2013_5_31_labmeeting

4 detector module

1	2
3	4

Inside of housing

holder

detector

Light
guide

PMT

60Co
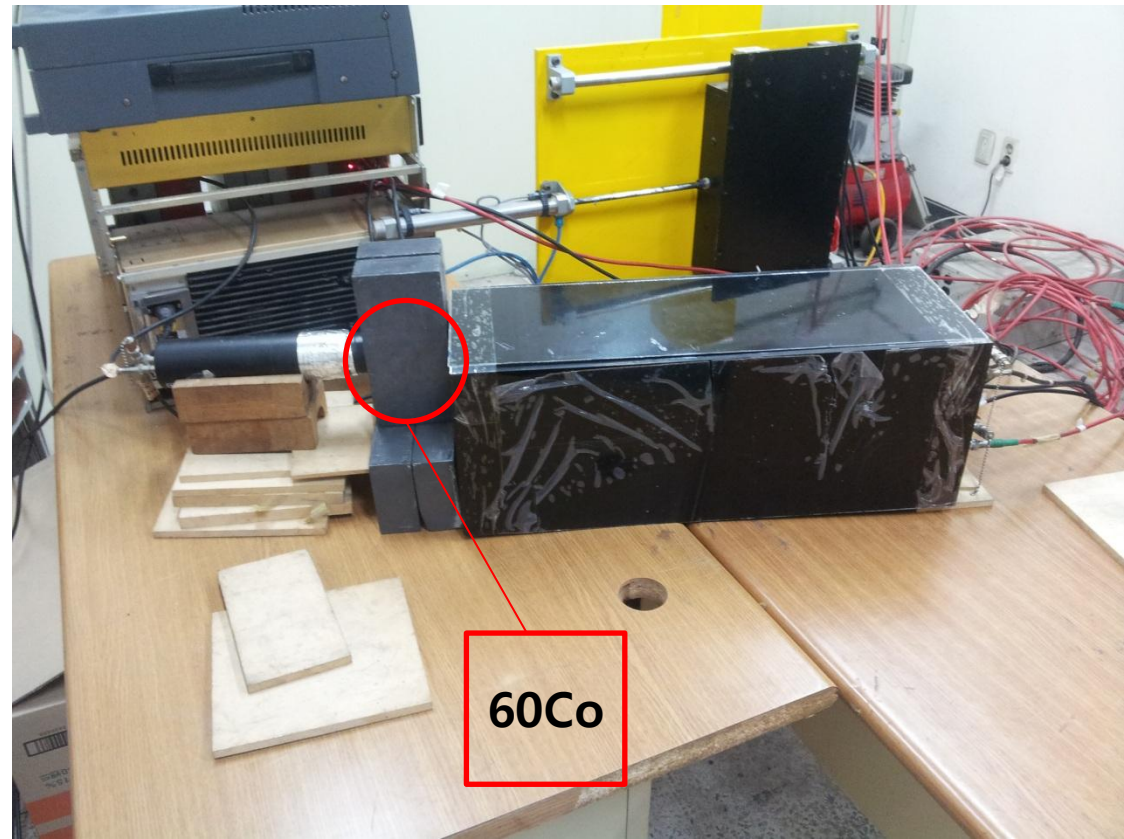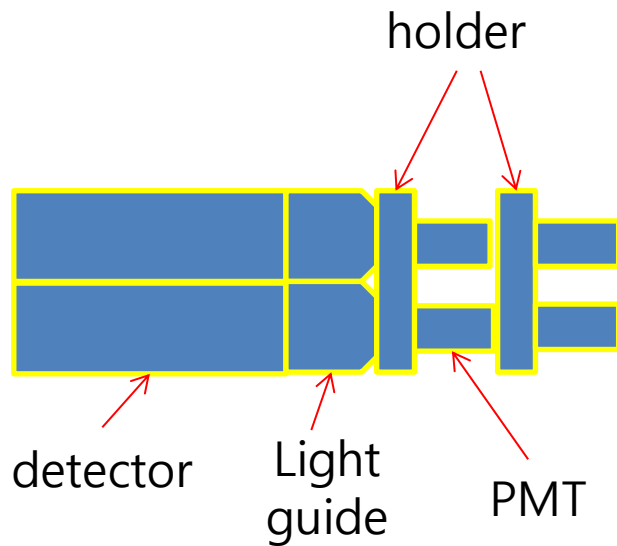
Circuit
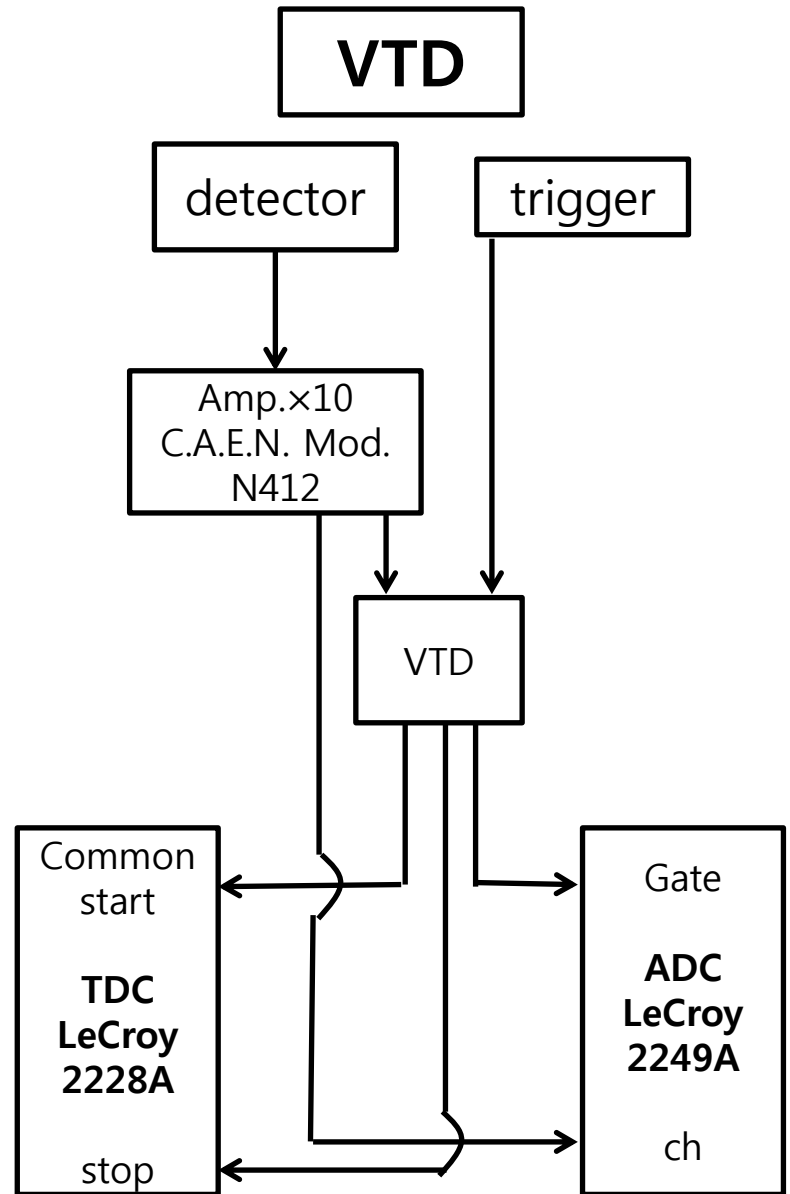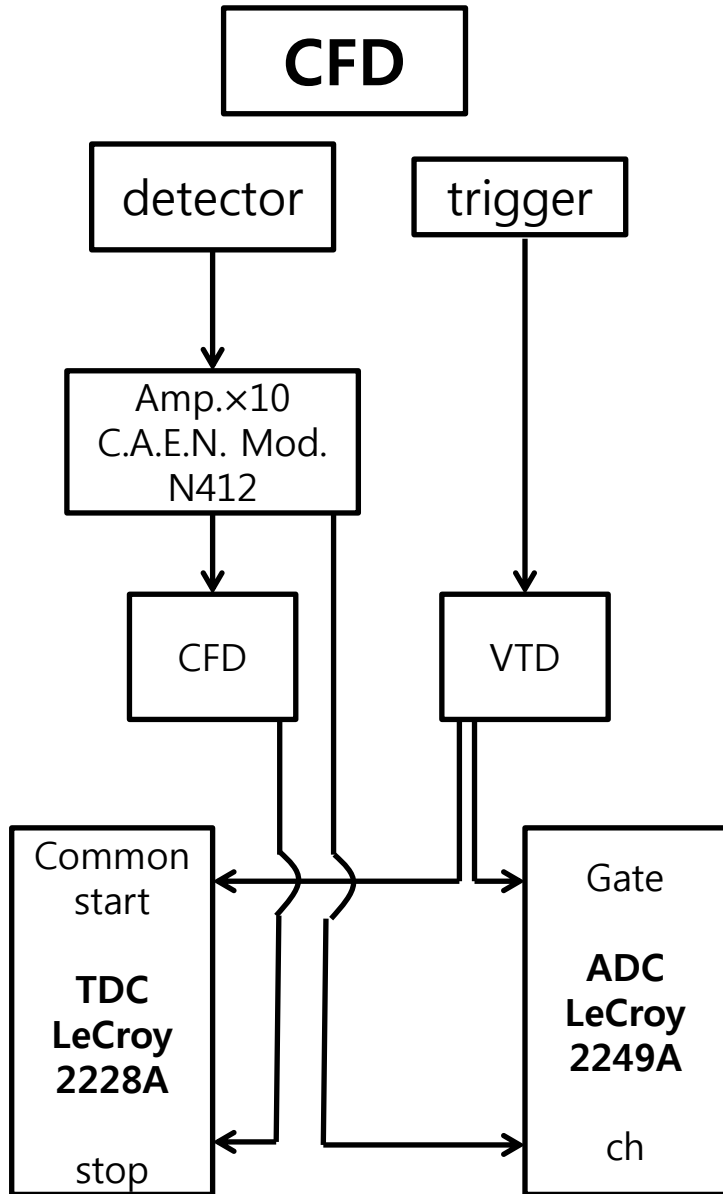
CFD condition

