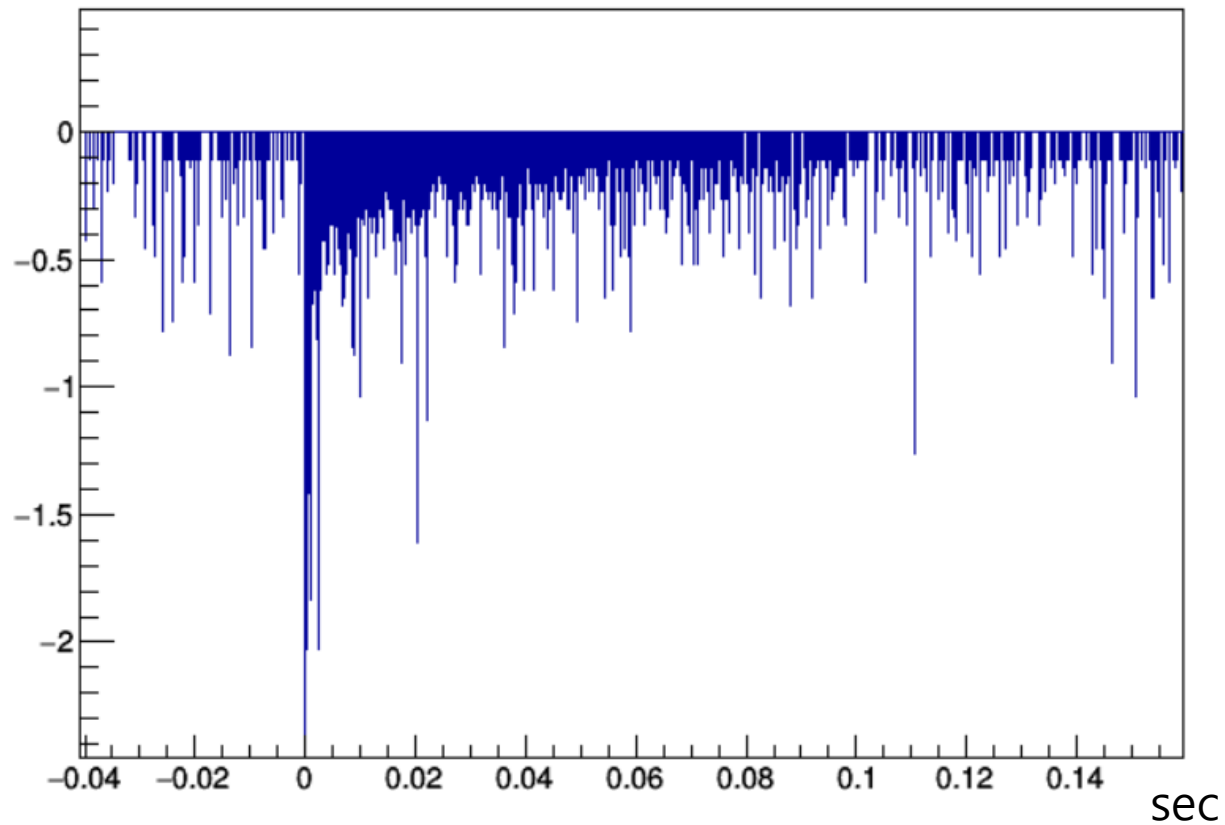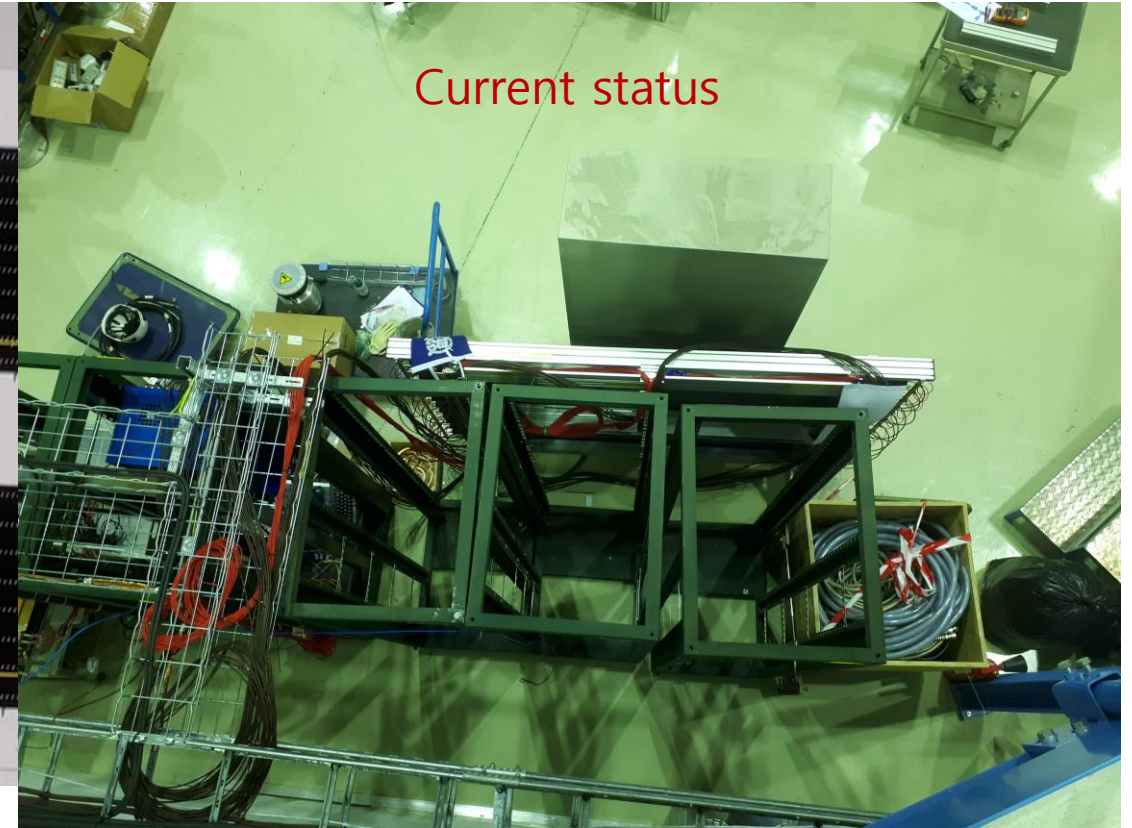