

# SDU #3 cosmic test result

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# New SDU #3 module

Module No.	WLS fiber	Scintillator	Lead layer	Fiber end	Reflective layer	Front plate	Coating
SDU #3	Y11	Kedi(enhanced)	US company	Silver mirror	Print paper	No holes	SiO <sub>2</sub> +glue(1:1)

Comparing with SDU #2, the improvement is fiber and use more SiO<sub>2</sub> ratio.

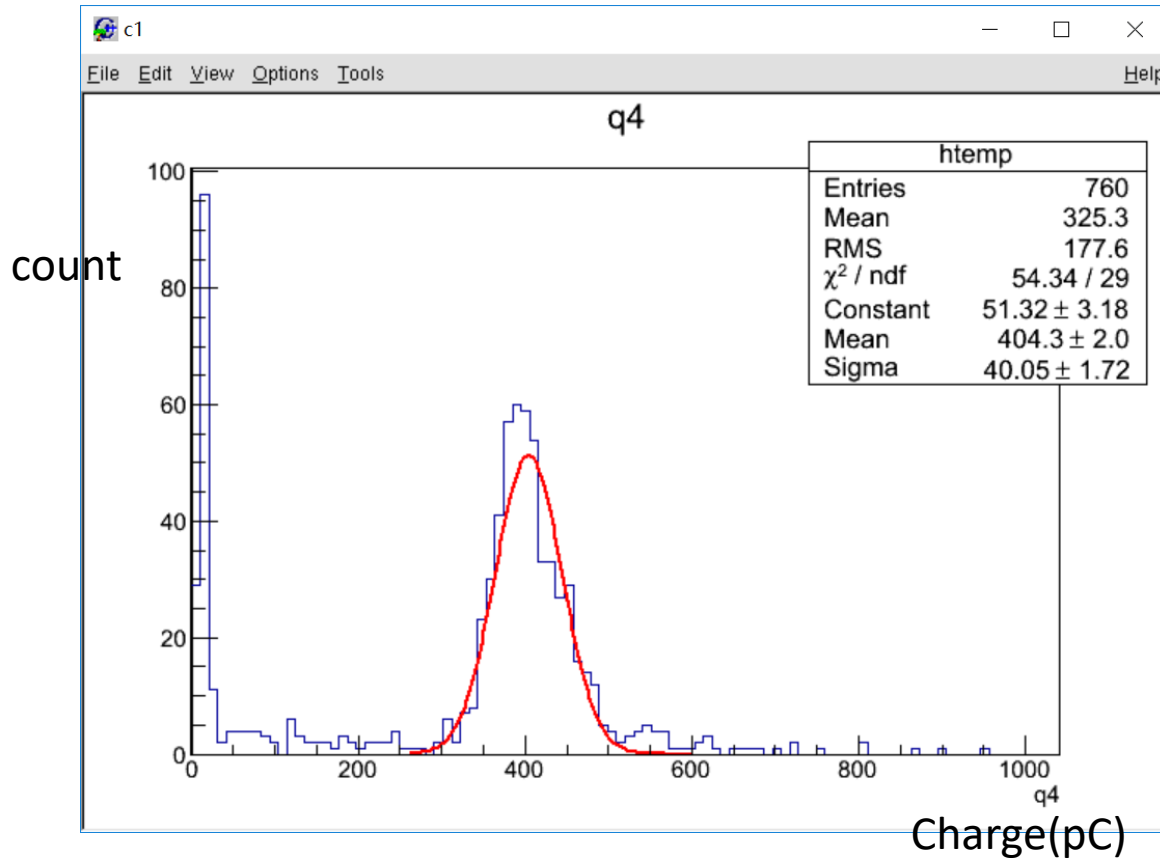
trigger

trigger

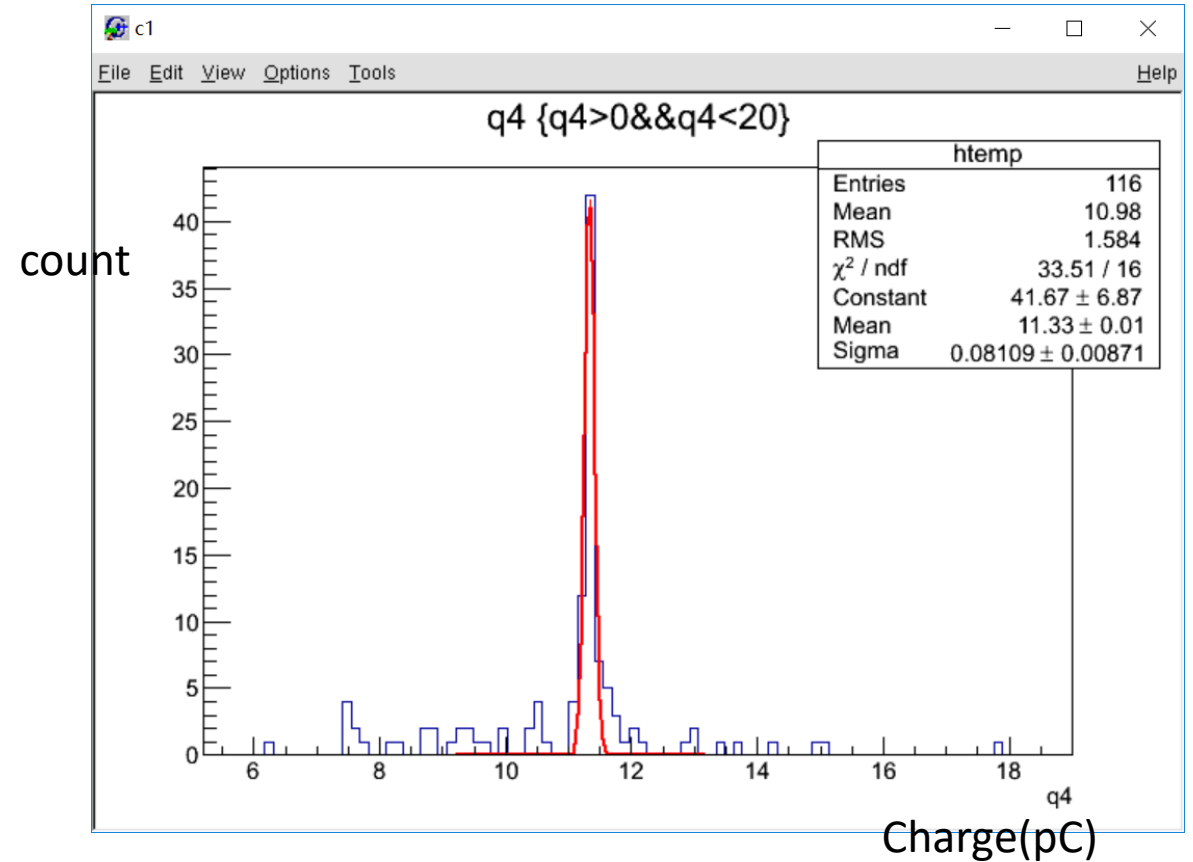


# Vertical test result

## Signal



## Pedestal

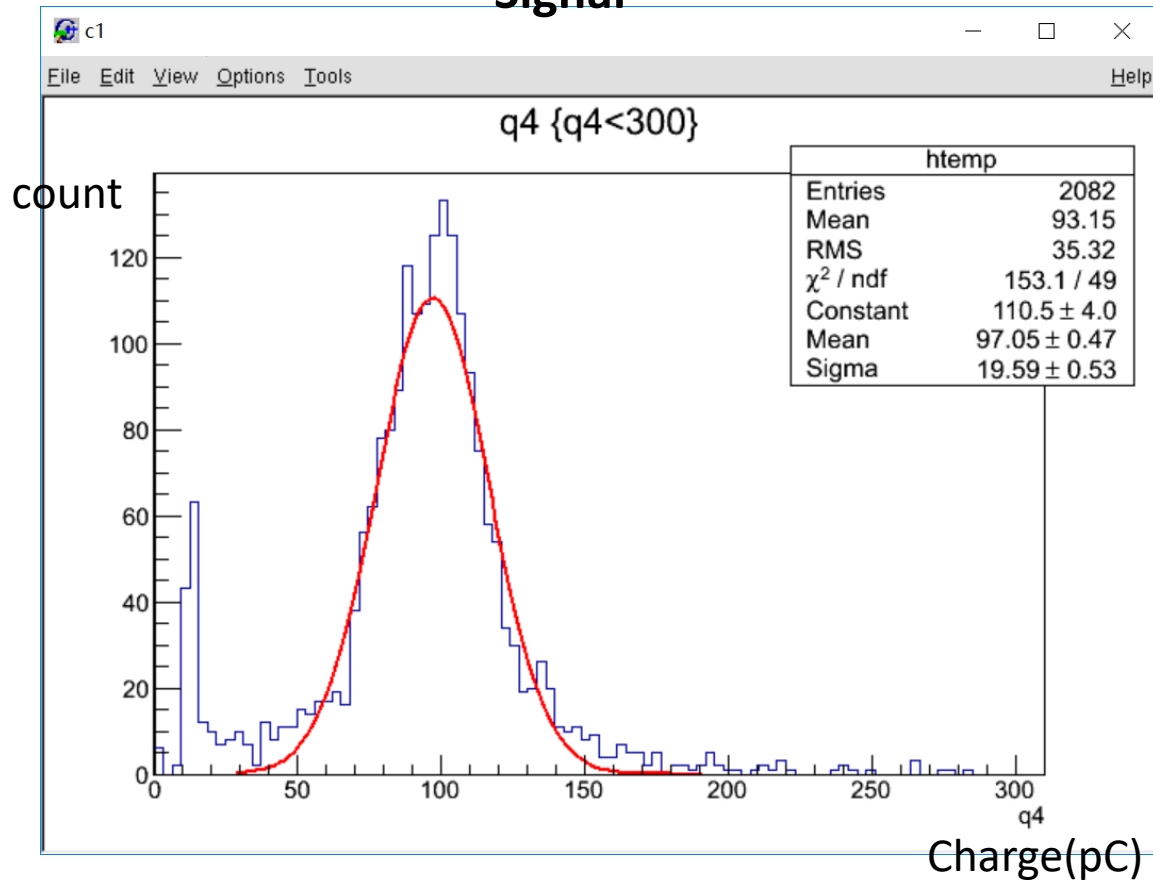


$$\frac{(MPV - Ped)}{e \times Gain} = 491.3 \text{ photo-electrons (Gain} = 5 \times 10^6)$$

