

K-Koto Meeting

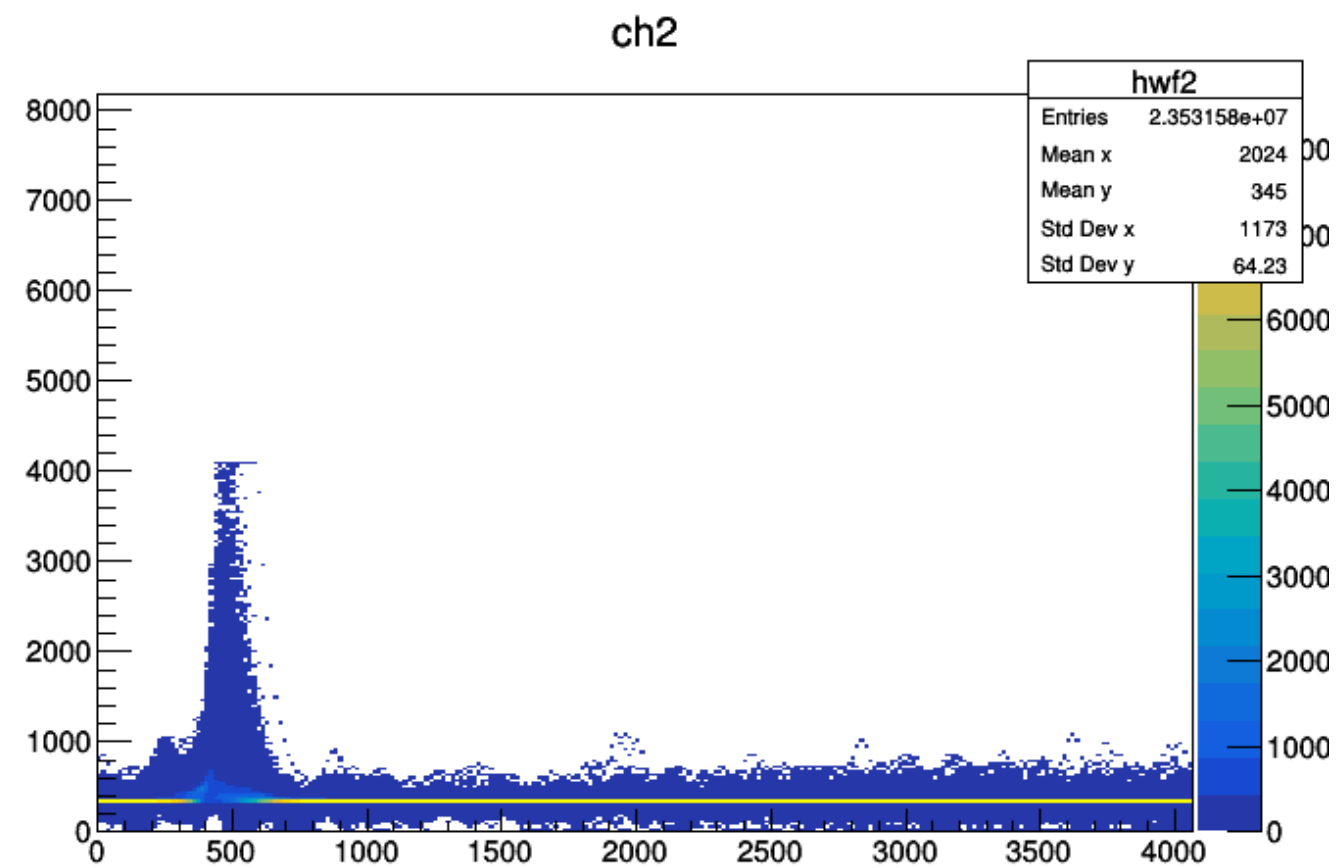
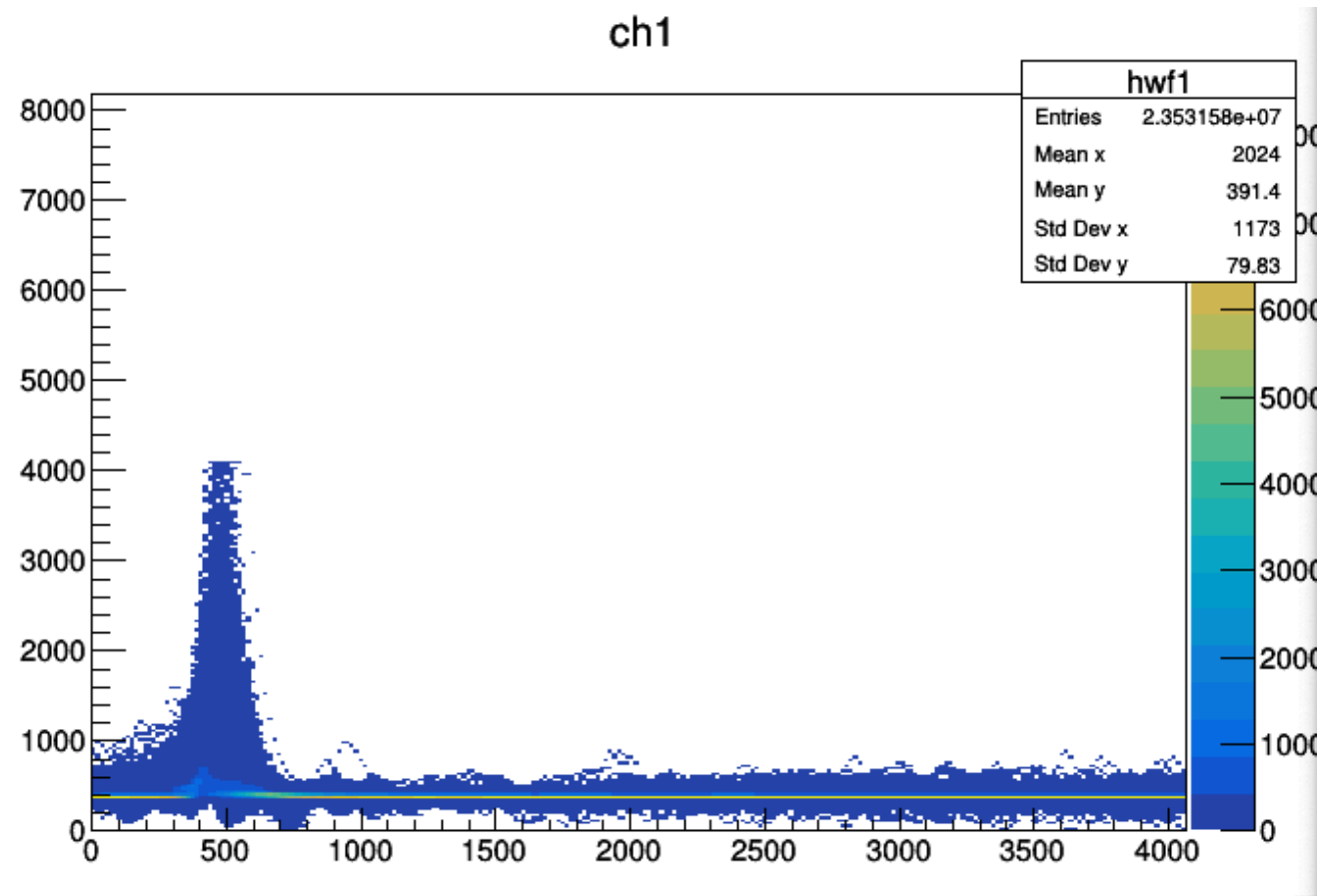
2021/06/22

