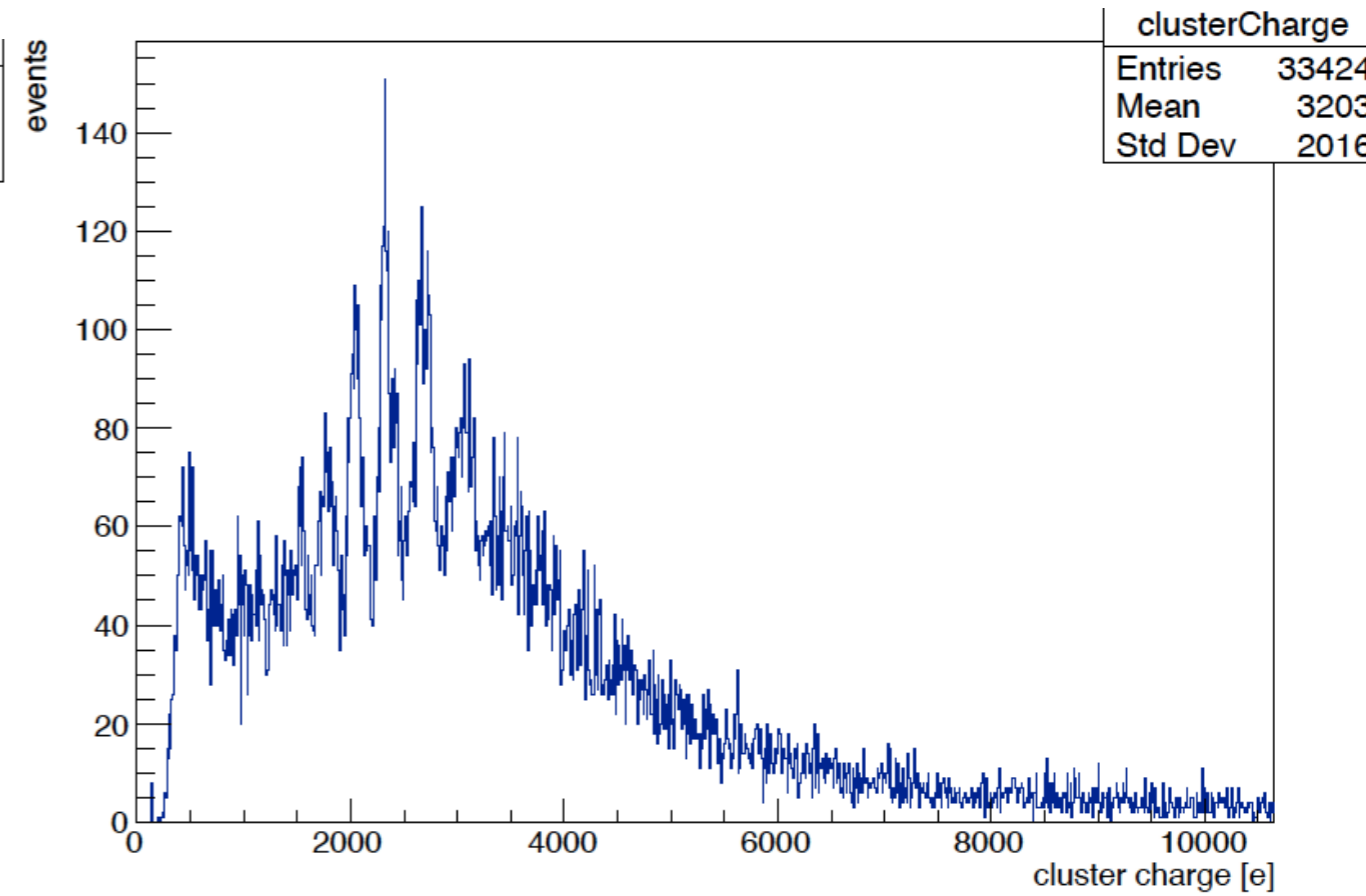
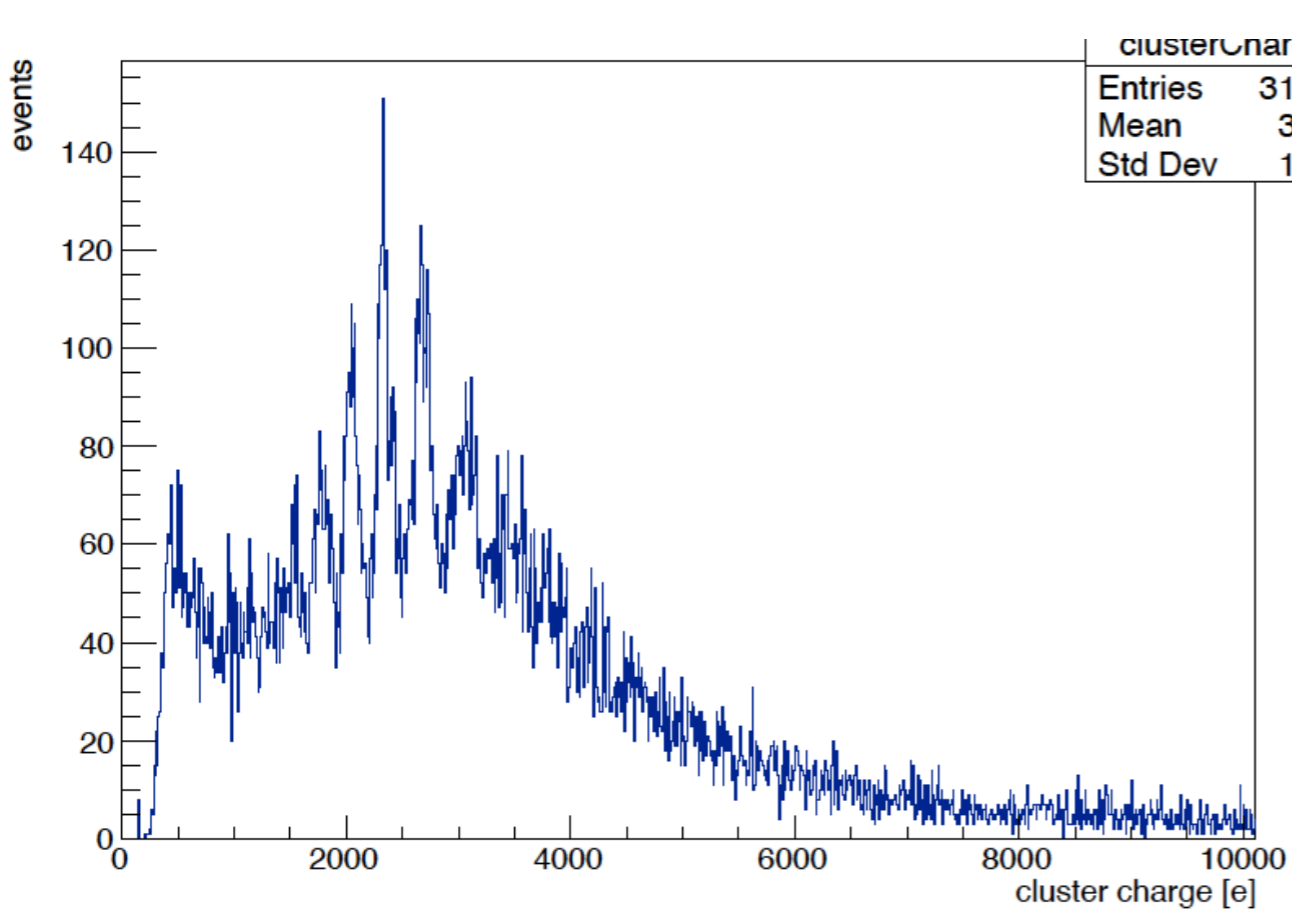