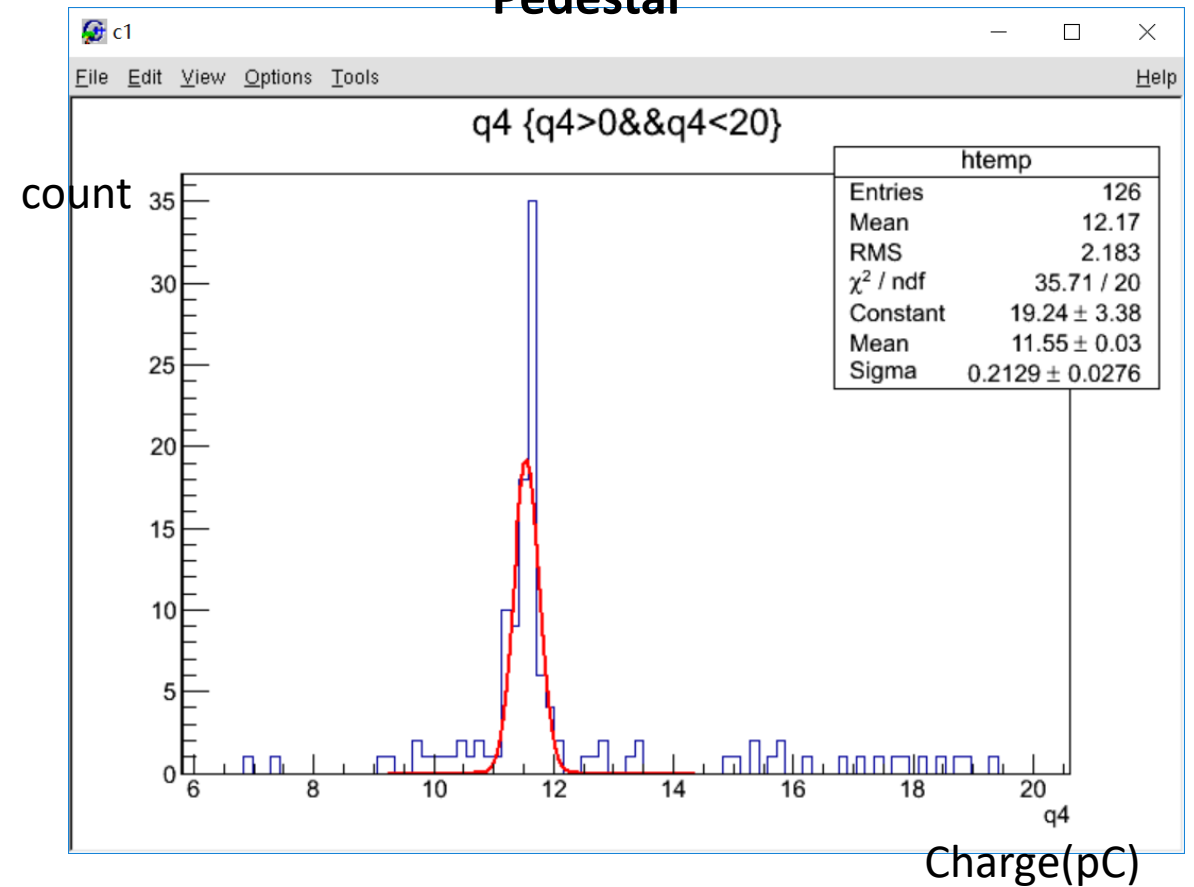
For preshower test, Y11 light yield is twice of BCF91. Comparing with SDU #2(426.5), our result is only 15% better. (Maybe SDU #3 mirror quality is bad or maybe fiber test use different scintillator)

