

# Micromegas TPC panels at the RD51 beam test

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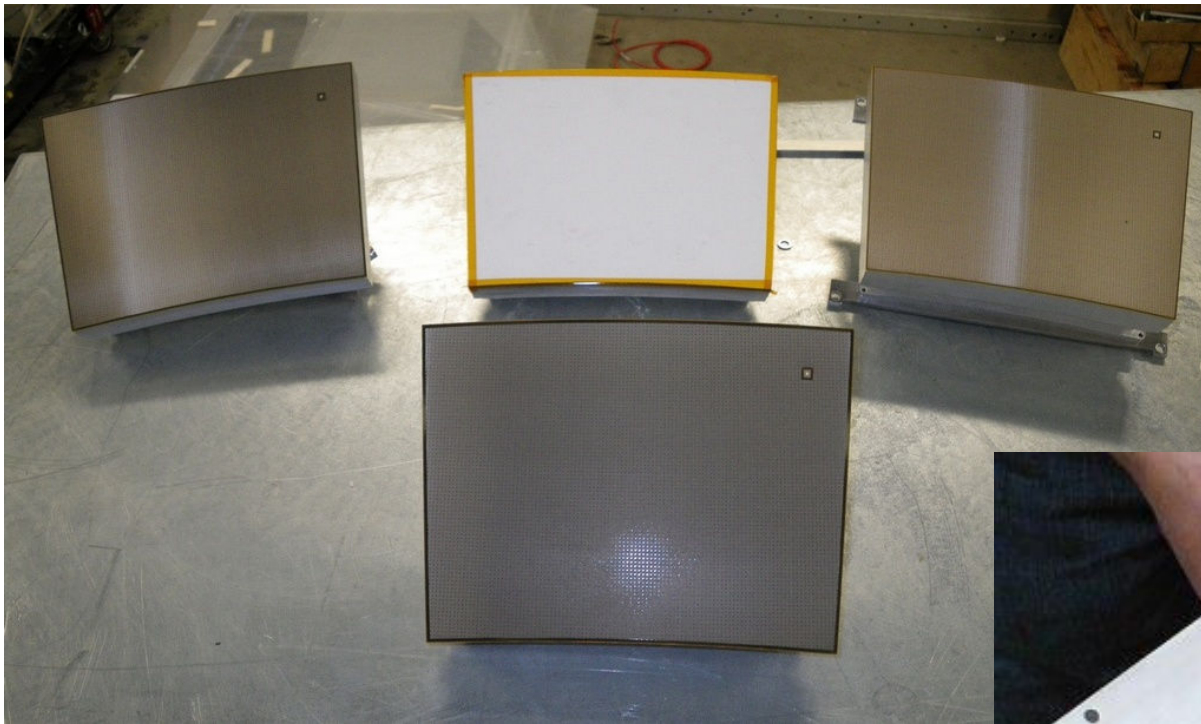
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**We installed our test box in the Goliath magnet with 1 resistive kapton Micromegas panel with 1726 T2K electronic channels.**

**We used premixed Ar+5%iso**

**The goal was to study the behaviour of the detector at high beam intensity with hadrons (60 to 100 kHz on 5 cm<sup>2</sup>)**



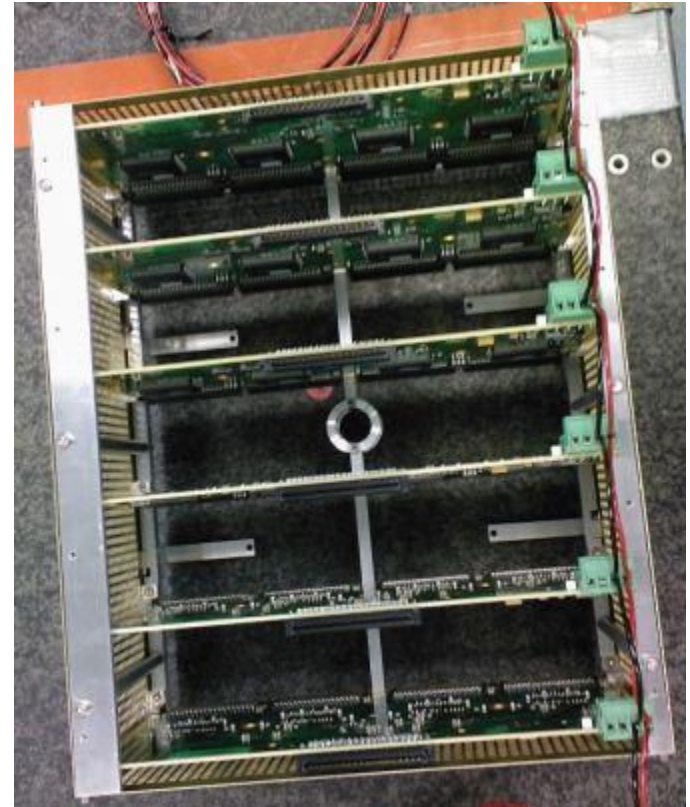


We tested one panel out of the 5 available (others are in DESY)