B2 / -6V / -6V

# TOT CALIBRATION - APPLICATION

## Cluster charge not associated - gap in n-layer

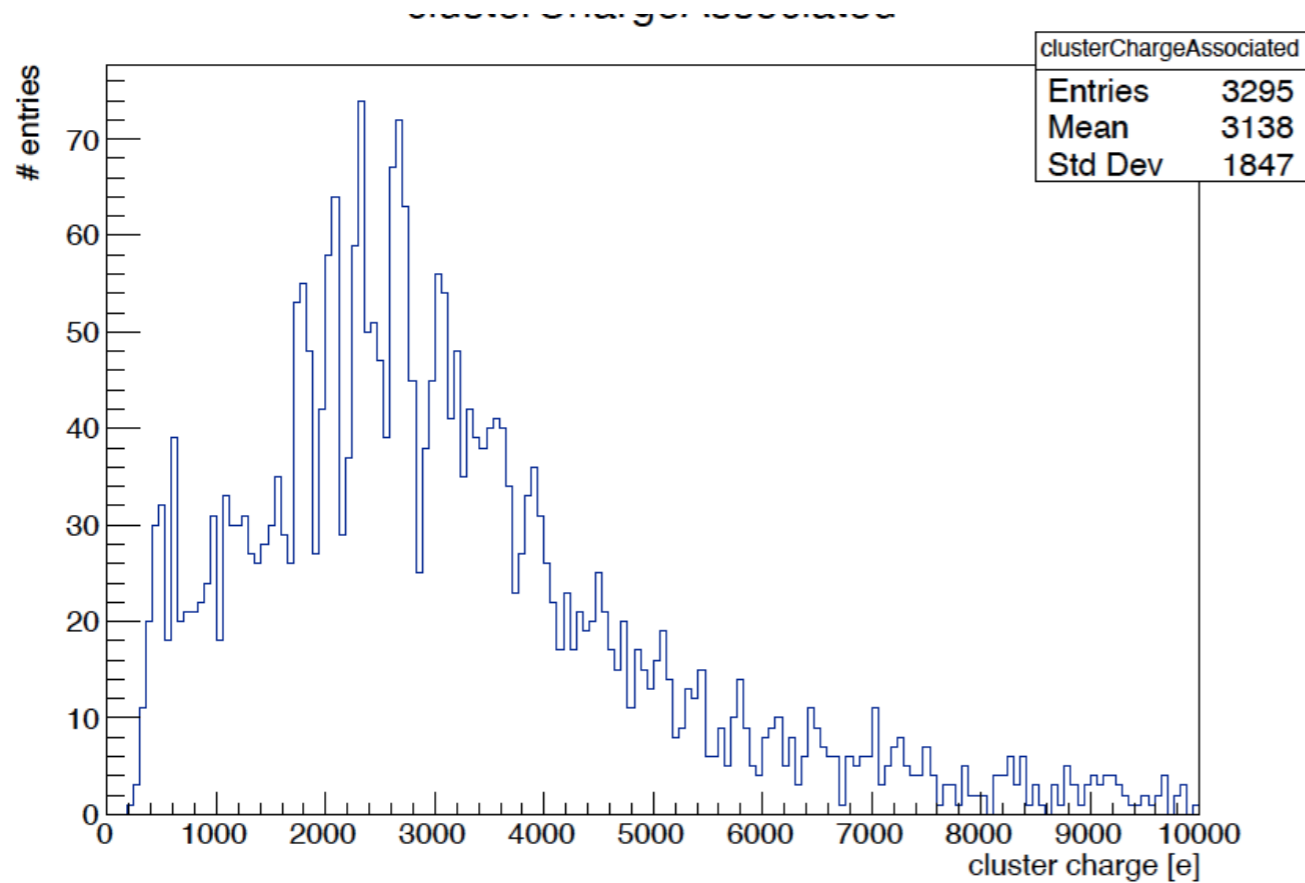


Only clusters where single sub-pixel in channel fired

All clusters

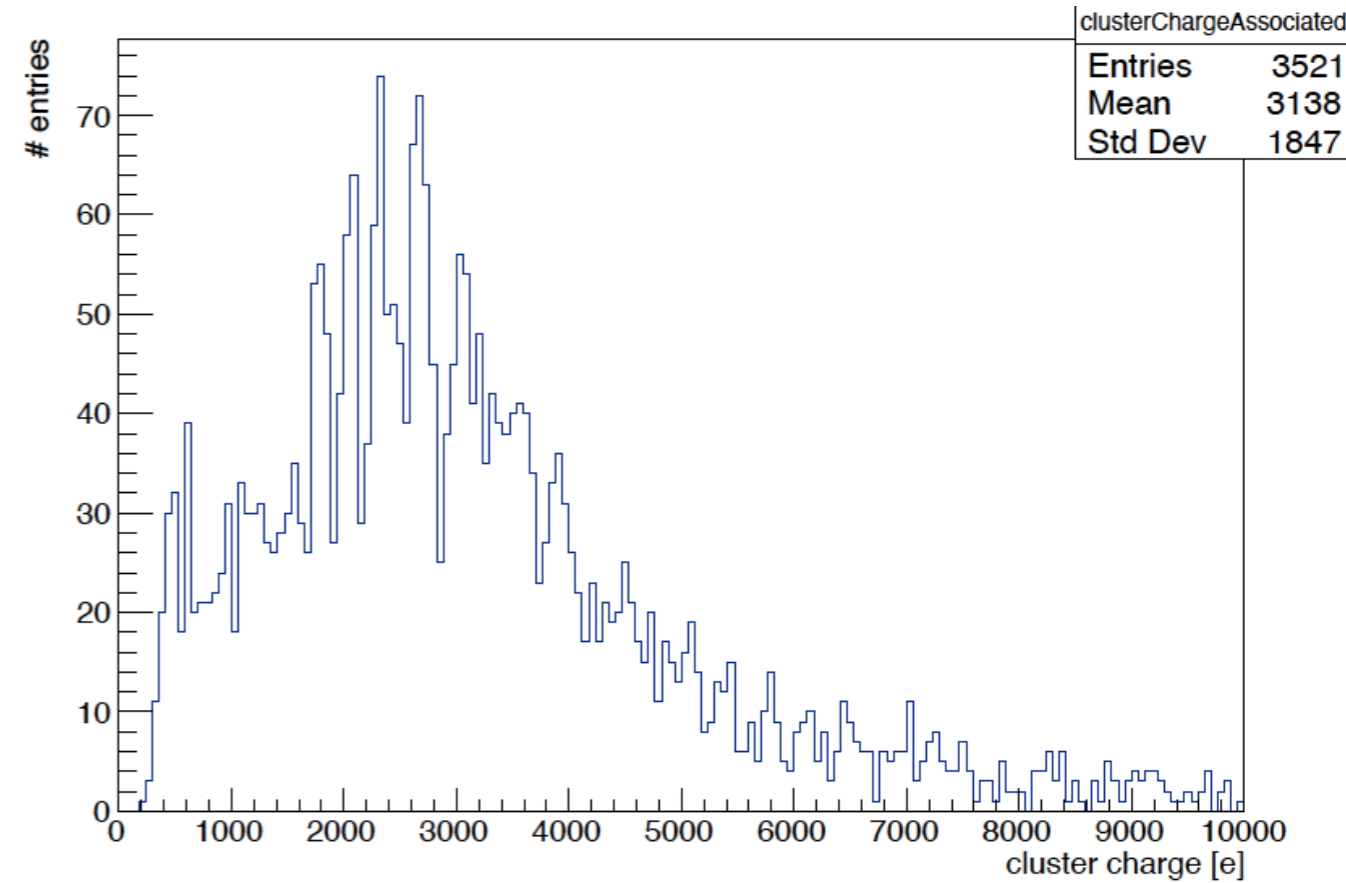
# TOT CALIBRATION - APPLICATION

## Cluster charge