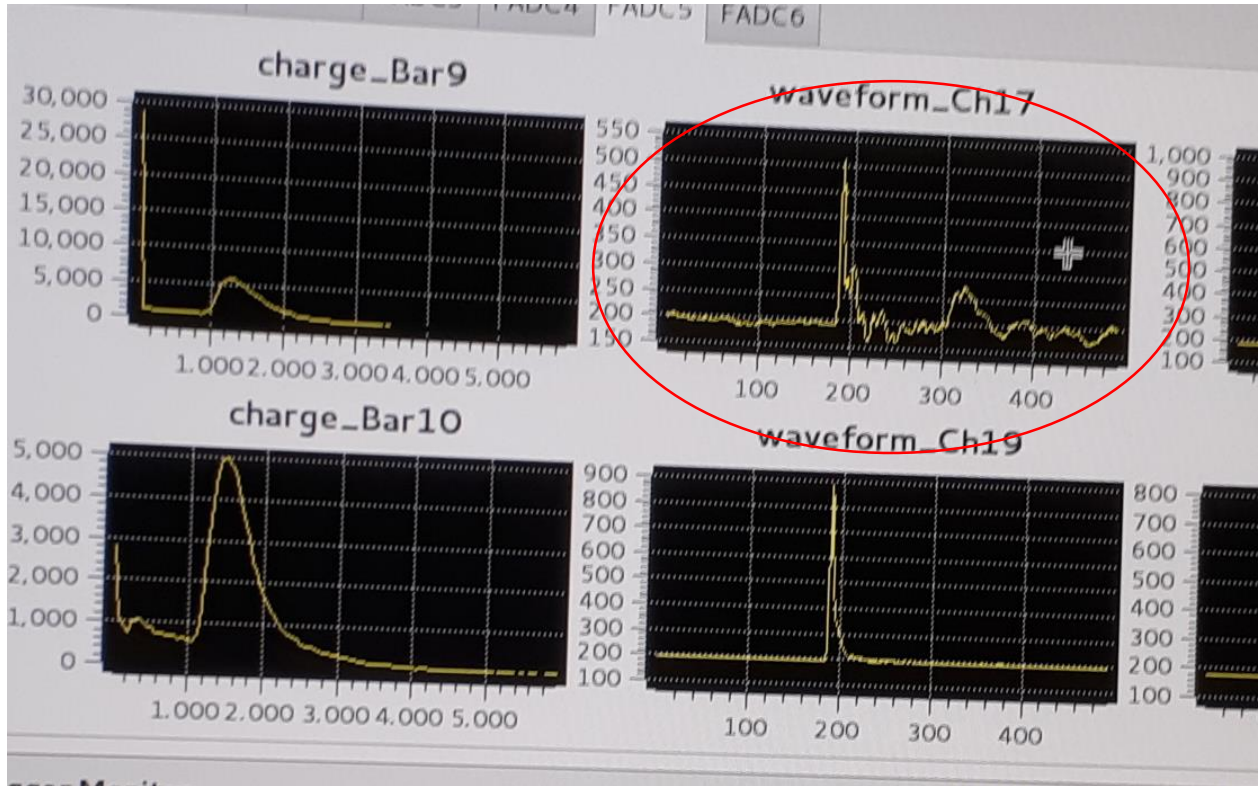# Weekly report

