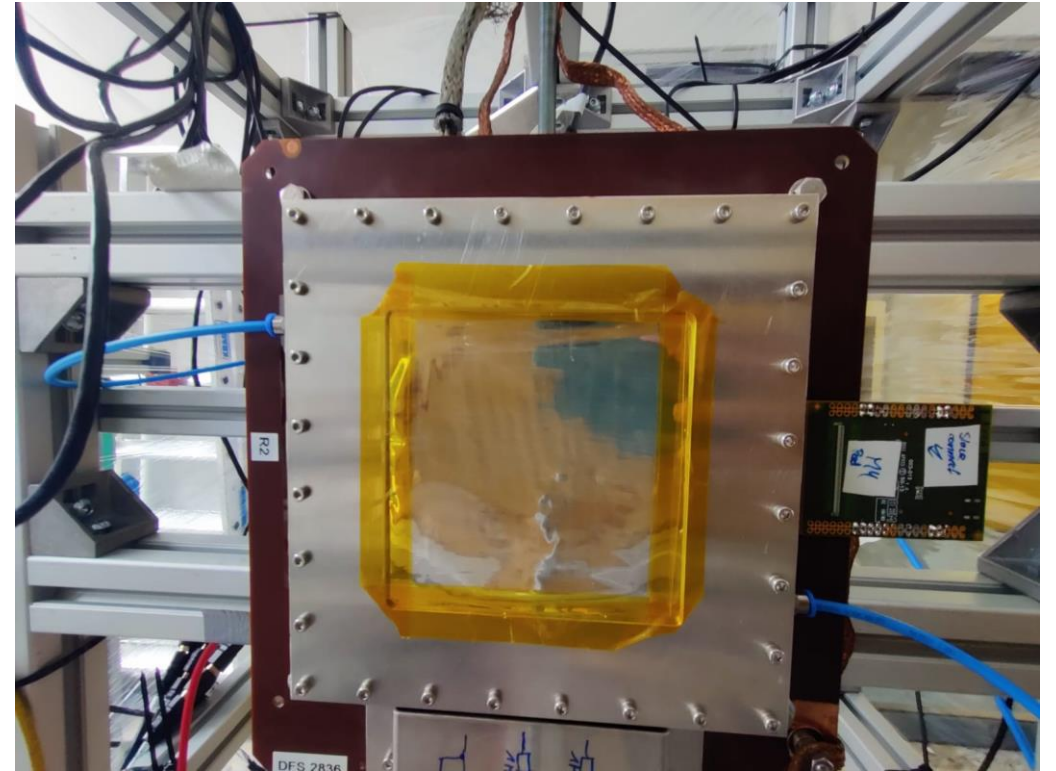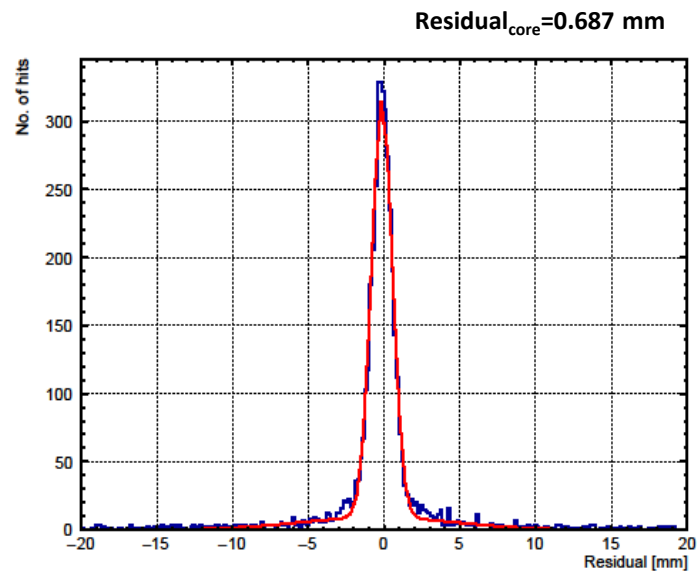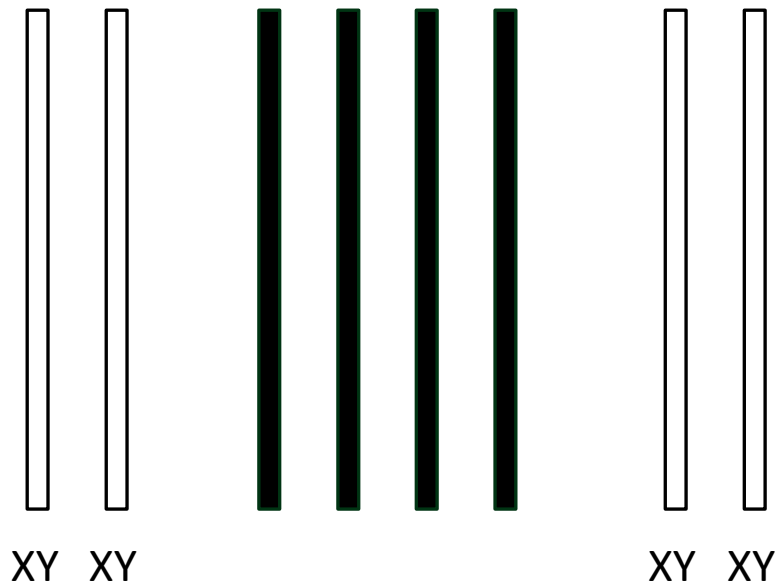# WEEKLY HARDWARE MEETING