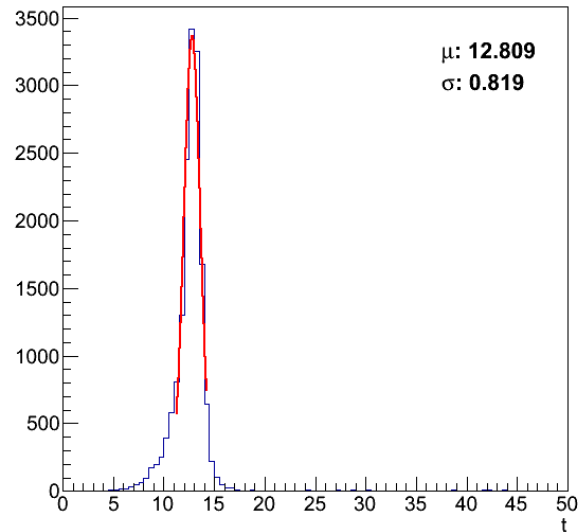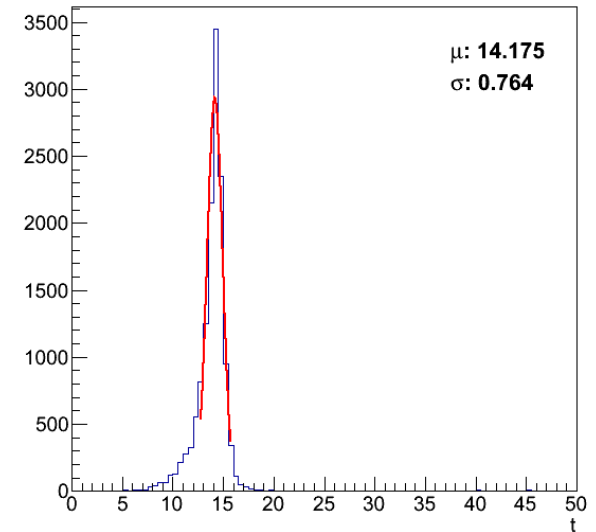|	D1	D2	D3	D4
H.V. (V)	2200	2350	2420	2250
Threshold (mV)	100	100	100	100

CFD pedestal

- 1: large sigma
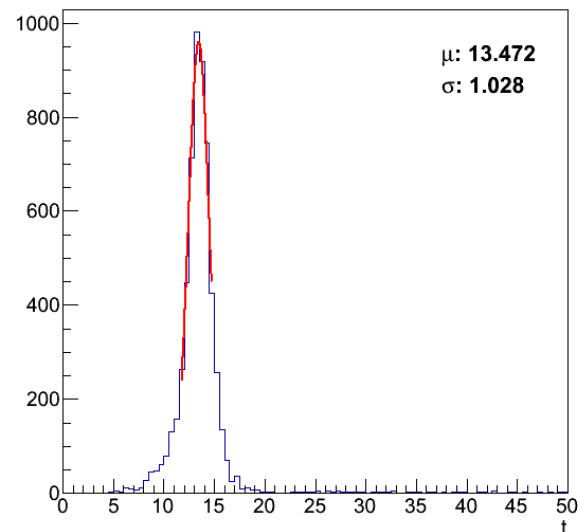- 3: small ADC
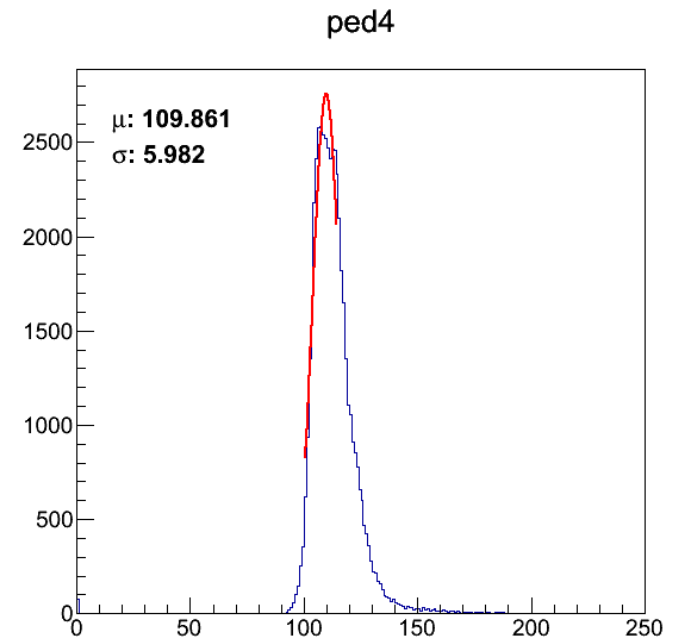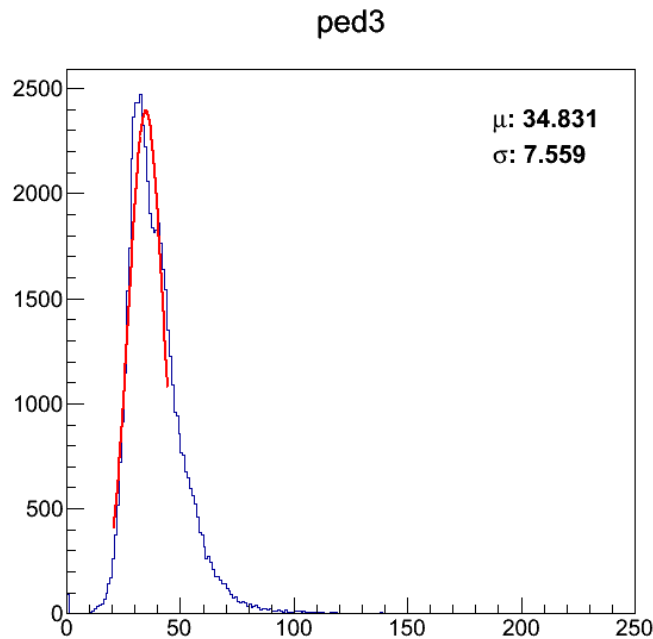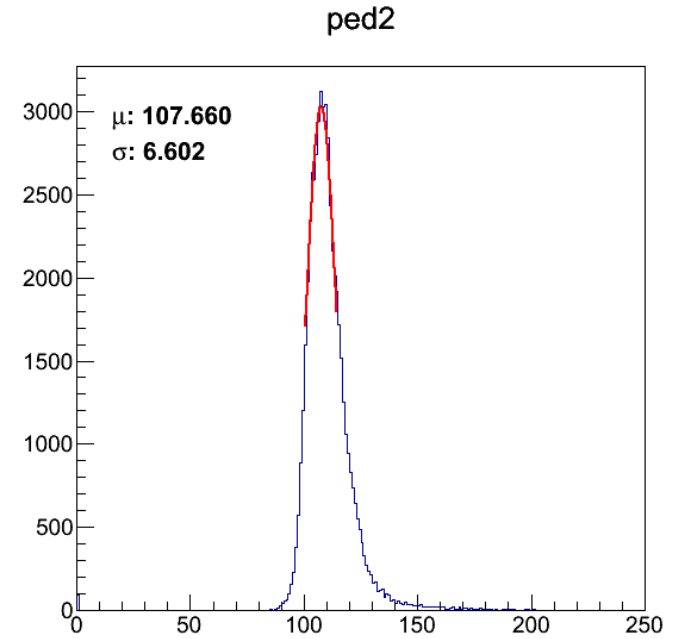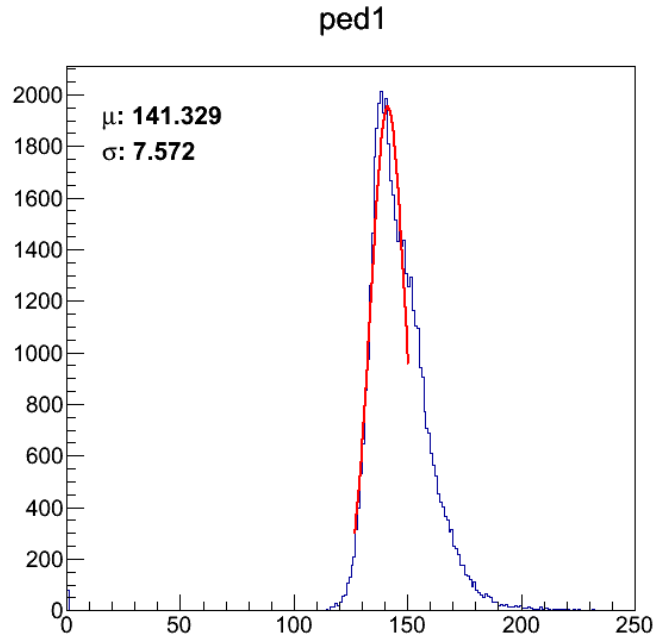
CFD TDC