SNU

BongHo Kim

AD burst bg check
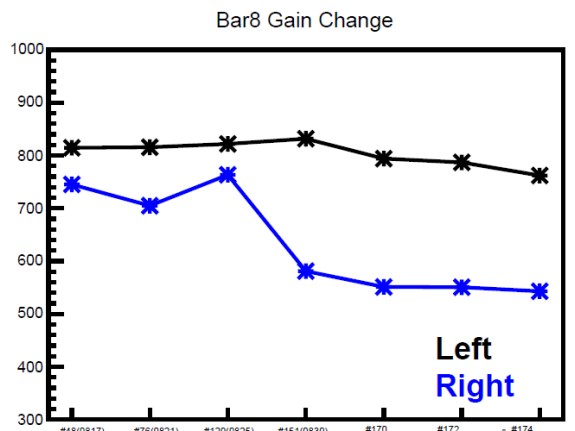

- Raw data sum (44 evt) only below -0.1eV
- Hugh peak in 0sec below visible range.
- Veto would be required more than 0.1sec
- 100MS/s is used because of limited sampling rate in Oscilloscope (10ns bin)

Cable problem

- At today, BAR9L signal shows bad signal.
- After reconnecting cable, it become normal

About TOF stability

BAR2L

#76 black
#120 red
#151 blue
#170 green
#331 pink

BAR6L

BAR8L

BAR2R

BAR6R

BAR8R

Bar2 Gain Change

Left
Right

Bar6 Gain Change

Left
Right

Bar8 Gain Change

Left
Right

4
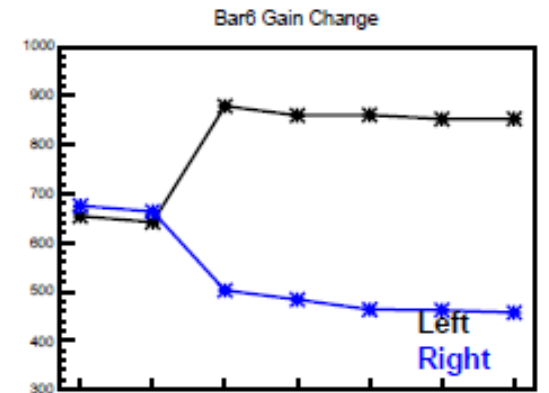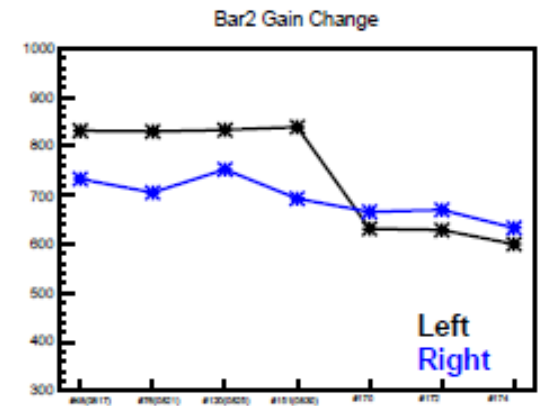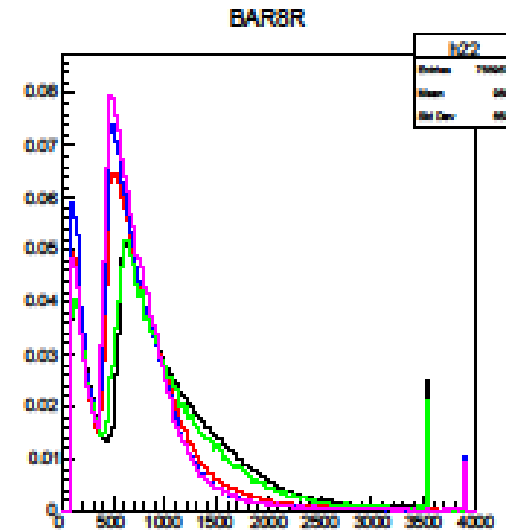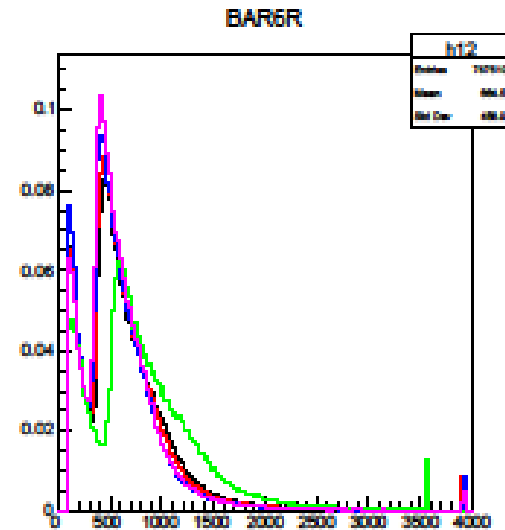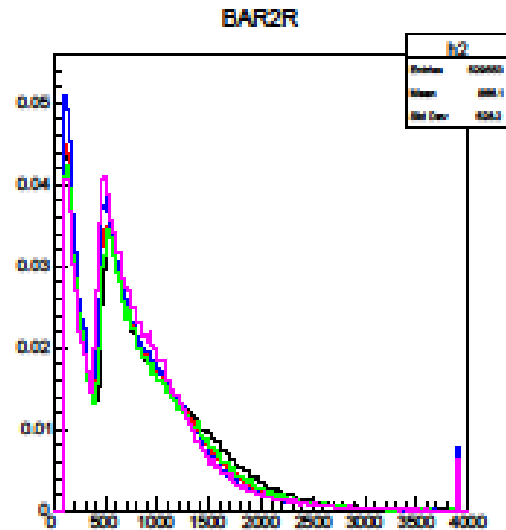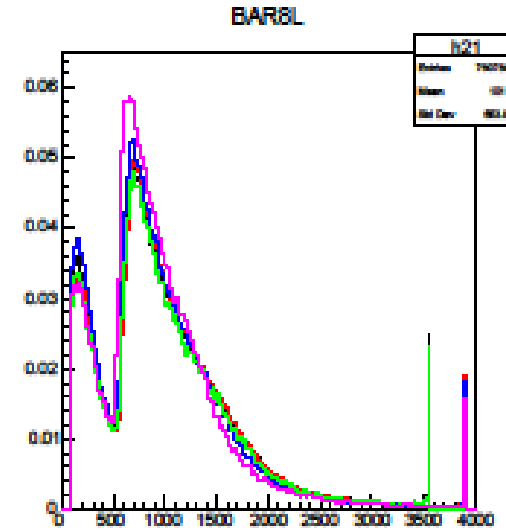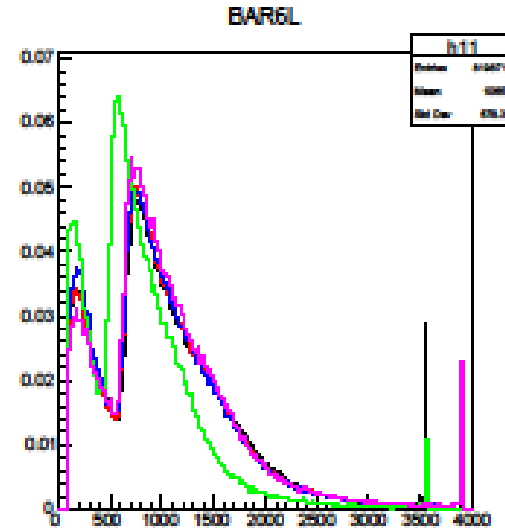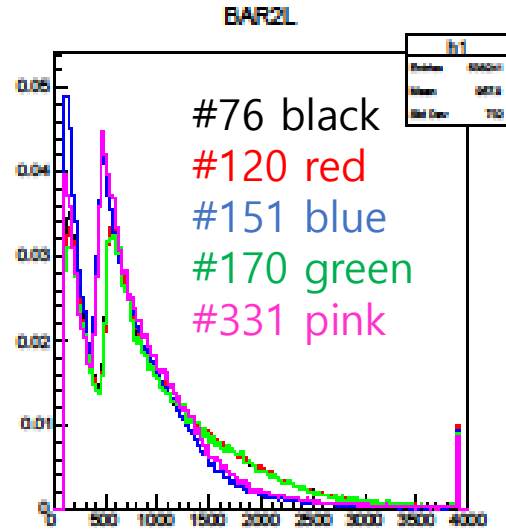
Status of TOF