ESHITA KUMAR

22.02.2024

# PAD DETECTOR: Recap

- Coarse and fine alignment of the reference detectors to be done

- Alignment of the pixel detector to the ref. detectors still to be done. Residuals should improve with this.
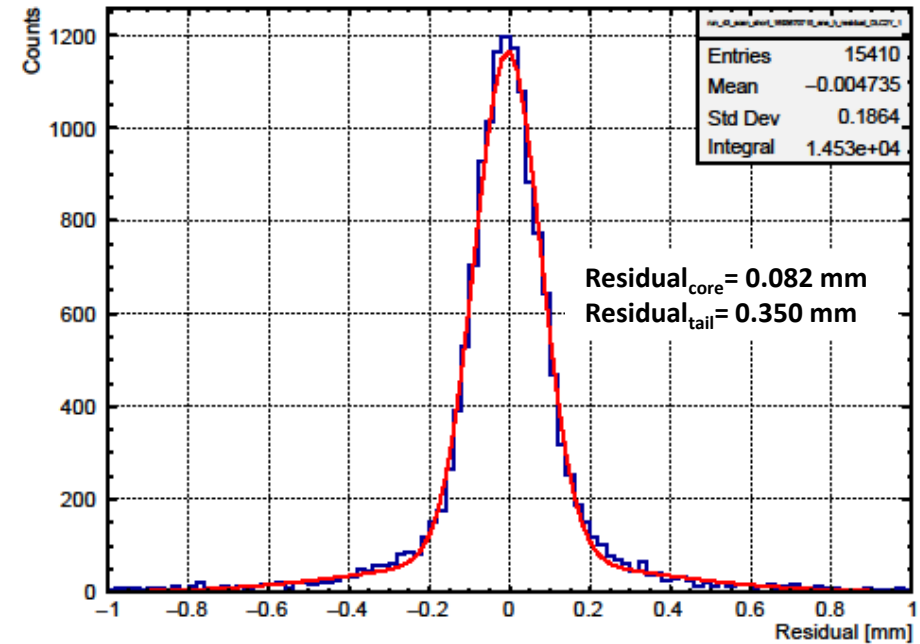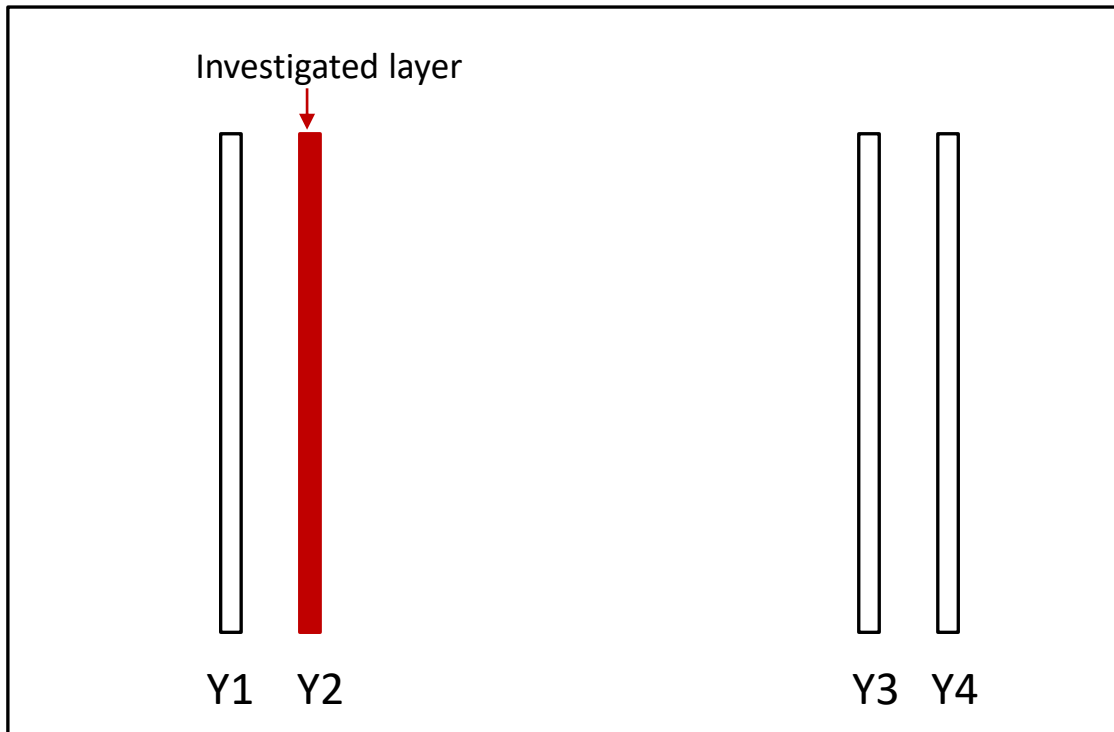


