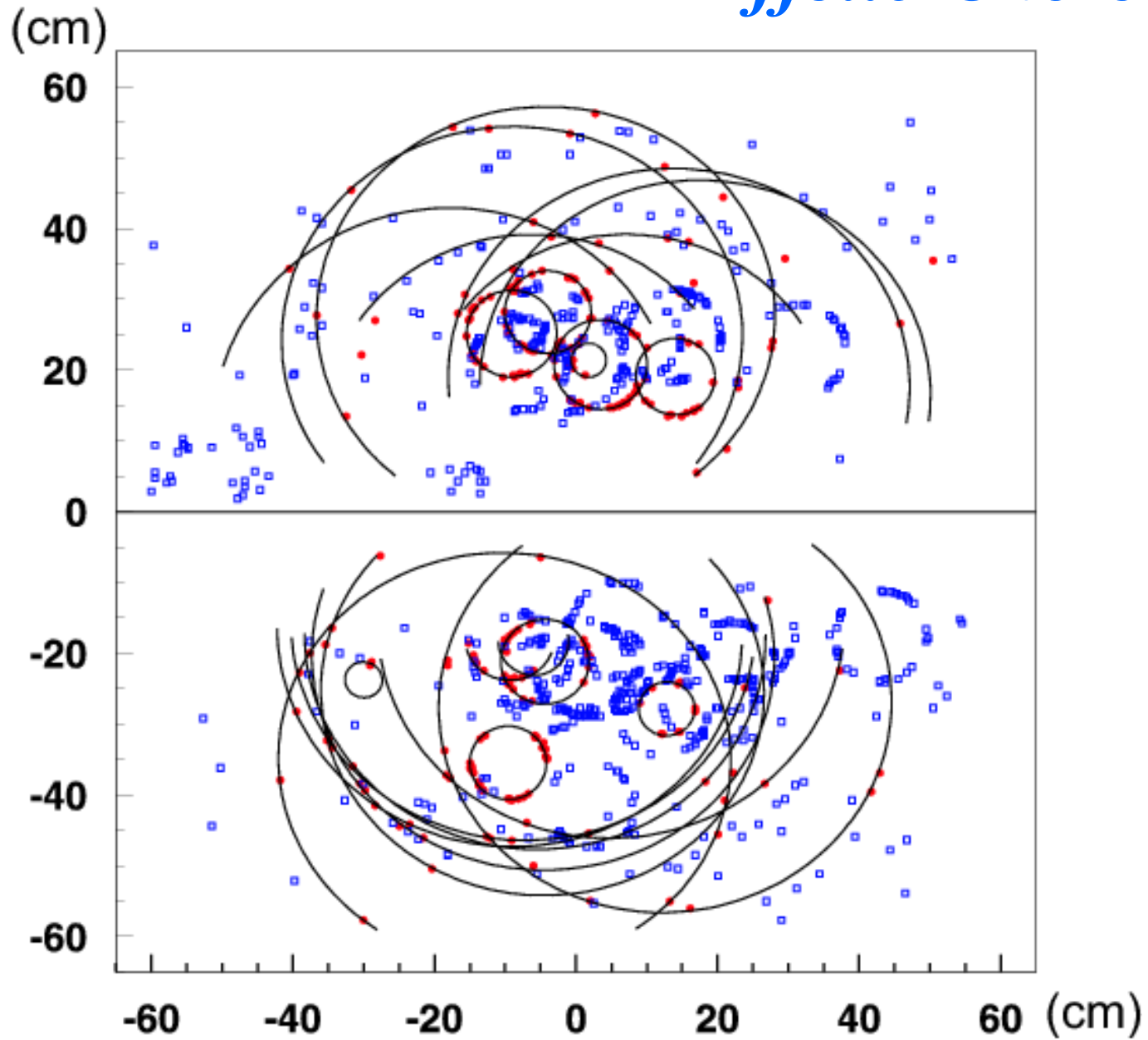
# *Identificazione di particelle*



# *Effetto Cherenkov*



# *Effetto Cherenkov*



Molti pensano che gli scienziati esclamino:



twisteddoodles.com



Quando fanno esperimenti.



Ma è molto più probabbile che dicano...