Bongho Kim
Seoul National University

GBAR Collaboration meeting

TOF status

- A side wall (12 bar+ 24 PMT, 3FADC, 1 TCB) is on the GBAR zone for test in total 4 Wall configuration (top, bottom, two side wall).
- Back ground in the GBAR zone has been checked.
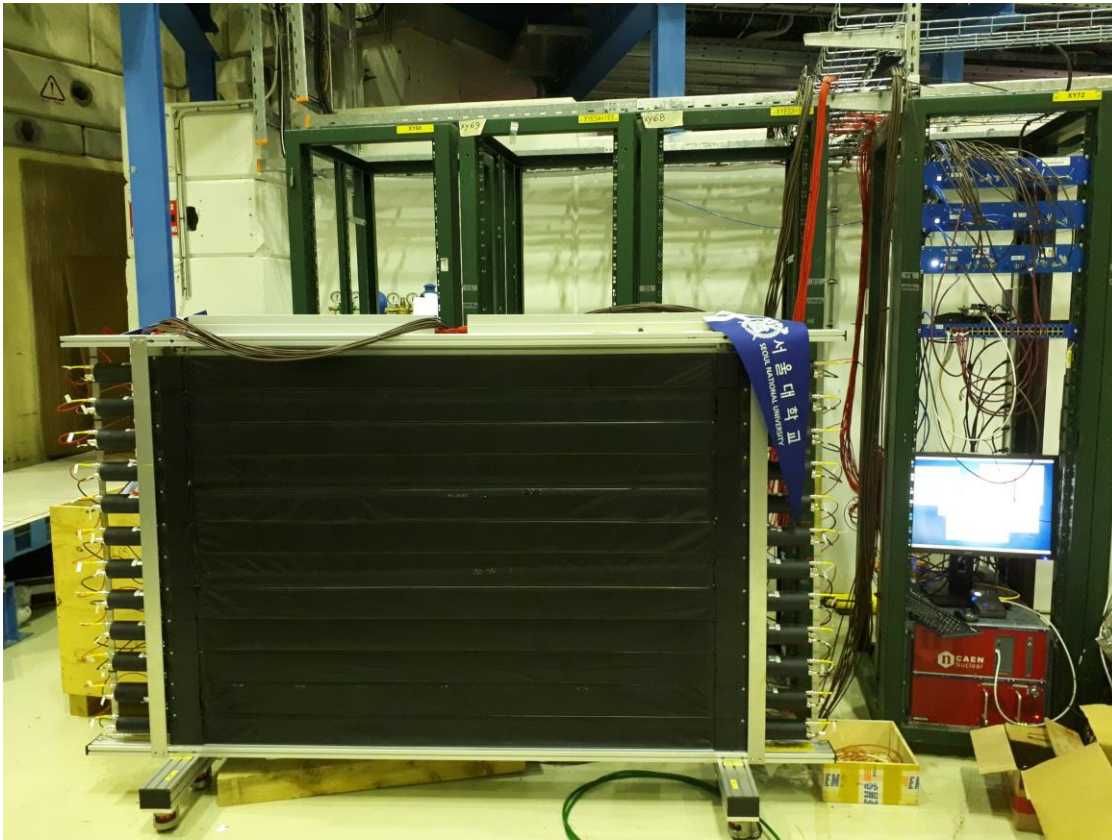
TOF status