Residual$_{core}$=0.687 mm

# Alignment of Reference Detectors

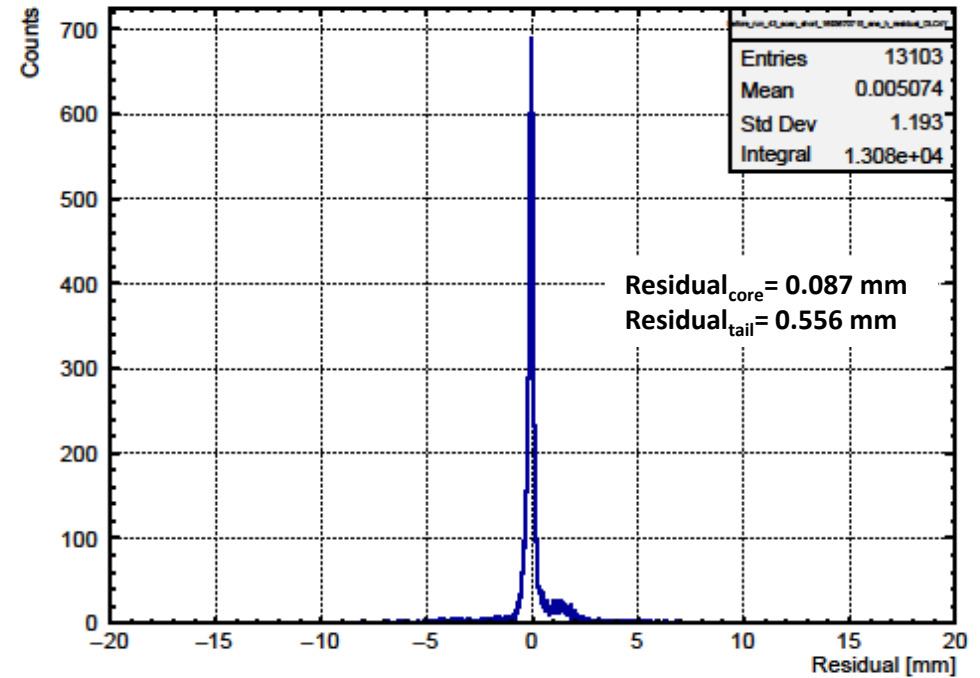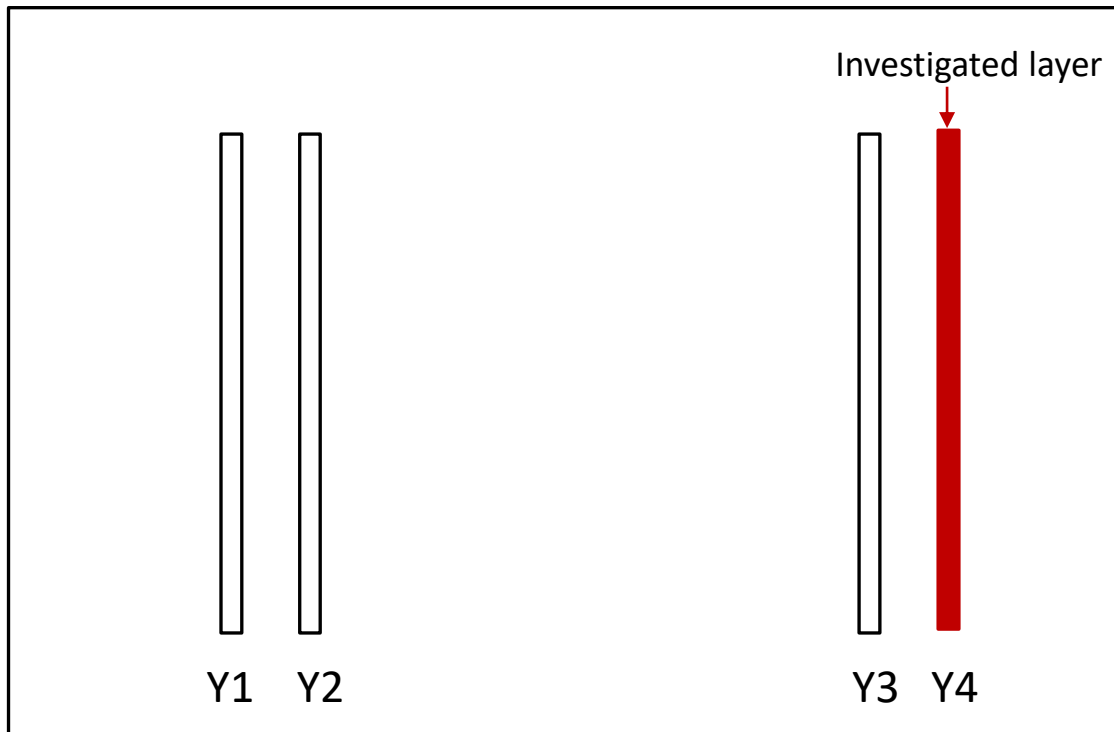XY  XY                              XY  XY

- Coarse alignment was performed: Aligned two layers before the detector to themselves and the same for the two layers after the detector

