

Hardware Meeting 09.10.2024

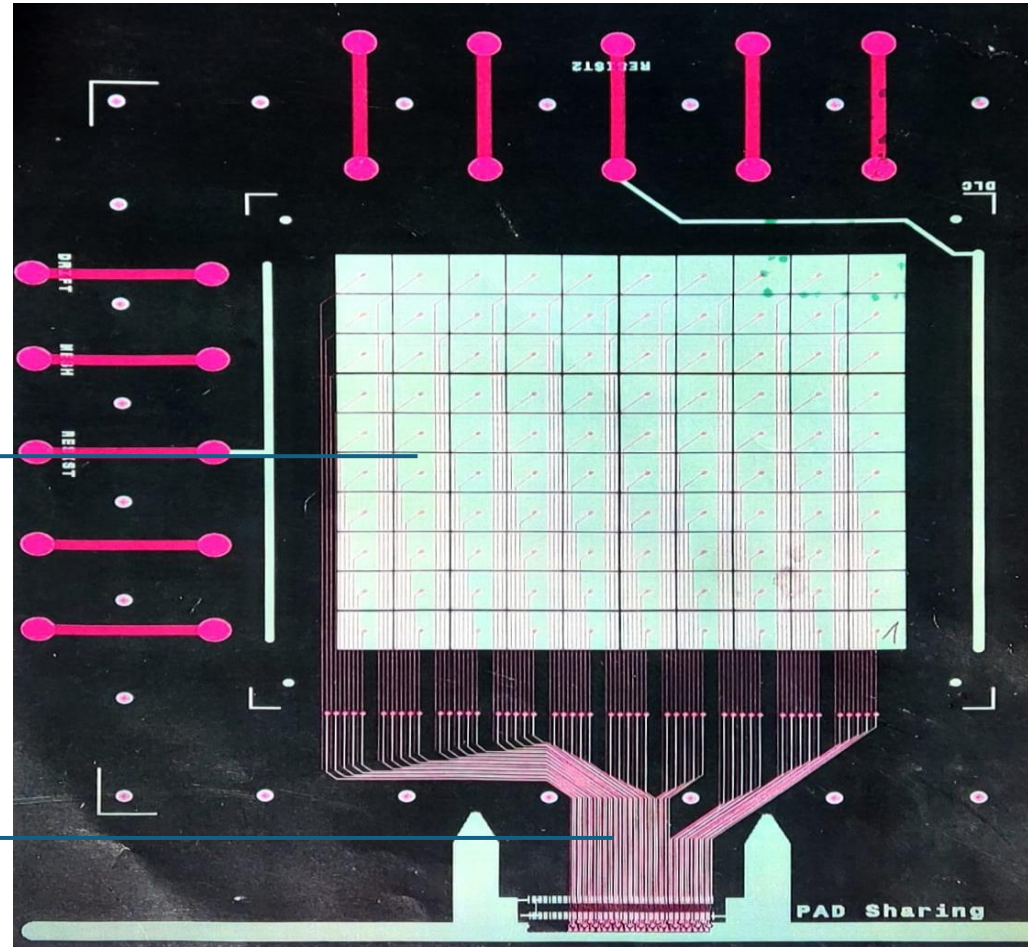
- Investigation of PAD Detectors.

- Reduced read out channels and consequently lower number of electronics compared to conventional MicroMeGas.