associated - gap in n-layer



Only clusters where single sub-pixel in channel fired

~93.6% of all clusters



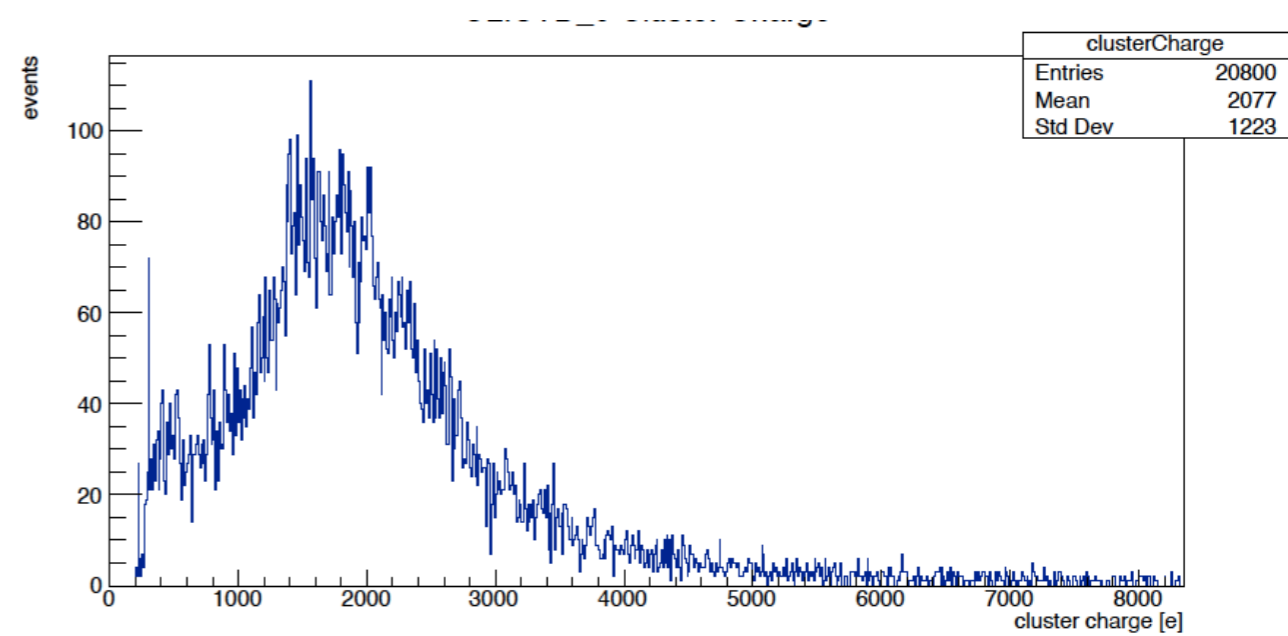
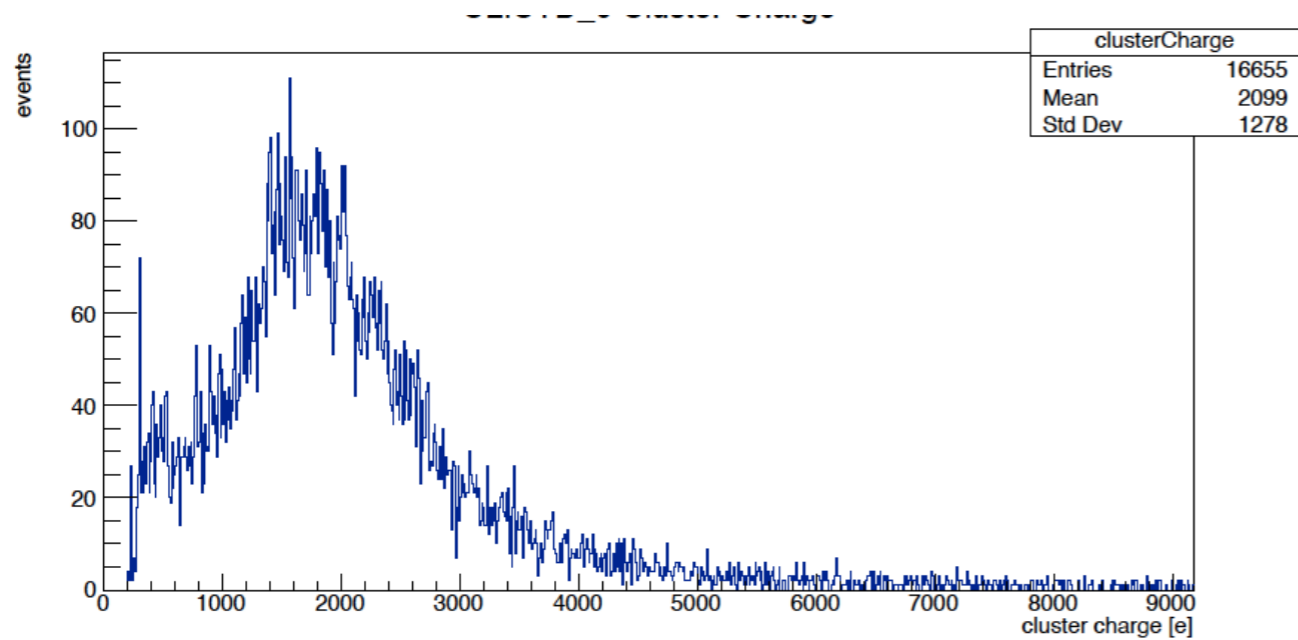
All clusters

All of the excess clusters where more than one sub-pixel in channel fired are in over-flow bin