- Currently for this talk: investigating only Y layers for the fine alignment
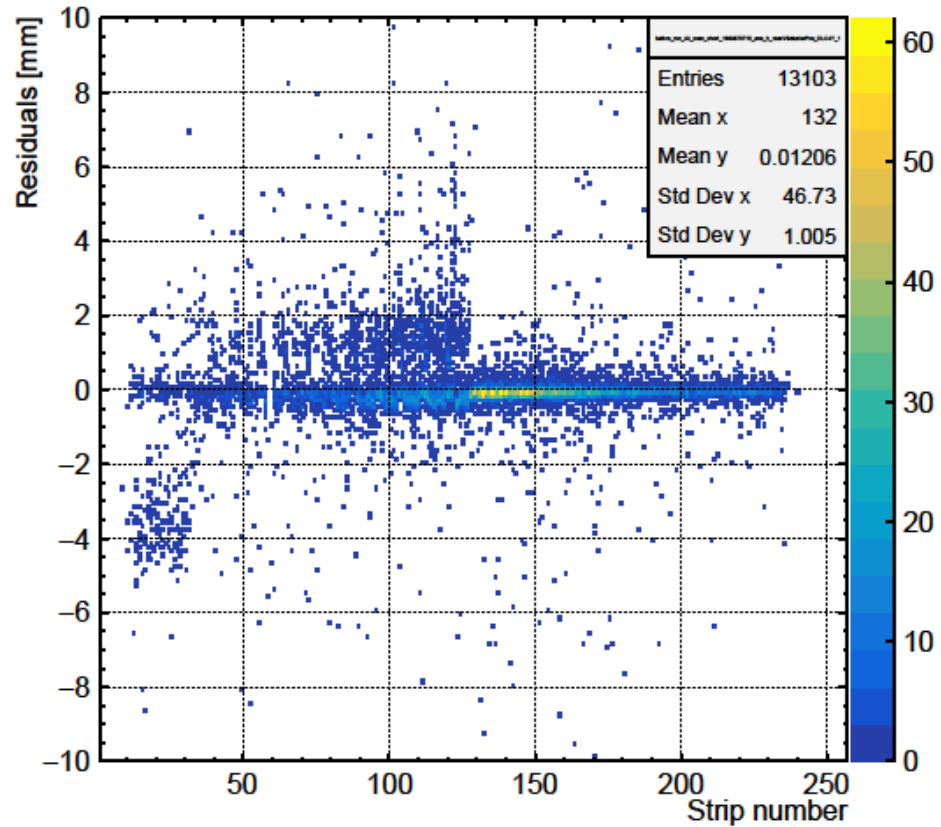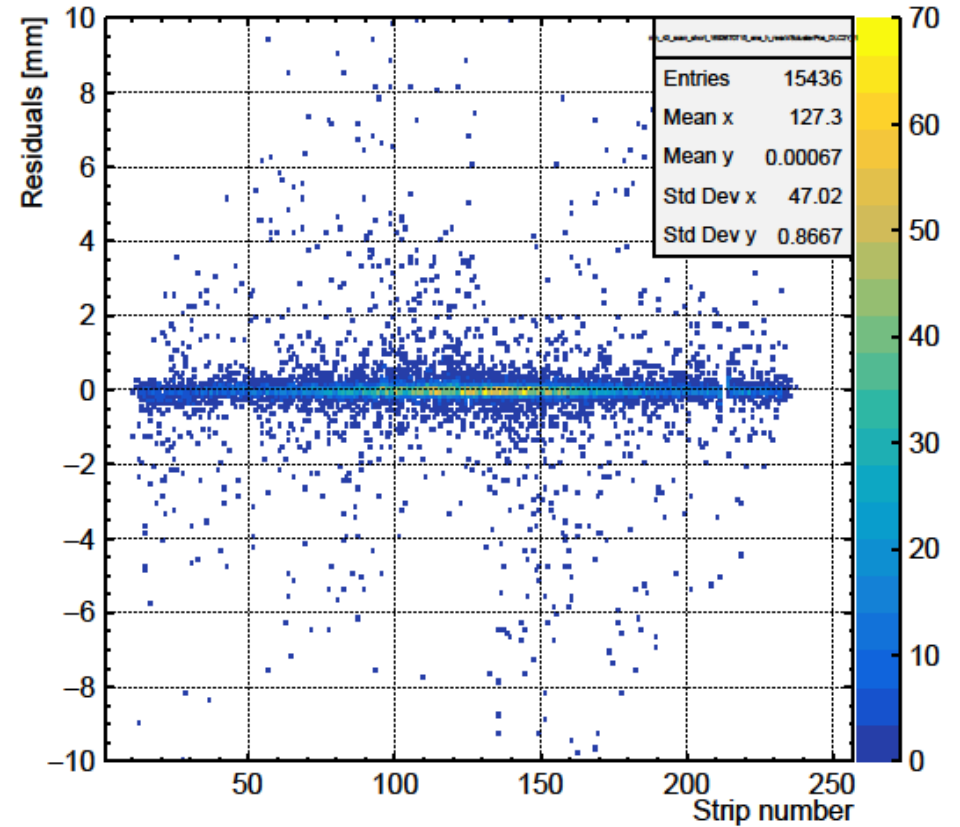
# Alignment of Reference Detectors



Investigated layer

Y1  Y2                    Y3  Y4

Residual$_{core}$= 0.082 mm
Residual$_{tail}$= 0.350 mm

| Entries | 15410 |
|---|---|
| Mean | −0.004735 |
| Std Dev | 0.1864 |
| Integral | 1.453e+04 |