- 3: resolution is very bad
- 4: fast
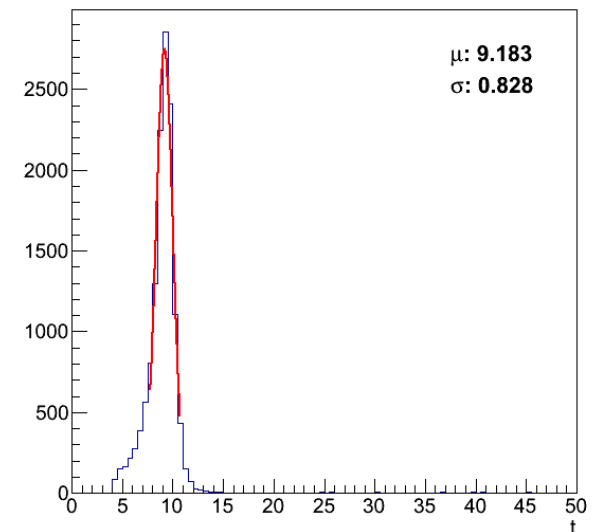
CFD ADC

Hard to see clear curve

- Use ±2σ TDC region
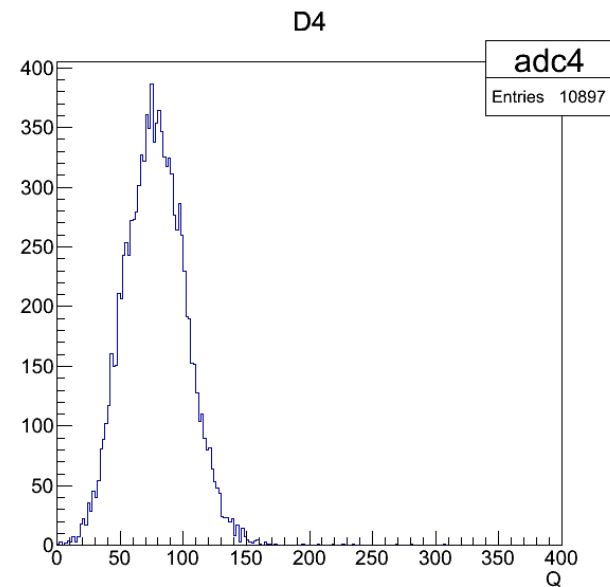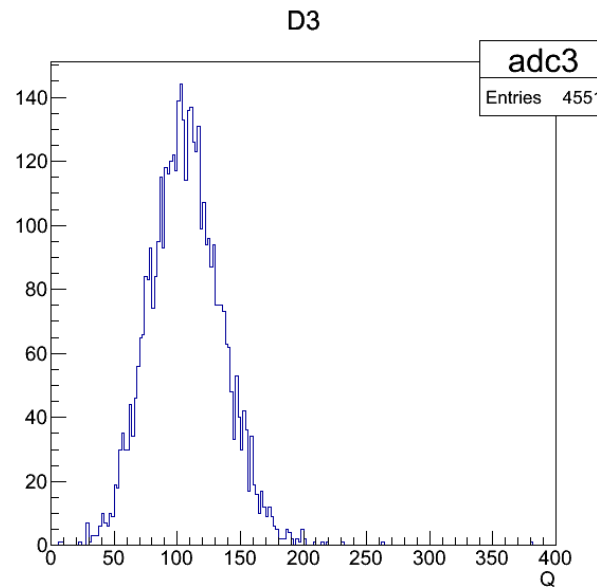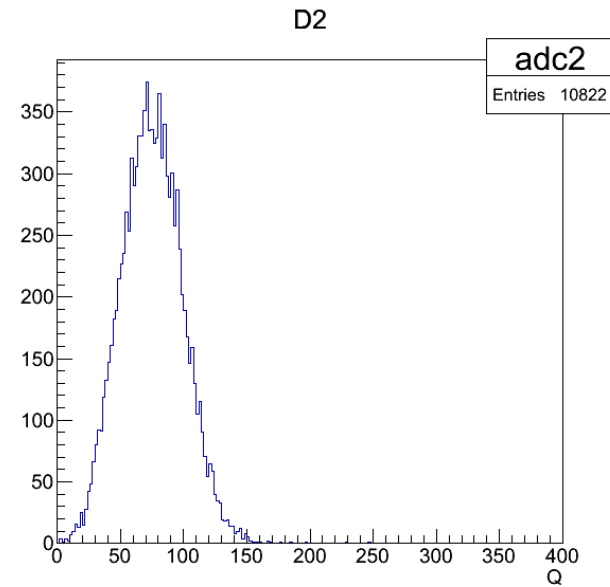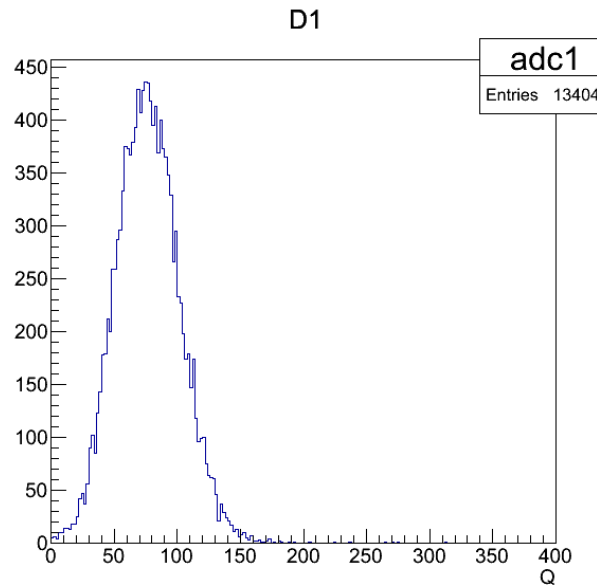
VTD setting