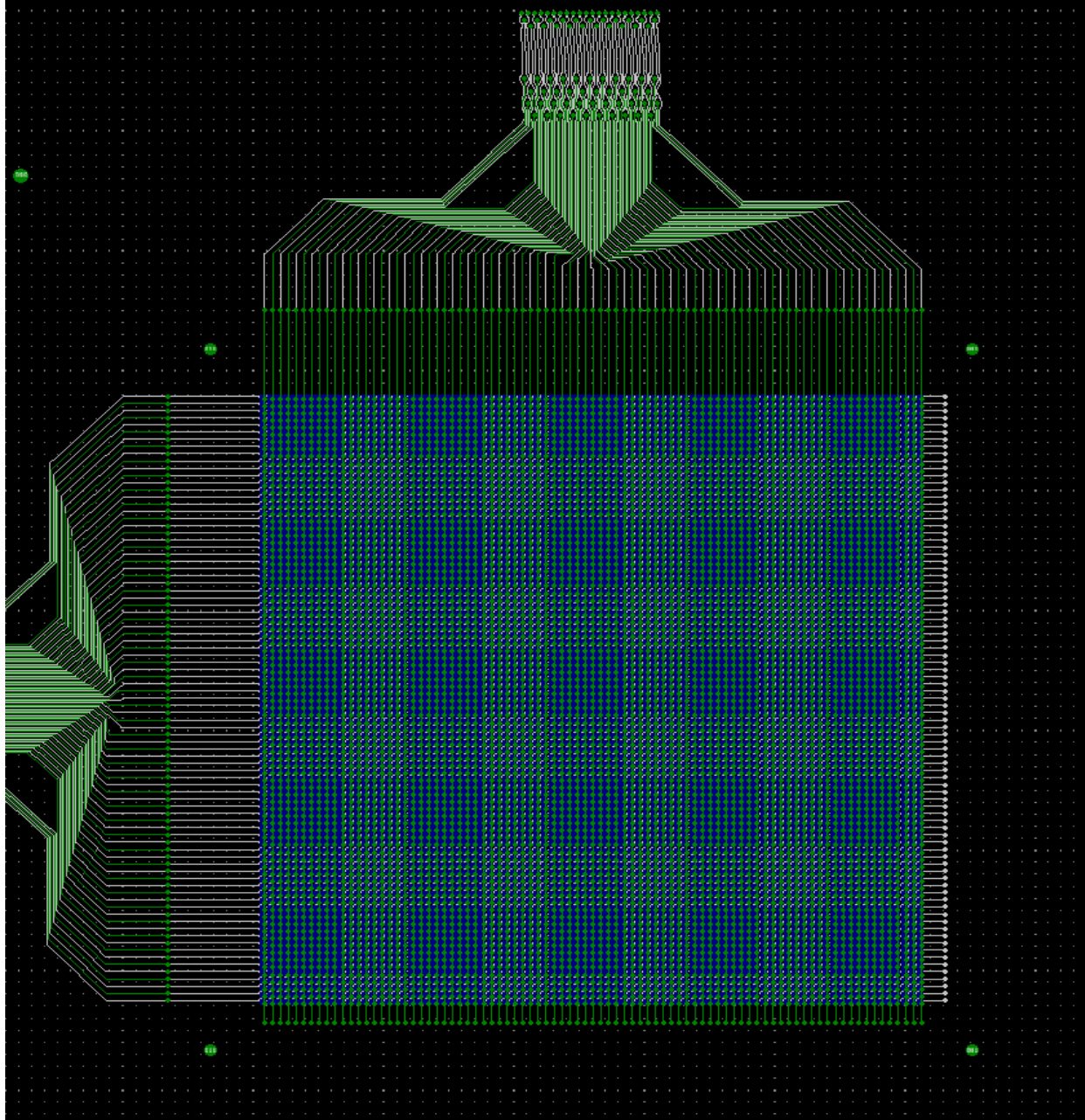
PAD2: Old pad detector with 5 layers

10\*10 Pixels

100 channels connected to 1 APV

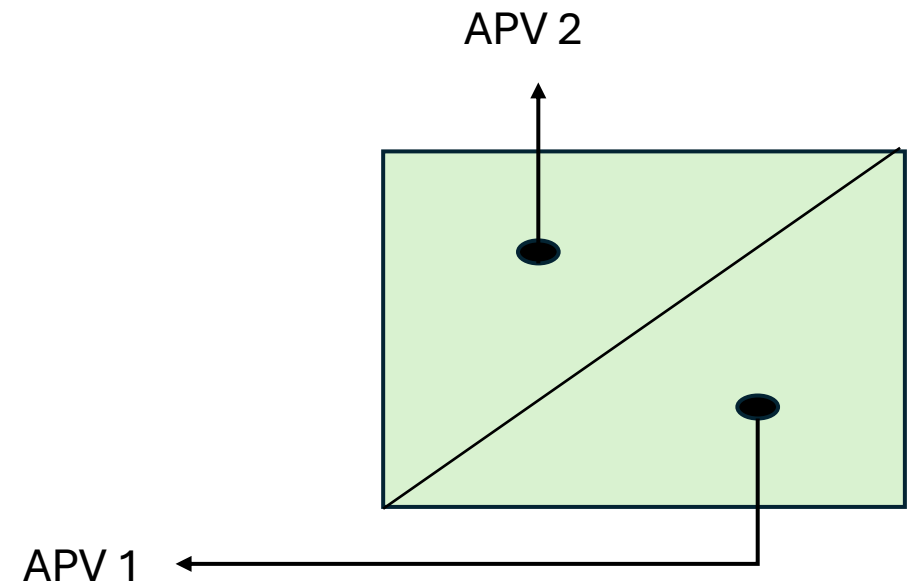


## PAD 1 Test:

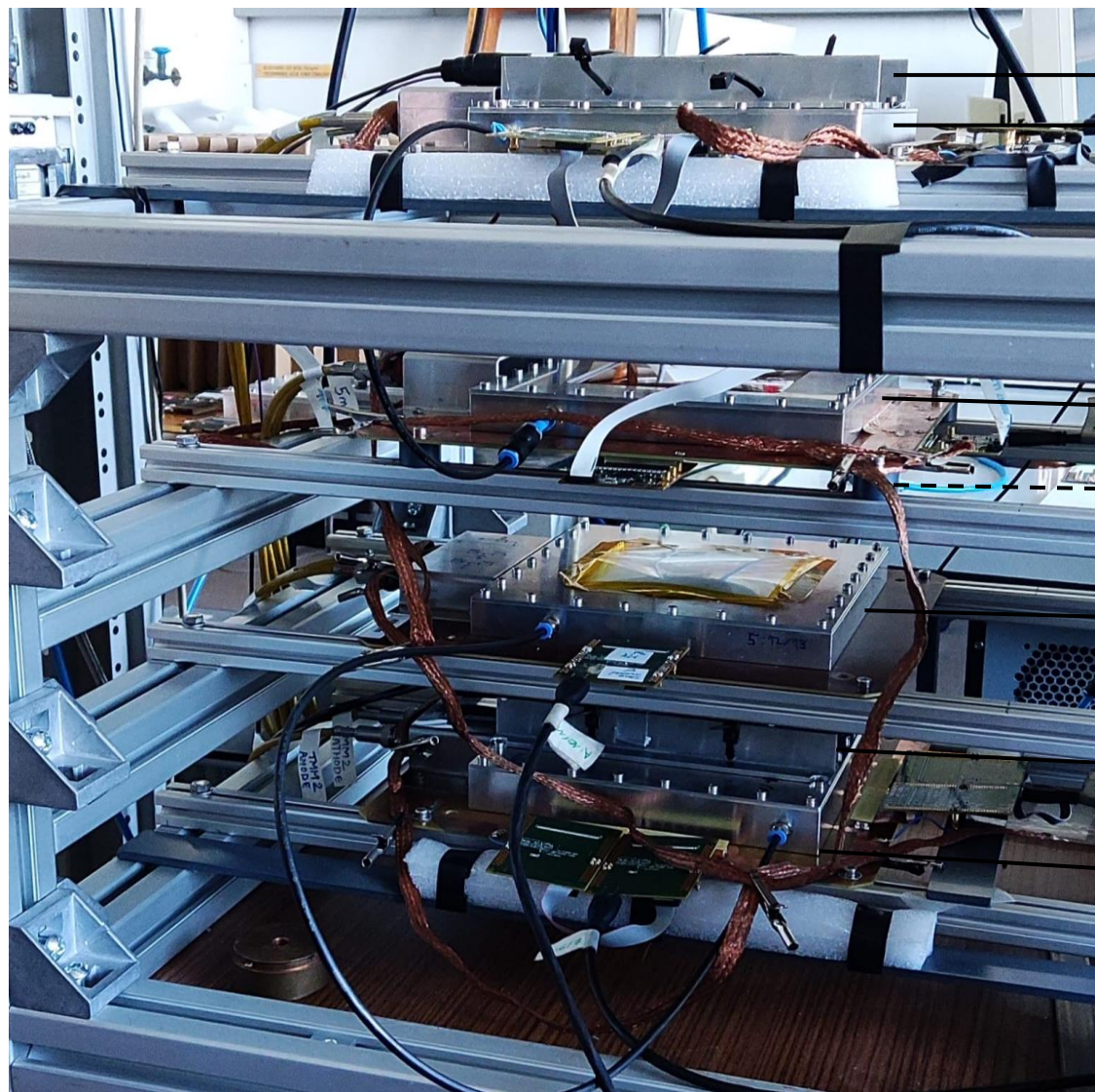


- Investigation of PAD 1:

- 3 layers
- 85\*85 pixels (3<sup>rd</sup> layer)
- 2 APV's
- Pitch 1.2mm (Outermost pixel layer )
- 170 channels
- Strip Like Behavior



# Telescope setup:



Scintillator 1

TMM 1

PAD 1

Bush

PAD 2

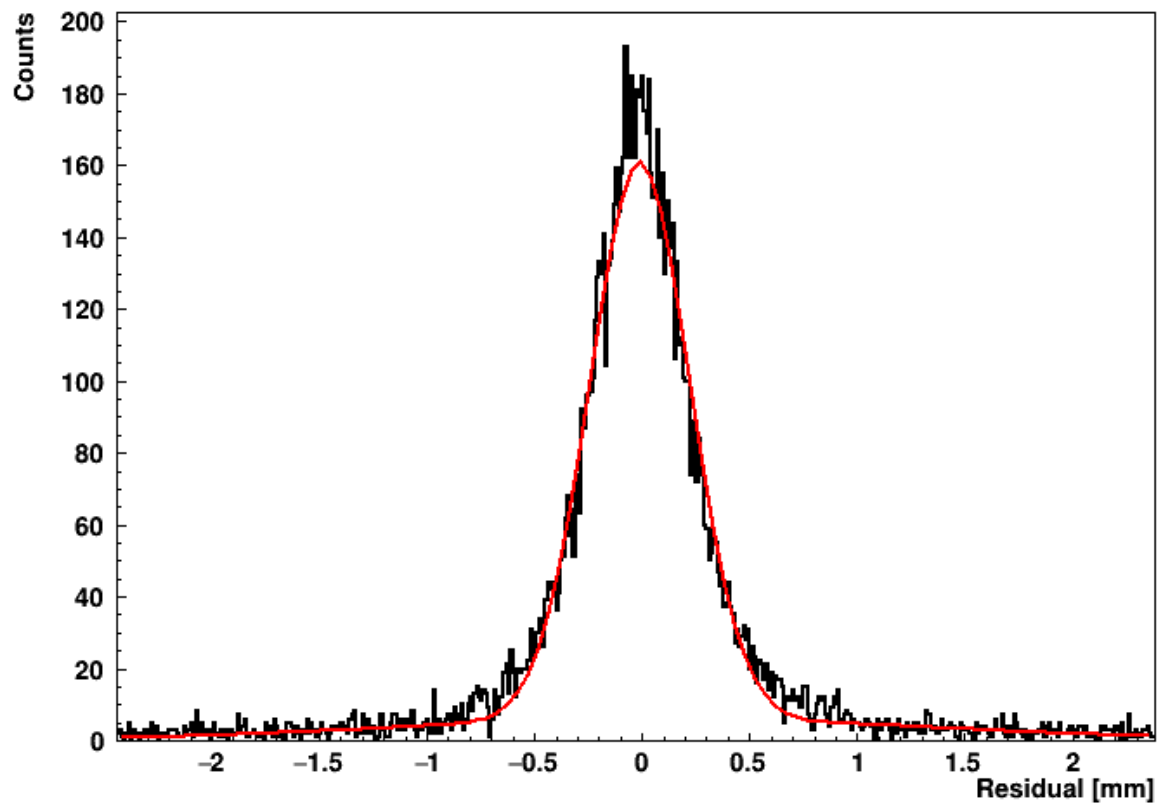
Scintillator 2

TMM 2

Residuals for PAD1:

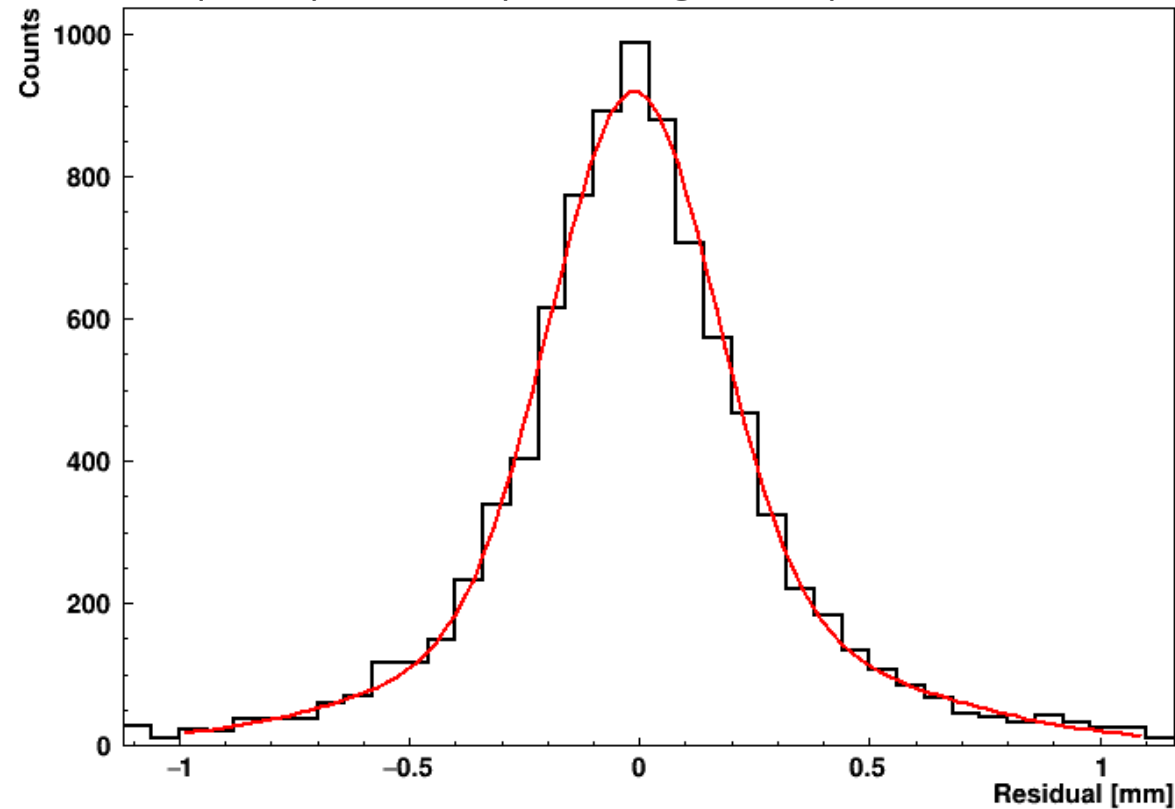
Data cut from  $-5^\circ$  to  $+5^\circ$