# Alignment of Reference Detectors

# Residuals vs Position in layer Y4

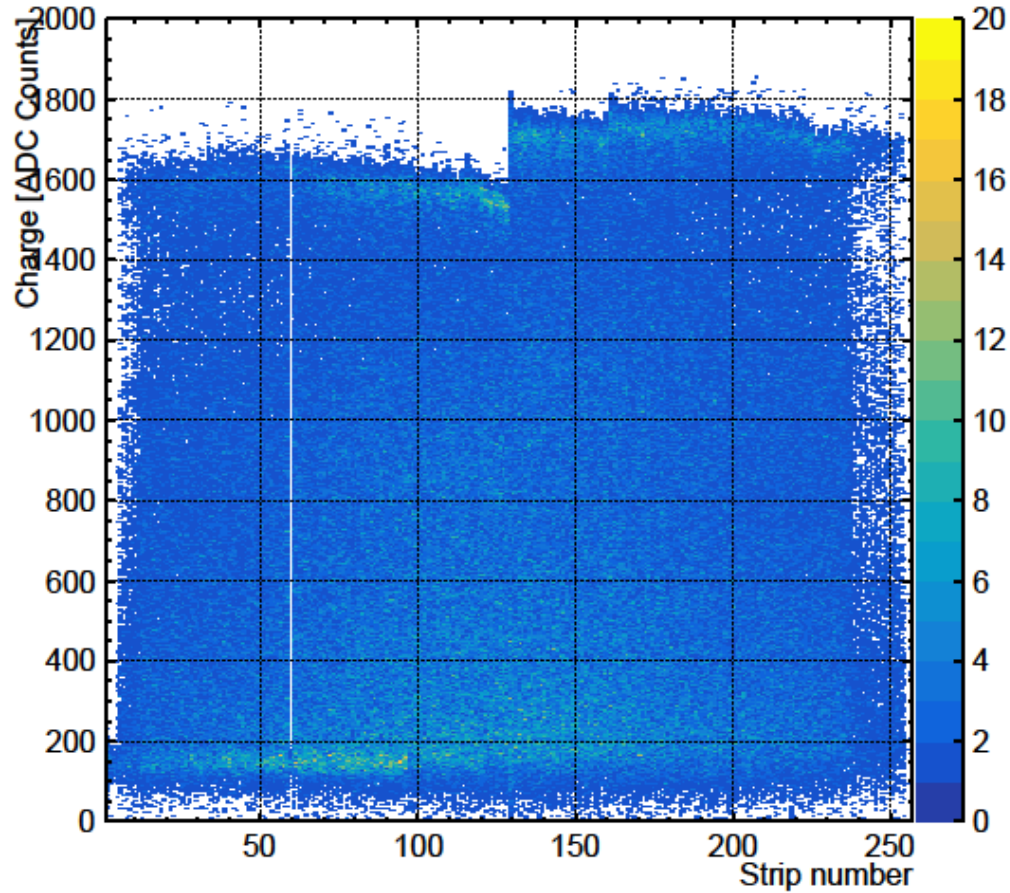Residuals vs cluster position of Y4

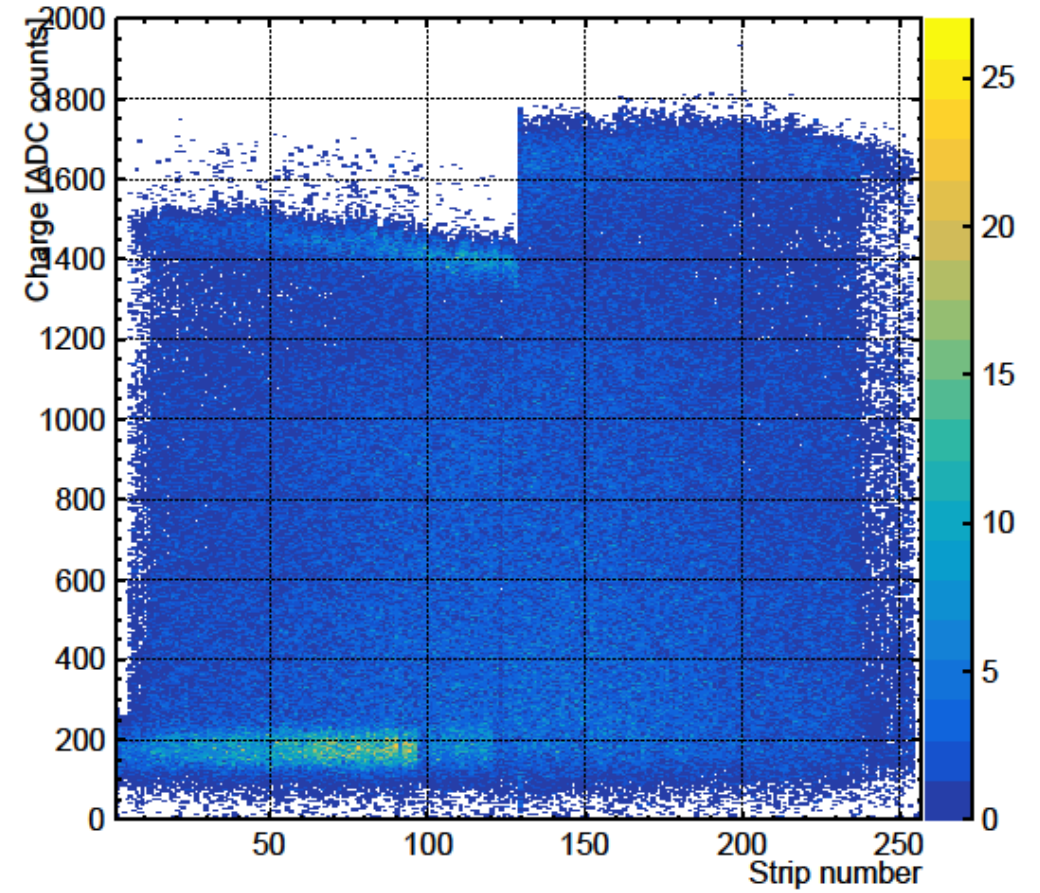Residuals vs cluster position of Y2

# APV Charge Issues:

- This behaviour is observed only in DLC3Y and DLC4Y
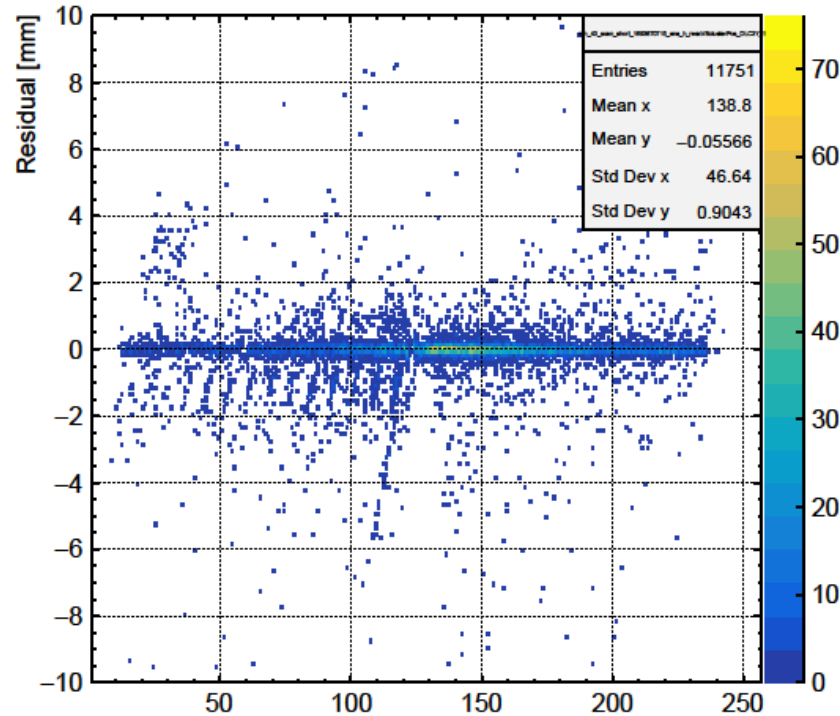
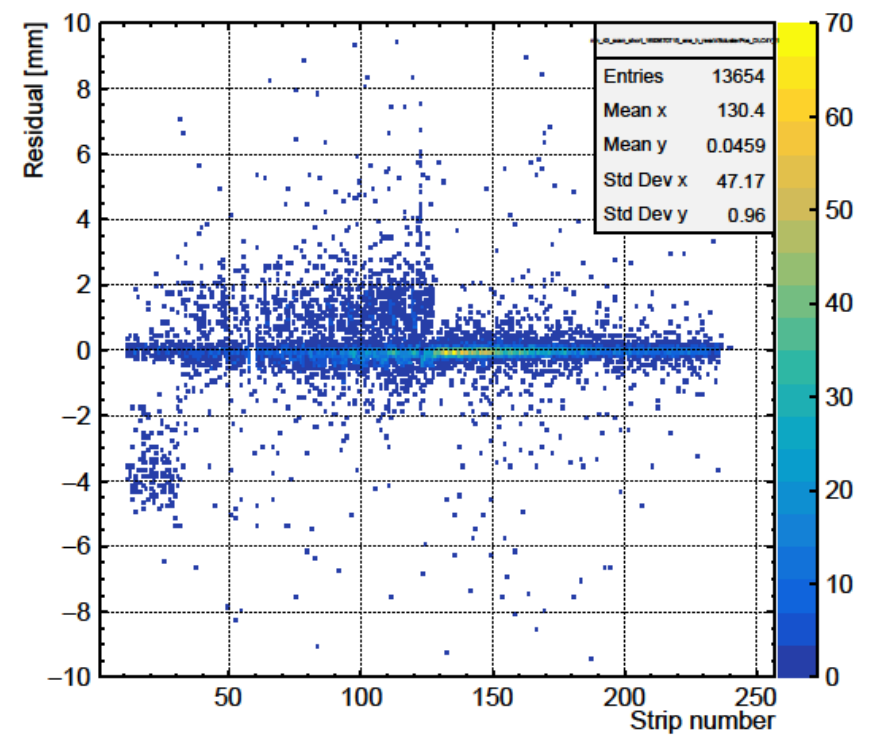Charge vs Strip: Layer 4Y

