

# HANUL MEETING

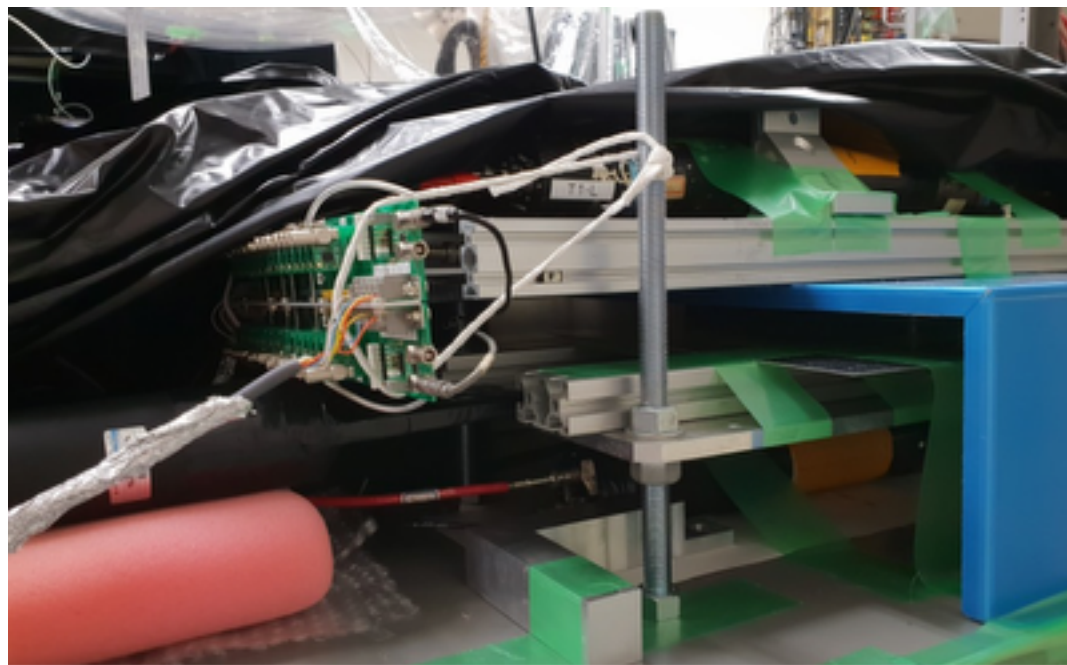
## Hodoscope cosmic test

Korea Univ.  
Wooseung Jung

# TEST BENCH

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Four detectors are stacked



Trigger counter

Hodoscope with MPPCs

Hodoscope with PMTs

1 mm thick metal plate

Trigger counter

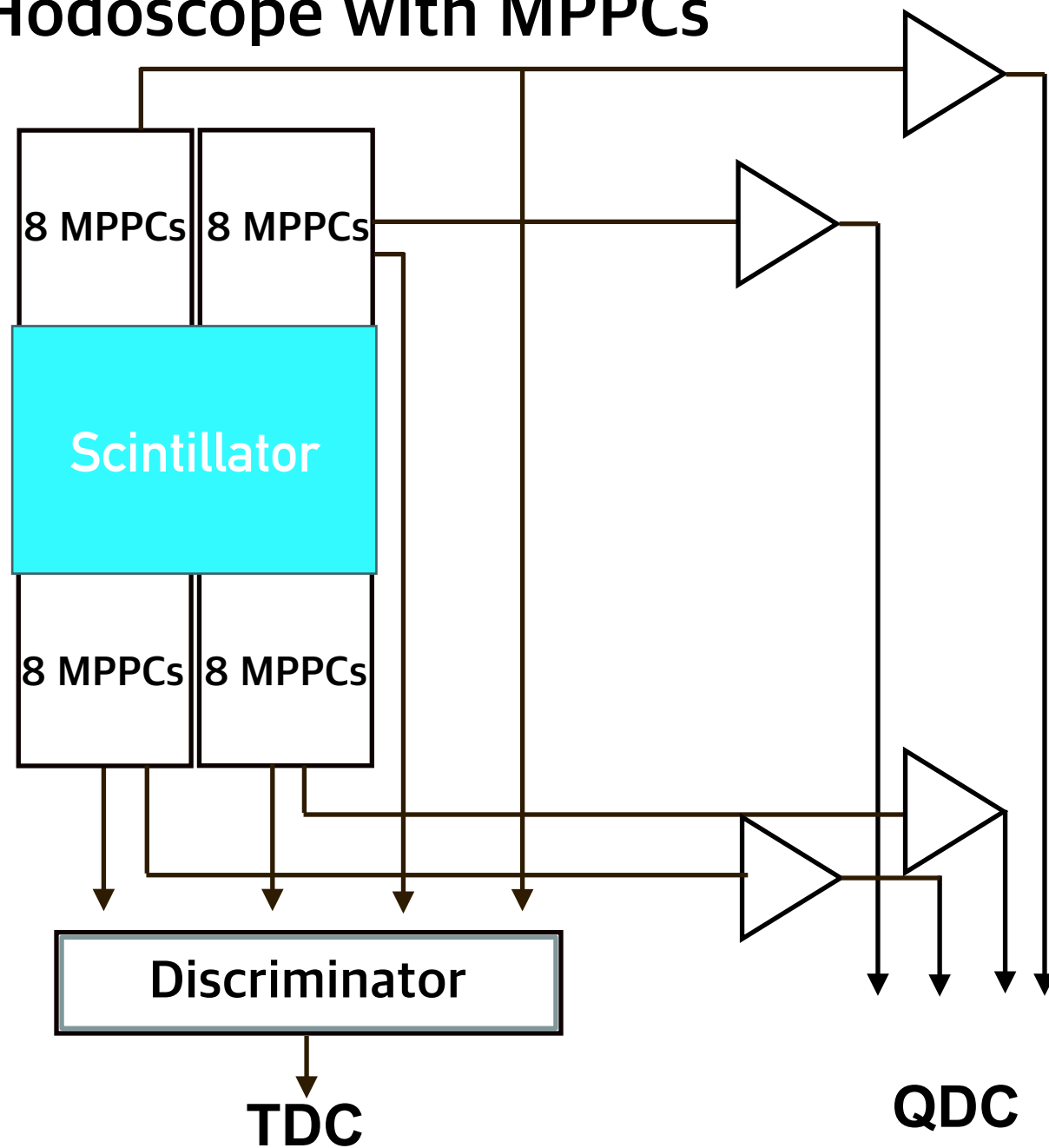
(time reference)

Adhesive optical tapes were used for coupling between the scintillator and the MPPC.