- It seems that detector-3 PMT makes late pulse
- CFD rejects late pulse
- So tested with VTD

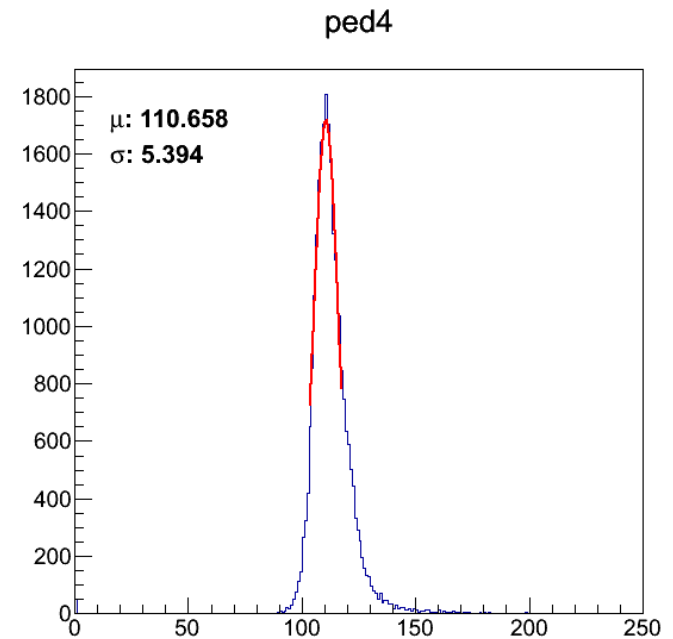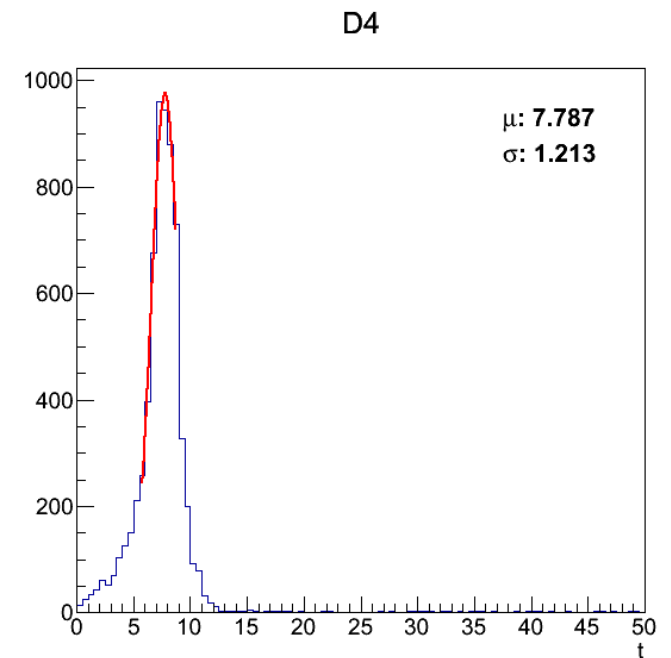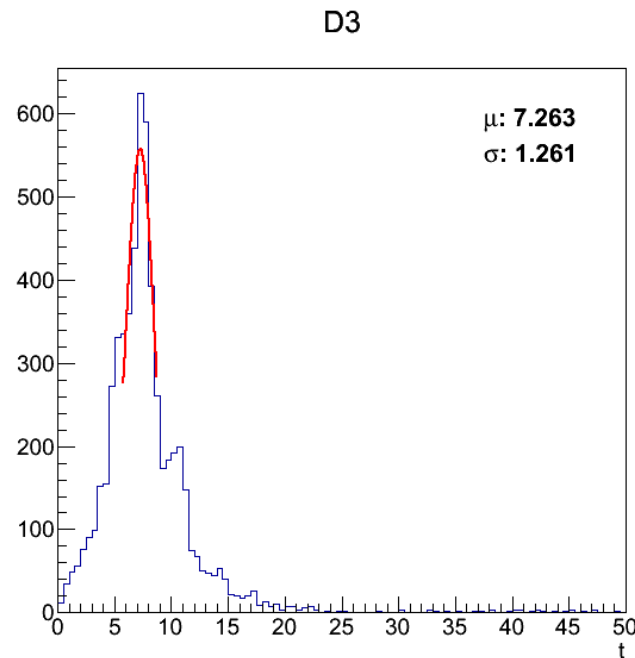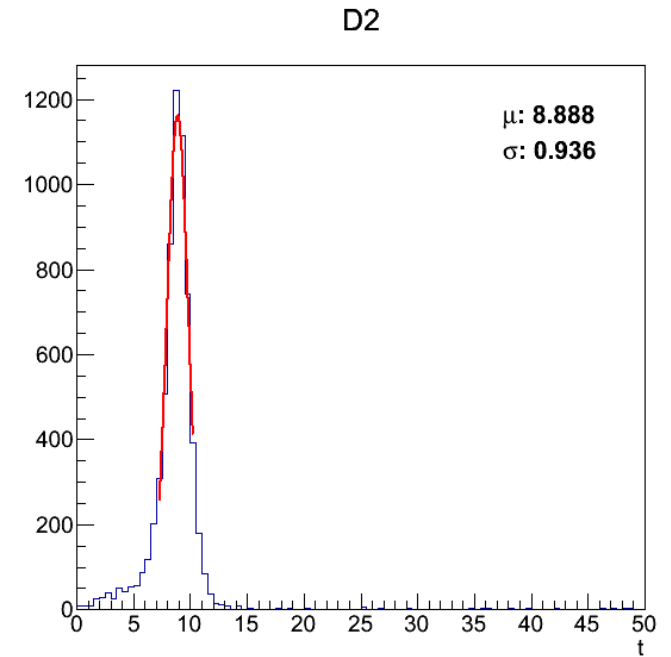|	D1	D2	D3	D4
H.V. (V)	2200	2350	2420	2250
Threshold (mV)	140	200	120	200
Noise rate (Hz)	231	385(180 mV)	176	424(160 mV)