Charge vs Strip: Layer 3Y

# POSSIBLE REASON:

- Possibly the fitting parameters of the strip signals need to be fine-tuned and is fitting to the wrong charge height resulting in this shift
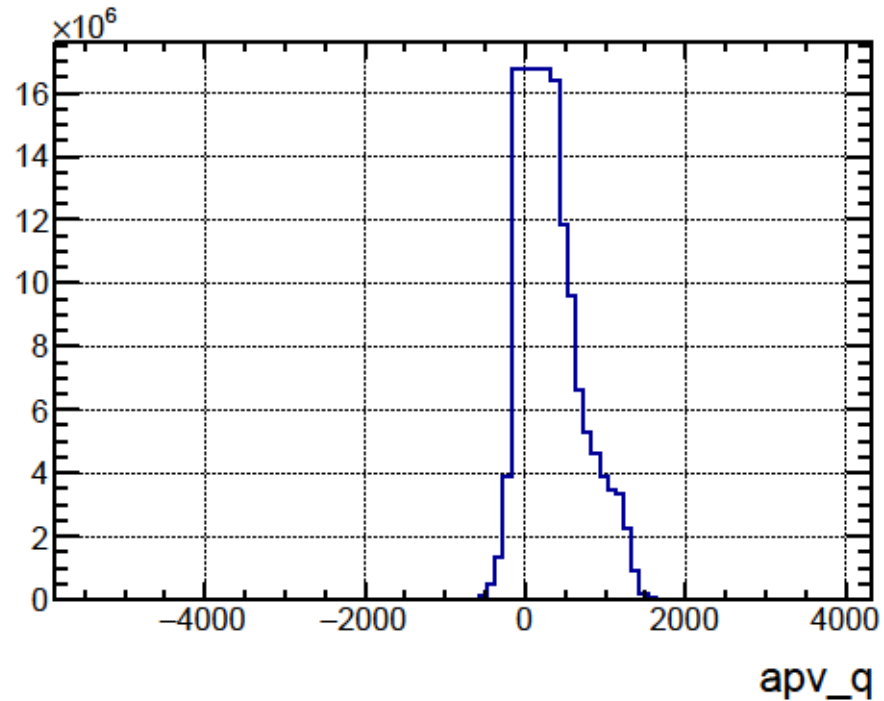
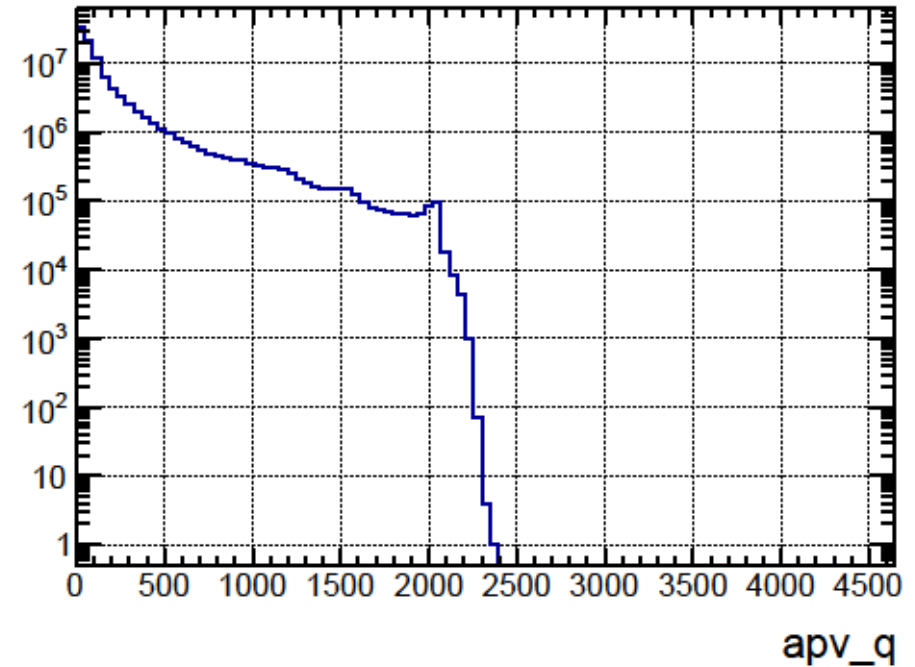Residuals vs cluster position of Y3          Residuals vs cluster position of Y4