Optically Clear Adhesive Tape LUCIACS® CS986 Series  
(Acrylic adhesive)

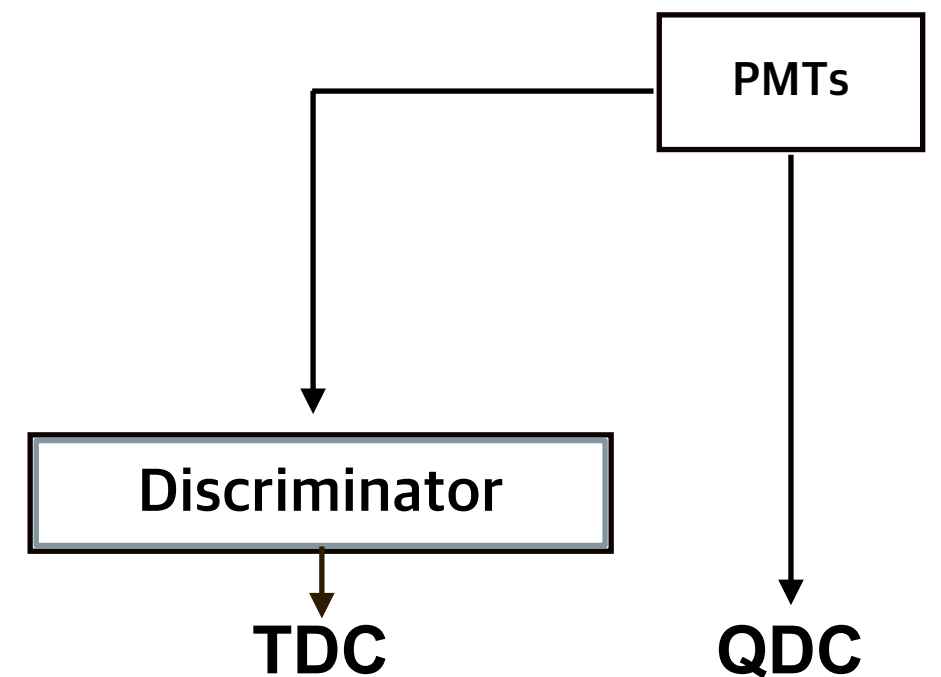
# NIM ELECTRIC CIRCUIT

## Hodoscope with MPPCs



Threshold : 10 % level of MIP

## The others



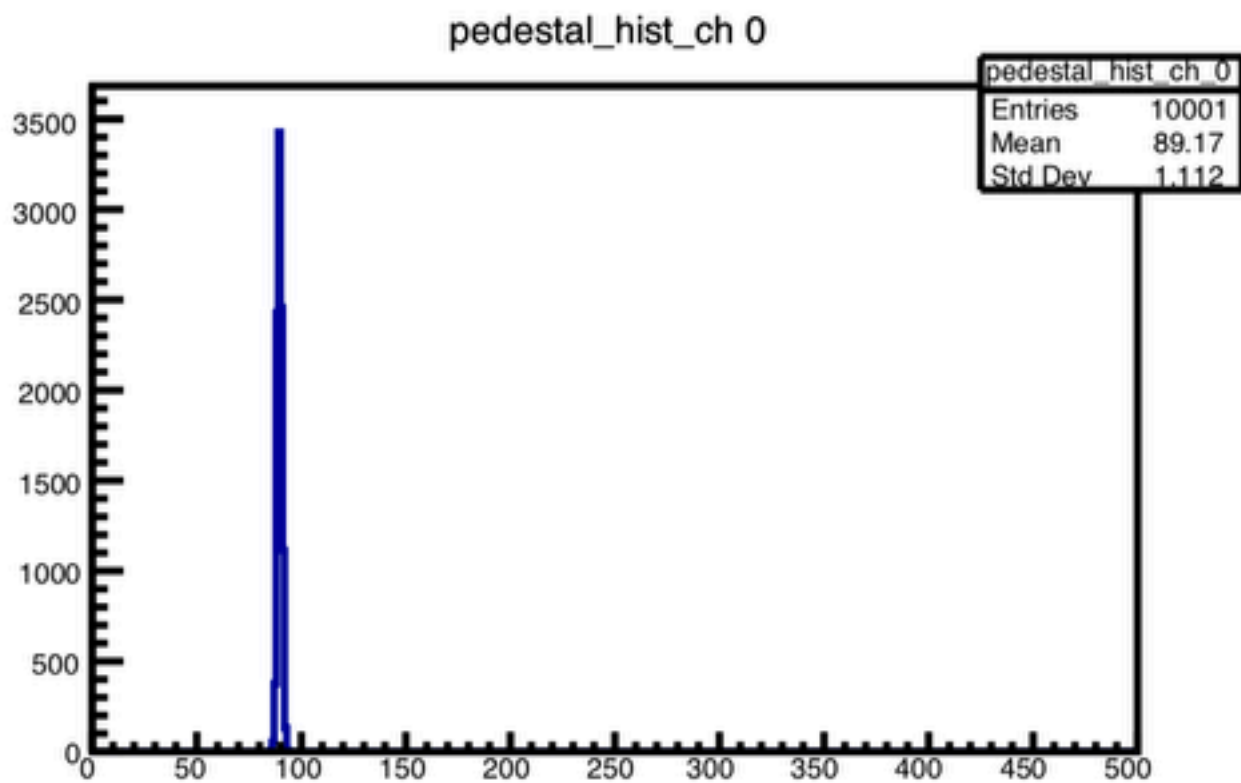
Trigger condition

- 4 trigger counter's signal ANDed

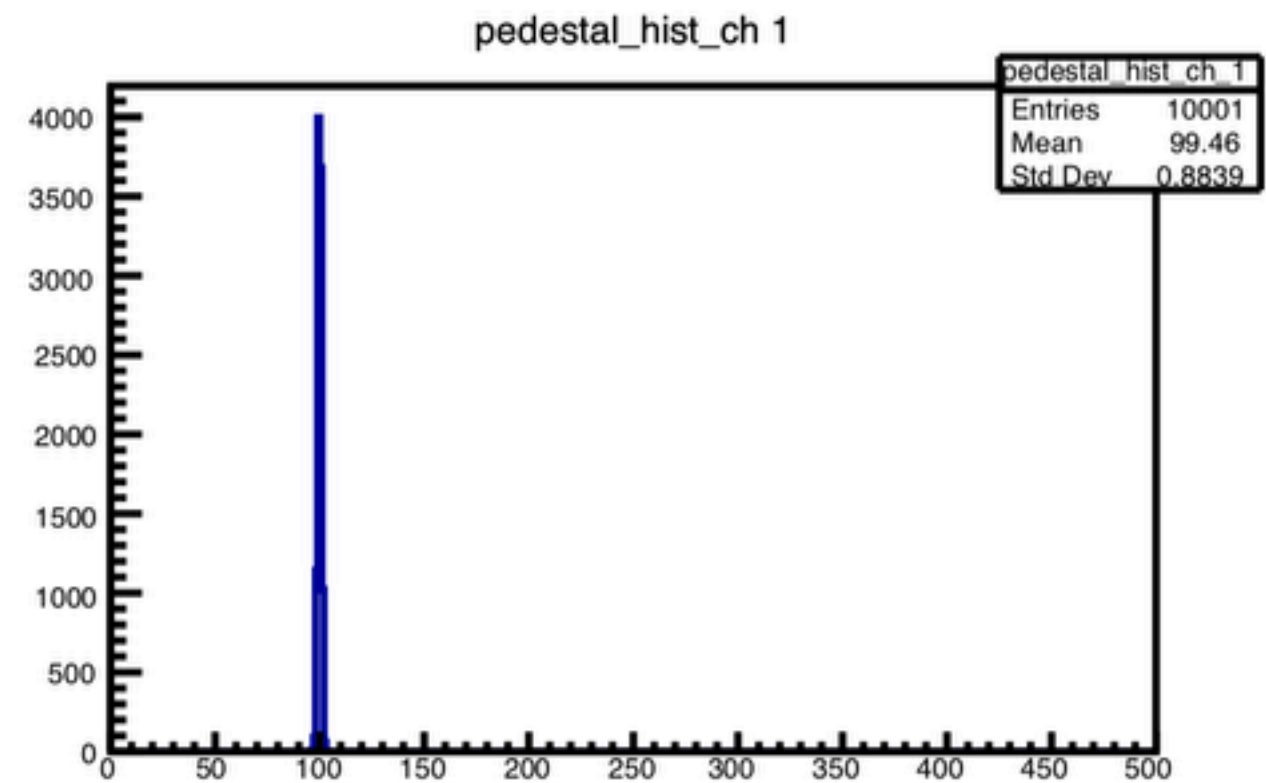
# TRIGGER COUNTERS' PEDESTAL

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**Std Dev = 1.112**