- All materials for one wall is in CERN.
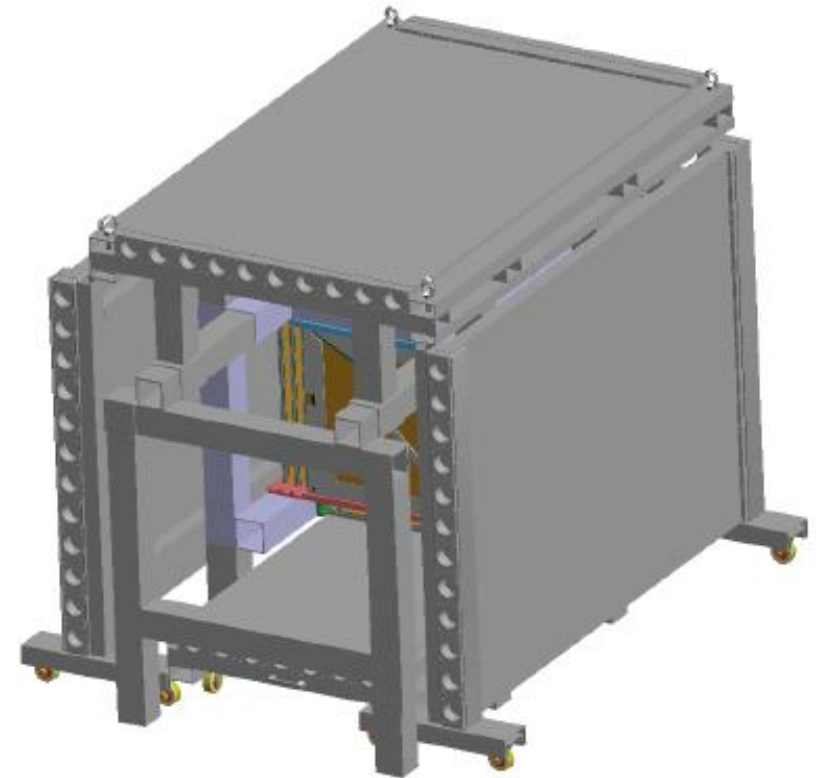- Other TOF materials are already ready in Korea
- 32 Scintillation plate bars
- 64 PMTs
- 8 FADC

- Other bars has been tested in Korea and it can be delivered when it's required.
- Optical glue test
- Reflector test

Picture for students and test device?