# Horizontal test result

## Signal



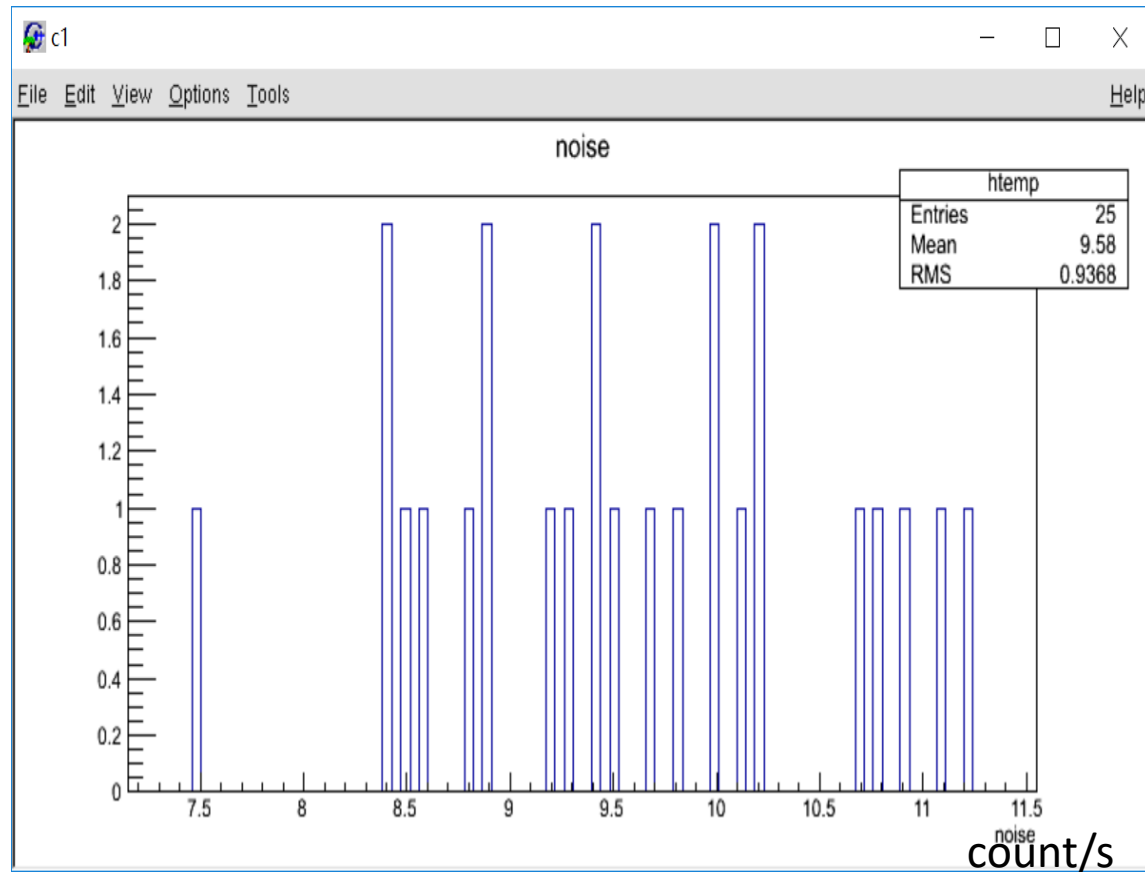
## Pedestal



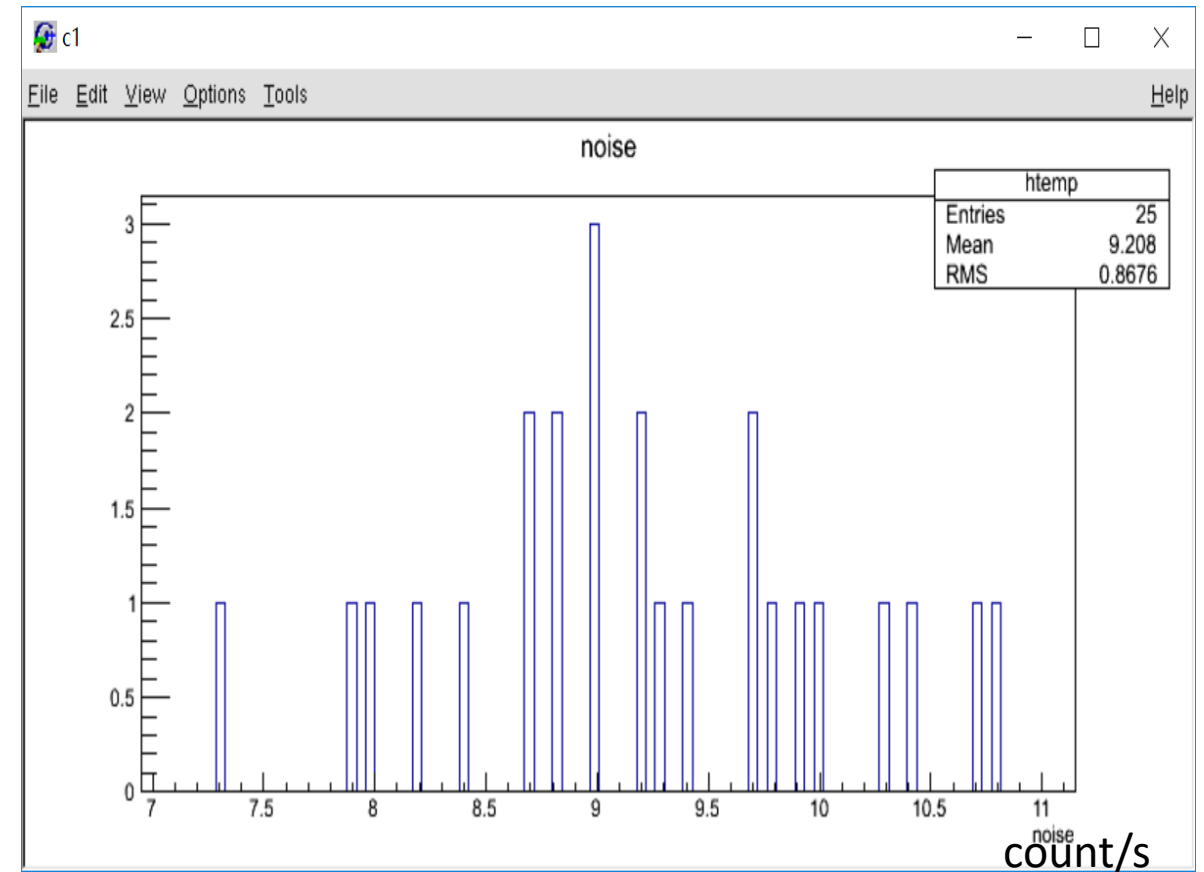
$$\frac{(MPV - Ped)}{e \times Gain} = 106.9 \text{ photo-electrons (Gain} = 5 \times 10^6 \text{)}$$

