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# BESIII plans for the September TB

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on behalf of the working group  
Aveiro - RD51 Collaboration Meeting - September 14

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# Overview



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# Overview

BESIII Cylindrical GEM prototype

Aim of the test

Experimental setup

Data taking plans

# BESIII Cylindrical GEM

A new Inner Tracker for the

**BESIII**  
experiment

- Inner MDC is showing aging effects
- 2012: italian collaboration proposed a CGEM inner tracker
- 2014: Proposal is approved

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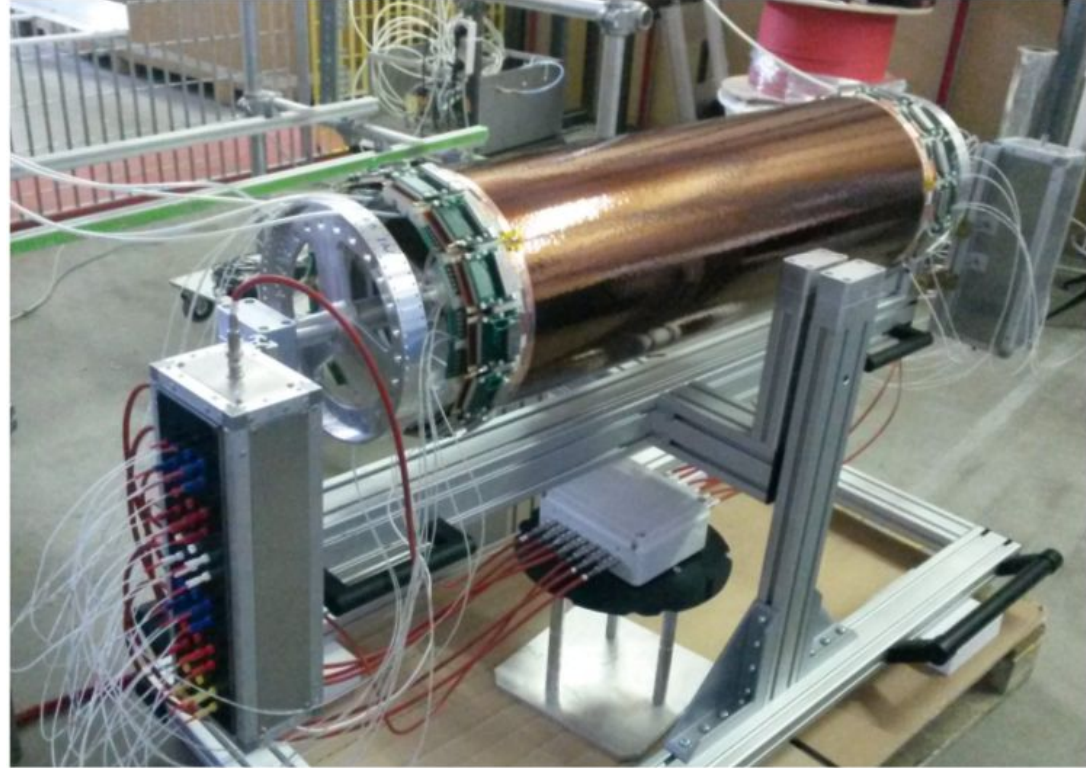
# Cylindrical GEM

TripleCGEM assembled

Several test already performed:

- Electrical
- Gas
- Cosmic rays

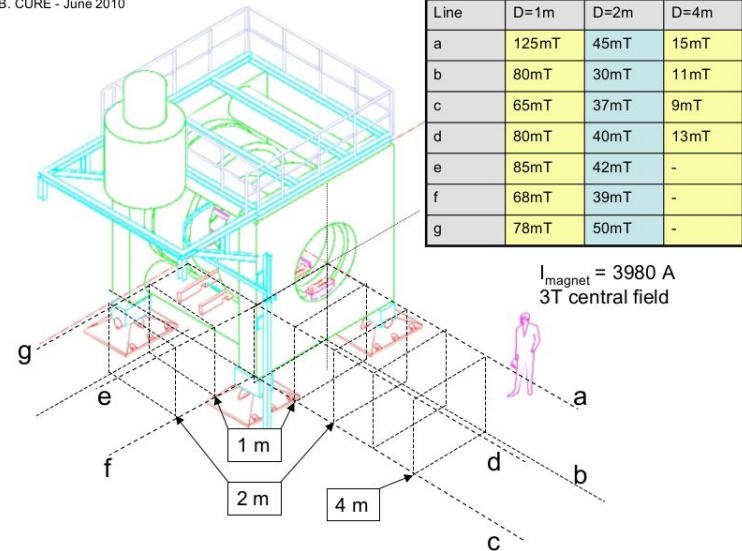
Farinelli's talk on Tuesday morning



# H2 Beam test - Scheduled: August



B. CURE - June 2010



Solenoidal magnet within SPS test area - Magnetic field up to 3.5 T - Horizontal operability