# INTERESTING OBSERVATION:
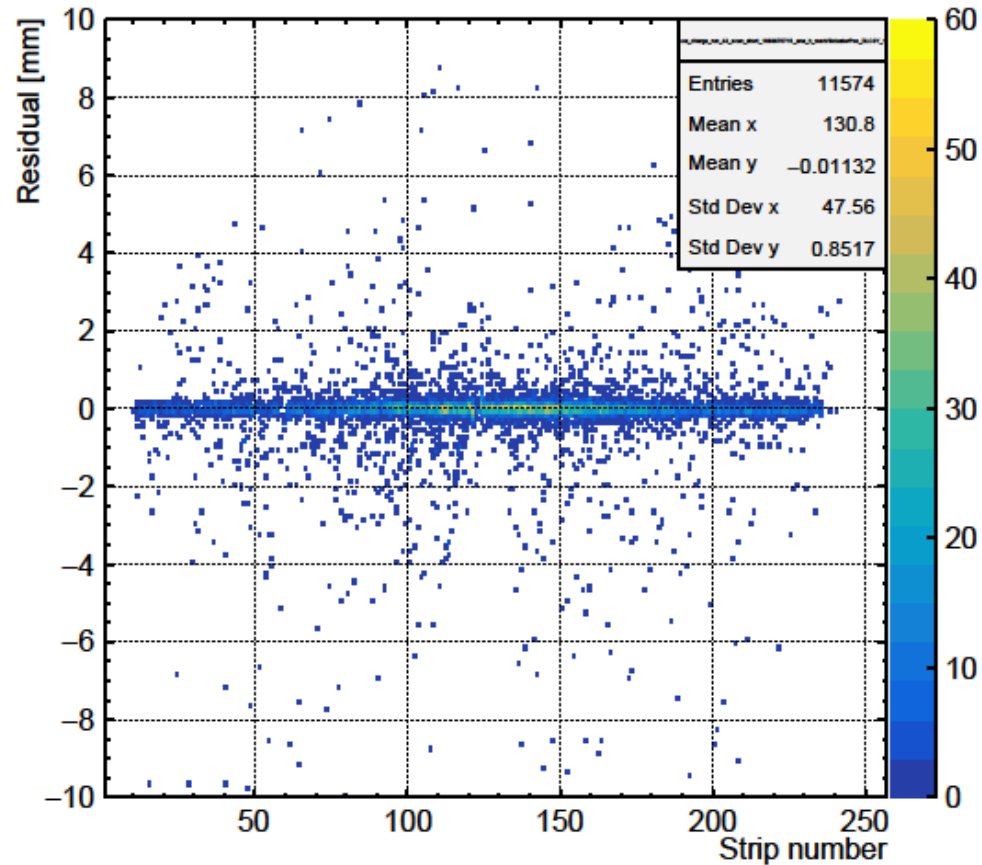
Standard APV charge distribution

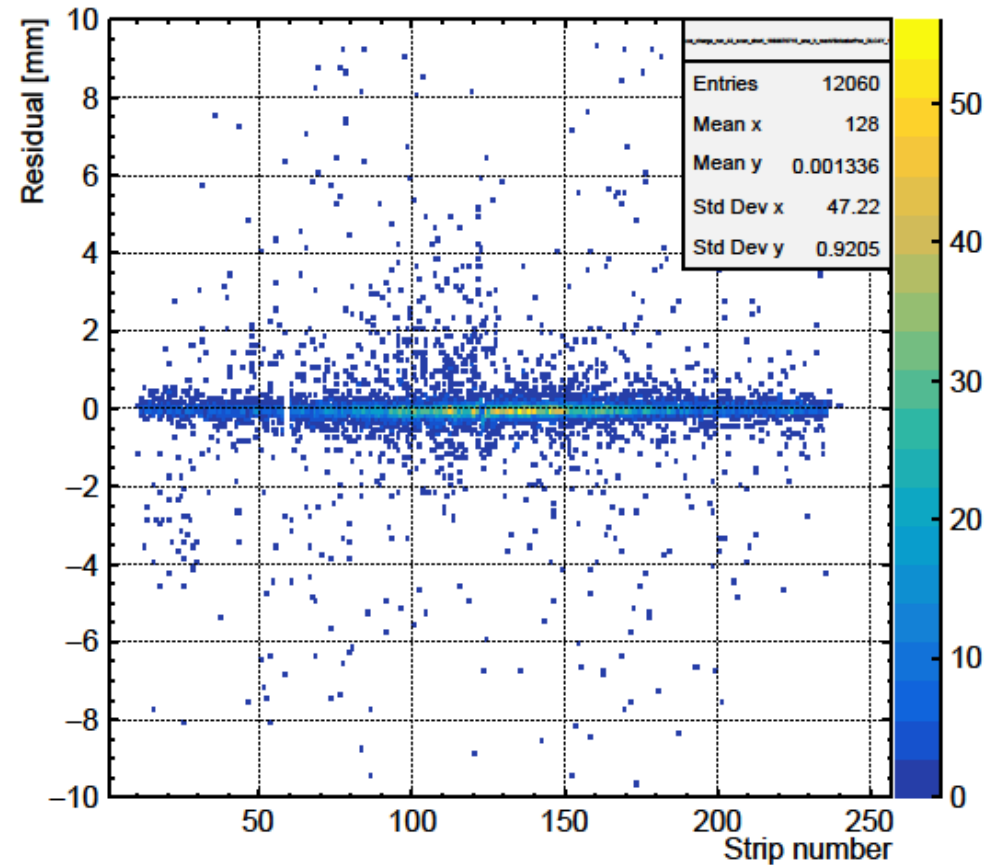APV charge distribution for these measurements (**y in log scale**)