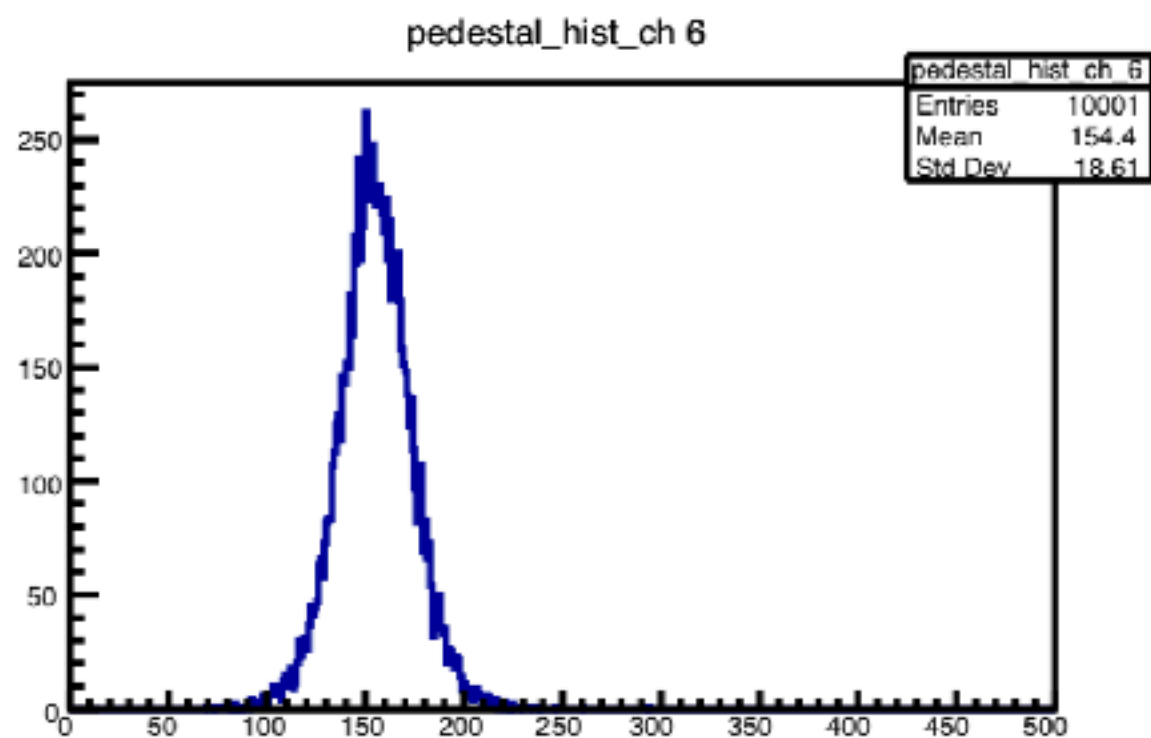
**Std Dev = 0.08839**



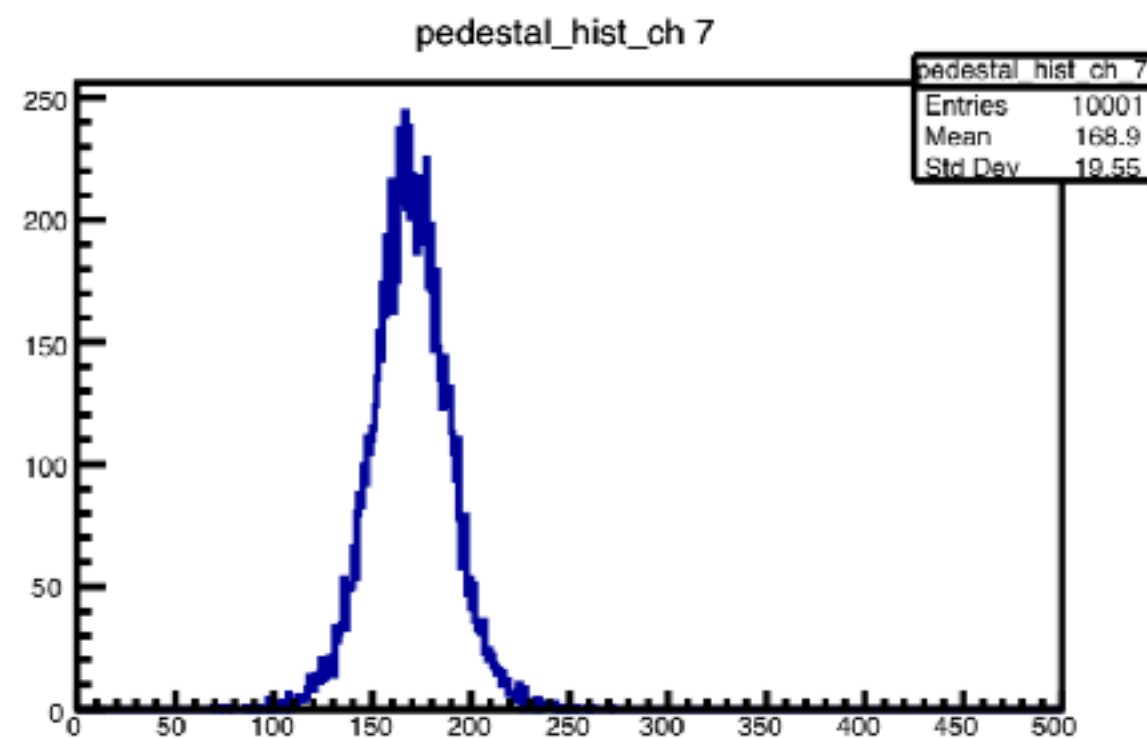
# HODOSCOPE MPPC READOUTS' PEDESTAL

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Std Dev = 18.61



Std Dev = 19.55

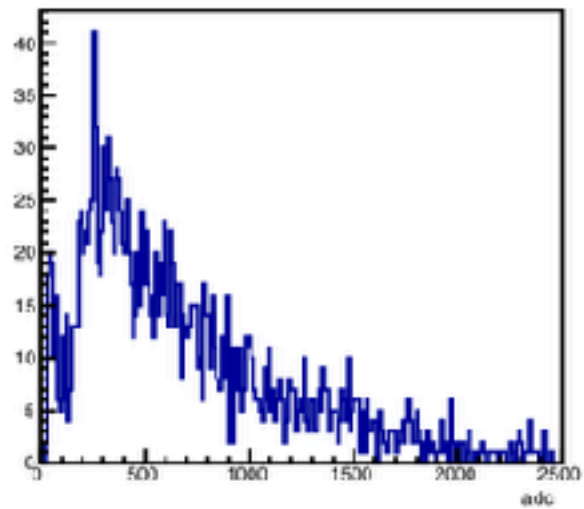


# MPPC QDC

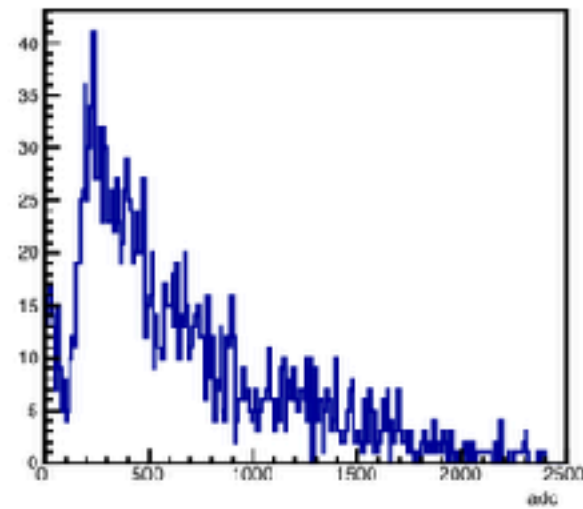
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## Distributions of QDC-Mean<sub>Pedestal</sub>