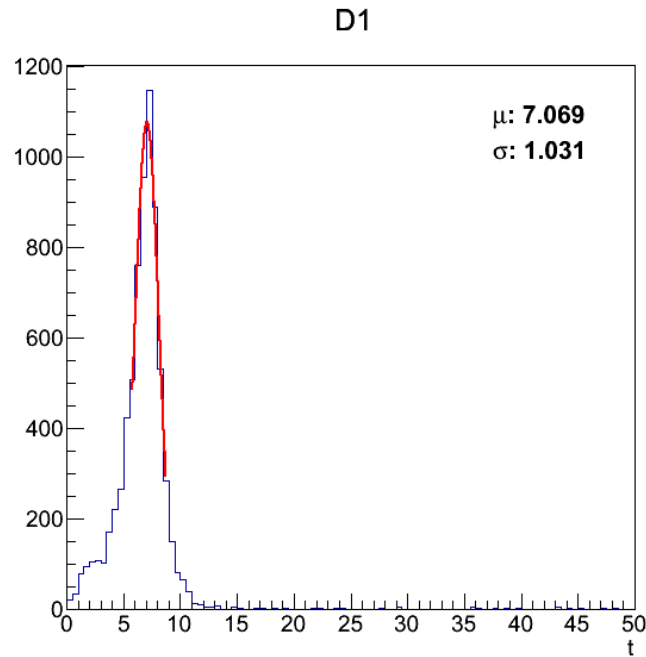# VTD pedestal

- Threshold changed
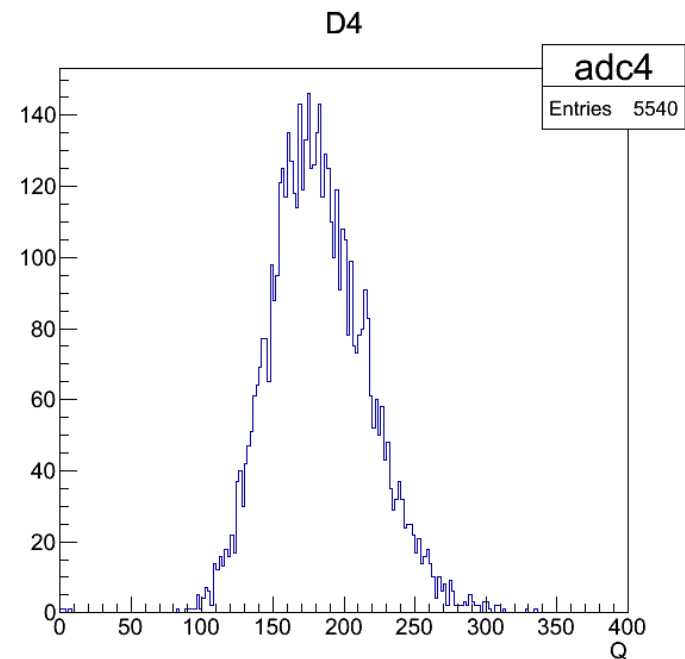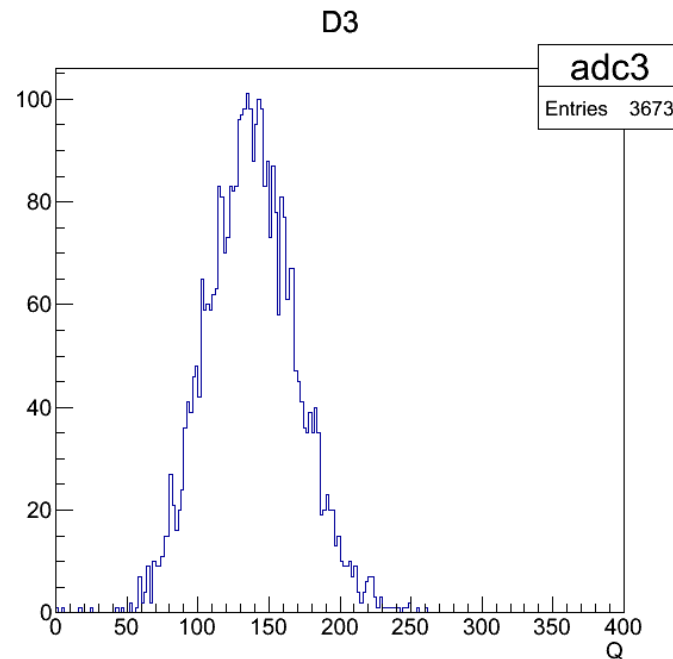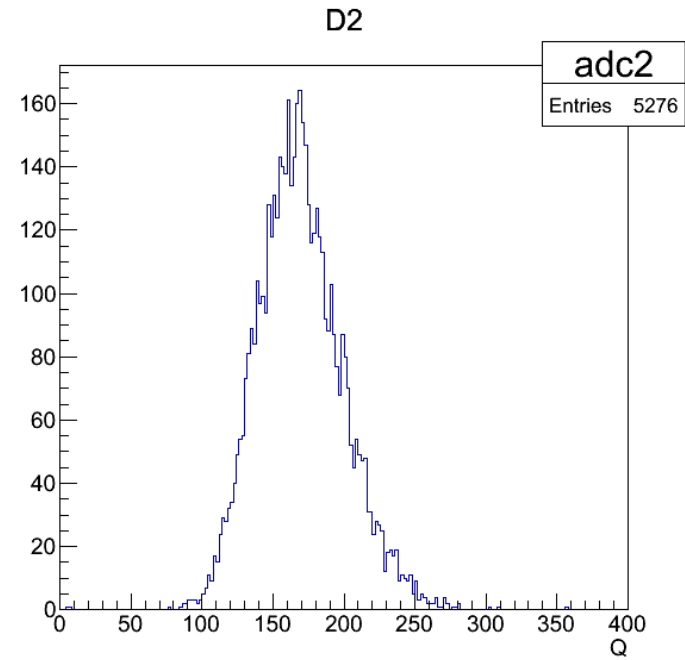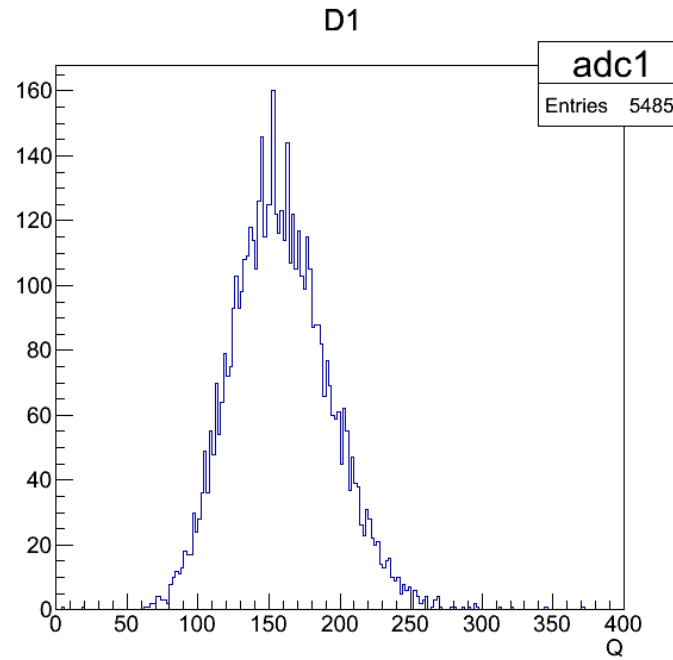- Still detector 3 show small value
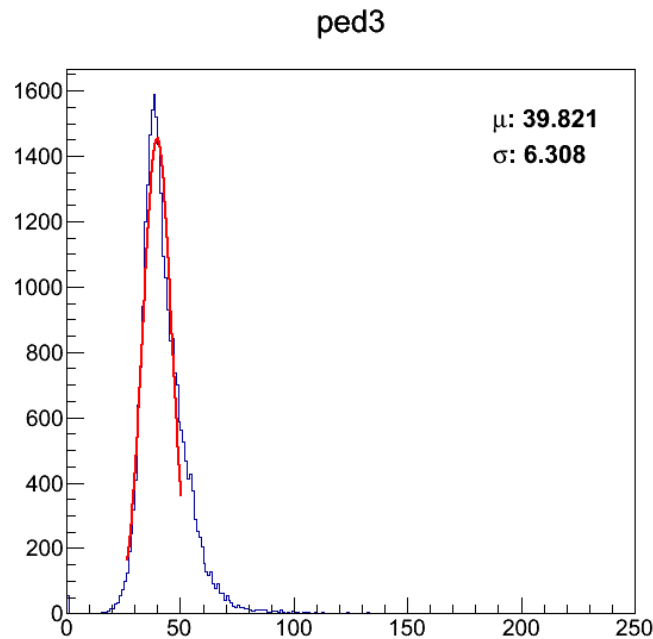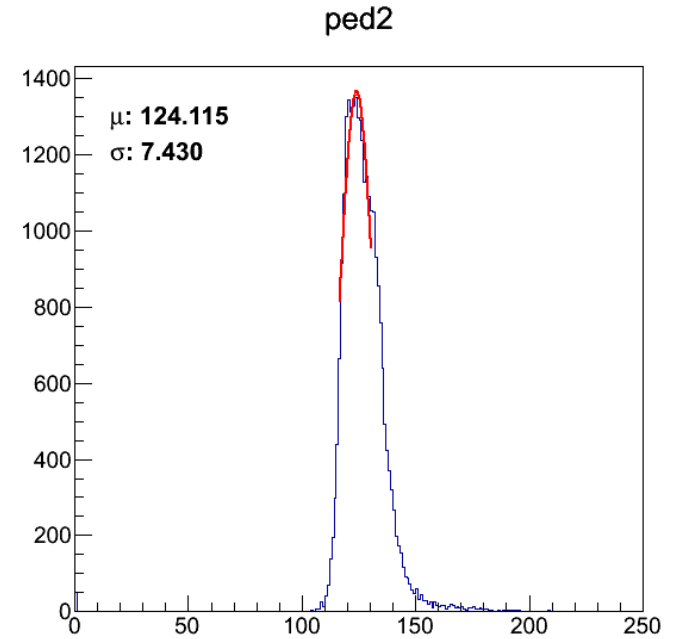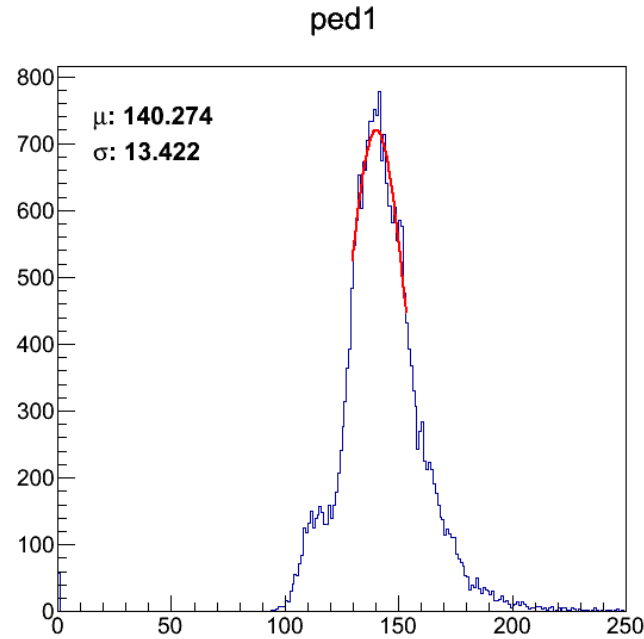
VTD TDC

