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Tests on resistive and GEM foil Micromegas

by CEA Saclay Clas and COMPASS groups

R&D in progress for future detectors at Clas and Compass

Compass: tracking with high hadron flux, including in beam area

Clas: high particle flux, important magnetic field (parallel and perpendicular)

Goals of October beam test studies

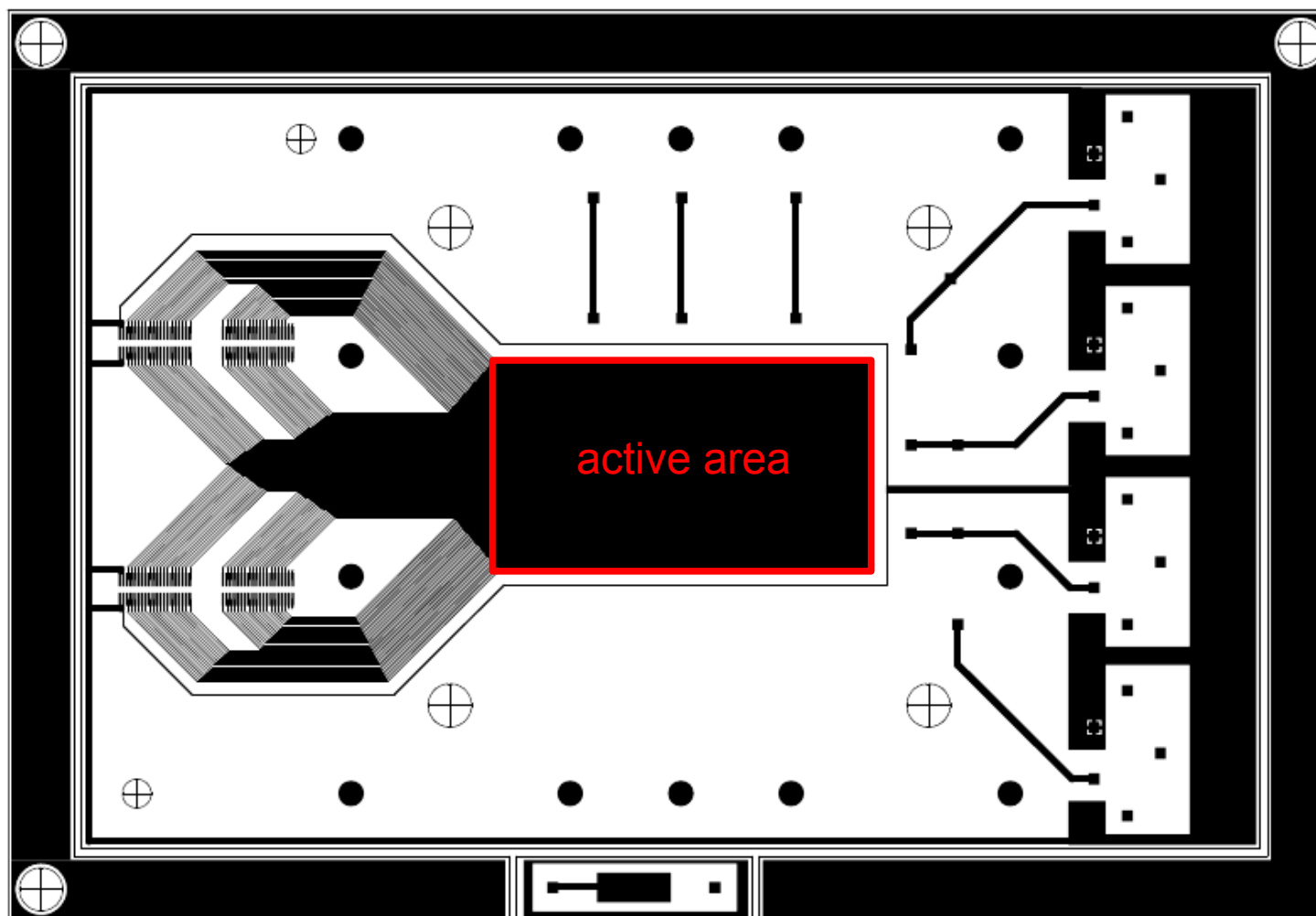
detector performances measured with muon beam

discharge rate reduction at high hadron flux (resistive layer, GEM foil)

Scheme of detectors

Standard 6x10cm detectors

144 strips with 400 μ m pitch



Overview of detectors to study

Detectors taken as reference

4 standard bulk 5mm ionization + 128 μ m amplification built at Saclay and at CERN

Resistive detectors

1 bulk with resistive kapton foil (1M Ω m²) on 50 μ m prepreg layer

1 bulk with resistive paste (20M Ω m²) on prepreg layer

2 bulks with resistive paste on strips + coverlay walls

2 bulks with resistances buried underneath strips (from CERN TSDEM lab)