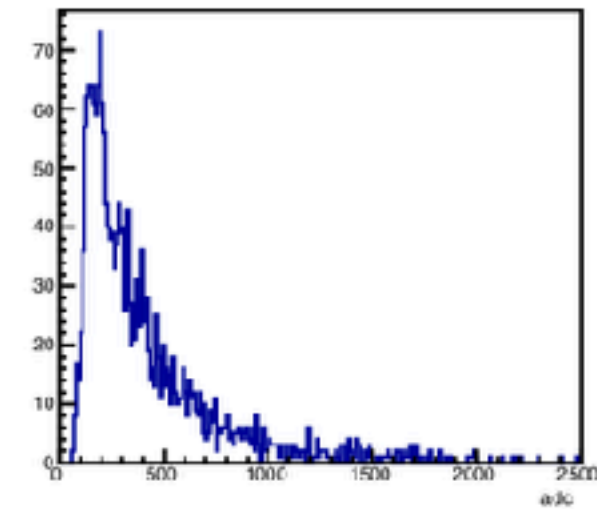
Trigger Bottom1, rawadc ch# 0



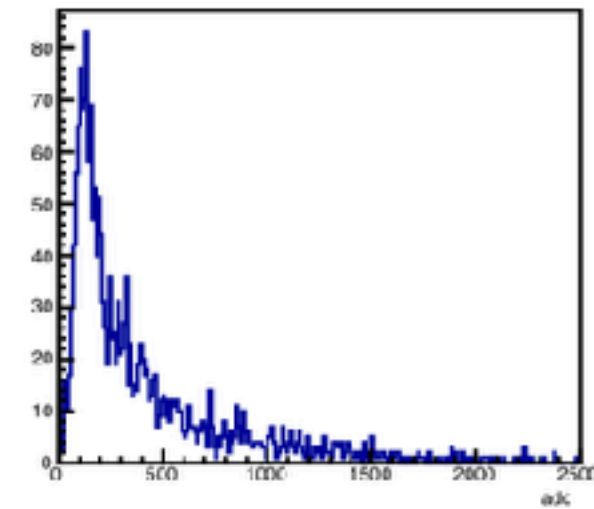
Trigger Bottom2, rawadc ch# 1



Trigger Top1, rawadc ch# 2



Trigger Top2, rawadc ch# 3

