LTCC GEM

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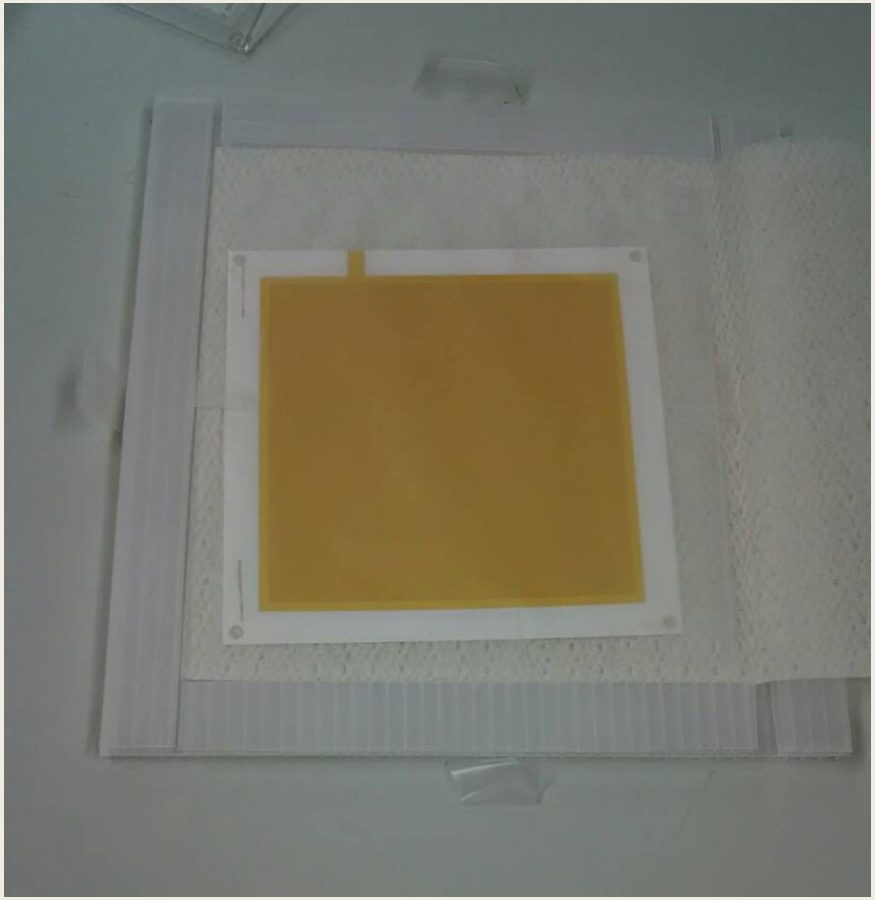
LTCC GEM