$\sigma$  (inner) = 0.235 (Before Alignment)



PAD1\_X Residuals

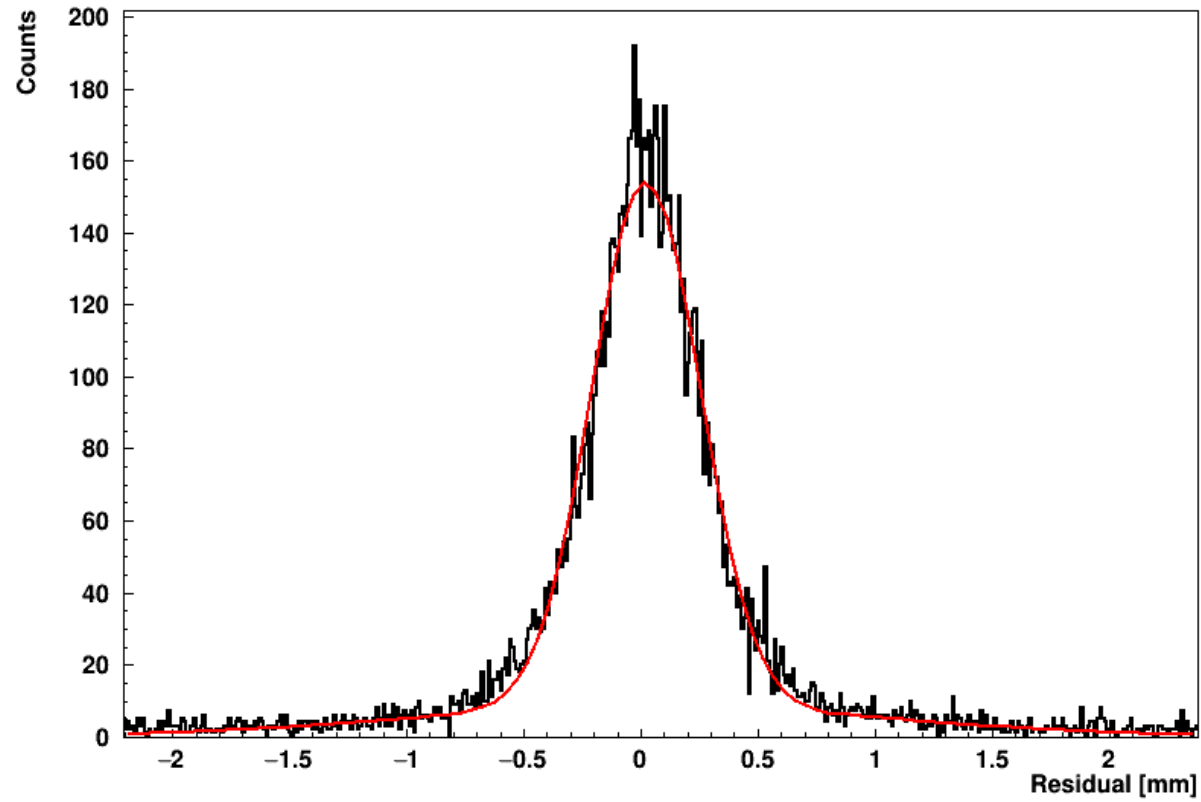
$\sigma$  (inner) = 0.170 (After Alignment)



PAD1\_X Residuals

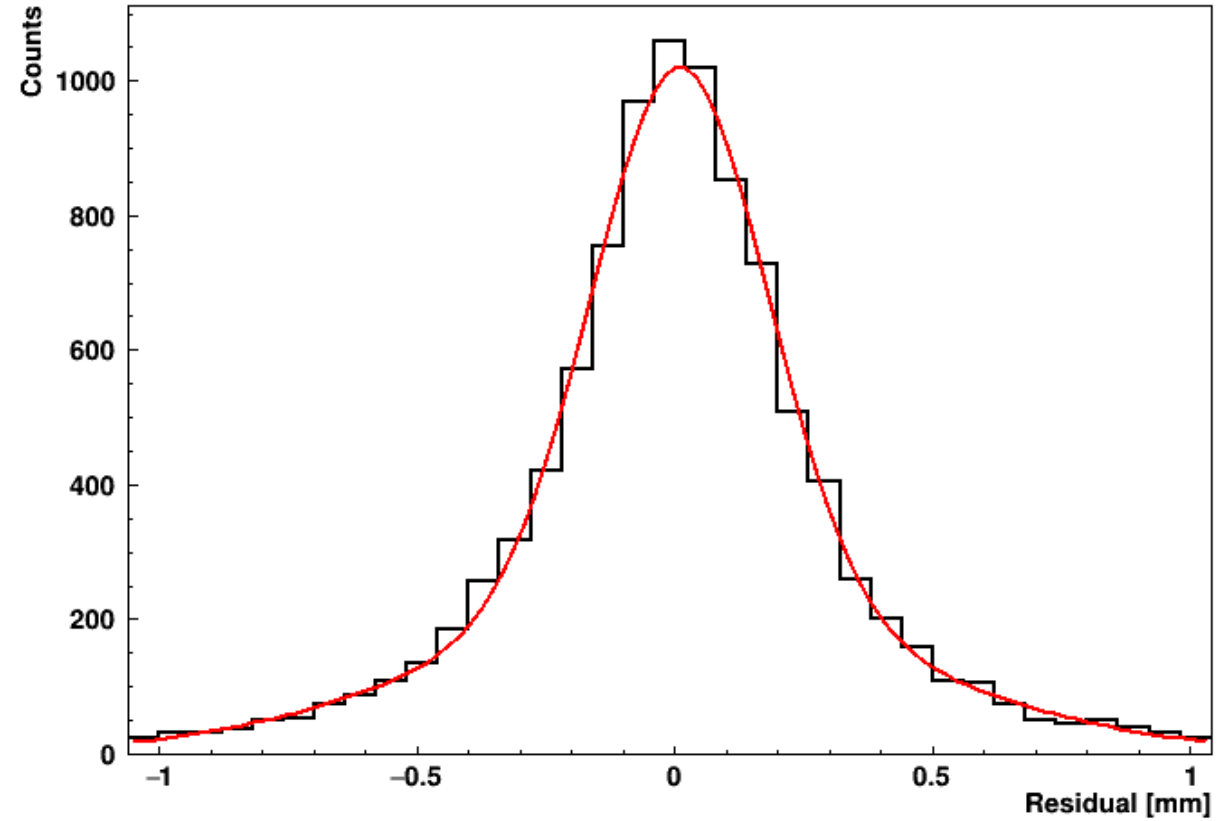
Data cut from  $-5^\circ$  to  $+5^\circ$

$\sigma$  (inner) = 0.232 (Before Alignment)