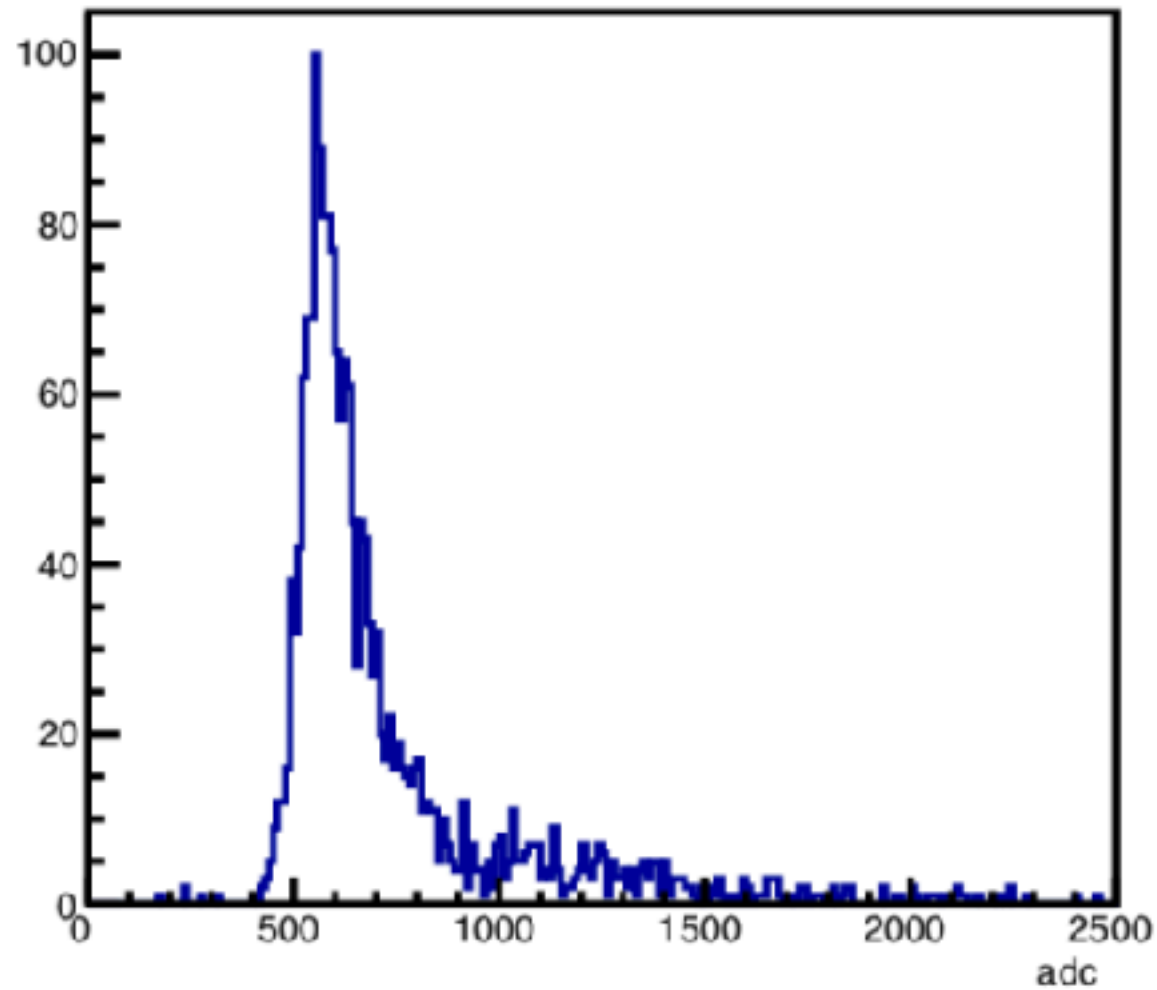


# HODOSCOPE'S PMT QDC

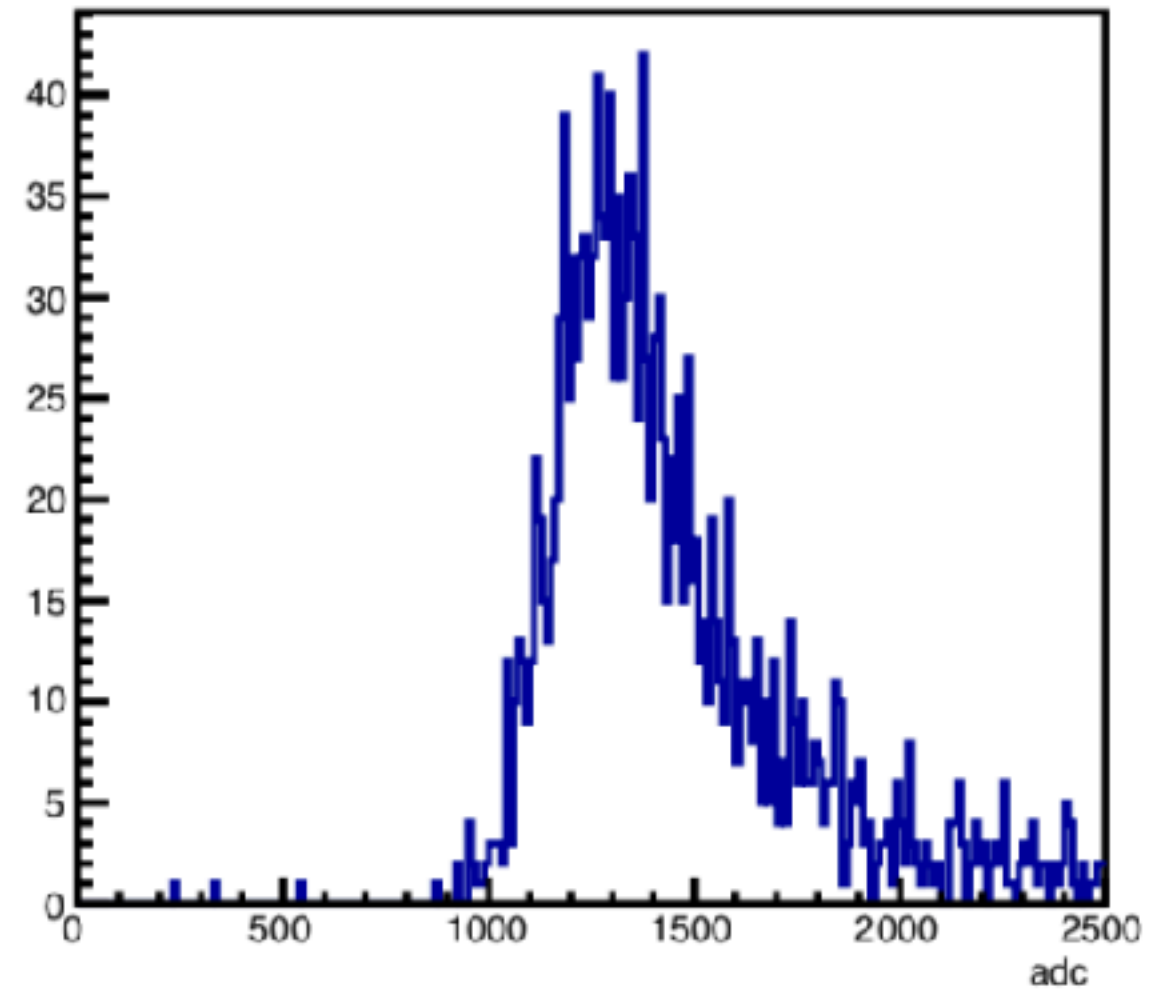
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## Distributions of QDC-Mean<sub>Pedestal</sub>