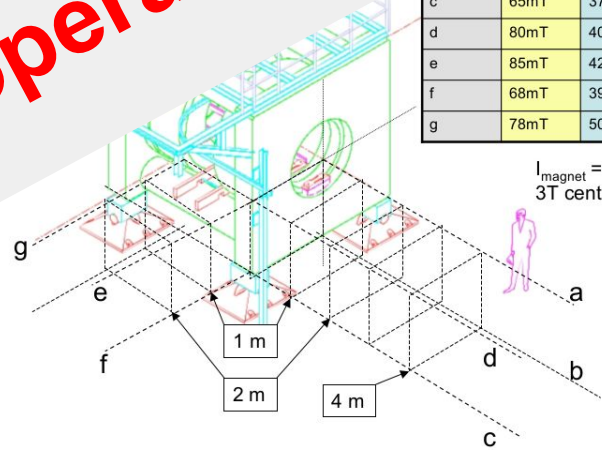
# H2 Beam test - Scheduled: August



B. CURE - June 2010

	D=2m	D=4m
125mT	45mT	15mT
80mT	30mT	11mT
65mT	37mT	9mT
80mT	40mT	13mT
85mT	42mT	-
68mT	39mT	-
78mT	50mT	-

$I_{\text{magnet}} = 3980 \text{ A}$   
3T central field



**CANCELED - Magnet operation problems**

magnet within SPS test area - Magnetic field up to 3.5 T - Horizontal operability

# Aim of the test

Test the operability of the cylindrical layer with stable beams

- Horizontal
- With magnetic field

to reproduce the performance of planar tripleGEM

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# Experimental setup - 1

Operate in best condition with  
no magnetic field

Horizontal configuration:

2 tracking station:

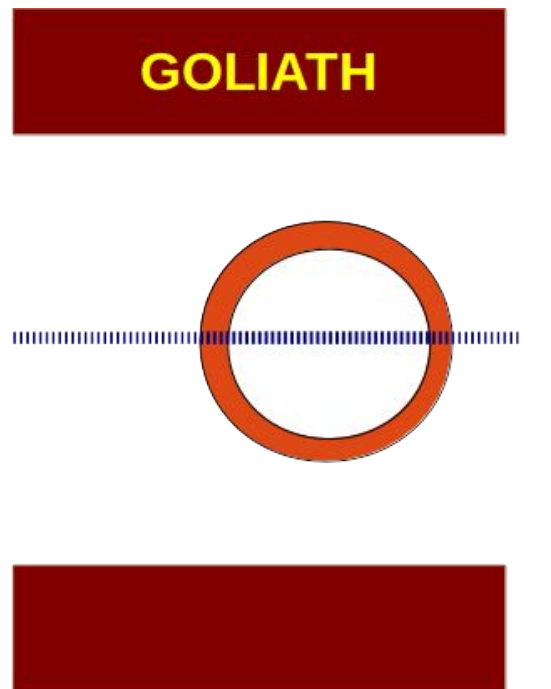
2 x 10x10 cm<sup>2</sup> planar GEM

2 trigger

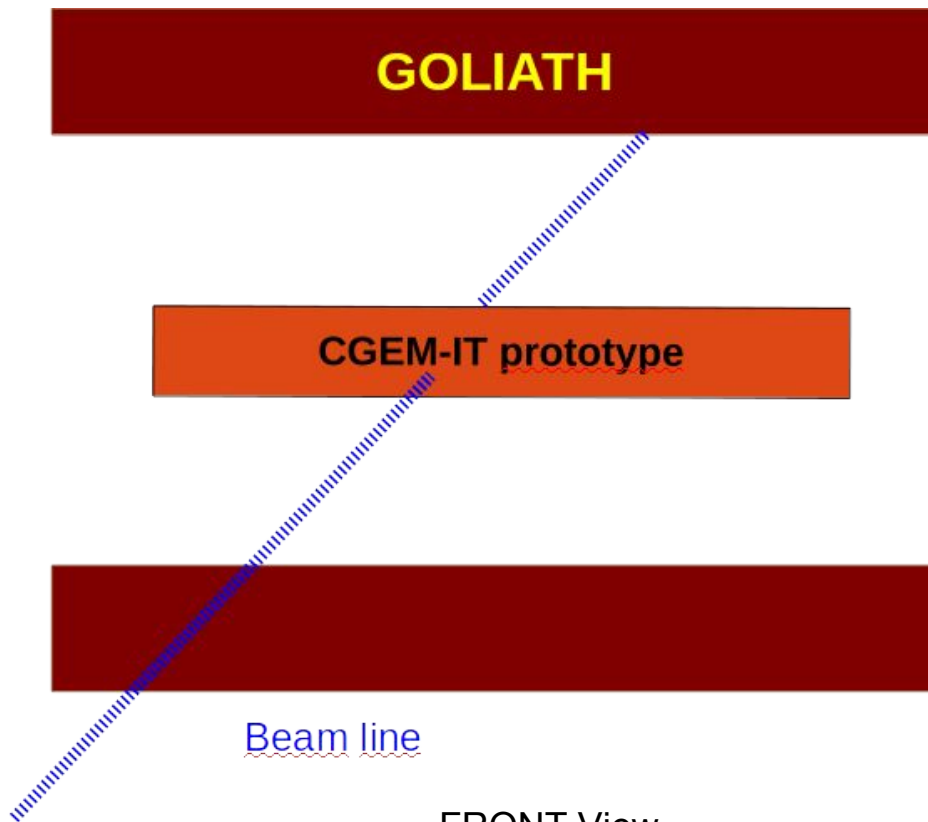
1 cylindrical layer

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# Schematic



SIDE View



FRONT View

# Experimental setup - 2

Creative ideas to maximize the  
effort  
(w/o magnetic field)