A1 / -6V / -6V

# TOT CALIBRATION - APPLICATION

## Cluster charge not associated - continuous in n-layer



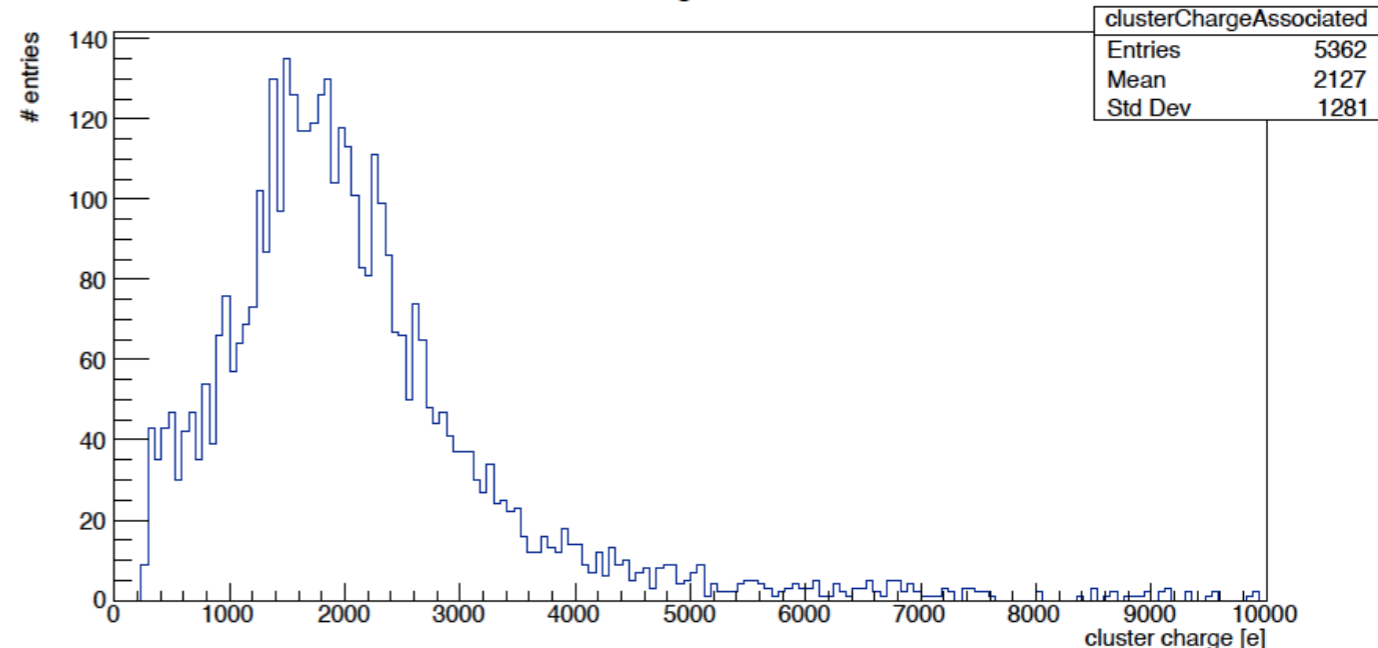
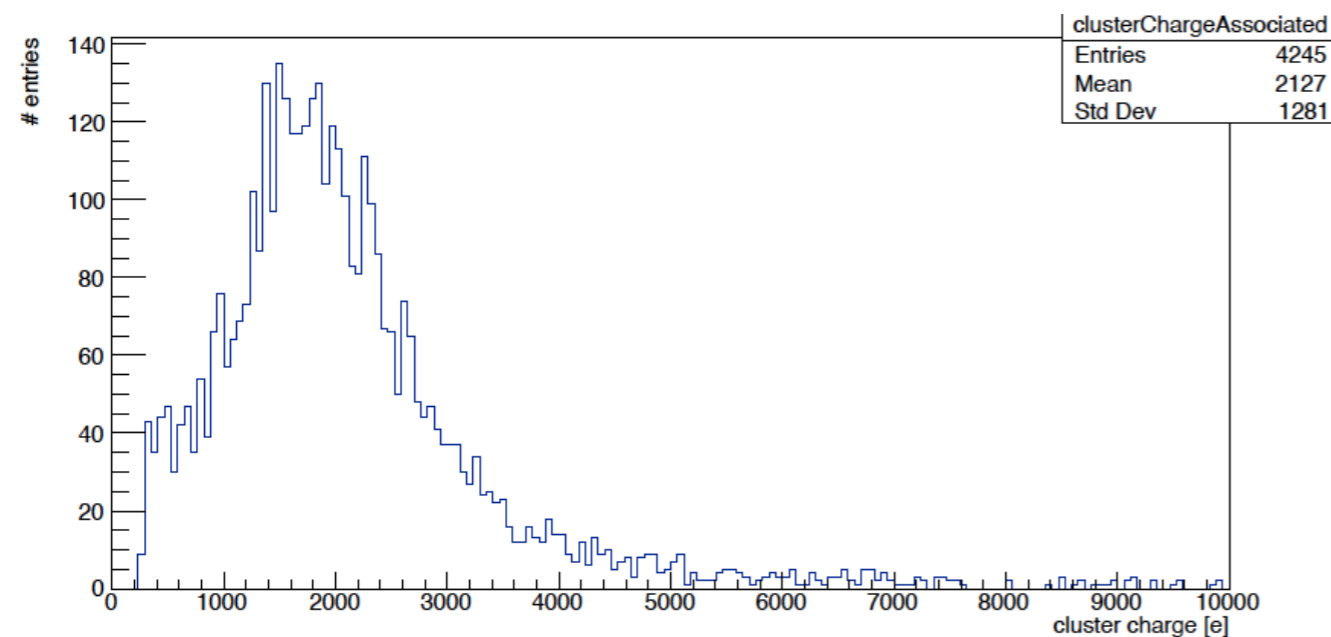
Only clusters where single sub-pixel in channel fired

All clusters

# TOT CALIBRATION - APPLICATION

A1 / -6V / -6V

## Cluster charge associated - continuous in n-layer



Only clusters where single sub-pixel in channel fired

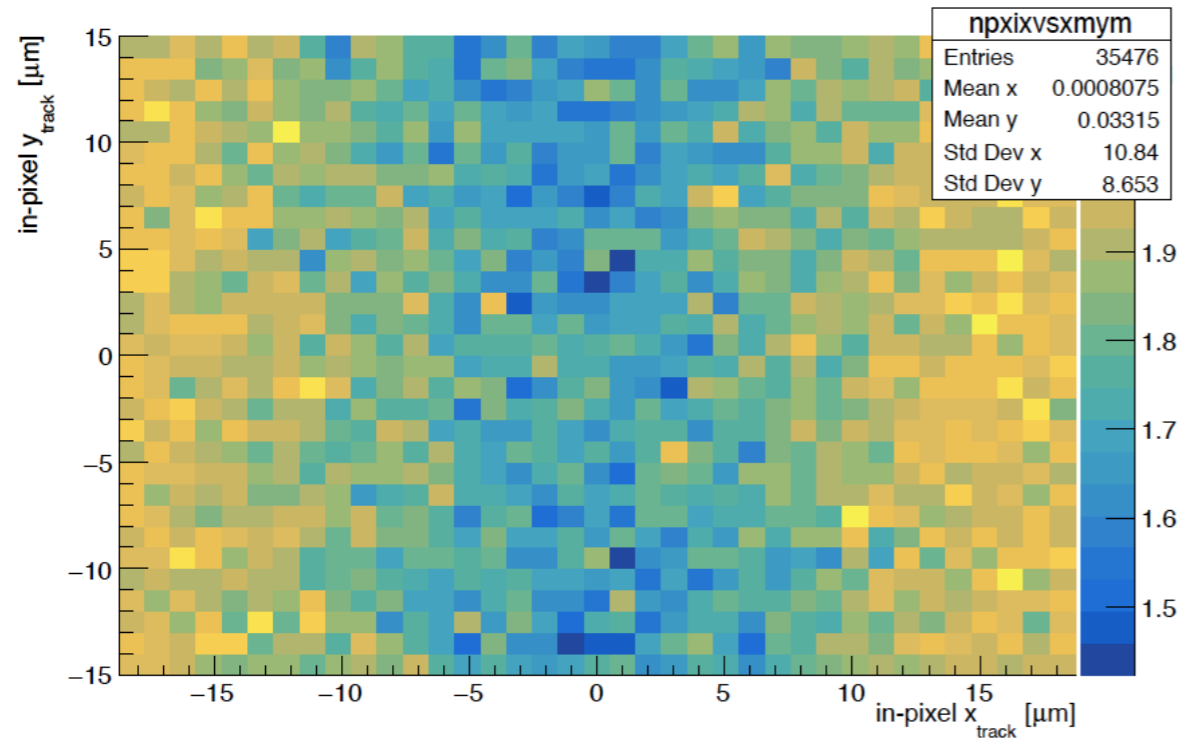
~79.2% of all clusters

All clusters

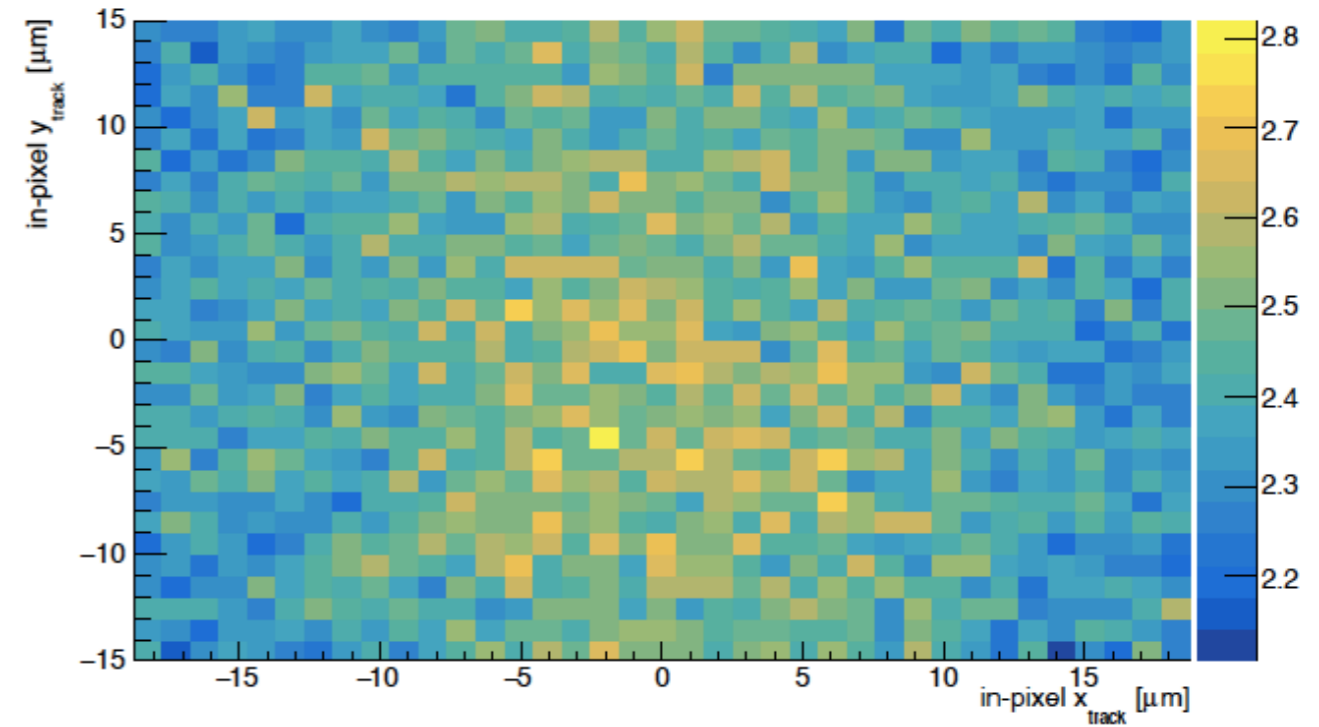
All of the excess clusters where more than one sub-pixel in channel fired are in over-flow bin