- Resolution is worse

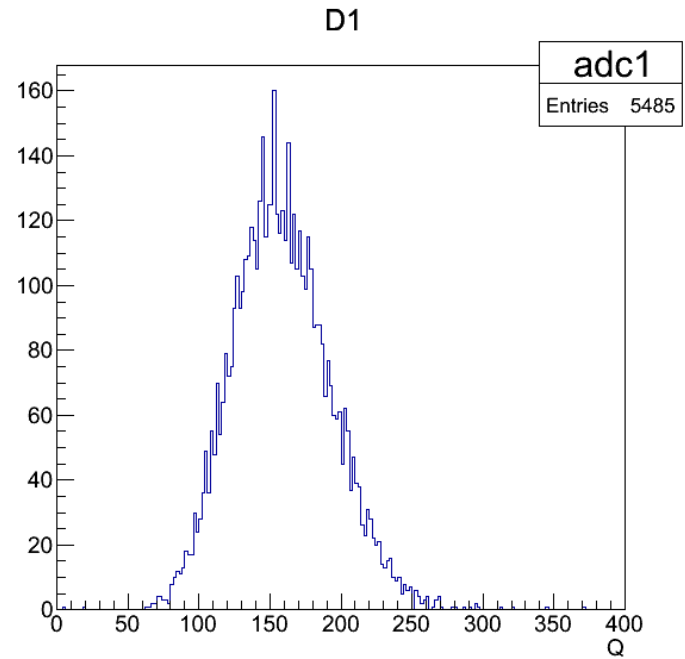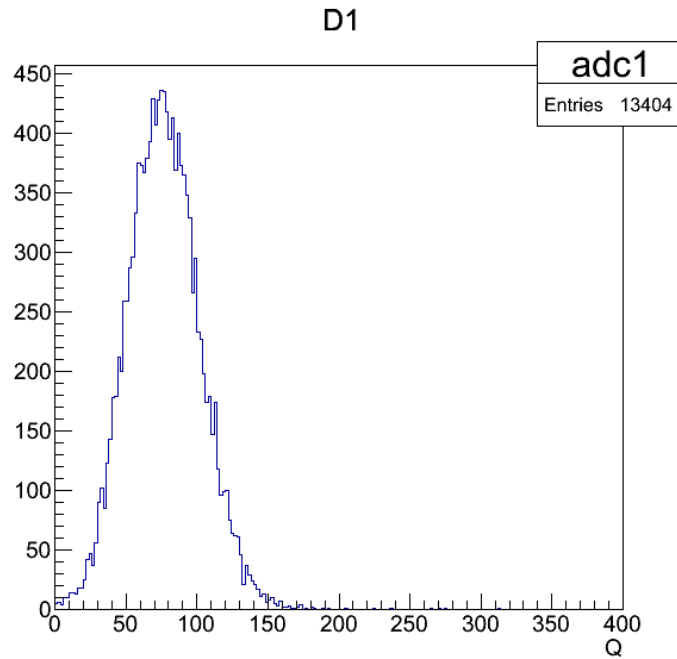- Detector 4 is not fast because of cabling
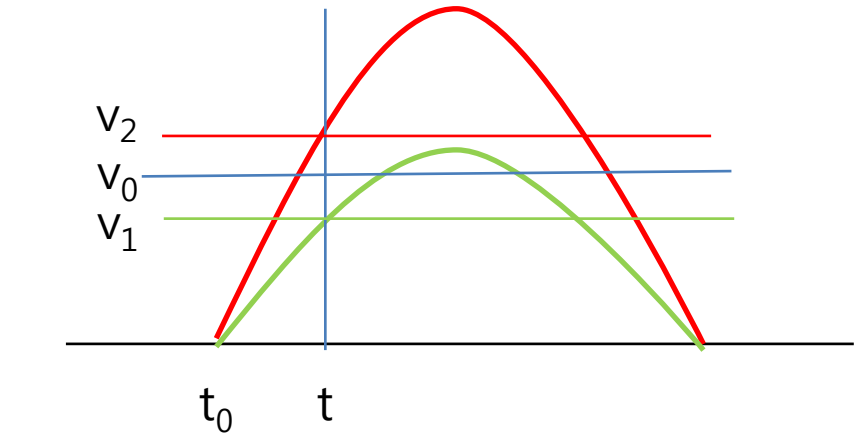
VTD ADC

- Still not clear

CFD

VTD

- High Voltage is same, threshold is different
- No low charge in VTD. It seems come from threshold
- Change to CFD with 8 ns interval