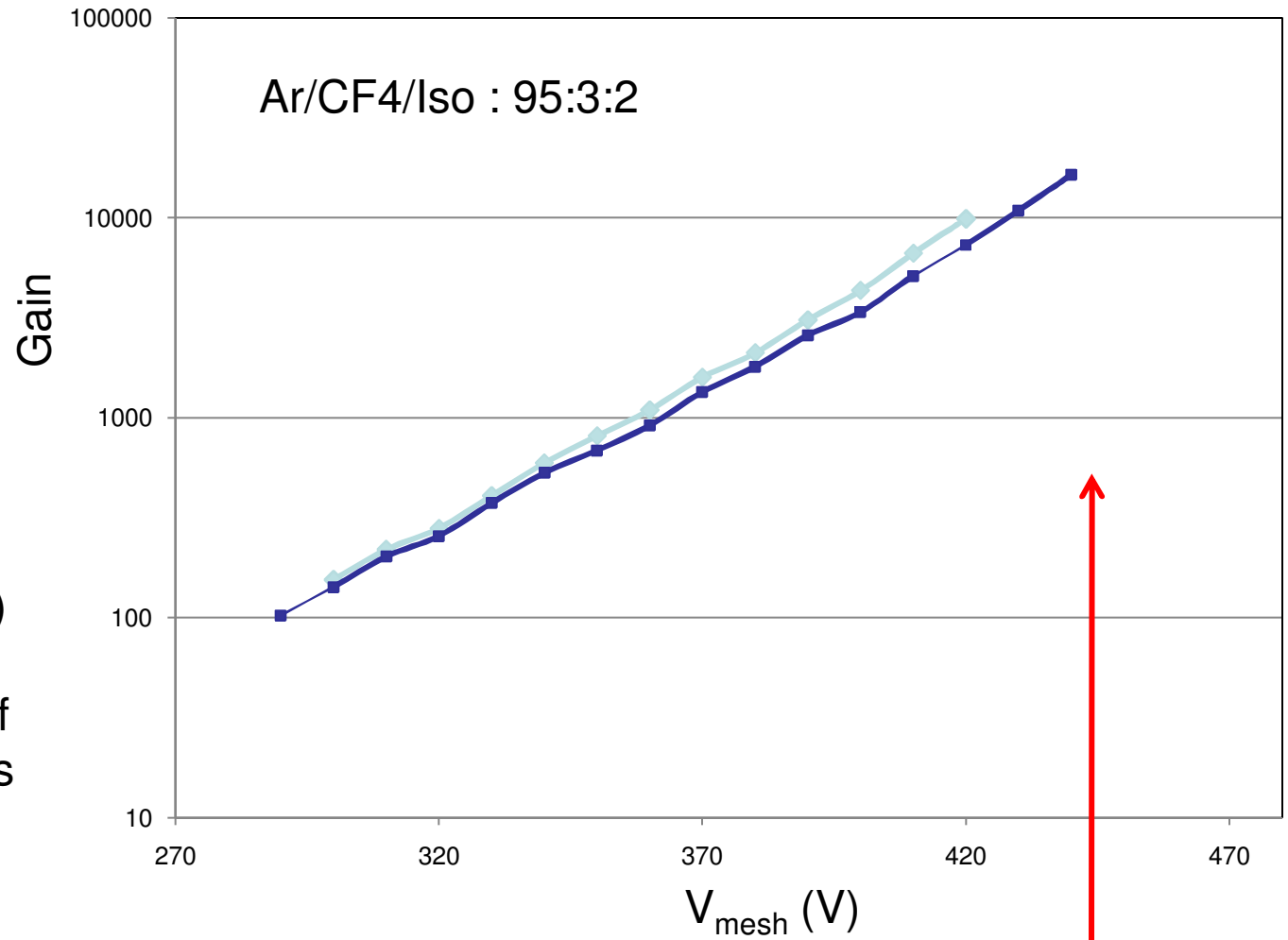


We suffered from a chain of problems:

- Most of our material was flooded by a strong water leak. Several FE cards and our FE Module cards were lost, as well as our mechanical support for the cards and several special cables. We borrowed replacement and re-built what we could in emergency 2 weeks before the run.
- To go into the magnet we had to extend our low voltage cable, got a voltage drop, and accidentally burned the protection diode of the FEM card.
- Fortunately we managed to solve all these problems but had a wrong parameter that set the calibration on, generating apparent noise.
- However the detector worked fine and now the DAQ also works fine.



# Gain curve measured from mesh current at $10^5$ Hz (upper) and $2 \times 10^4$ Hz (lower) of pions



Primary ionization :  
1800 e- per track  
(17 cm track length)

Measure currents of  
typically 10s to 100s  
of nA.

Consistent with  
measurements at  
low rate

Hit current limit at 500 nA  
without breakdown

# Conclusions

- For the first time we have exposed the Micromegas resistive-anode TPC to a high intensity hadron beam. The detector performed very well in these conditions.
- Thanks to Matteo et al., S. Aune et al., and especially the help from the CERN group to solve our problems (especially mechanics)
- We are interested to take again high intensity beam data, but hopefully in different conditions