Hodo PMT1, rawadc ch# 4



Hodo PMT2, rawadc ch# 5

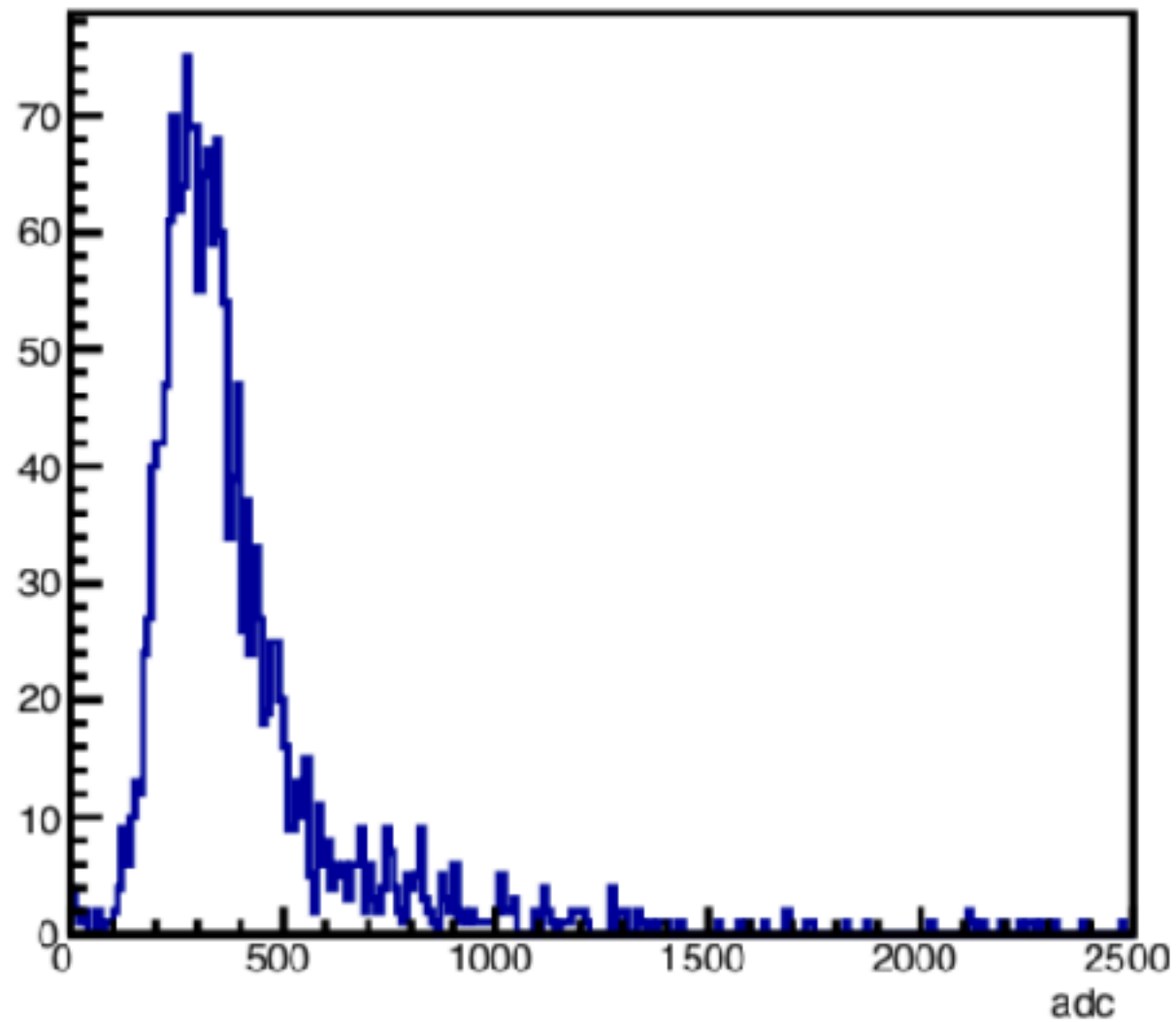


# HODOSCOPE'S MPPC QDC

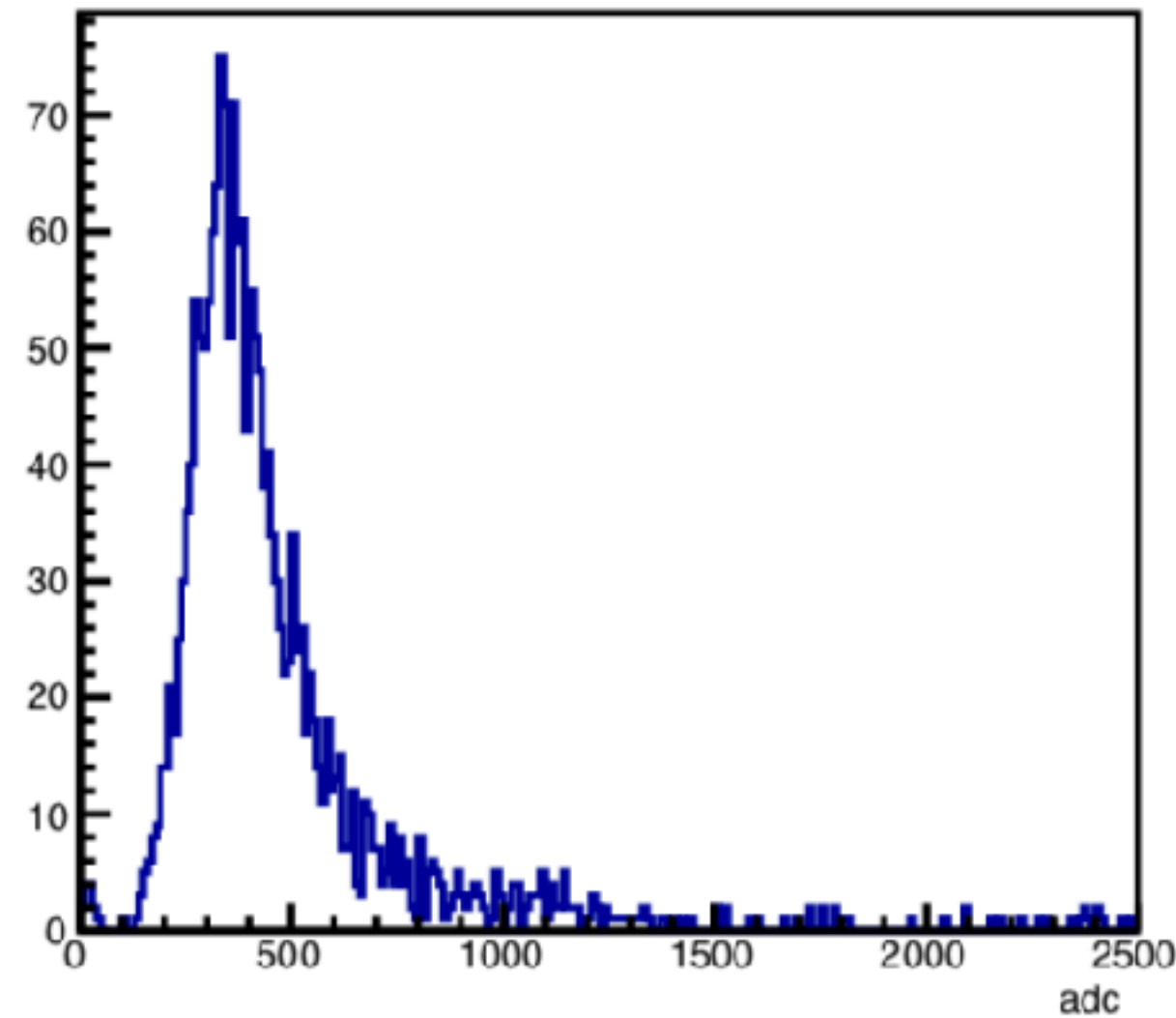
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## Distributions of QDC-Mean<sub>Pedestal</sub>