CFD(8 ns) condition
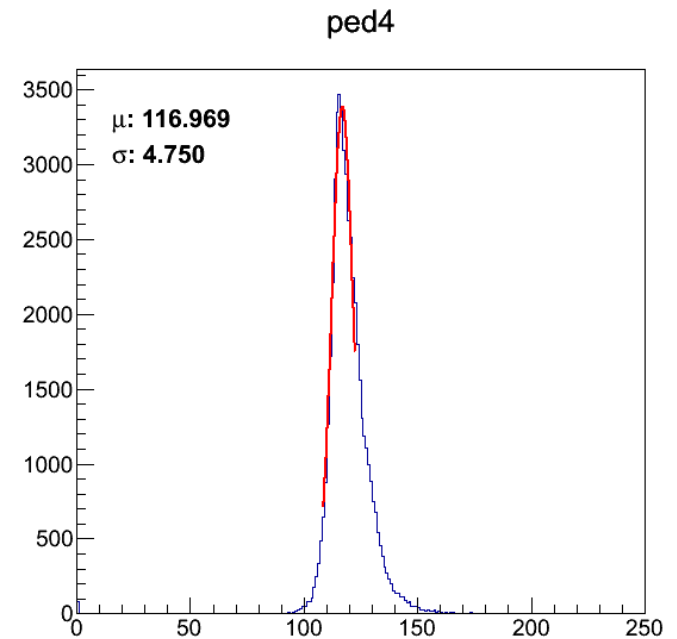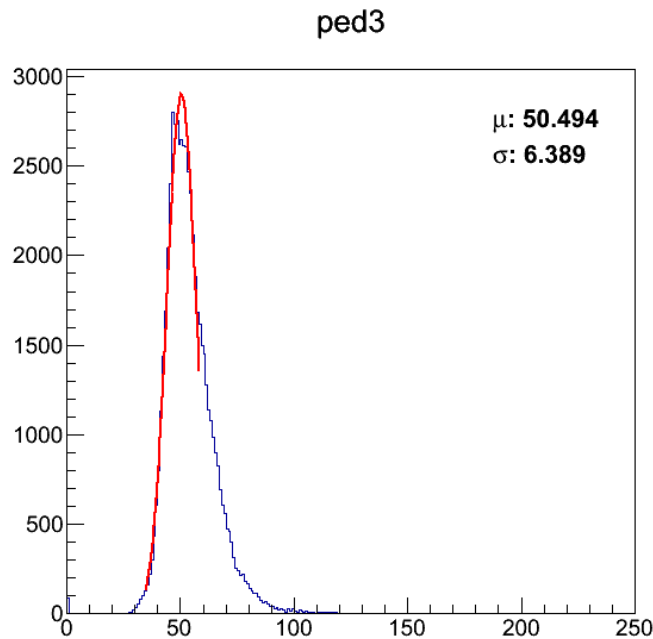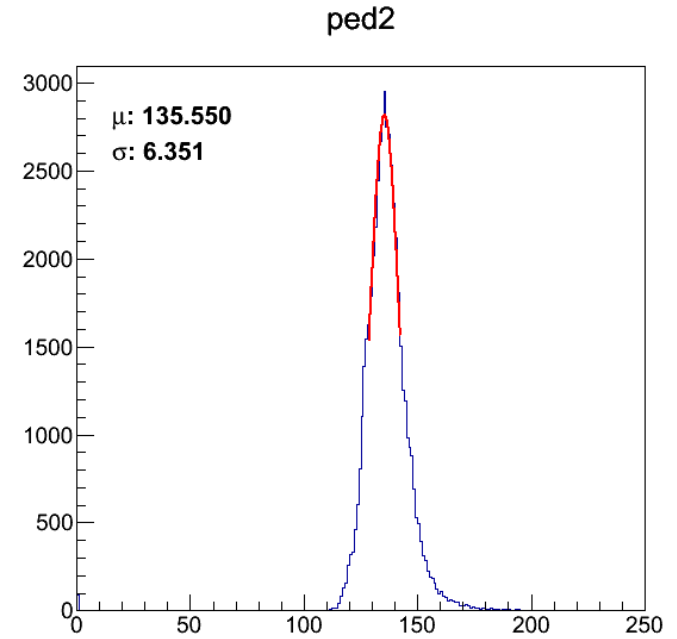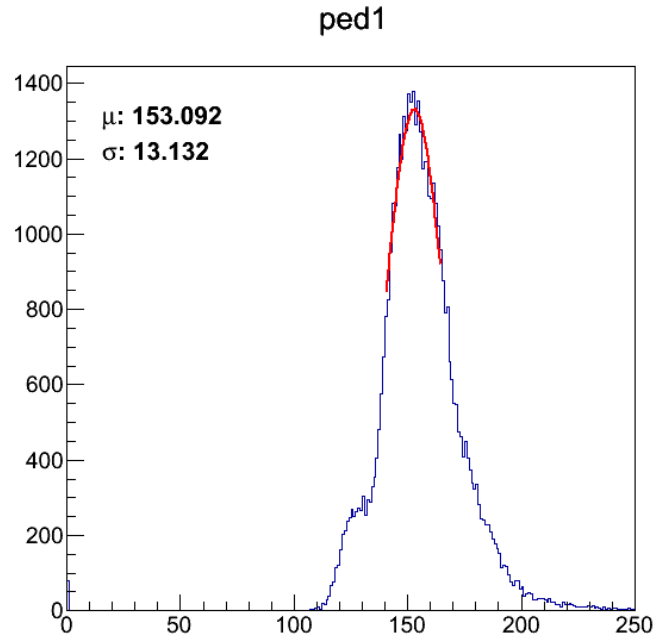
- Changing interval means shifting 't'

- $\dfrac{V_2}{\Delta t} > \dfrac{V_0}{\Delta t} > \dfrac{V_1}{\Delta t}$ $(\Delta t = t - t_0)$

accepted   rejected

v_2
v_0
v_1

t_0 t

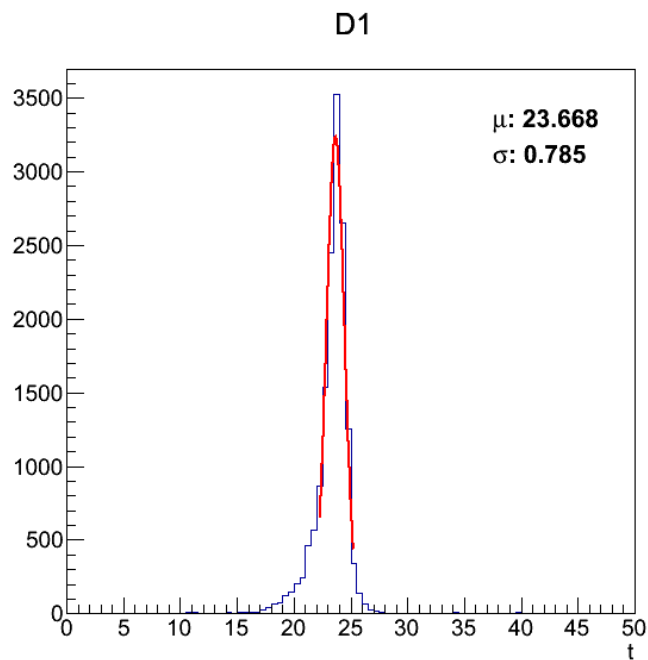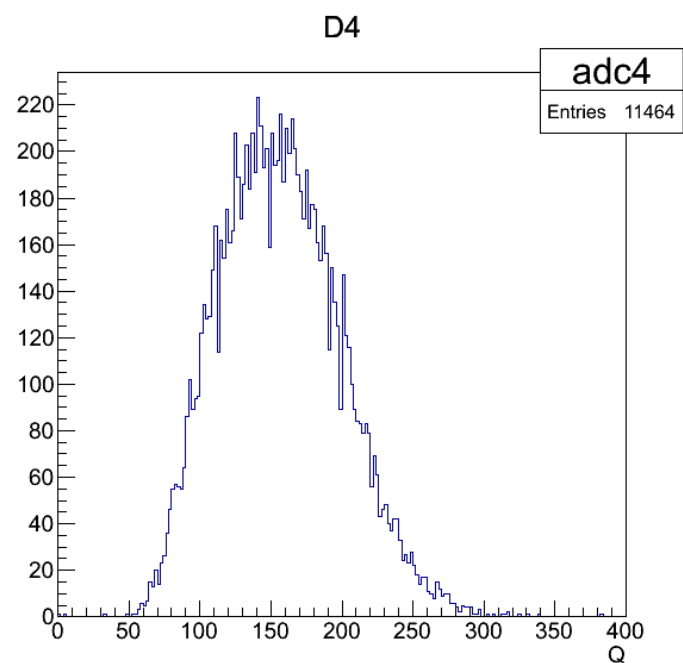|	D1	D2	D3	D4
H.V. (V)	2200	2350	2420	2250
Threshold (mV)	80	100	80	80
Noise rate (Hz)	184	520	105	254