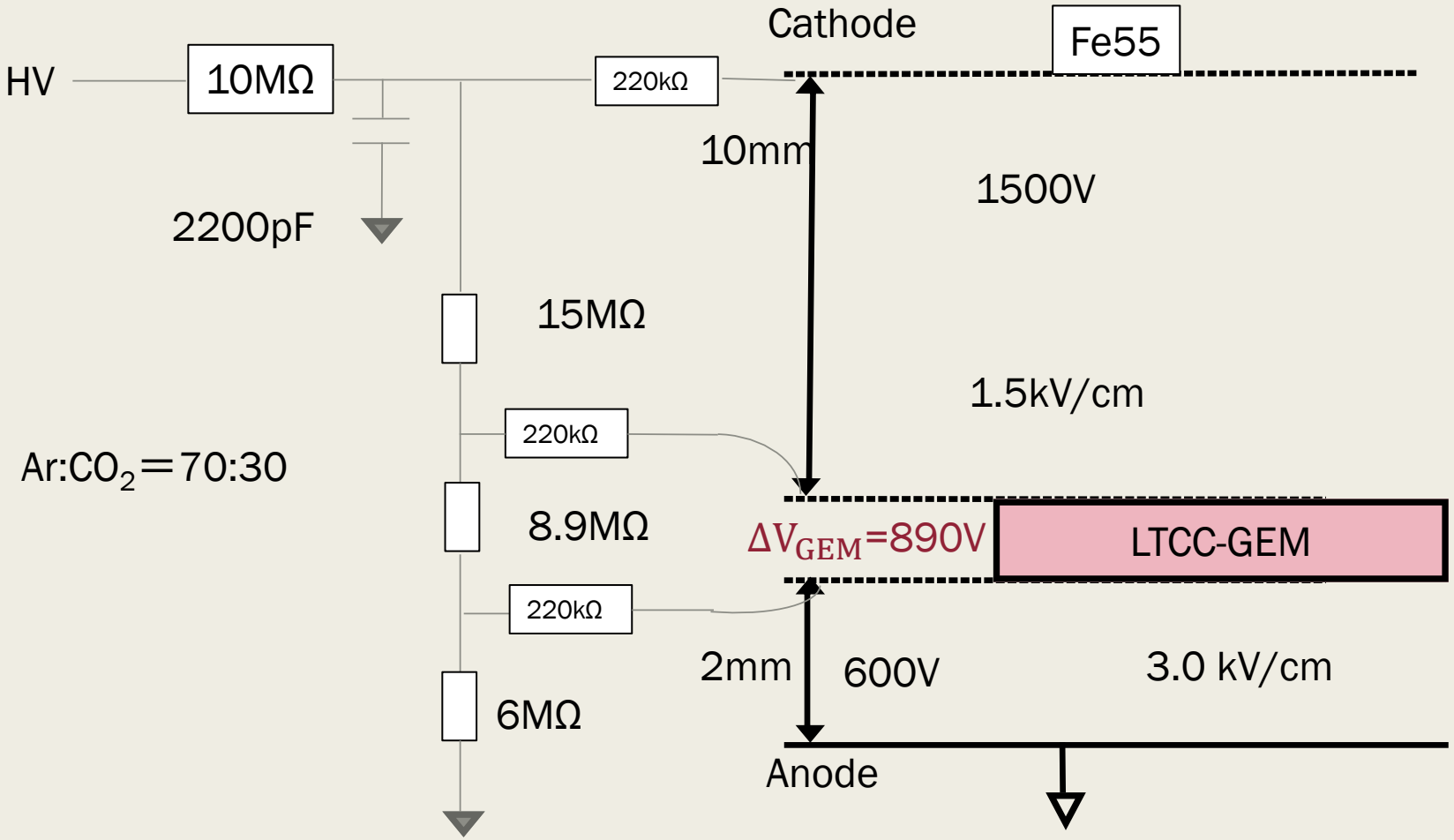


gold plated LTCC GEM

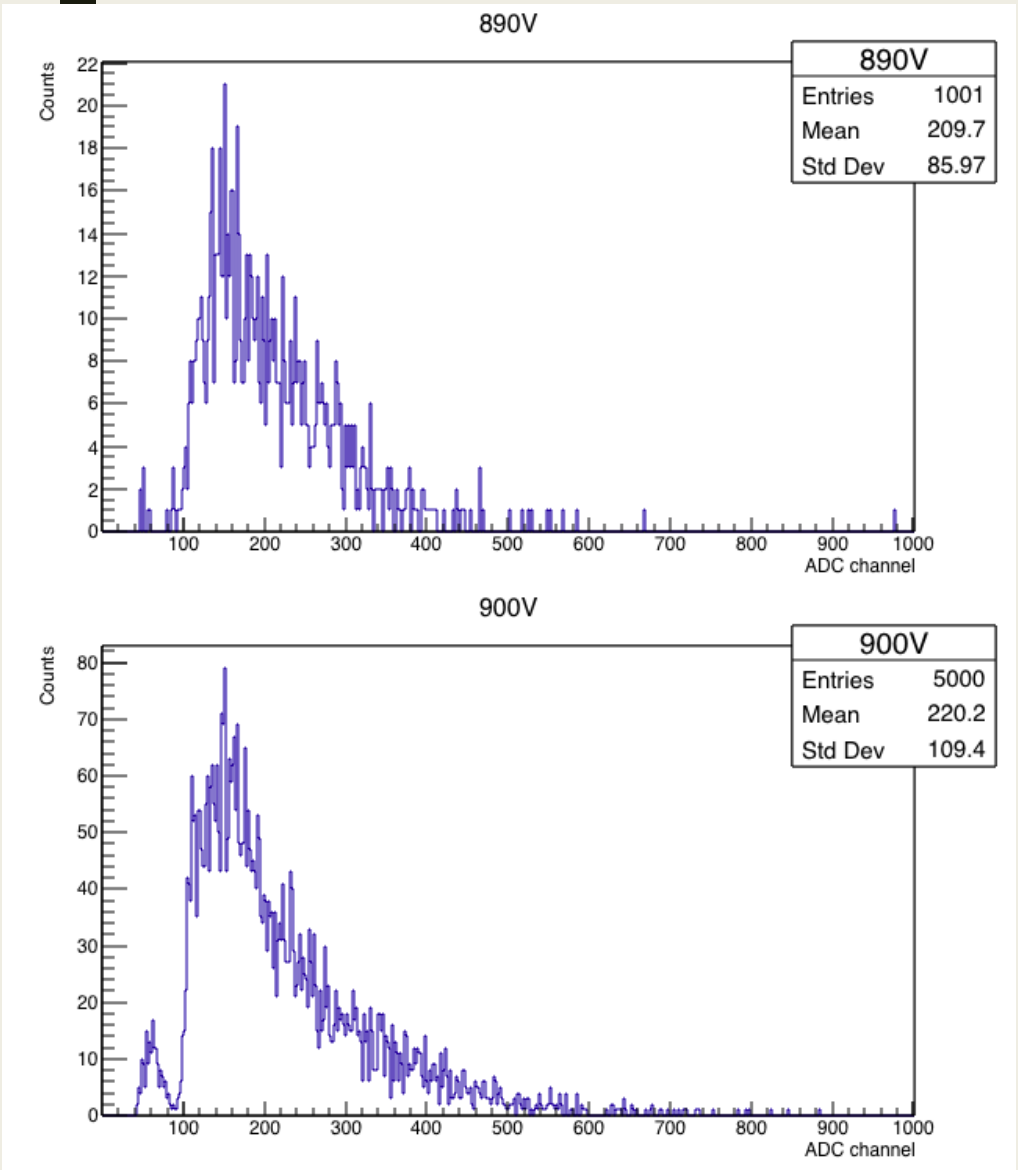
Insulator: LTCC
Electrode: Au
Insulator thickness: 200 μm