Hodo MPPC left 2, rawadc ch# 8



Hodo MPPC right 2, rawadc ch# 9



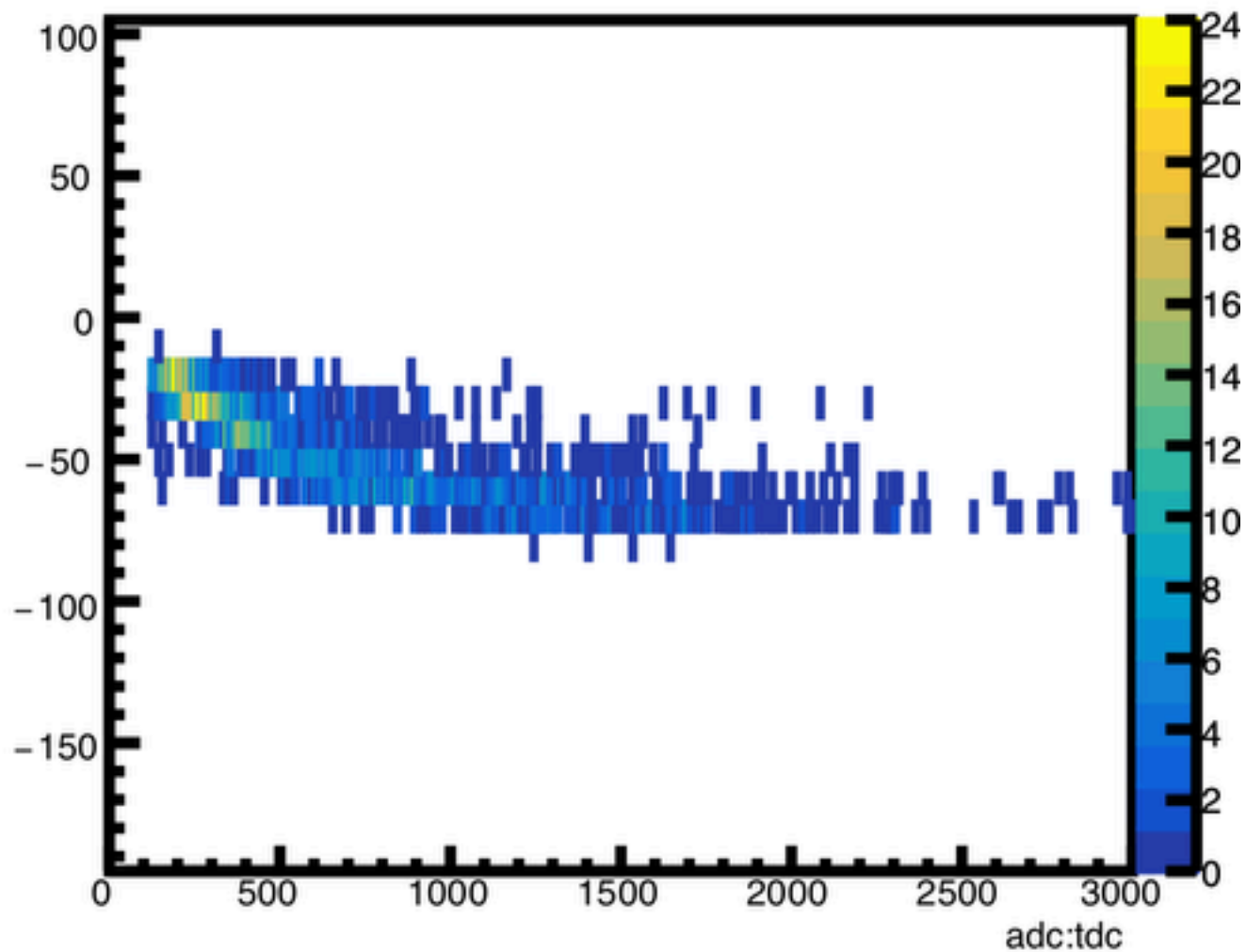


# TRIGGER COUNTER SLEWING STRUCTURE

## Trigger counters

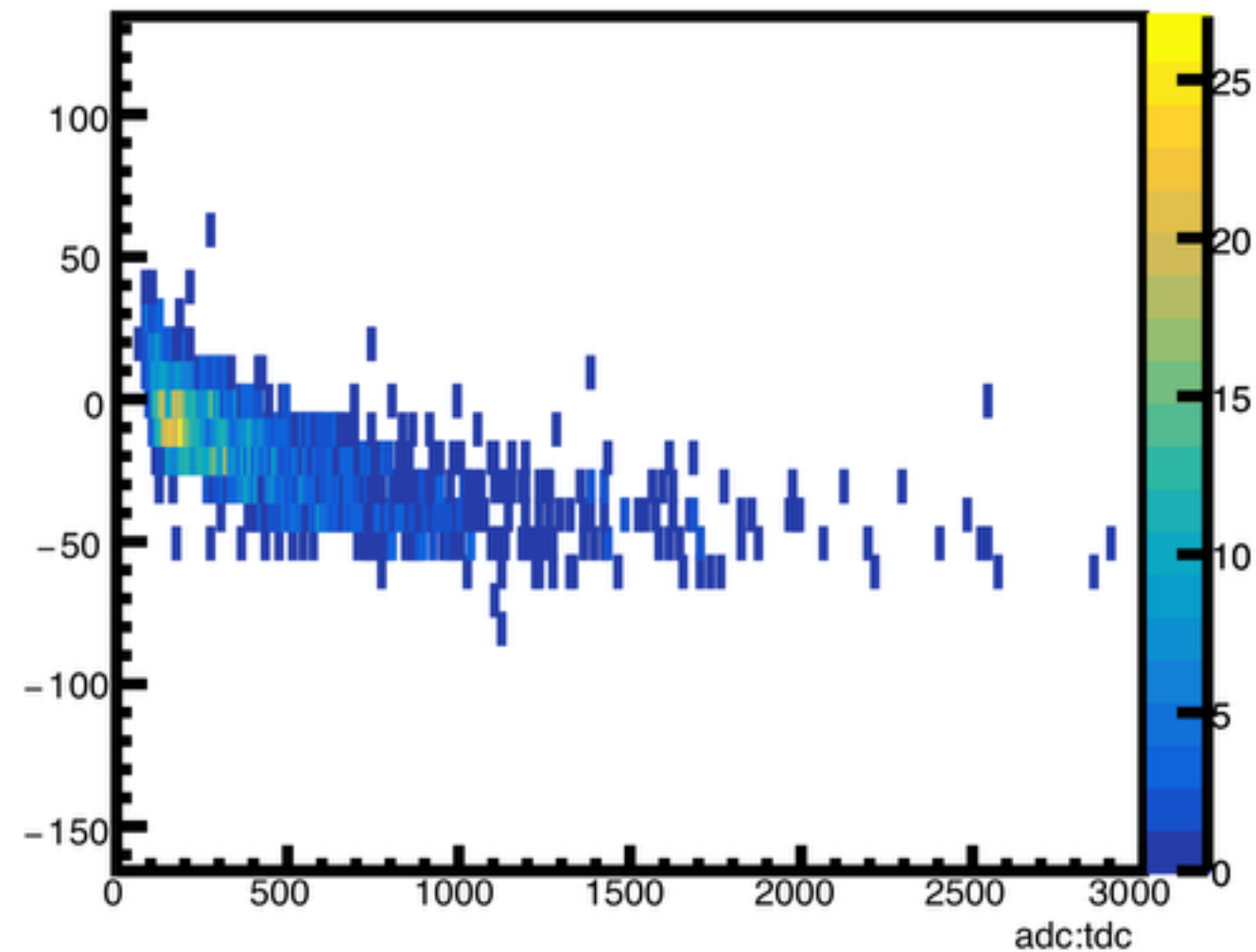
### Bottom trigger

1 times, before timewalk correction, Trigger Bottom2



### Top trigger

1 times, before timewalk correction, Trigger Top1