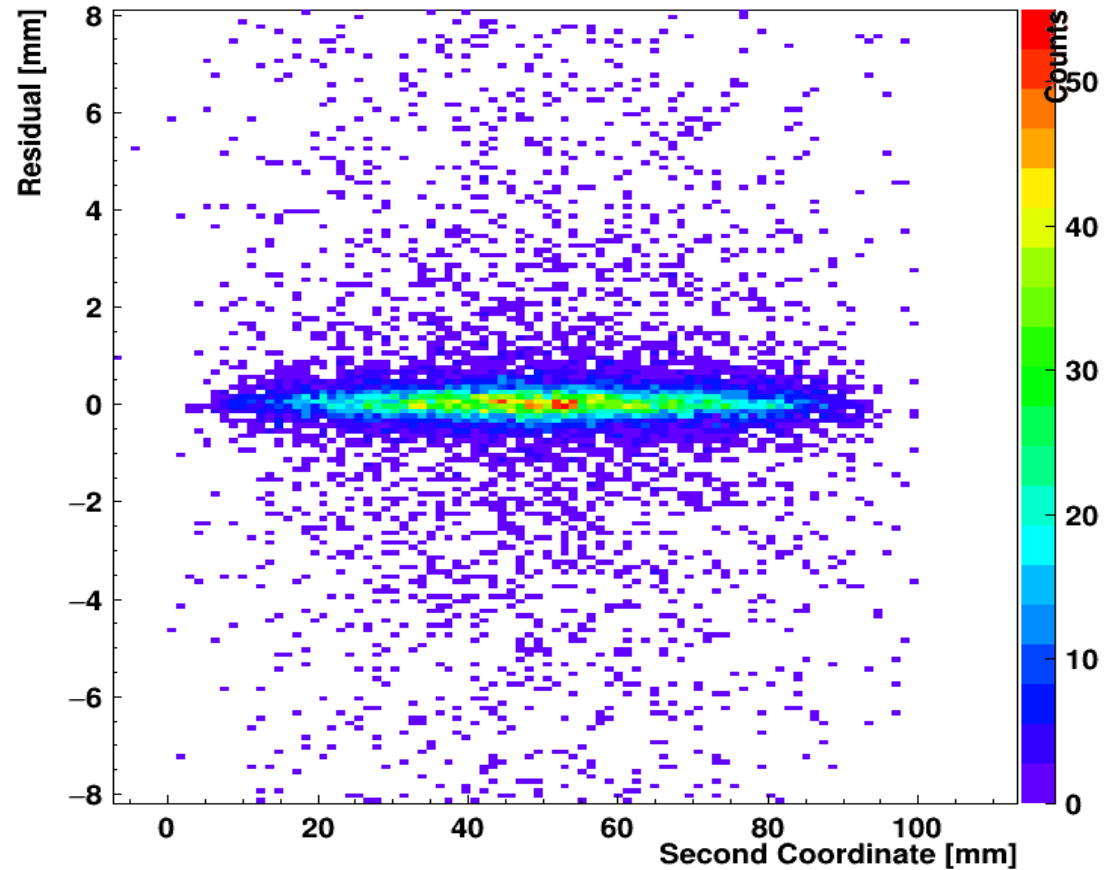
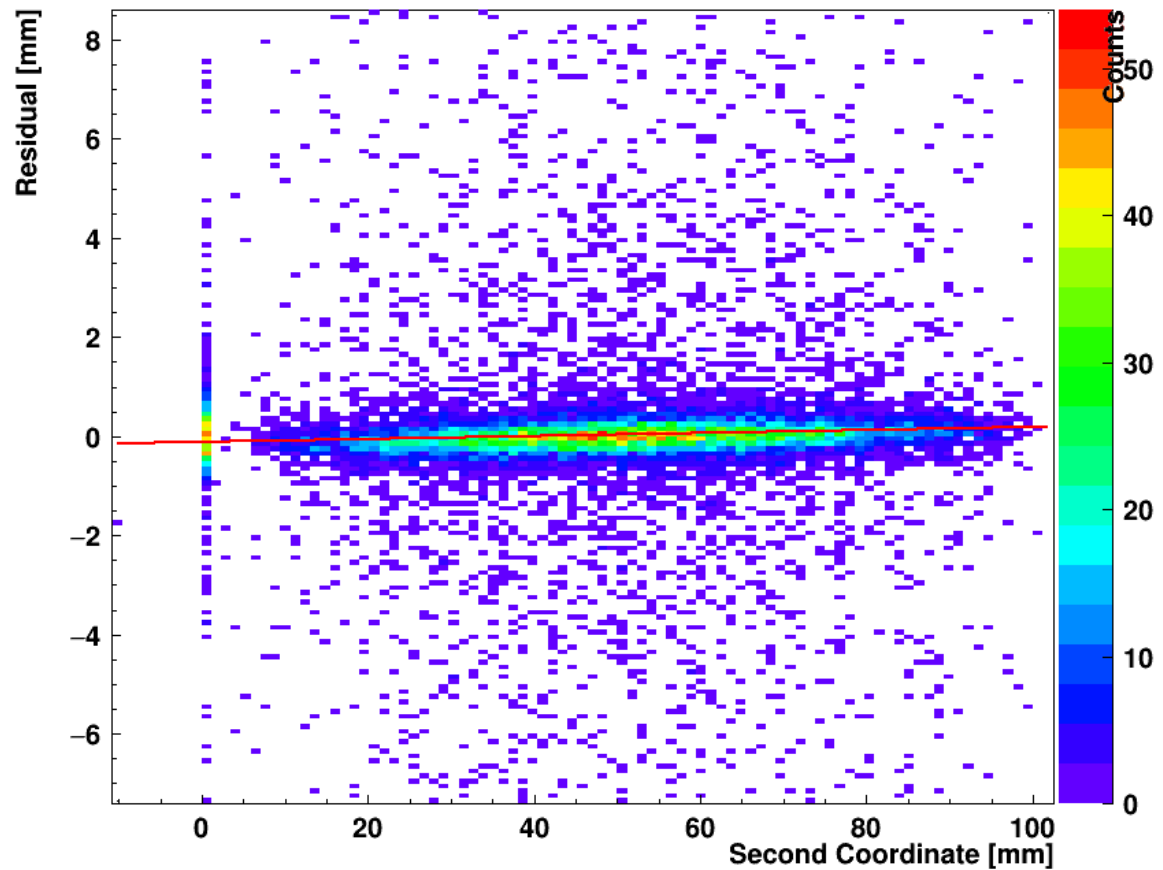
PAD1\_Y Residuals

$\sigma$  (inner) = 0.162 (After Alignment)



PAD1\_Y Residuals

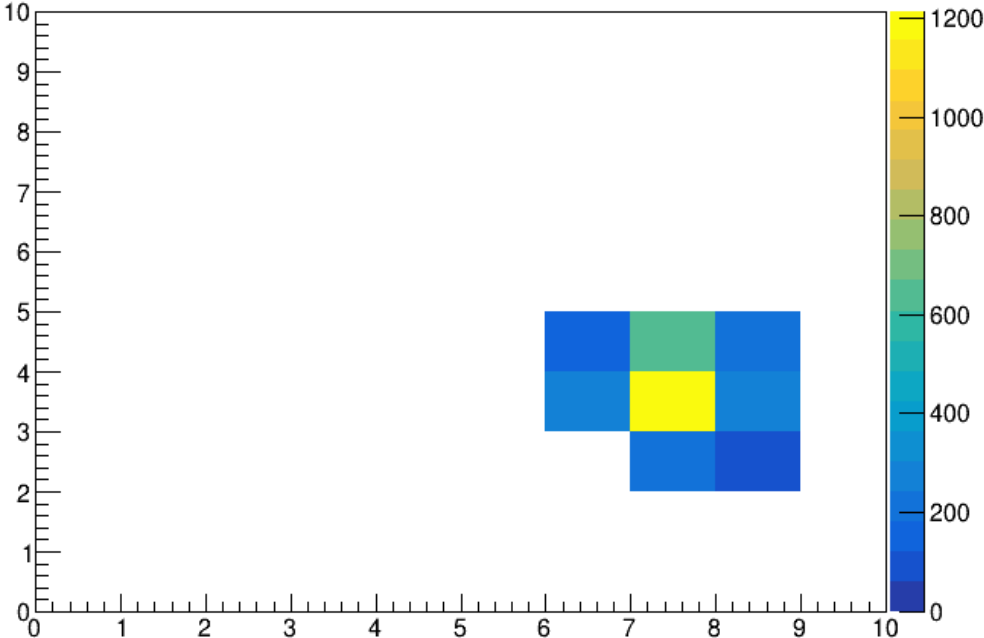
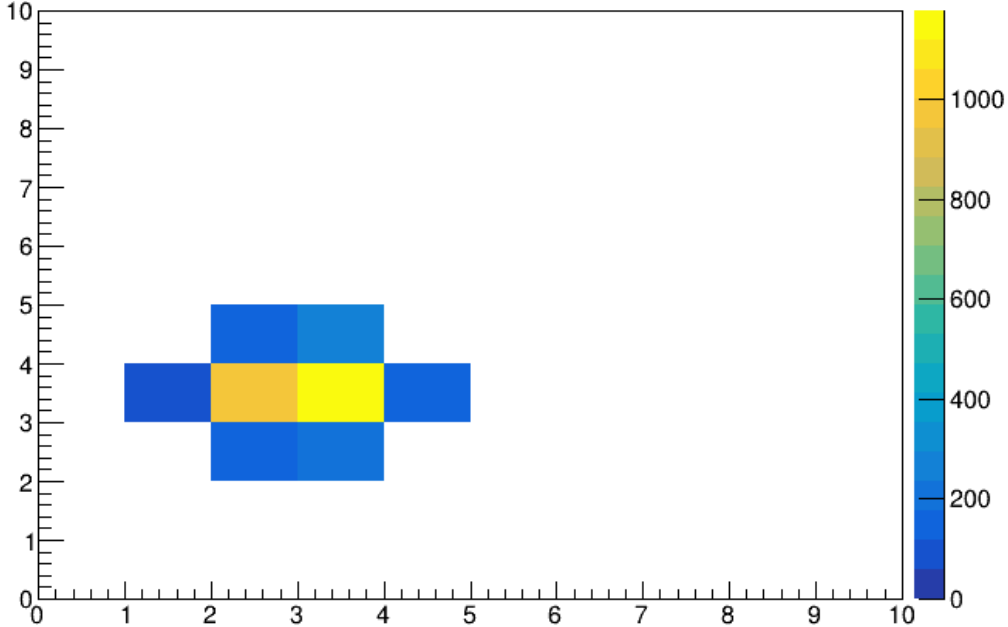
Artifact Removed:



PAD1\_X Residuals Vs Position Y

# What next ?

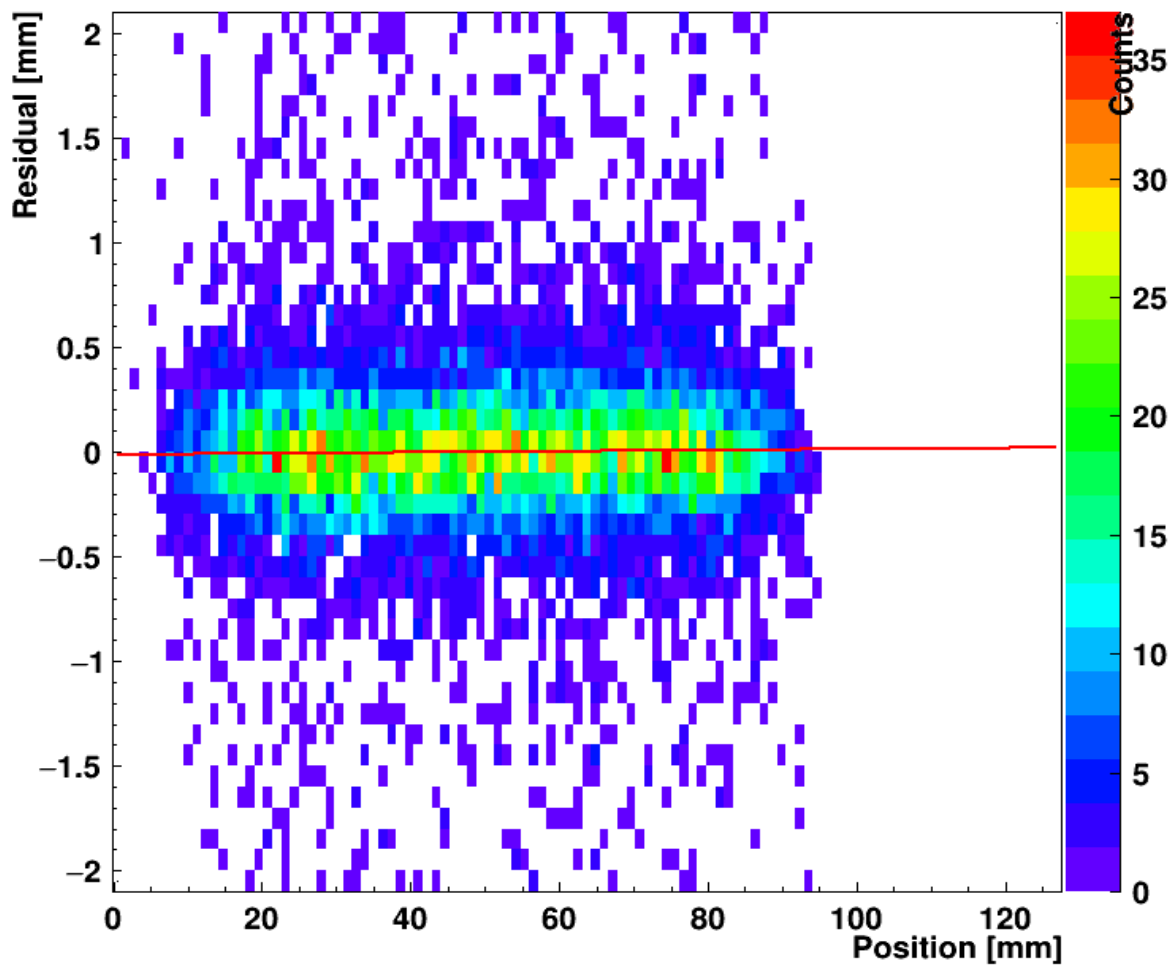
- Understanding charge sharing in the detector better through simulation and comparing it to detected events.



Sample events in PAD 2 (OLD)