# Detector “noise” rate (triggered by itself)

Vertical



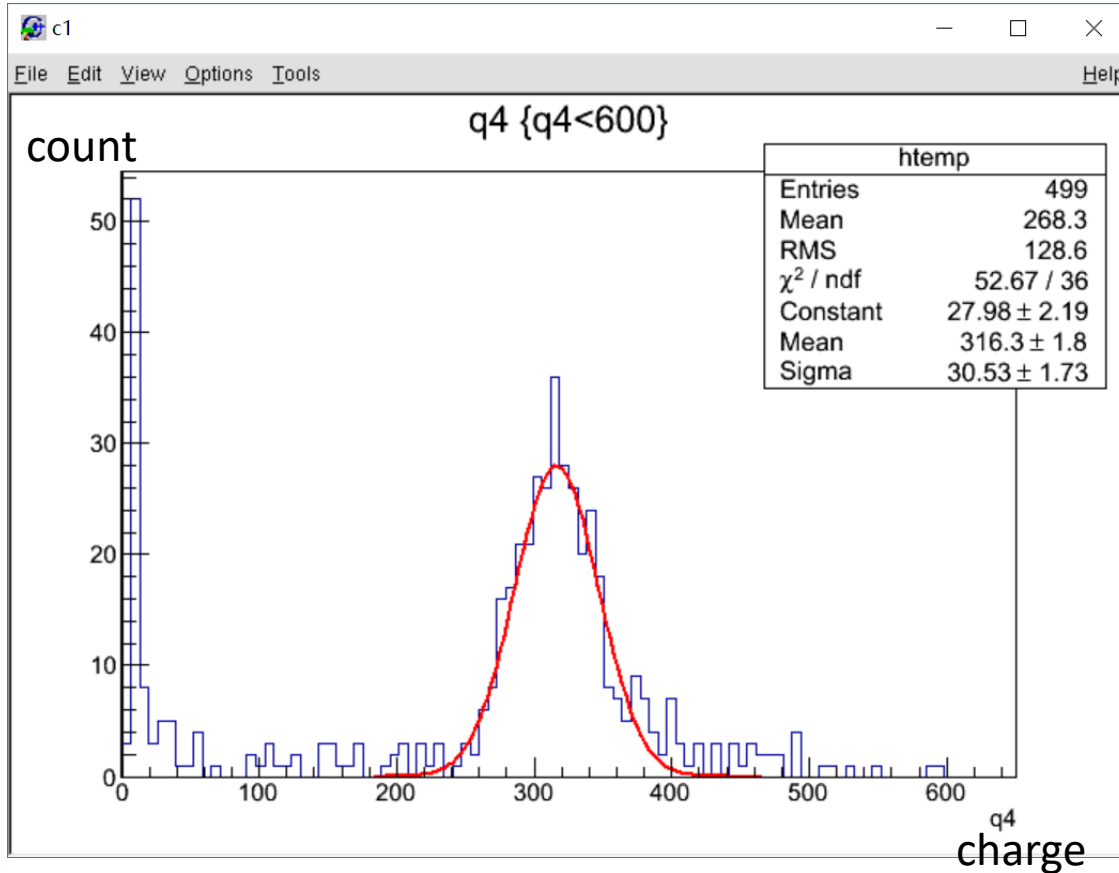