Bent configuration:

2 tracking station:

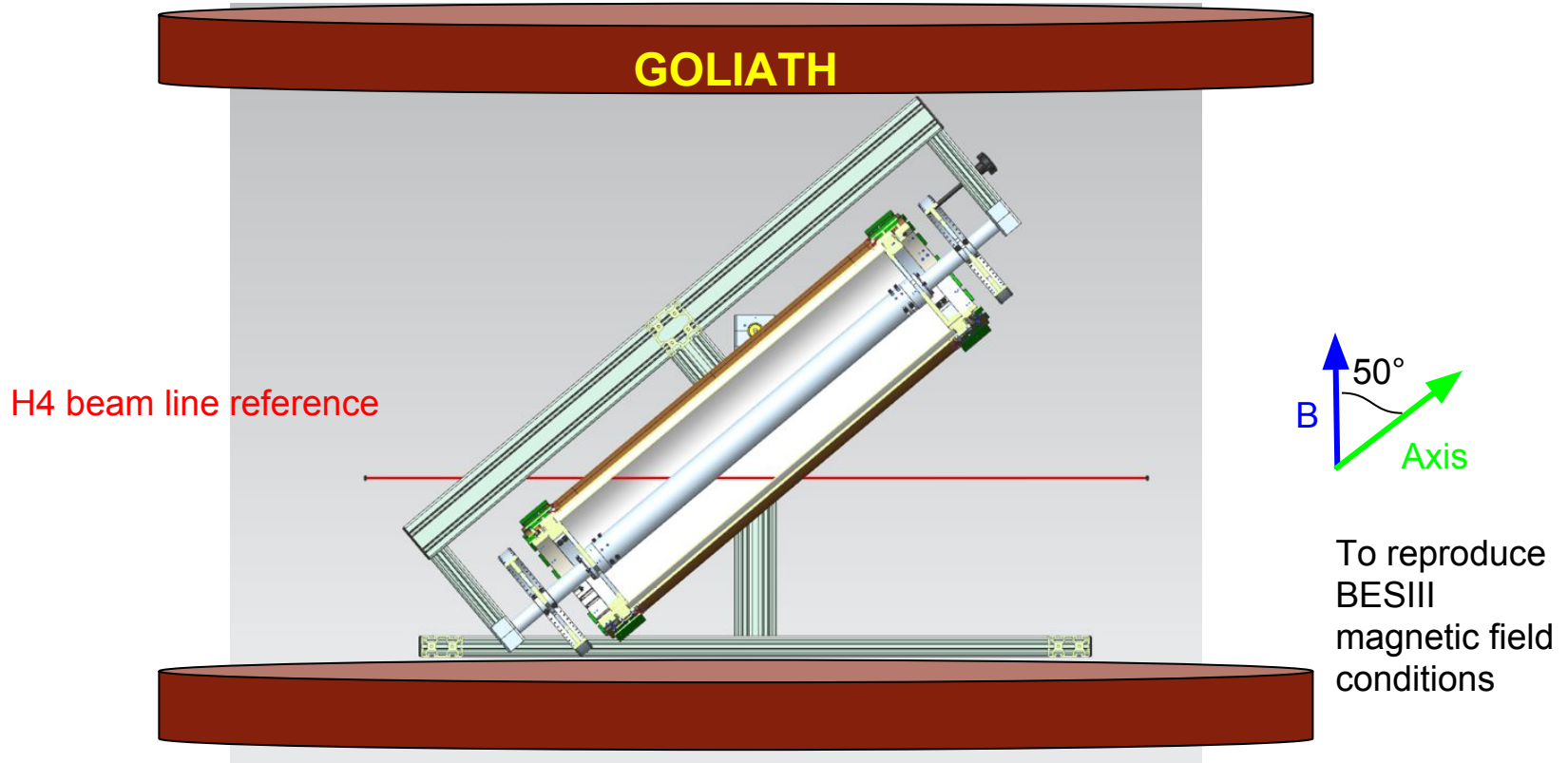
2 x 10x10 cm<sup>2</sup> planar GEM

2 trigger

1 cylindrical layer

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# Schematic



# Data Taking plan

ArCO<sub>2</sub> and ArISO gas mixture

Bent configuration:

- With 0 and 1.5 T

Horizontal Configuration:

- 0 T

Both muons and pions are fine

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# Summary

Cylindrical layer is ready to be tested

Operation with and without magnetic field will be used to start the commissioning process:

- Horizontal operation will test mechanic stress
- Bent configuration test the performance in 1 T magnetic field as in BESIII detector



obrigado