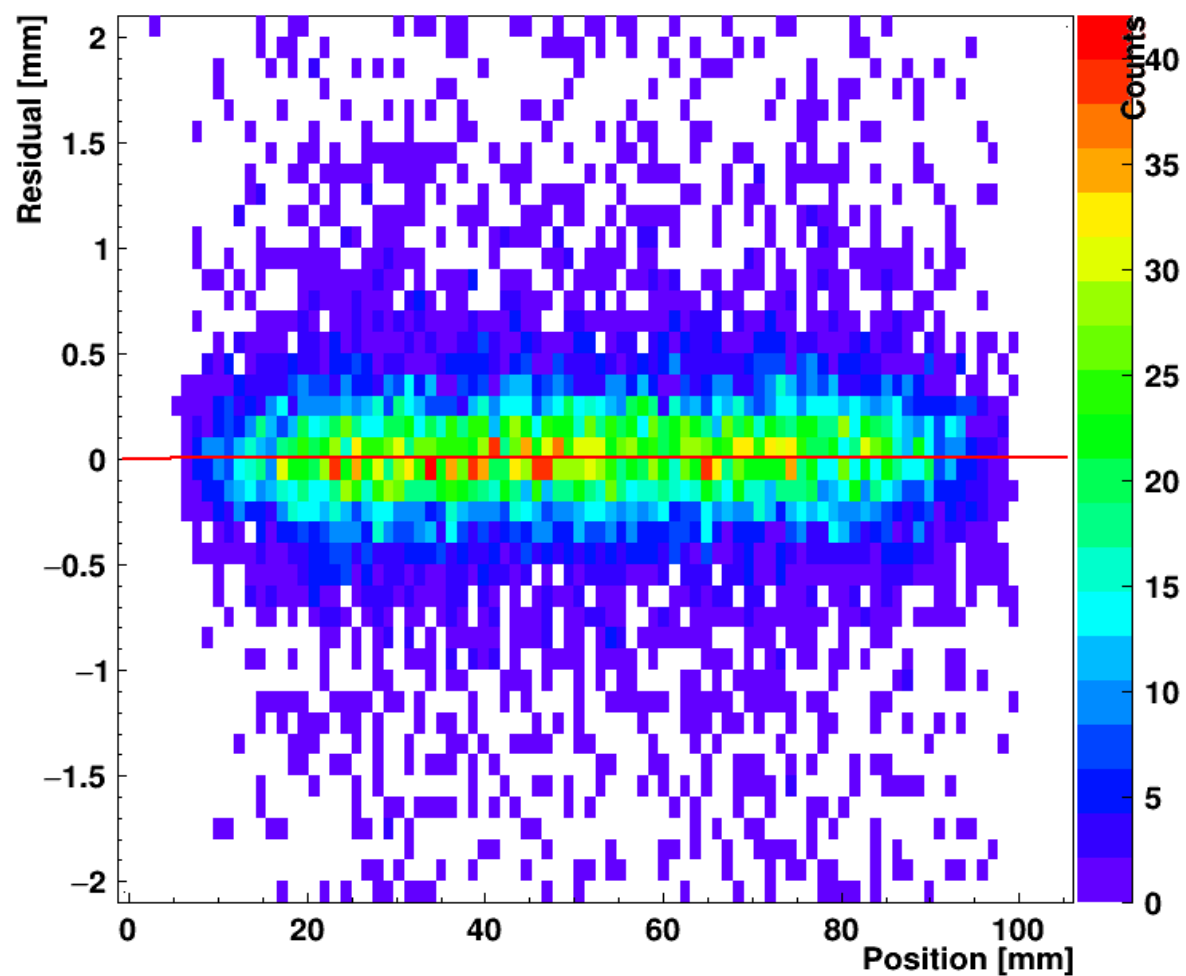


slope = 0.00026



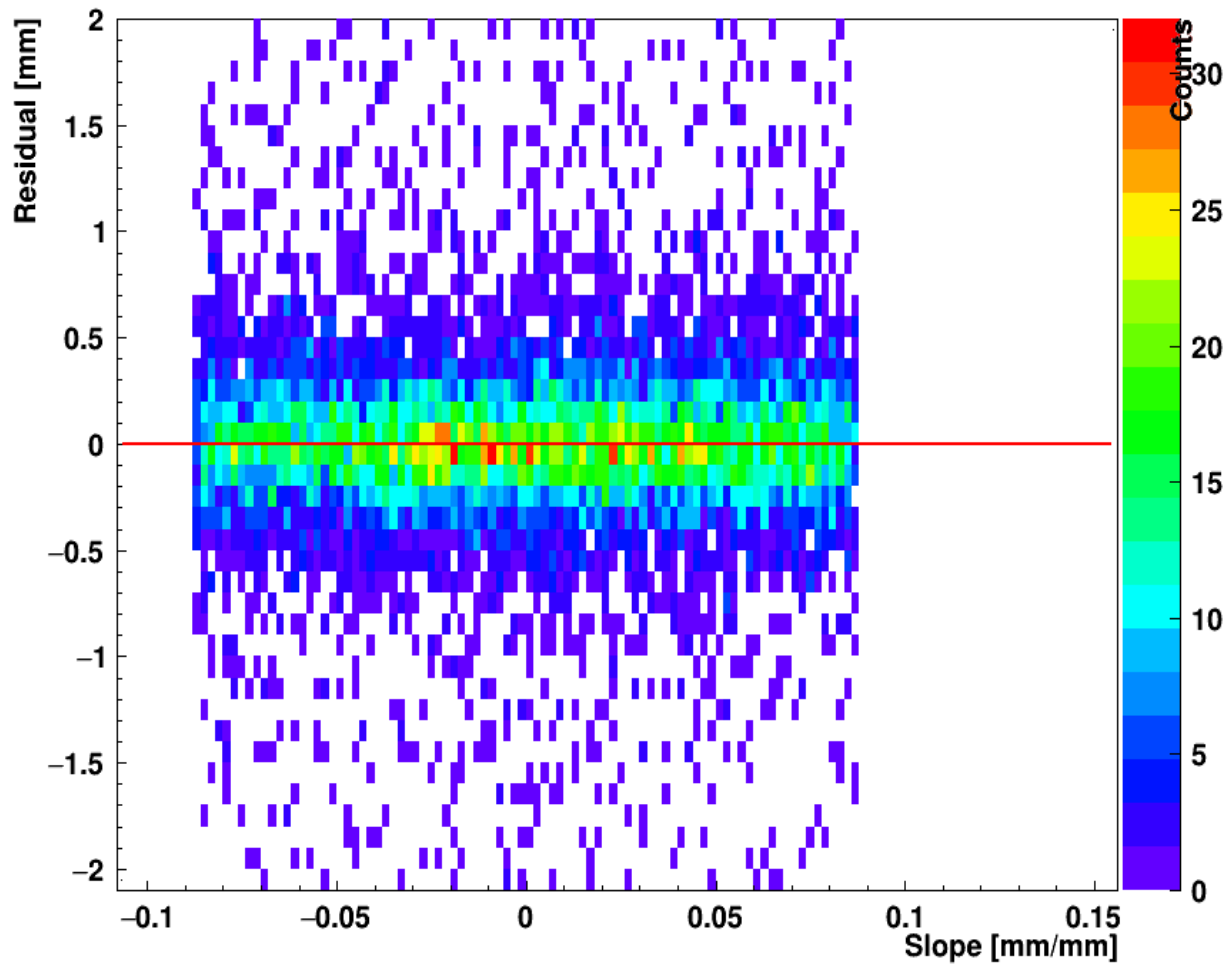
PAD1\_X Residuals Vs Position

slope = 0.00048



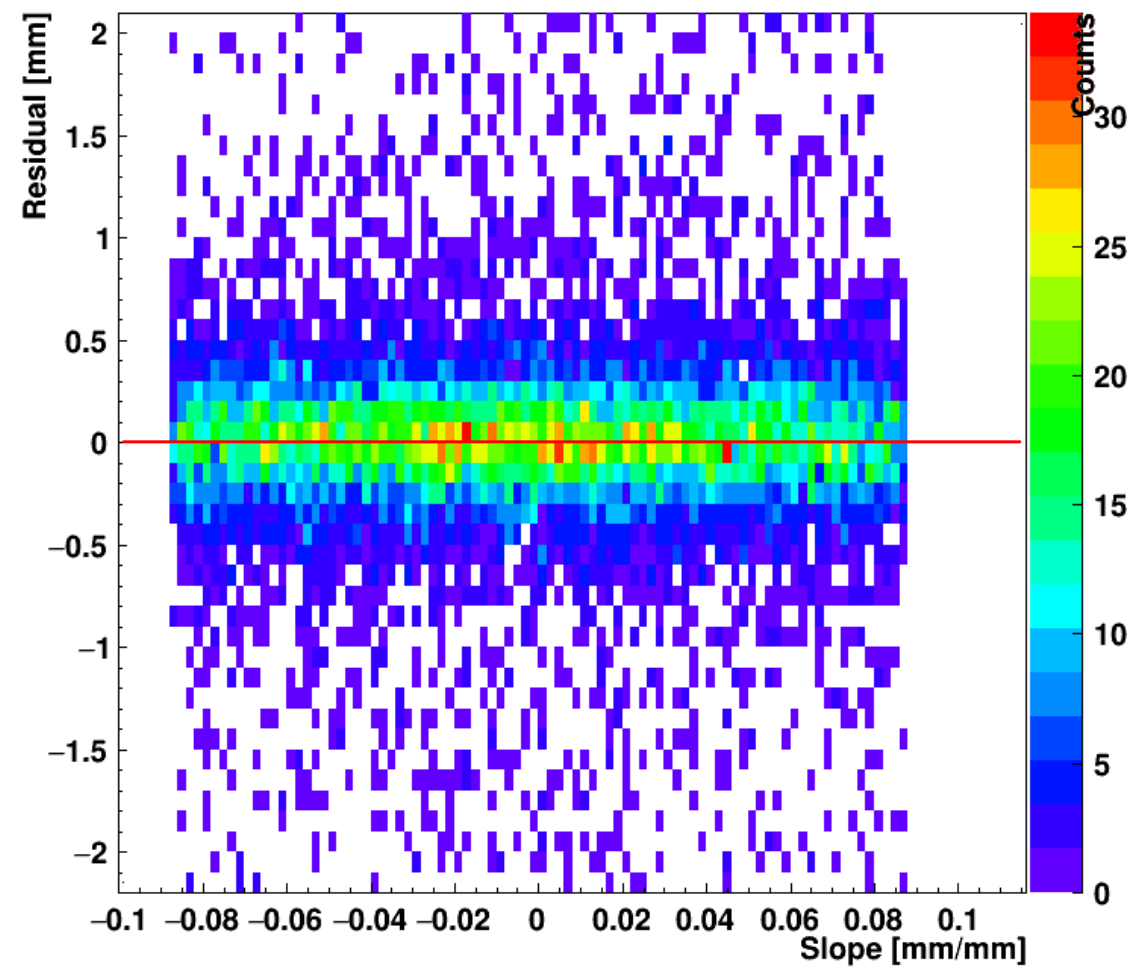
PAD1\_Y Residuals Vs Position

slope = 0.0001



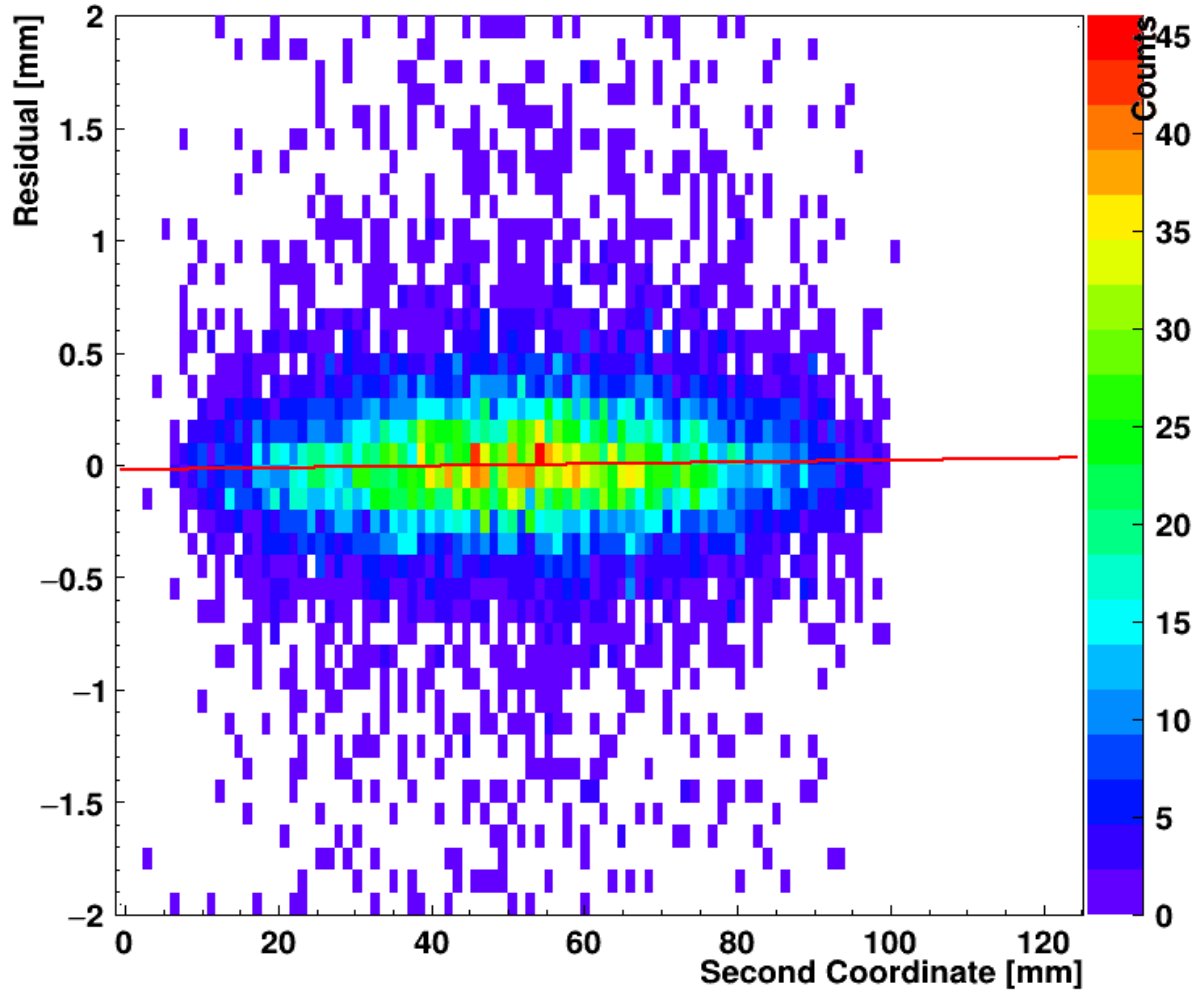