## In-pixel cluster size in x

45 deg



60 deg

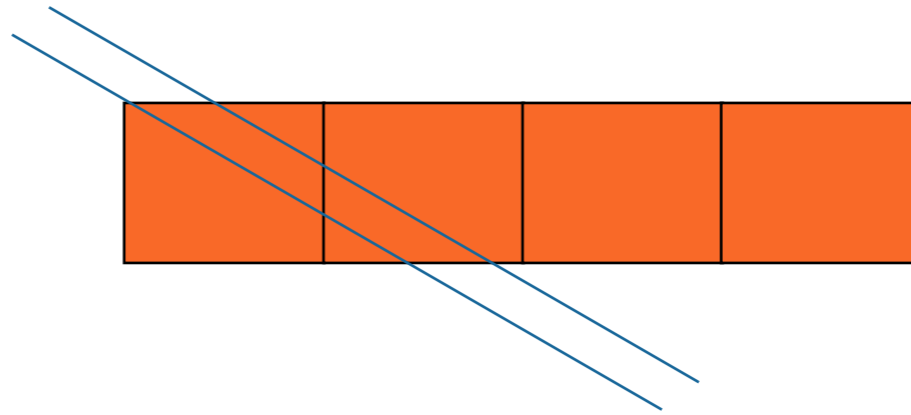
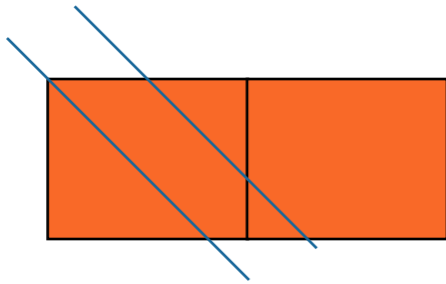


# ANGLES - FOR ROTATION SCAN

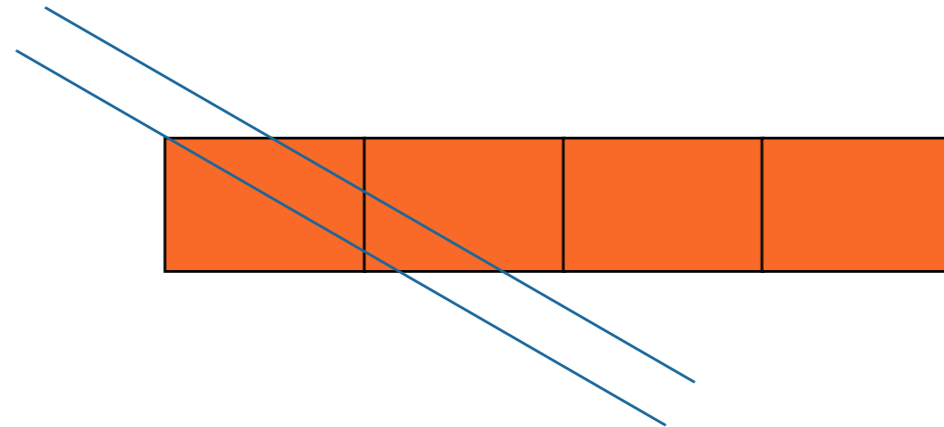
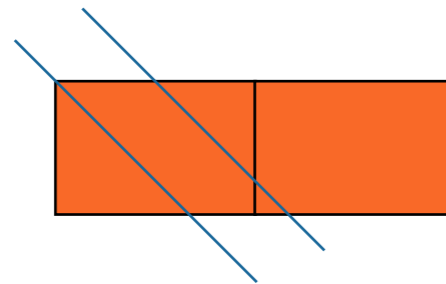
45 deg

60 deg

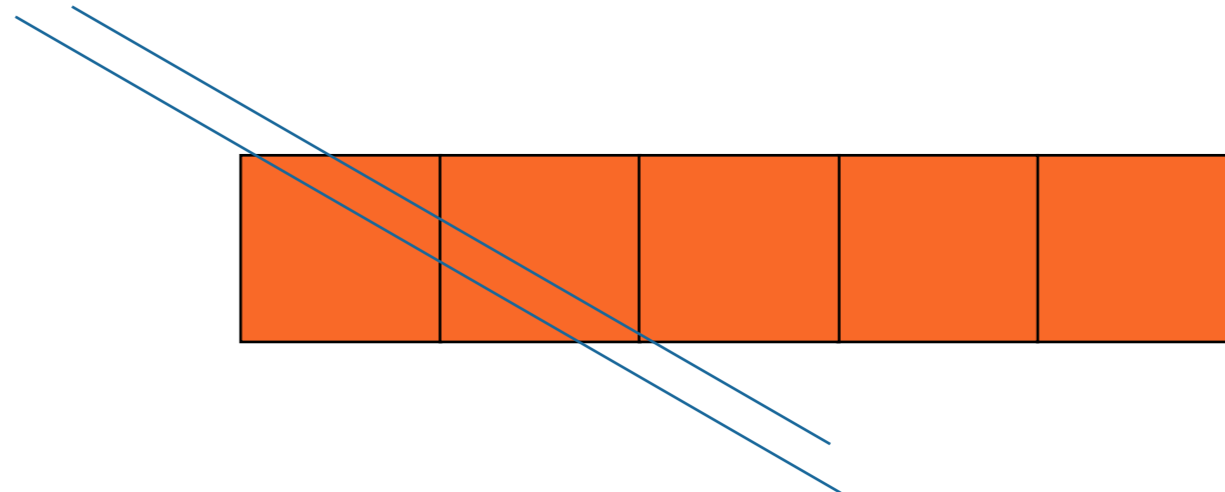
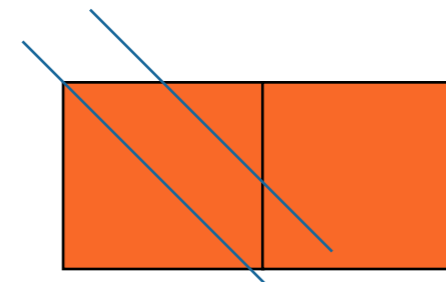
37.5x30