Effective area: 10cm×10cm

LTCC-GEM Experimental Setup



Charge distribution



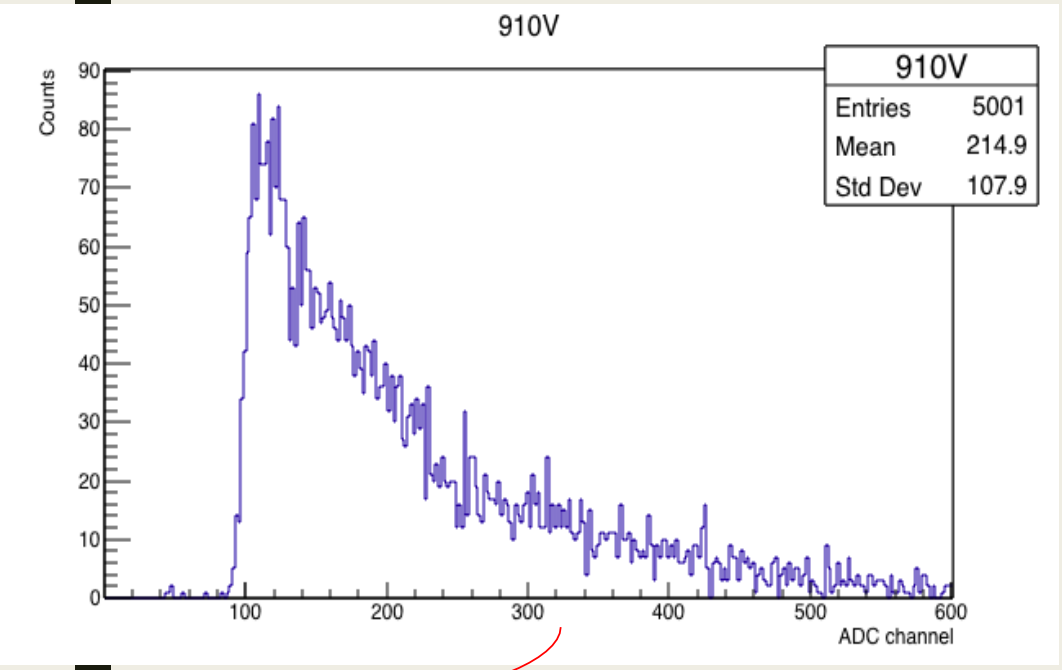
Vertical axis :count
Horizontal axis:ADCch

ΔV_GEM:890V

ΔV_GEM:900V

The charge distribution is not Gaussian distribution.
The distribution may have noise.