Horizontal



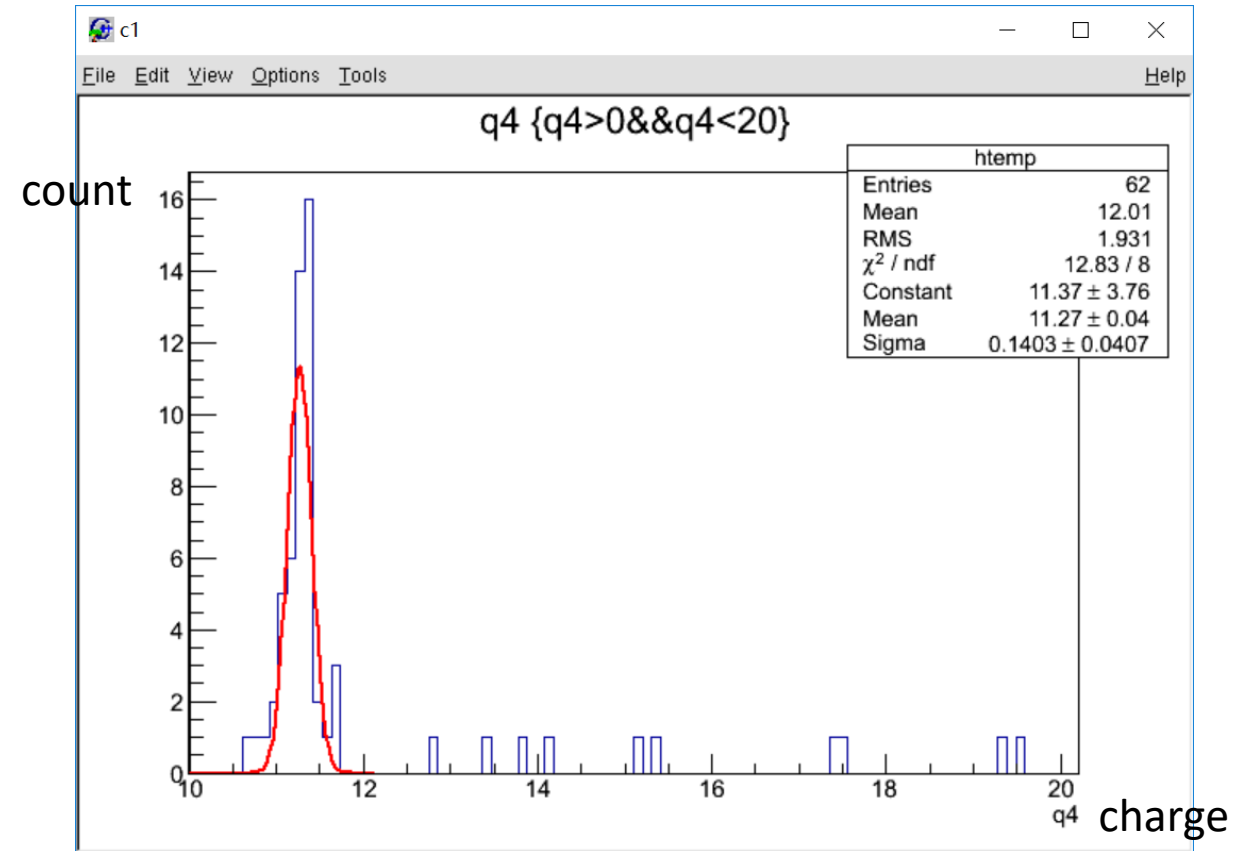
Threshold 100mV (10 SPE)