37.5x25



37.5x35

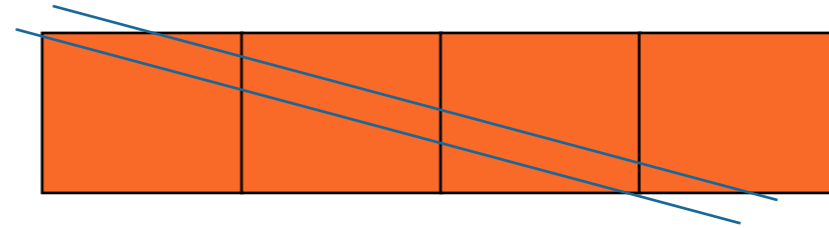
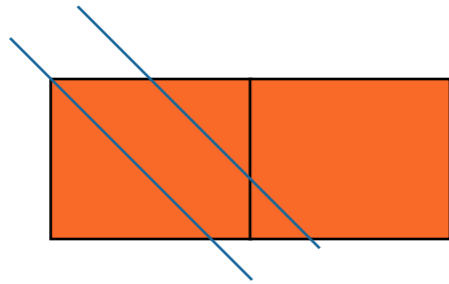


# ANGLES - FOR ROTATION SCAN

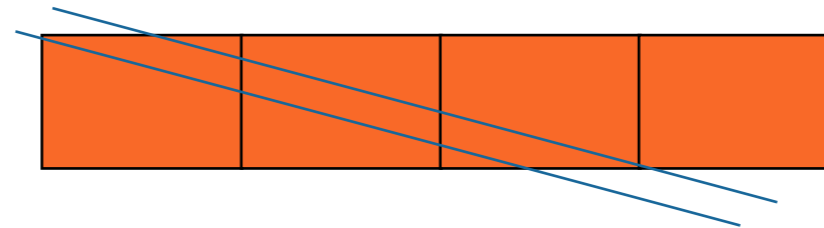
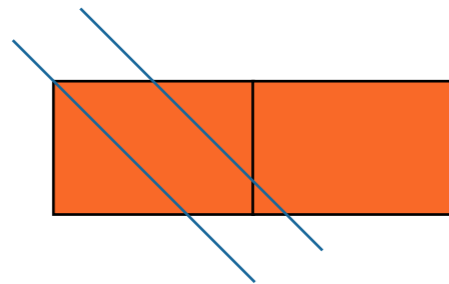
45 deg

75 deg

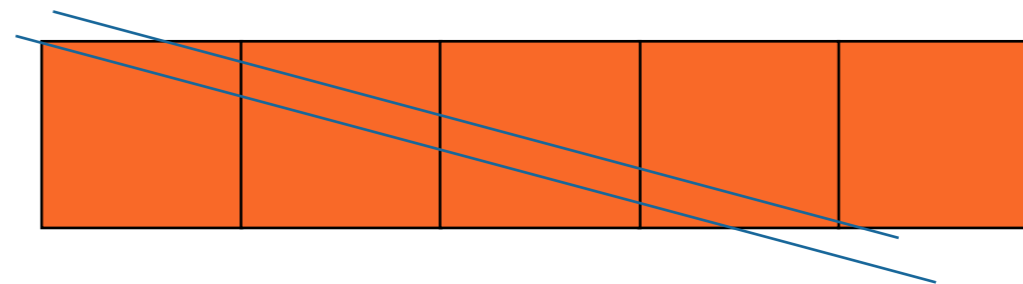
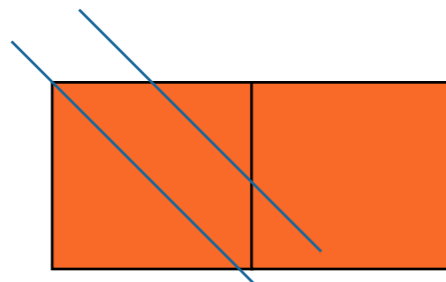
37.5x30