DAQ device

FADC

TCB

HV module

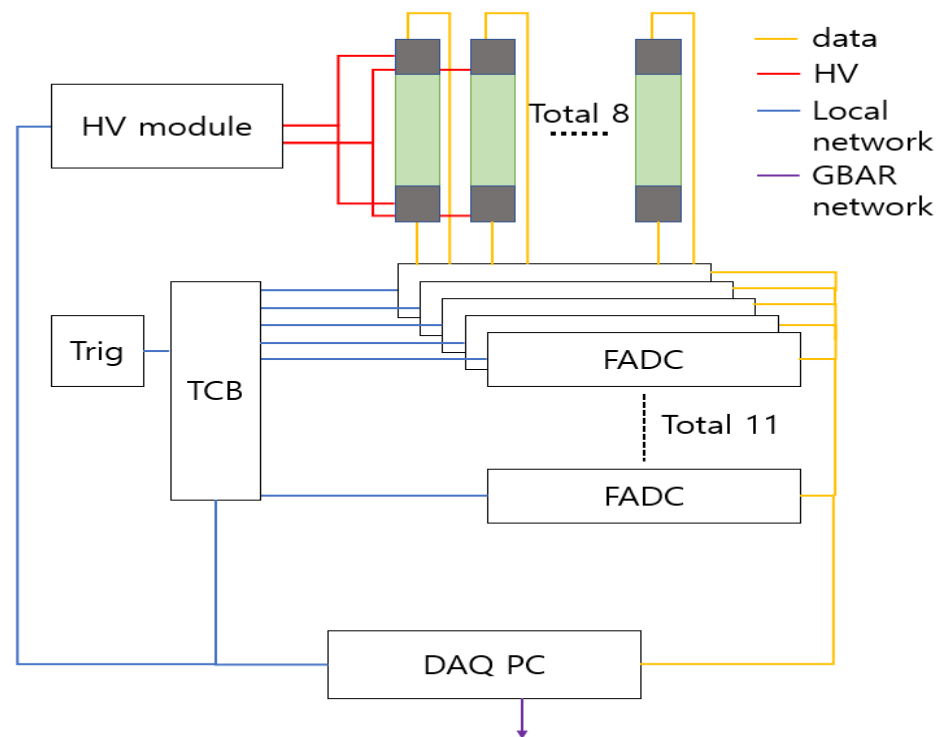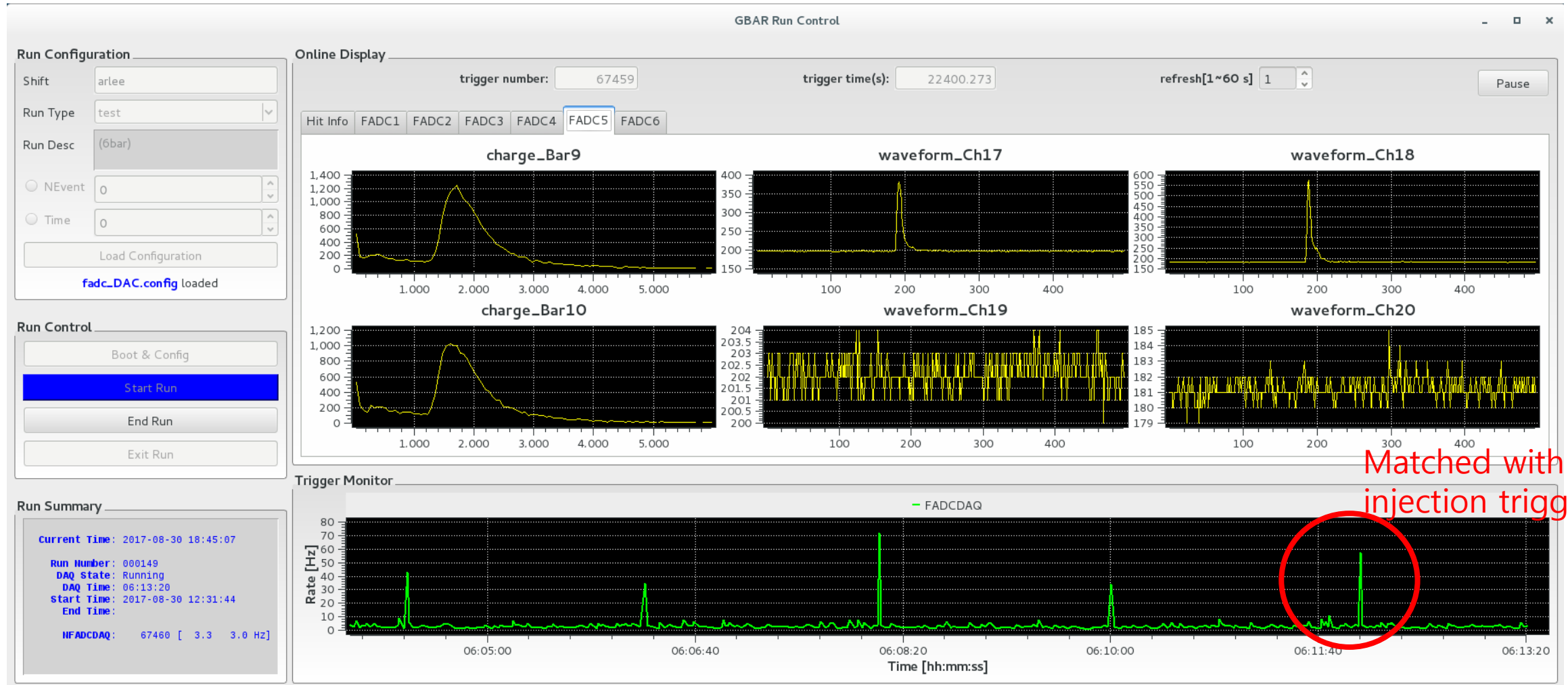- New TCB is delivered here and test will be started.