Charge distribution

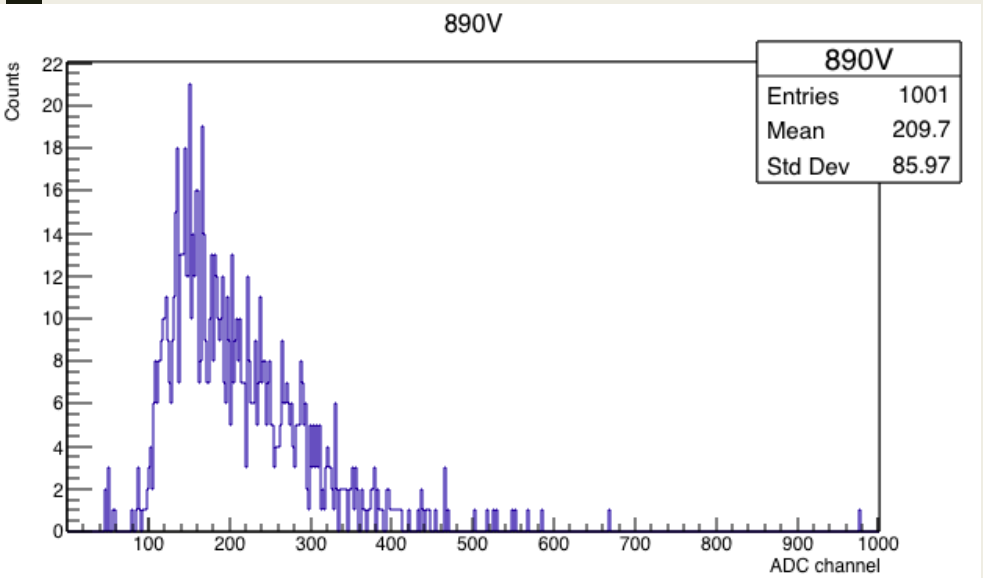


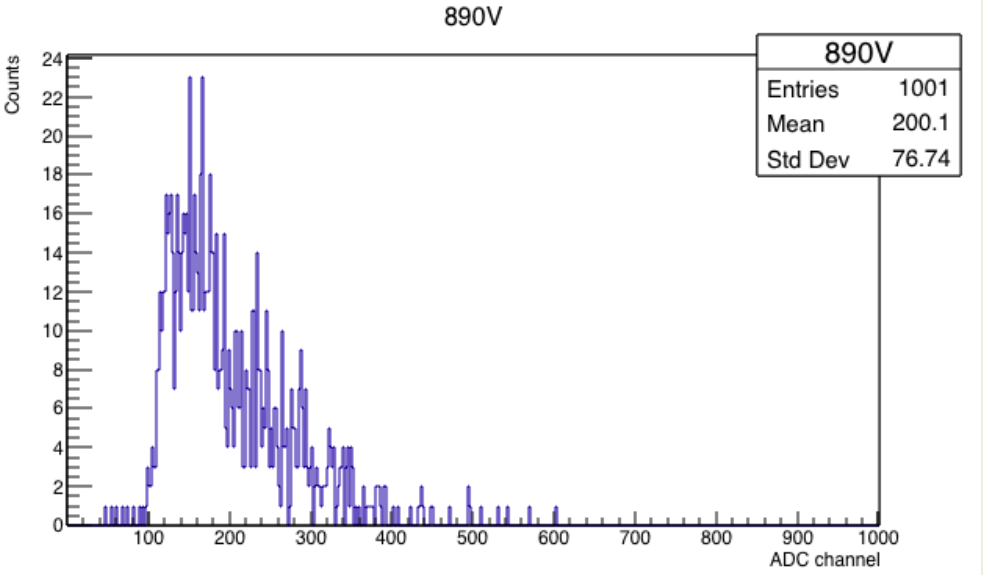
Vertical axis :count
Horizontal axis:ADCch

ΔV_GEM:910V

Under this condition, it was discharged 5 -9 times in 10 minutes.
However, discharge trace did not appear on the surface of the GEM after measurement

I think that the portion that draws the tail is due to noise.





We experimented with or without 55Fe.

with 55Fe source

1000counts (1620sec)

without 55Fe source

1000counts (1900sec)

Even when 55Fe were not placed, similar charge distribution was obtained

Since the count rate is slightly faster and the charge distribution is slightly different, it is certain that the charge is amplified by GEM, but there is too much noise and it is buried.

Summary

- Measurement was performed using LTCC GEM to obtain charge distribution
- However, there are still many noises, and gain can not be obtained
- Improvement to reduce noise

Question for using LTCCGEM

・Does GEM need aging?
（How long will the gain stabilize after voltage application）
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