CFD(8ns) pedestal
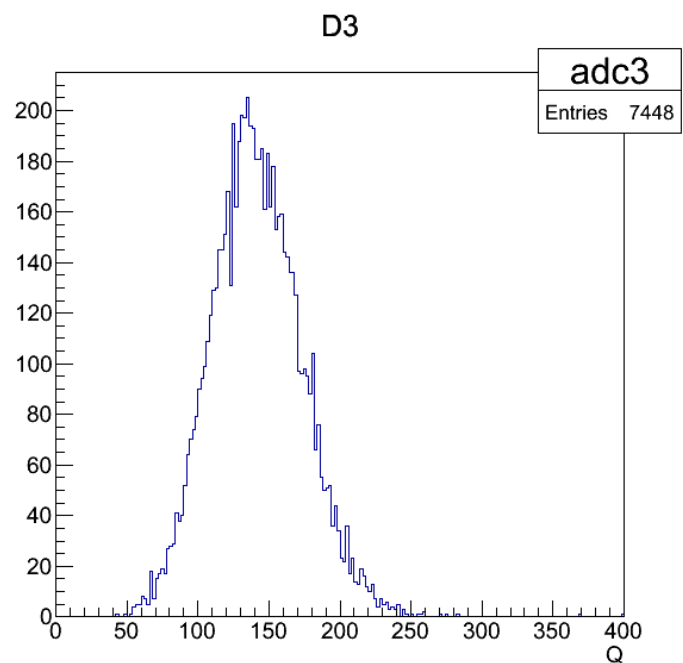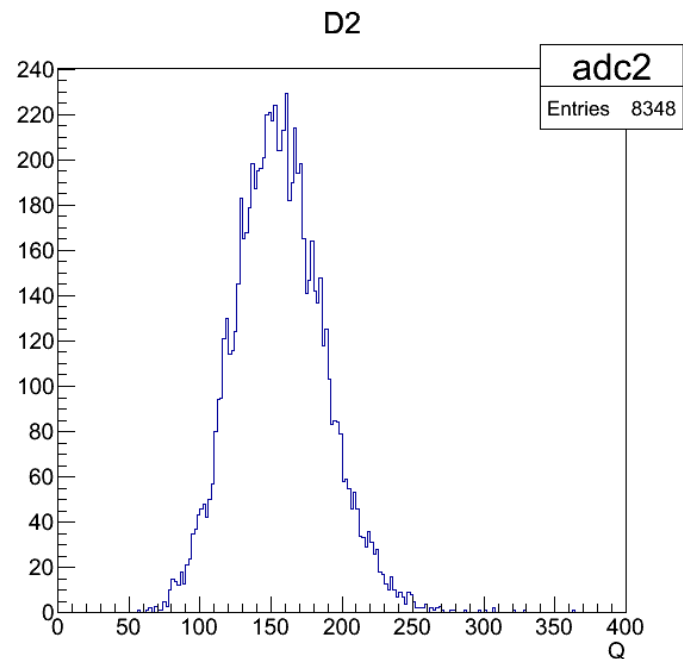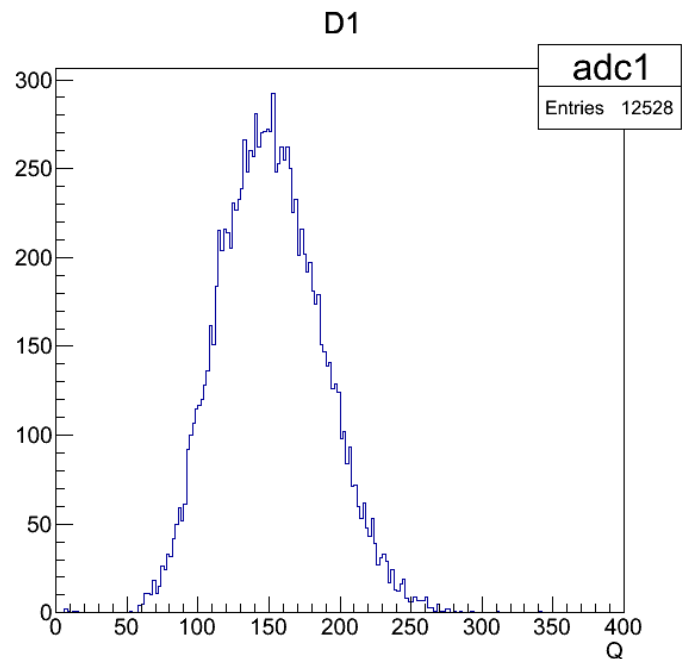
- D3 is still samll

CFD(8ns) TDC
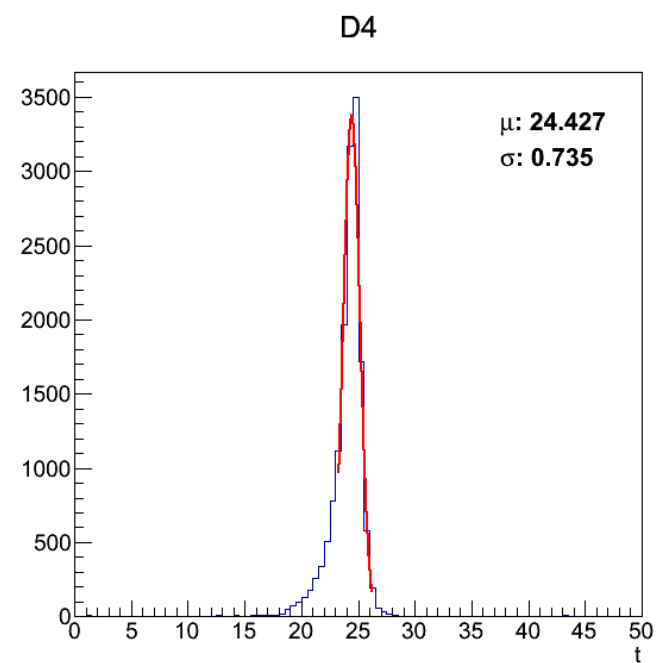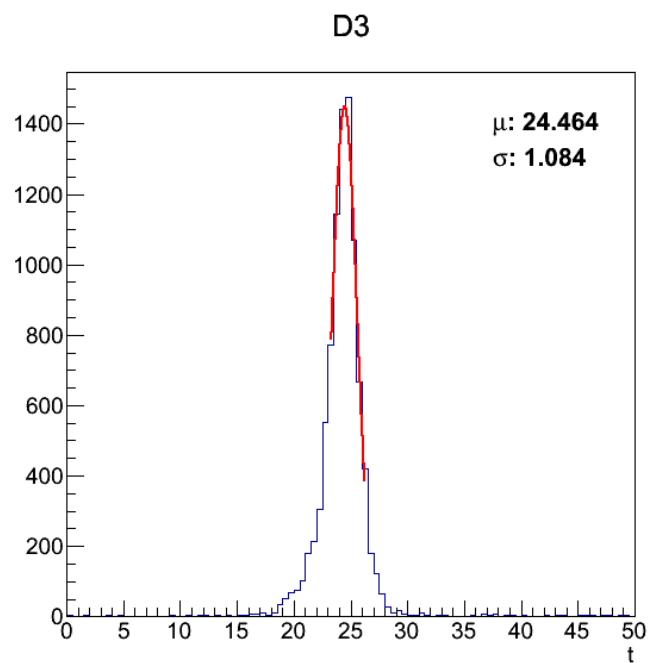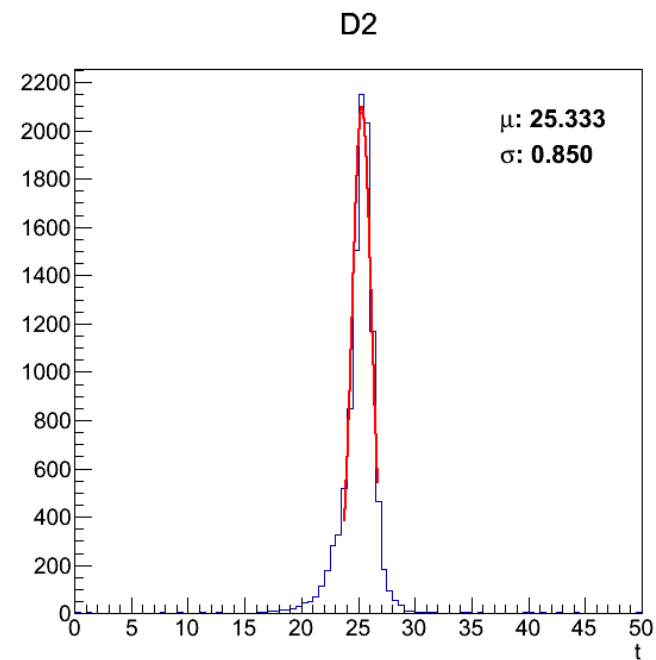
CFD(8ns) ADC

- Still low charges are not exist

- Shape of D4 is better

Summary

- We have to choice discriminator(VTD, 4ns CFD, 8ns CFD)
- Low charge in 4ns CFD could come from collimation problem
- Cf with 8ns CFD is on data taking