- Other FADCs have been tested in Korea.
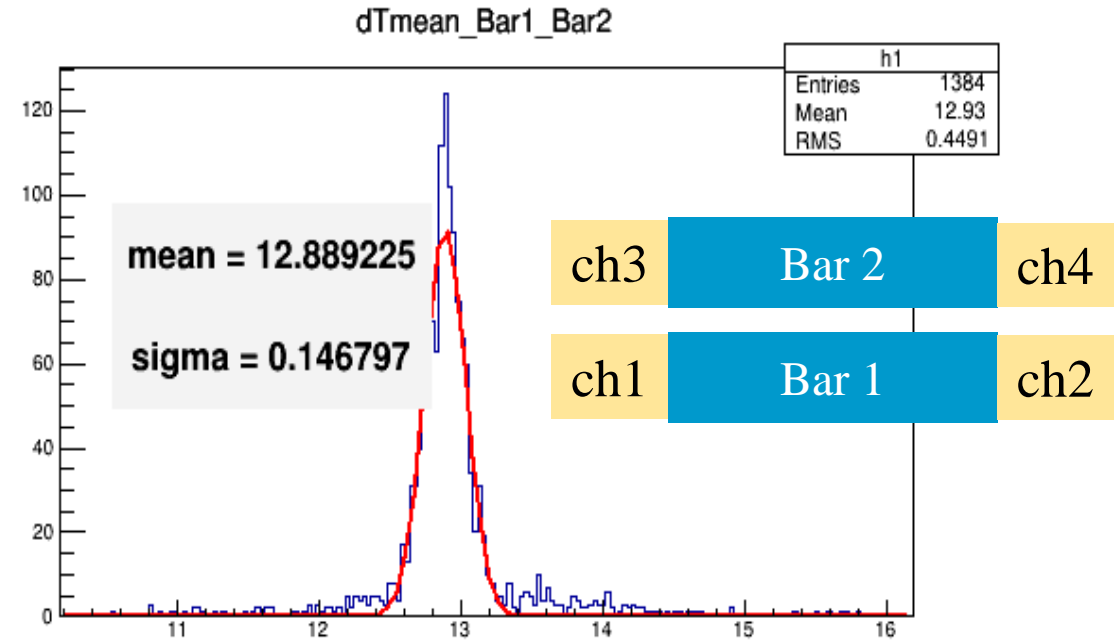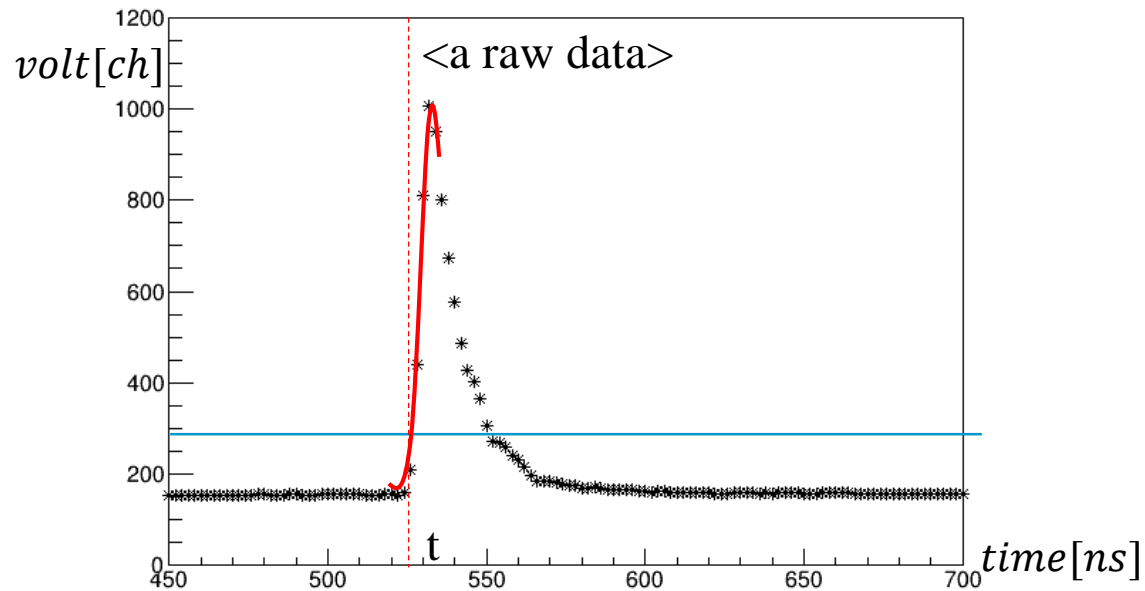- DAQ software has been developed by J.Lee