PAD1\_X Residuals Vs Slope

slope = 0.0002



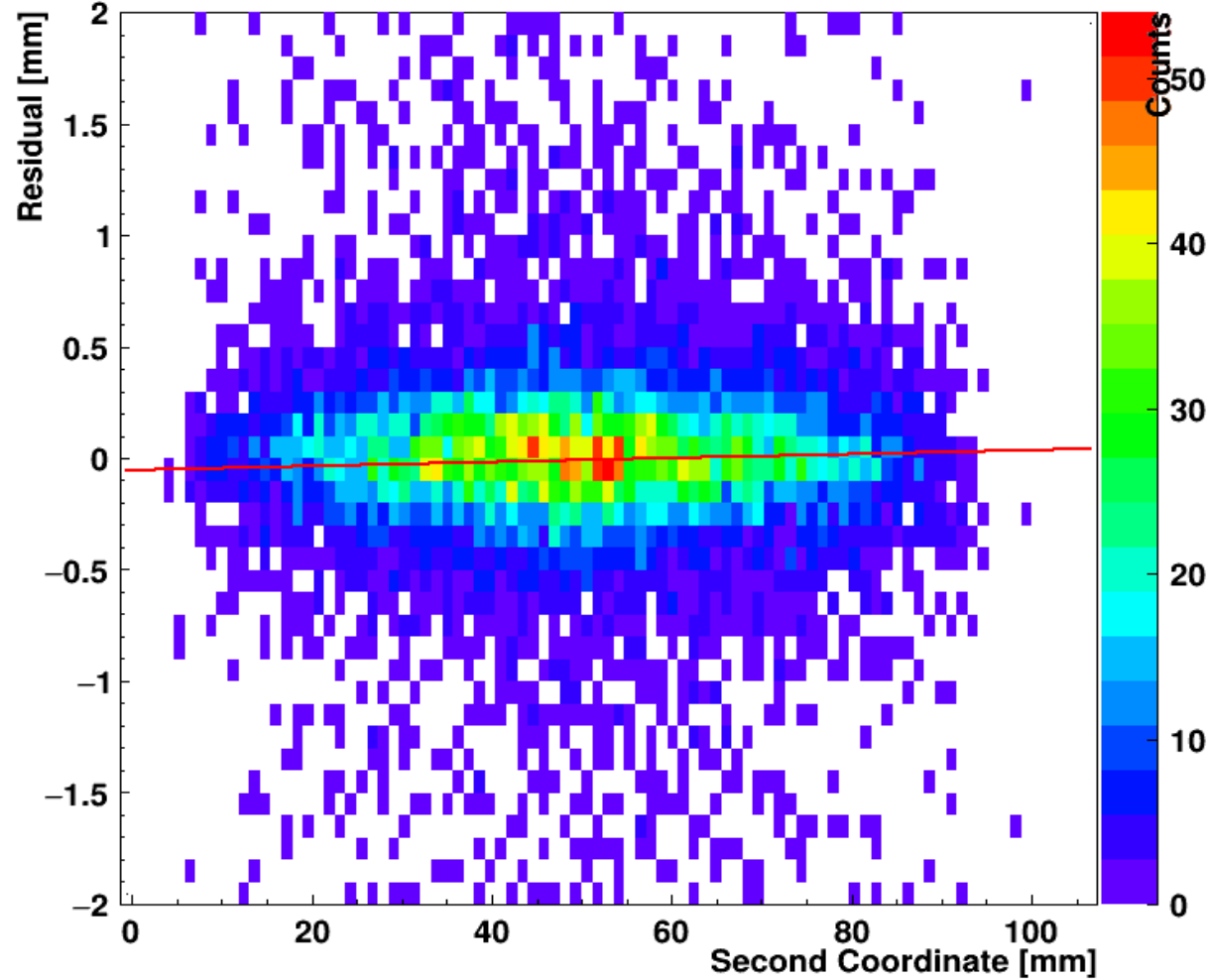
PAD1\_Y Residuals Vs Slope

slope = 0.0004



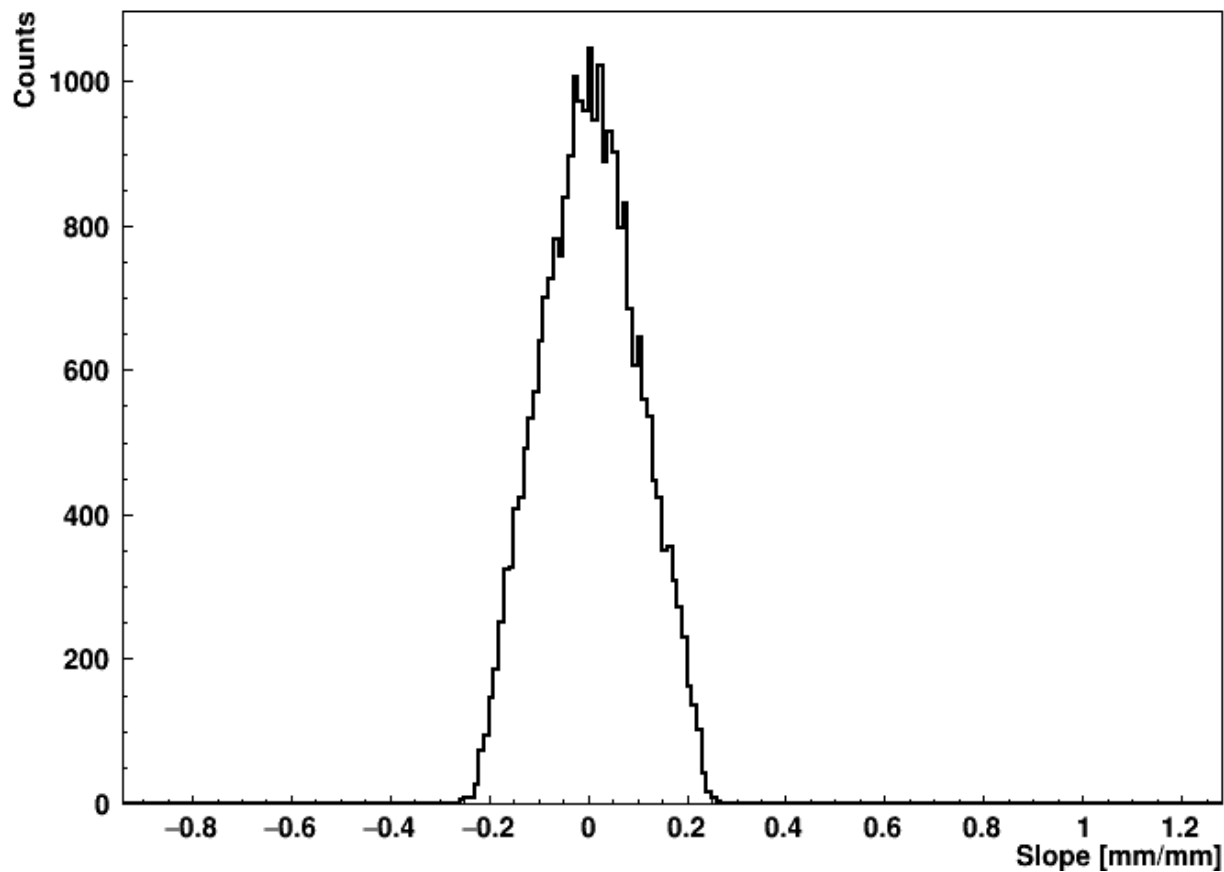
PAD1\_X Residuals Vs Position Y

slope = 0.0008



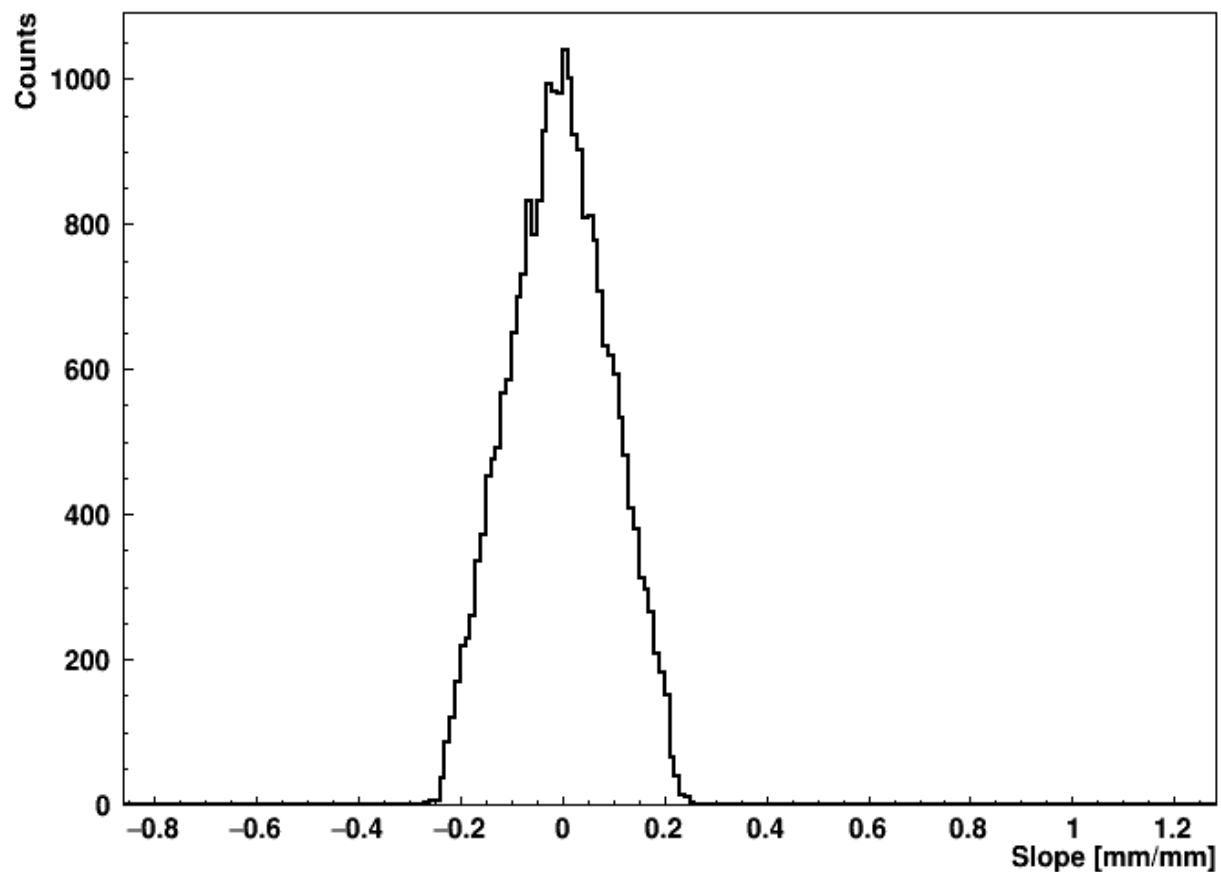