37.5x25

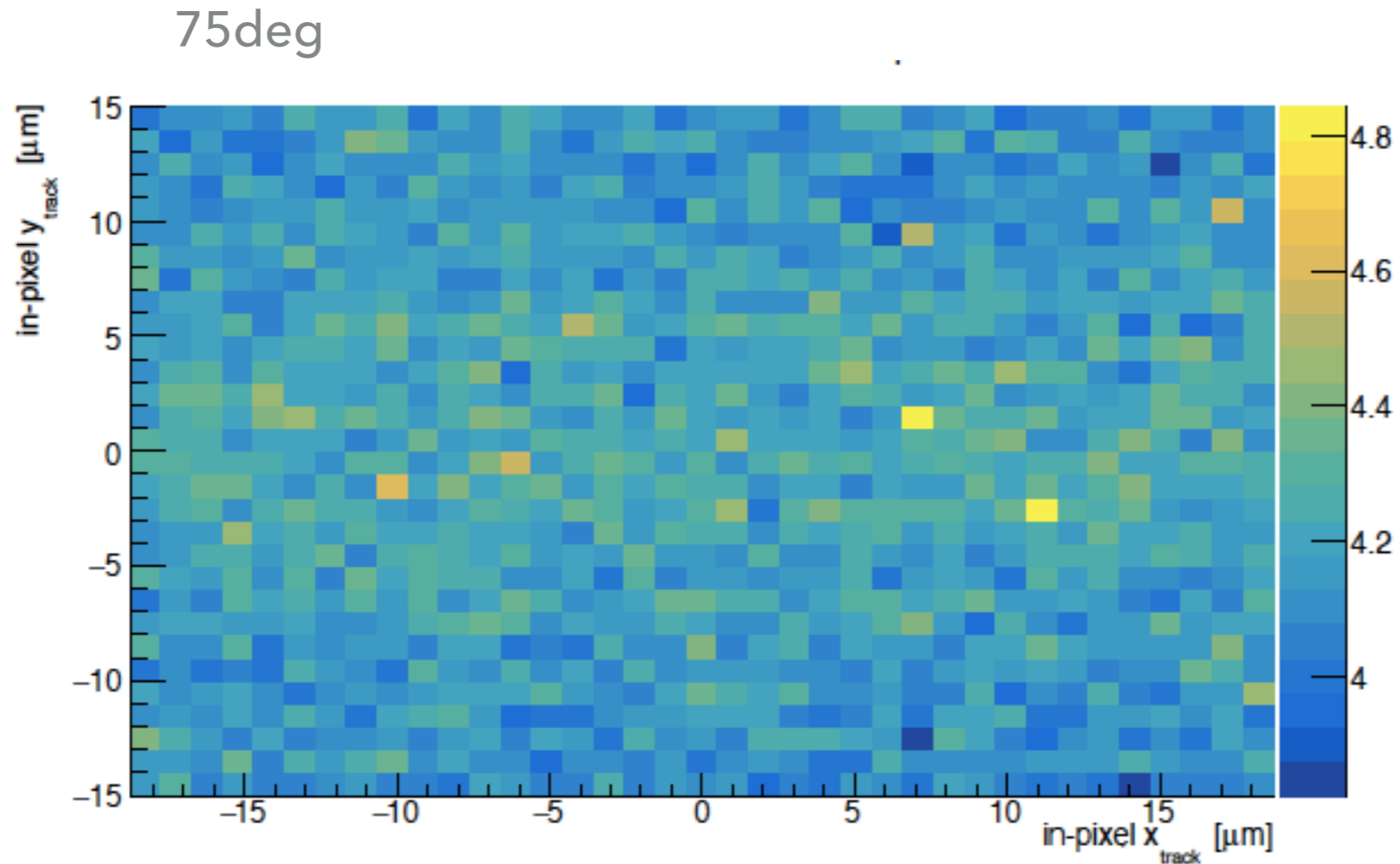


37.5x35



# ROTATION SCAN - IN-PIXEL PLOTS

## In-pixel cluster size in x

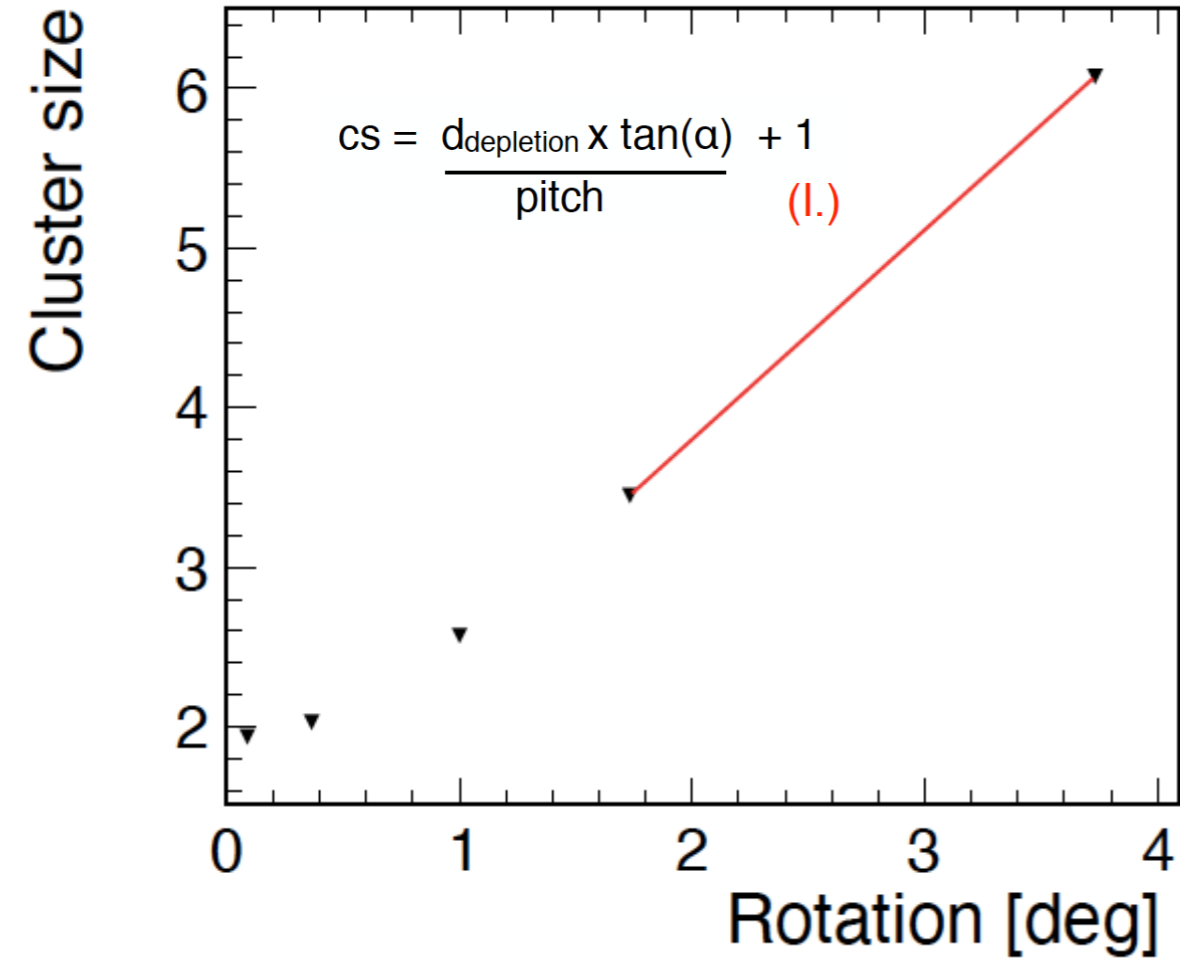


Small excess in horizontal band in the middle of the pixel cell  
(also visible in projection onto y-axis)

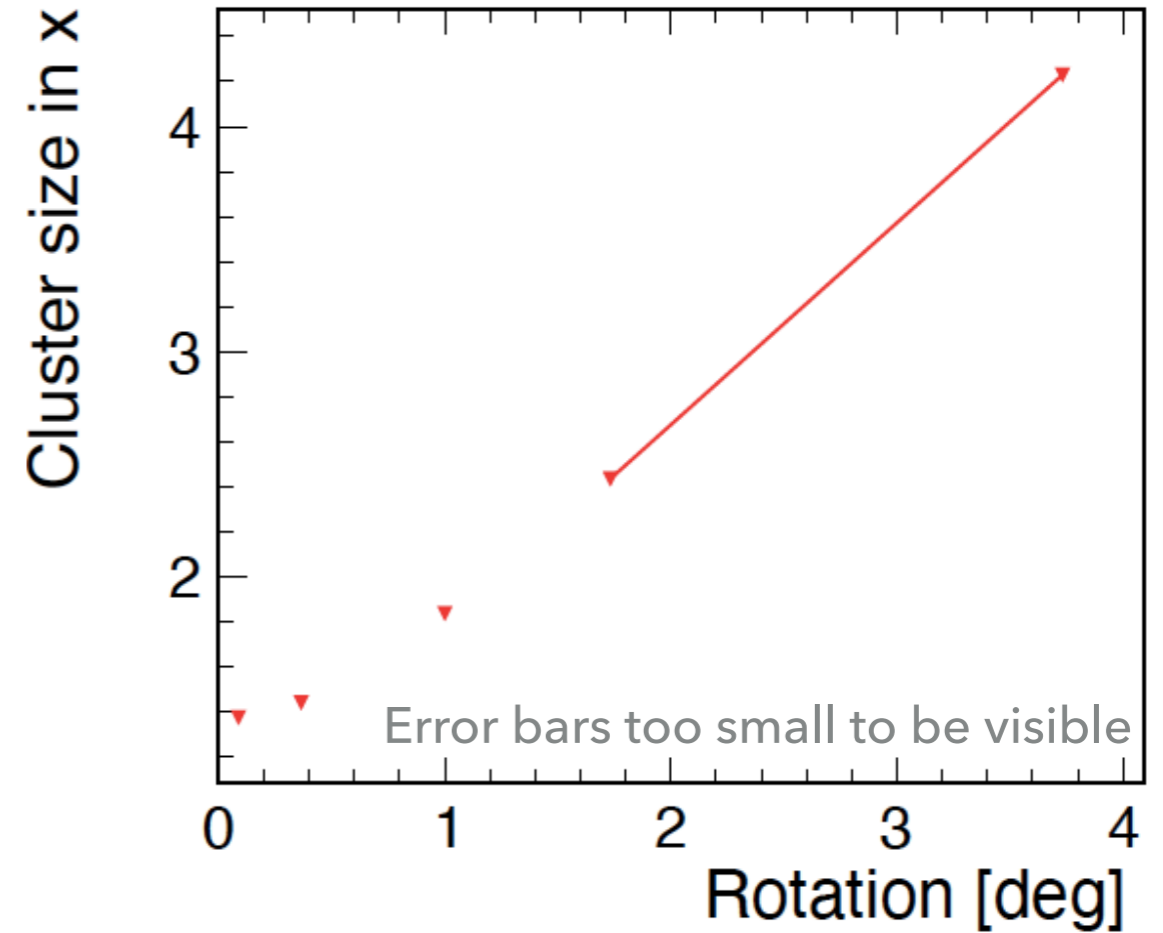
If particle hits y-edges, charge carriers are likely to be shared to neighbors  
-> pixel falls below threshold -> decreasing cluster size