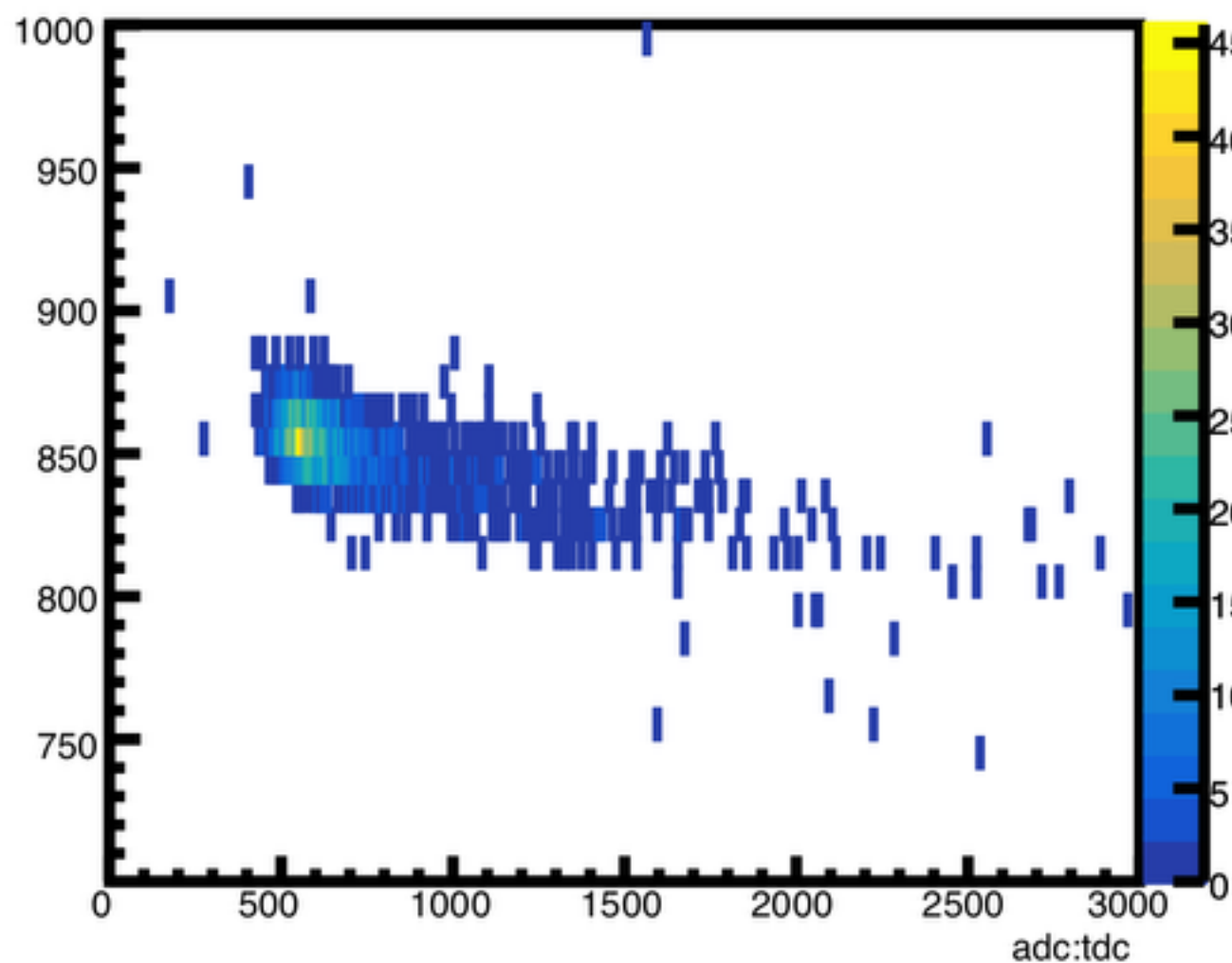


# HODOSCOPE'S SLEWING STRUCTURE

## Real size scintillator

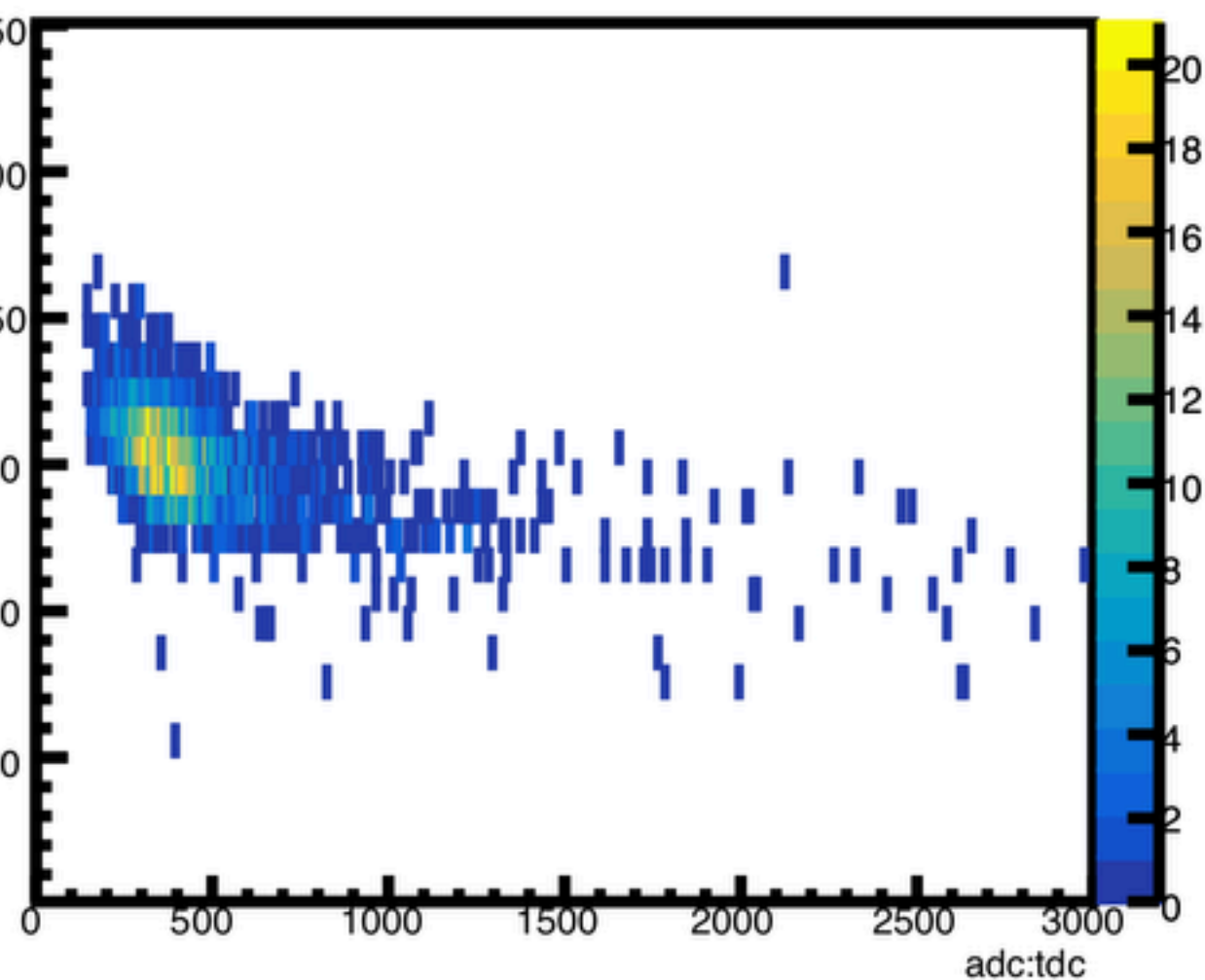
### PMT

1 times, before timewalk correction, Hodo PMT1



### MPPC

1 times, before timewalk correction, Hodo MPPC left 1



# BACKUP

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