PAD1\_Y Residuals Vs Position X

Tracking:



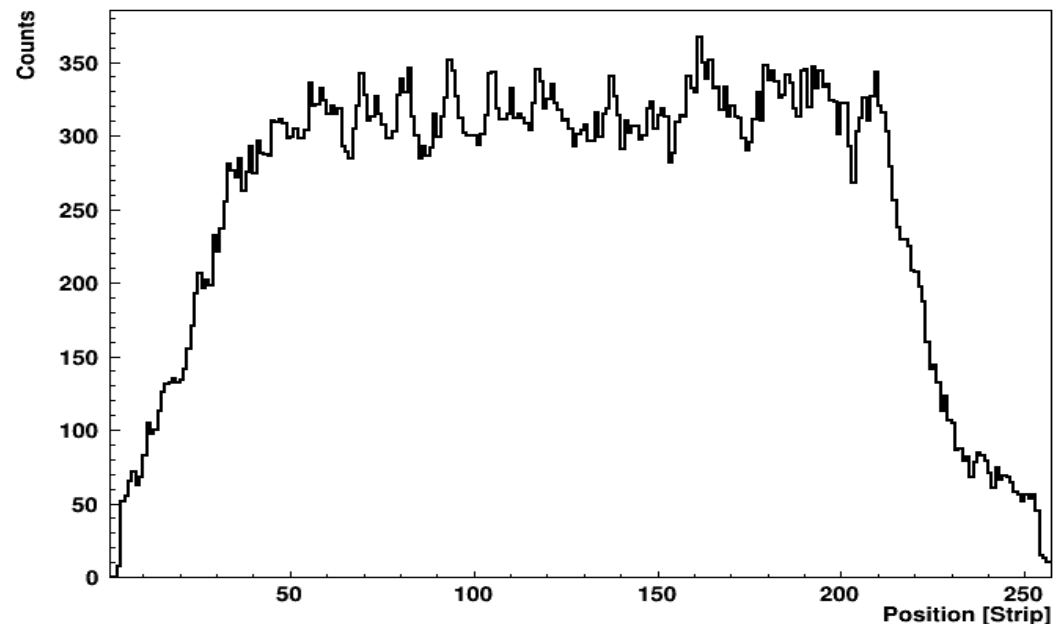
Track Slope X

Data cut from  $-5^\circ$  to  $+5^\circ$

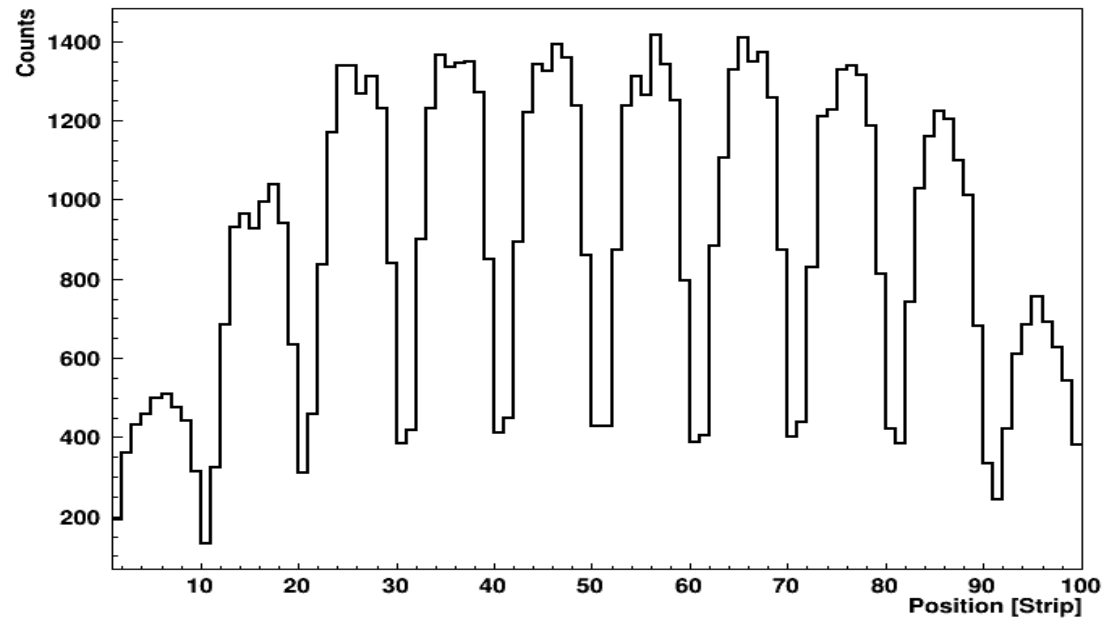


Track Slope Y

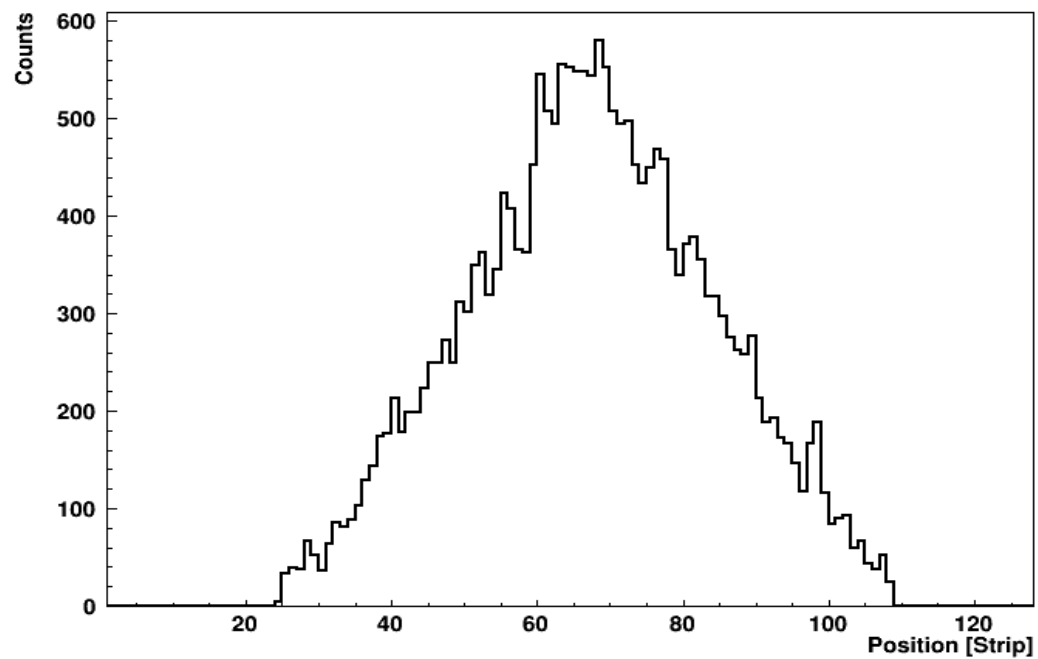
TMM1



PAD 2



PAD 1



TMM2