# New Residuals without modified charges
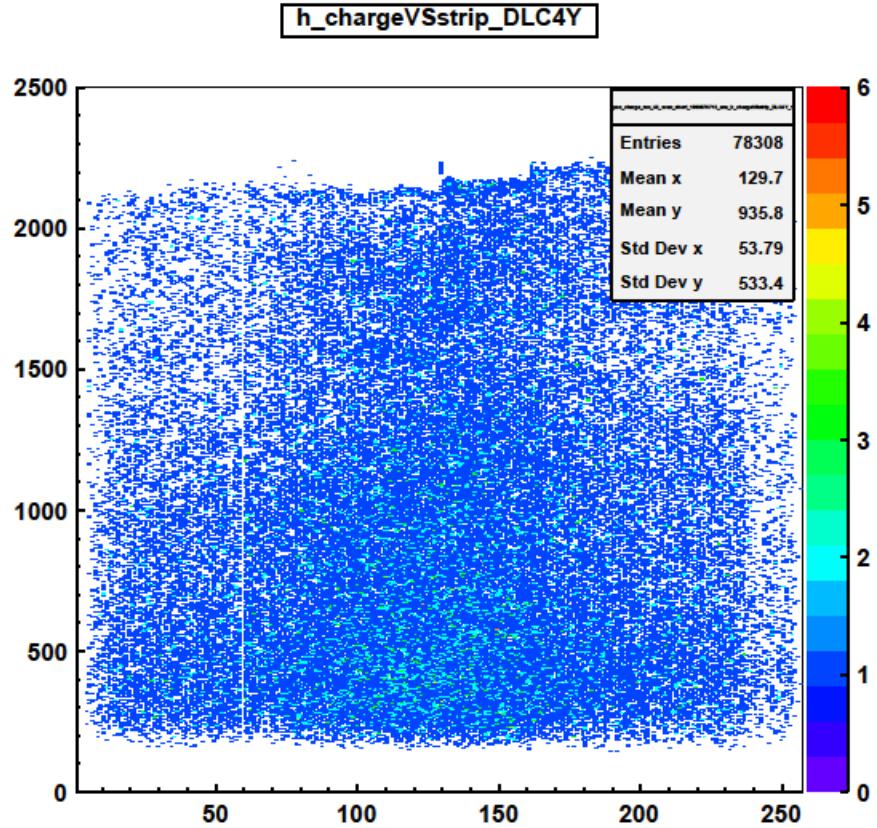
Residuals vs cluster position of Y3

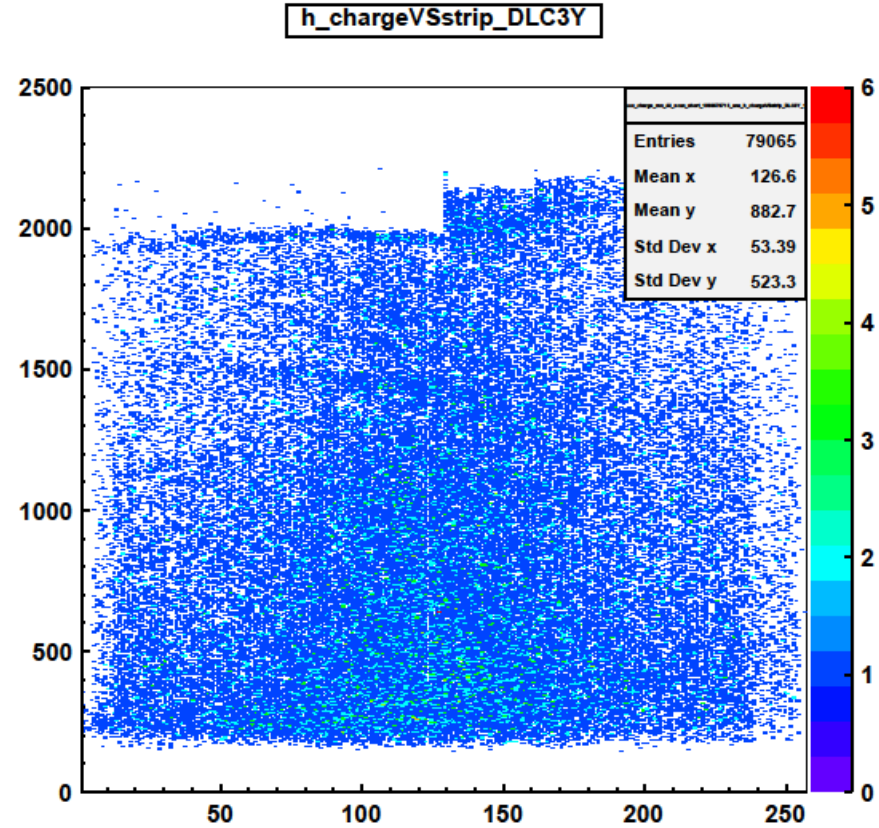Residuals vs cluster position of Y4

# Backup:

Charge vs Strip: Layer 4Y

Charge vs Strip: Layer 3Y