Detectors with GEM foils and others

1 standard bulk with 2mm ionization gap

1 standard bulk with thin inox mesh electrode

2 bulks with additional GEM foil

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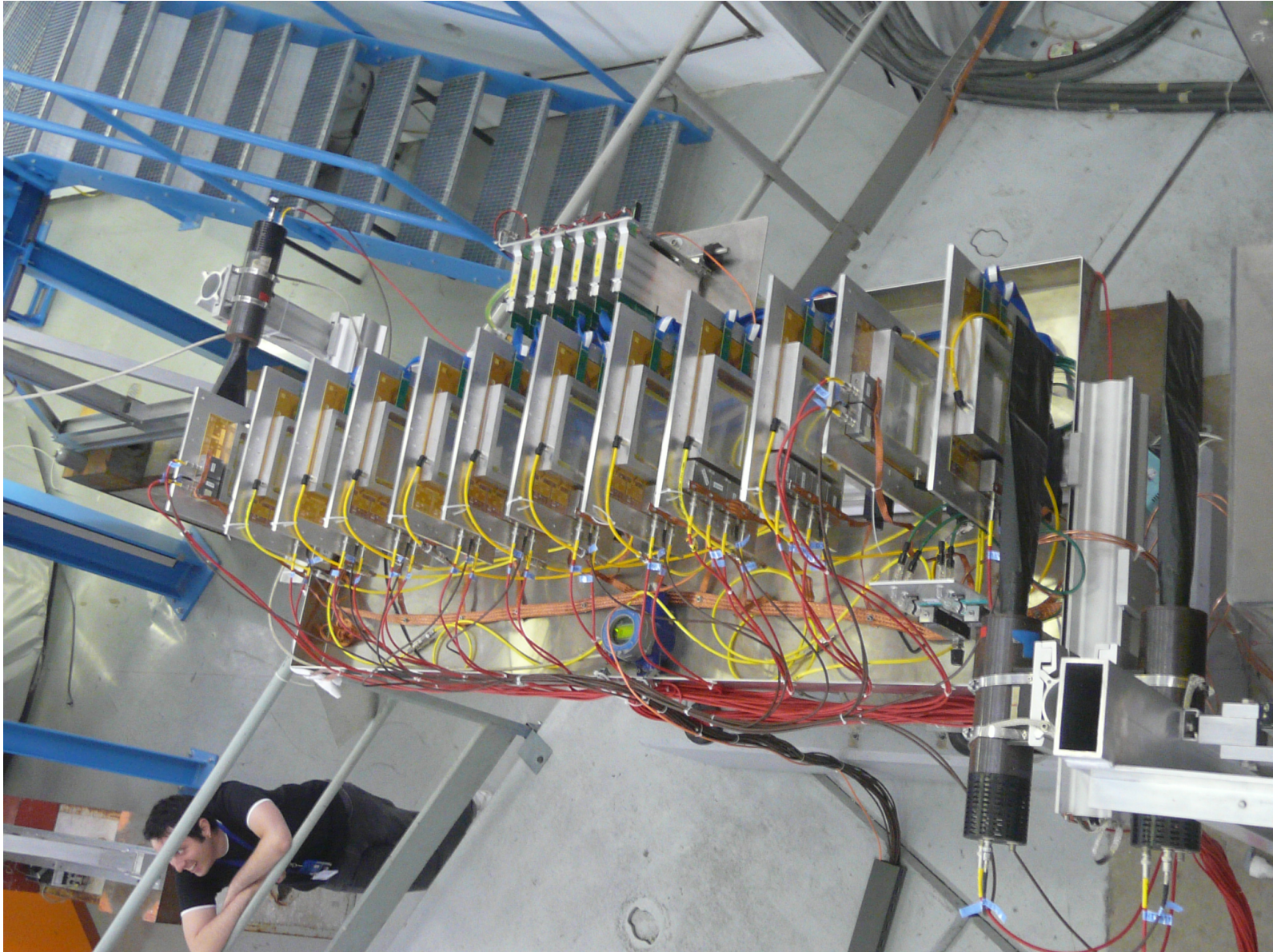
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Foreseen setup

10 detectors in front of Goliath magnet

Mechanical structure already exists



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Foreseen measurements and setup

2 DAQs: AFTER/T2K and discharge counting

Scans to be done

mesh HV (~5-10 points), drift HV (~5 points)

GEM HV for GEM foil prototypes (~5 points)

Experimental set-up

table installed in front of Goliath magnet (>2m long)

10 detectors mounted in the same time including 4 permanent std bulk MM

external trigger from 3 local scintillators

mostly high flux hadron beam and muon beam

Period requested: 18 to 25 October