Data Acquisition(DAQ)
Run control

Made by J.Lee

TOF resolution test (studied by A. Lee)

- Time resolution test by Cosmic ray (muon)
- Rising (10% of maximum height) time of raw signal from fitting shows good timing resolution
- dtmean = (tmean_1) – (tmean_2) = $(t_1 + t_2)/2$ - $(t_3 + t_4)/2$ → $\sigma(dtmean12) = \sqrt{\sigma_1^2 + \sigma_2^2}$

TOF resolution test (studied by A. Lee)

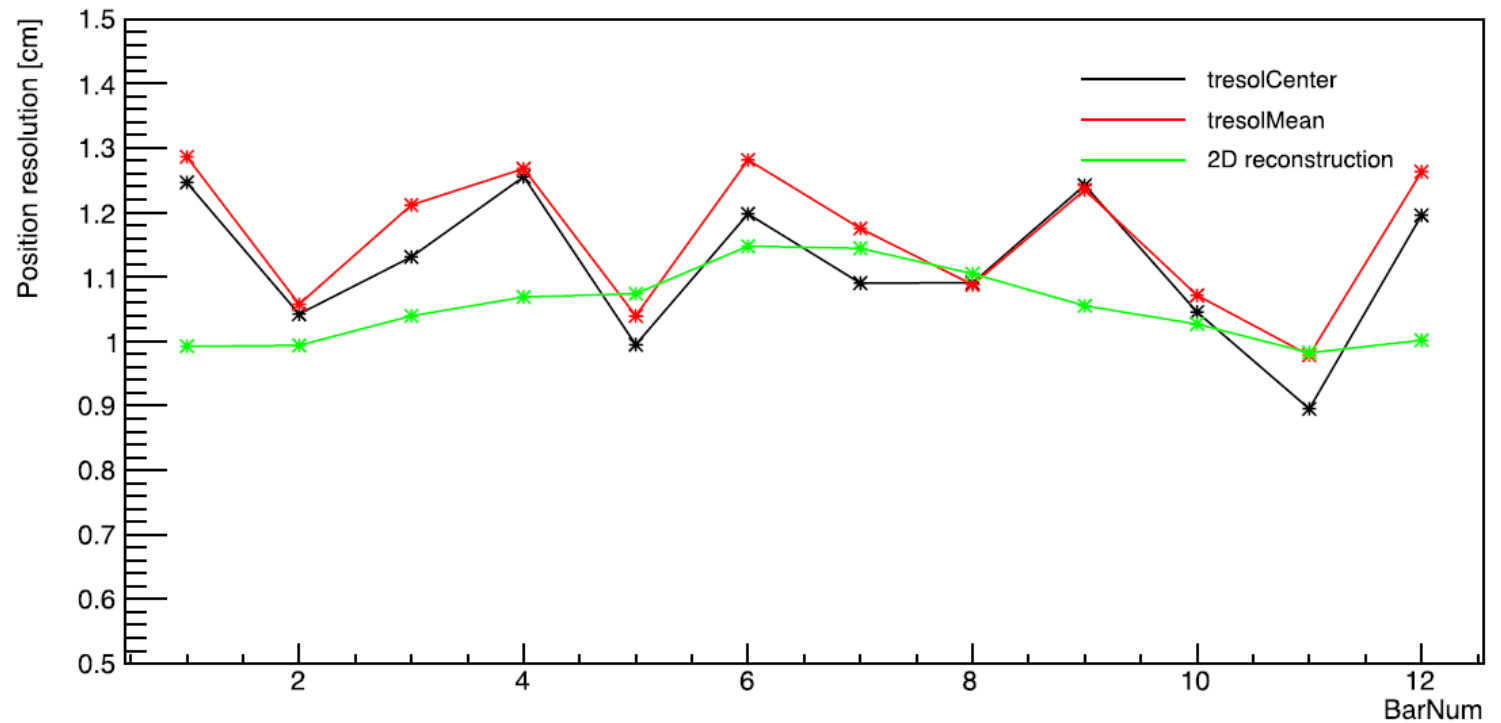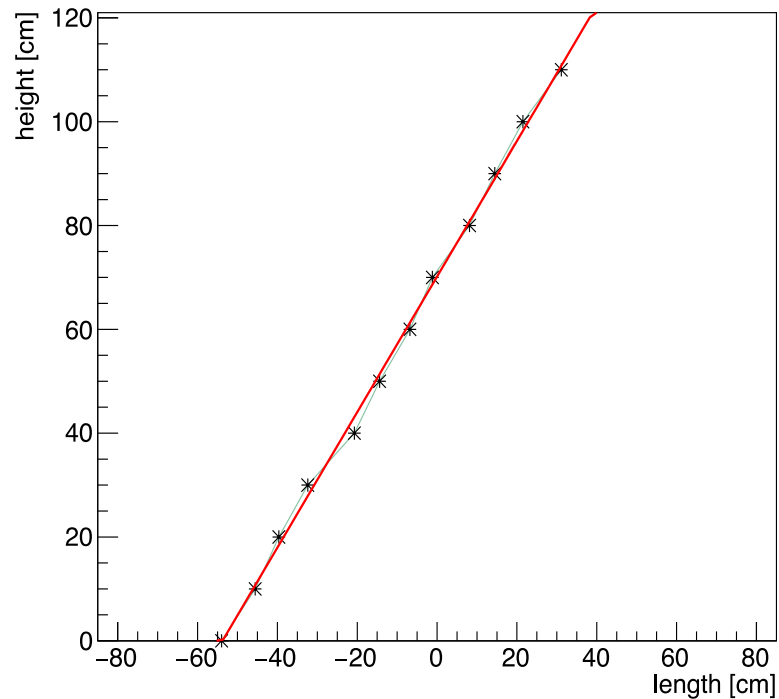| bar#	Resolution[ps]	bar#	Resolution[ps]
1	73	7	68
2	60	8	79
3	69	9	80
4	73	10	63
5	64	11	58
6	77	12	76

$$\sigma_{time} << 0.2\ ns,$$

→ Enough to distinguish top, bottom annihilations and cosmic ray signal

Position resolution in TOF (A. Lee)

- Will be updated with new files?

After xCalibration (event=47)

Simulation of TOF issue

- New worker for simulation : Dr. Yungjoo Go, Gwanhyung Park
- H-bar initial condition will be added for TOF simulation (parameter from MM simulation ←Same as Pascal's value?)
- New Geant4 library will be tested (pion angler distribution problem solved (from J.Hwang)

Next plan