# SDU #3 cosmic test without coating

Signal



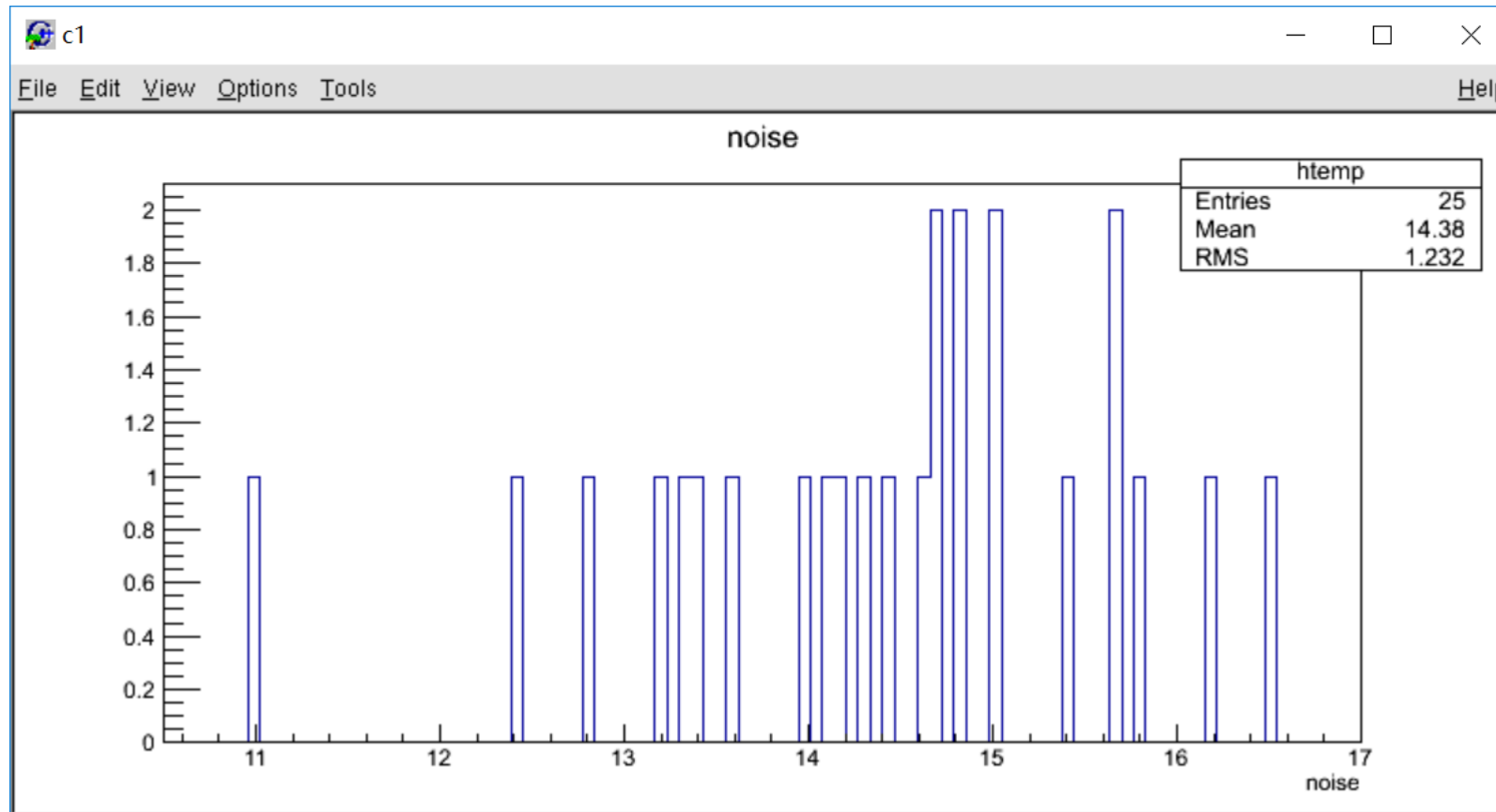
Pedestal



$$\frac{(MPV - Ped)}{e \times Gain} = 381.3 \text{ photo-electrons (Gain} = 5 \times 10^6)$$

Coating add 29% photo-electron.

# “noise” rate without coating



- Rate is higher compared with coating.