# ACTIVE DEPTH - IMPROVED LINEAR FIT



Fit slope: ~49

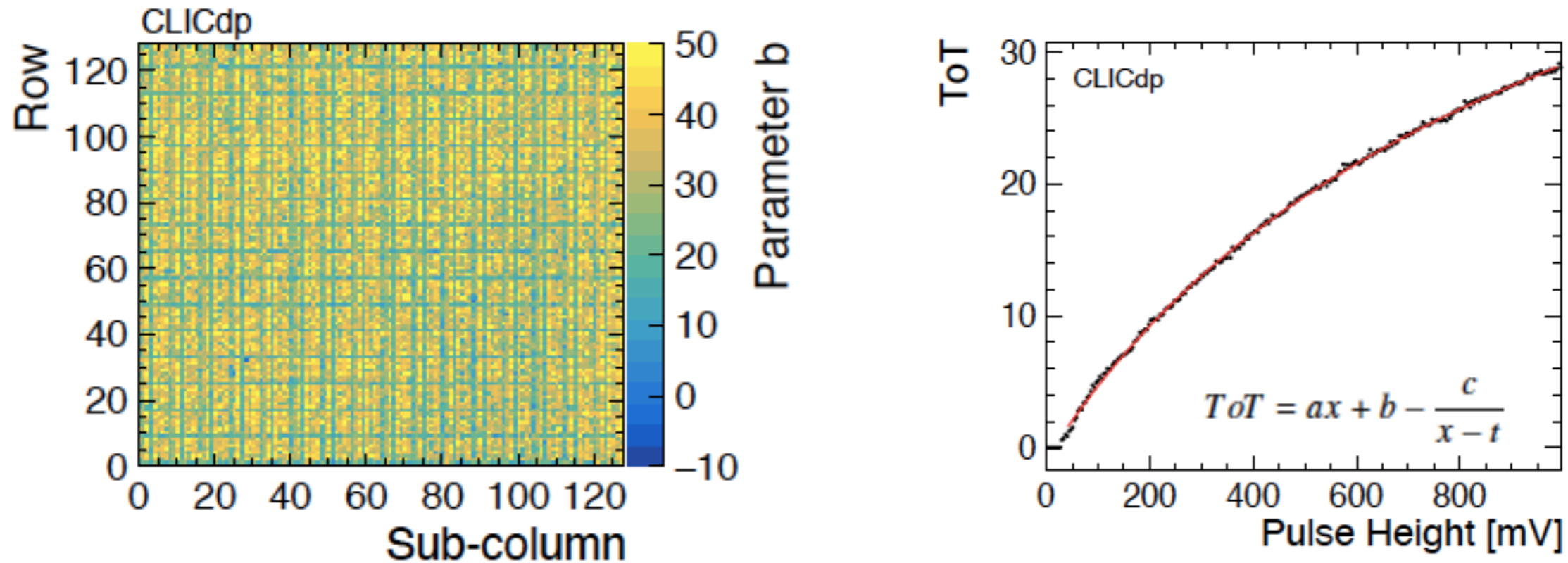


Fit slope: ~33.6

(fit slope for fit with 3 points: 32.4)

Simulations?

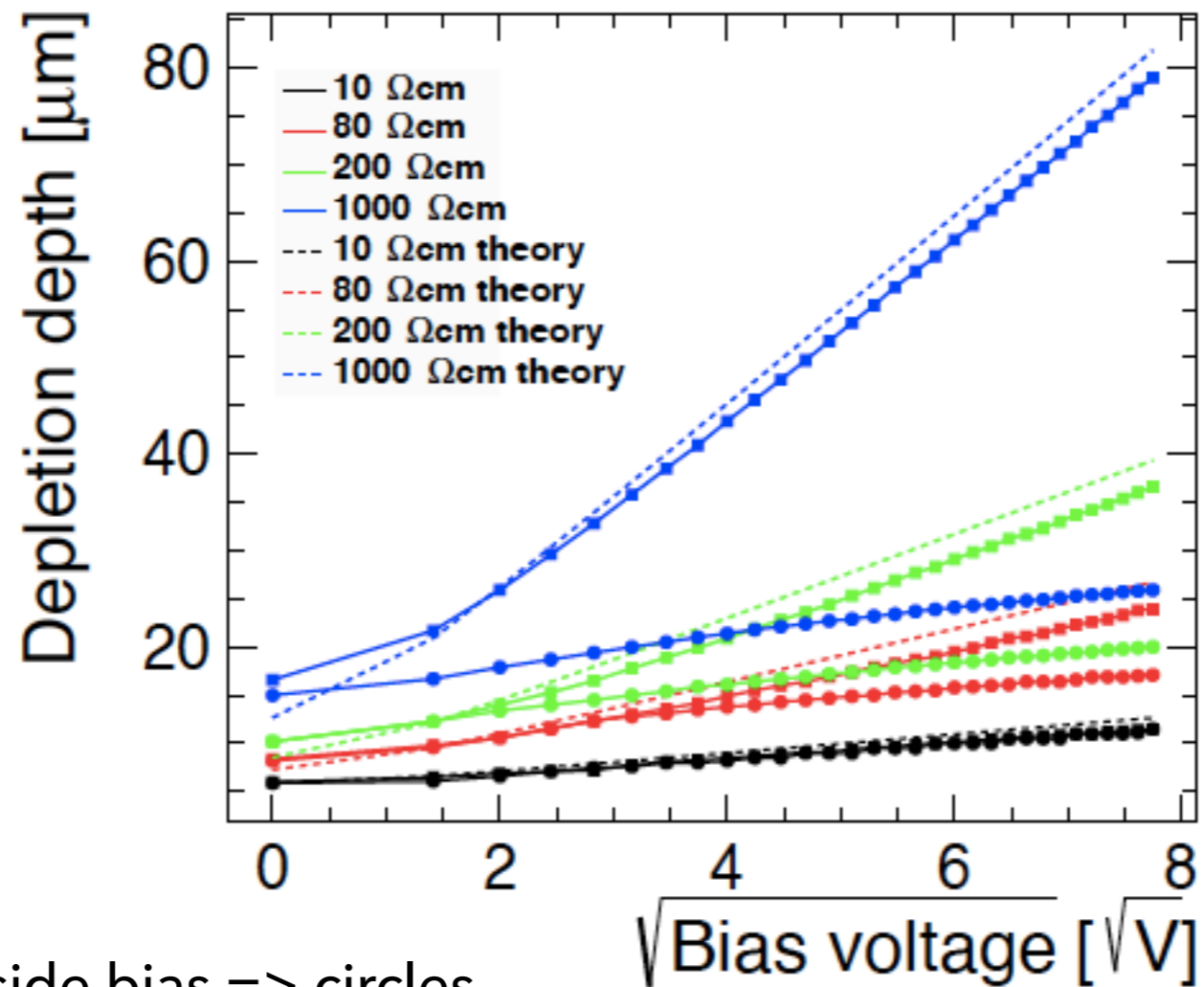
# REVIEWER COMMENTS TO CLICTD PAPER



Reviewer: "Figure 16 shows parameter "b" of equation 1, which is the constant ToT offset. Would it not be more practical to show the slope of the gain curve at e.g. 1Mip input signal to get a better illustration of the gain uniformity?"

Tried to plot slope of fitted ToT function for various points on the curve but did not see any pattern over the matrix  
 -> use a-parameter and explain that physical meaning of surrogate function parameters are not valid for the CLICTD case?

# DEPLETION DEPTH ATLASPIX



Topside bias => circles  
Backside bias => squares

In the test-beam results we compare 20, 80 and 200 Ohm\*m

1) CLICpix2: Firmware test

2) Assembly A4 (A1 as back-up): checking timing and efficiency issues  
(~20 min of data + time for analysis (~10 min for timing + 2h for efficiency))

3) Assembly A4: more rotation data points for active depth study  
no need for in-pixel plots -> statistics can be lowered to compensate for more points (at least 5 more angles with >3 runs per point) -> 3-4h (will be updated next week)

At least one  
afternoon

4) 50 um B-assembly (B6): threshold scan (over night) + nominal data (1-2 h)

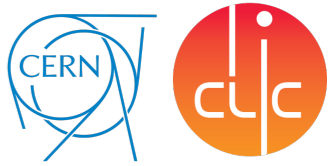
5) 50 um B-assembly: rotation data

Based on experience from previous rotation scans (~7h per scan) + additional points (see above) -> 1 day

6) High statistics nominal data for A1 at 251 DAC and B2 at 259 DAC  
(~178 e) for comparison

10 runs per assembly -> 4h (not including assembly change)

# CLUSTER CHARGE ASSOCIATED



Binary resolution (estimated telescope resolution 3.2 $\mu$ m): 11.3  $\mu$ m

75deg: 10.1  $\mu$ m

60deg: 7.8  $\mu$ m

45deg: 8.4  $\mu$ m