C/N-1.0 module-0 detector

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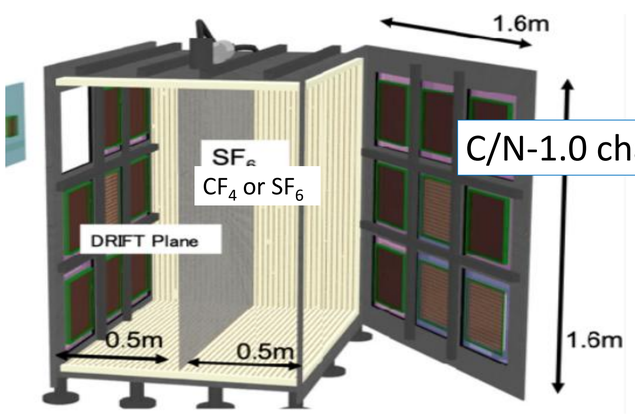
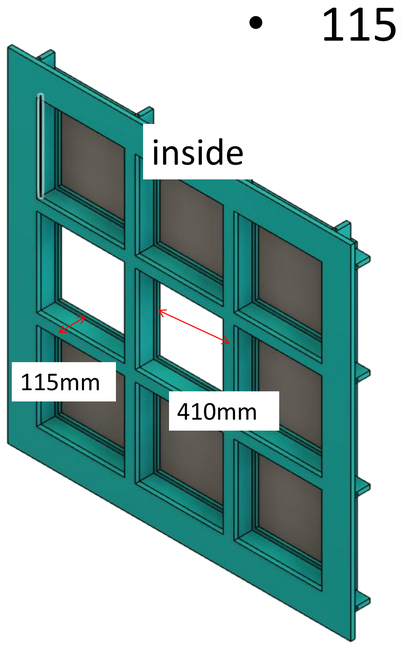
for NEWAGE

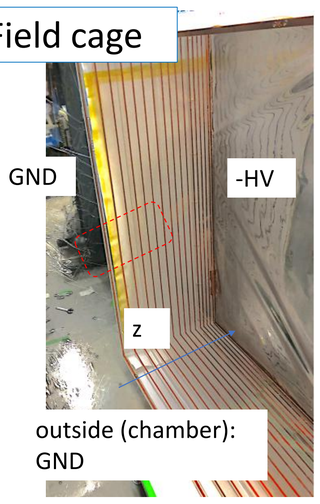
1. C/N-1.0 chamber

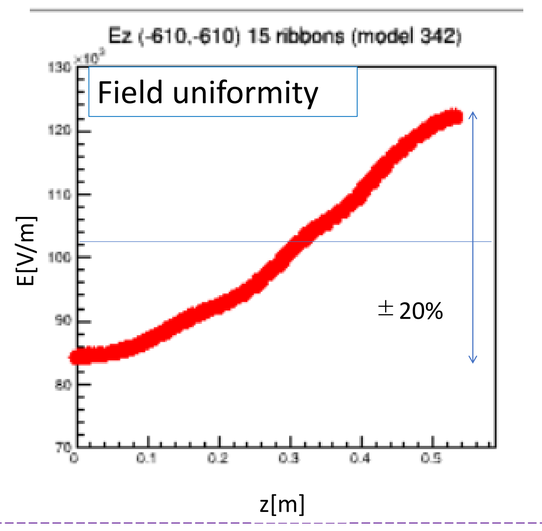
➢ "Get-together" concept
- 18 detectors share the volume





➢ Field cage
- resistors + copper-ribbon
- less dense near GND potential to minimize the copper amount



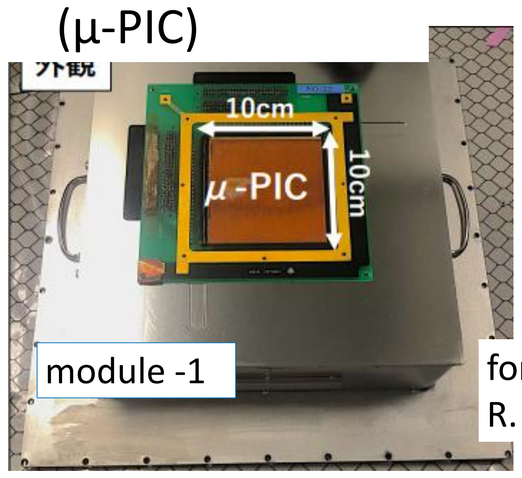


➢ User's information
- window opening: 410 × 410 mm²
- module plate: typ. 450 × 450mm²
- 115mm offset from the chamber face

➢ Detectors
- Sheffield detector (MMThGEM-Micromegas)

for details:
A. McLean's talk and 2602.12658

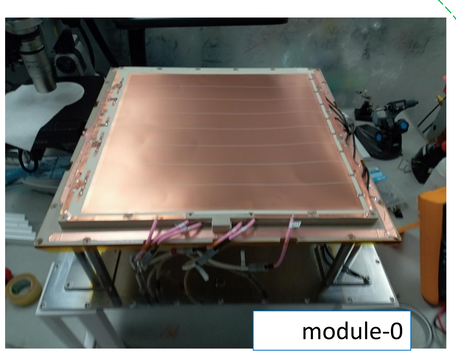
- Kobe detector (μ-PIC)



for details:
R. Namai's talk

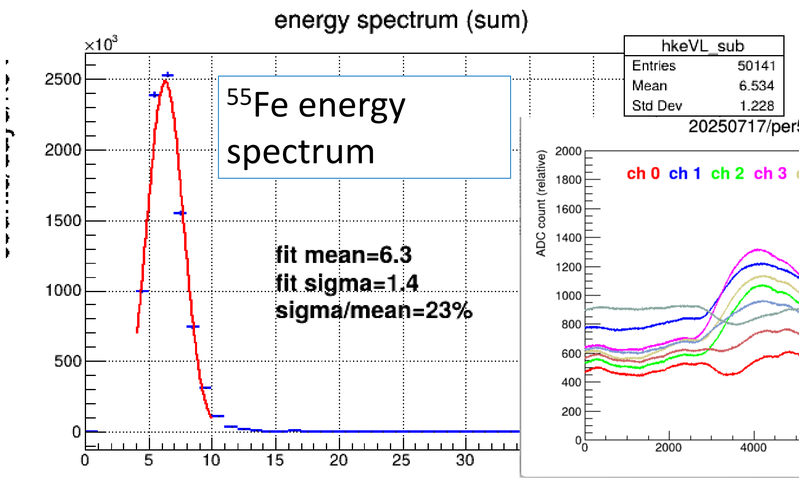
2. Module-0 detector

➢ Concept: simple
- Limited number of channels (8ch)
- Almost no directionality
- For BG monitoring



➢ Details
- Gas amplifier: 3 × GEMs LCP 310 × 310mm² (100μm/50μm/100μm)
- Readout PAD: GEM without holes (copper on LCP) 310 × 310mm² segmented into 8 channels
- Amplifier: CR-110+2 × TL074CN ～1V/pC, ～4μs peaking
- ADC：CAEN DT5725 2V/14bit, 250MHz sampling, timestamp 8ns × 48bit (26 days) Deadtime free up to 120cps
- Dynamic range ：50fC～2pC
- Readout PC: CeleronN100 w/ local SSD

➢ Performance (in test chamber)
- Gas gain ～2000
- σ/E=23% @ 5.9keV X-ray (^{55}Fe)



cosmic μ waveforms

➢ Installation
- On C/N-1.0
- Face-to-face with module-1

3. Summary

➢ 3 × GEMs, 8ch readout detector
➢ For BG monitoring
➢ installed on C/N-1.0