YoungJun Kim

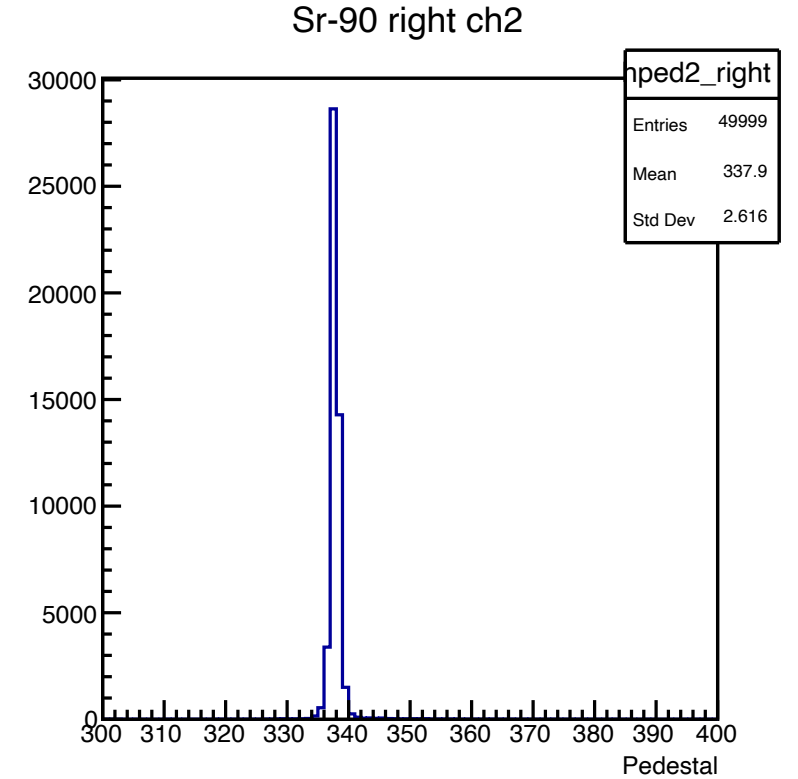
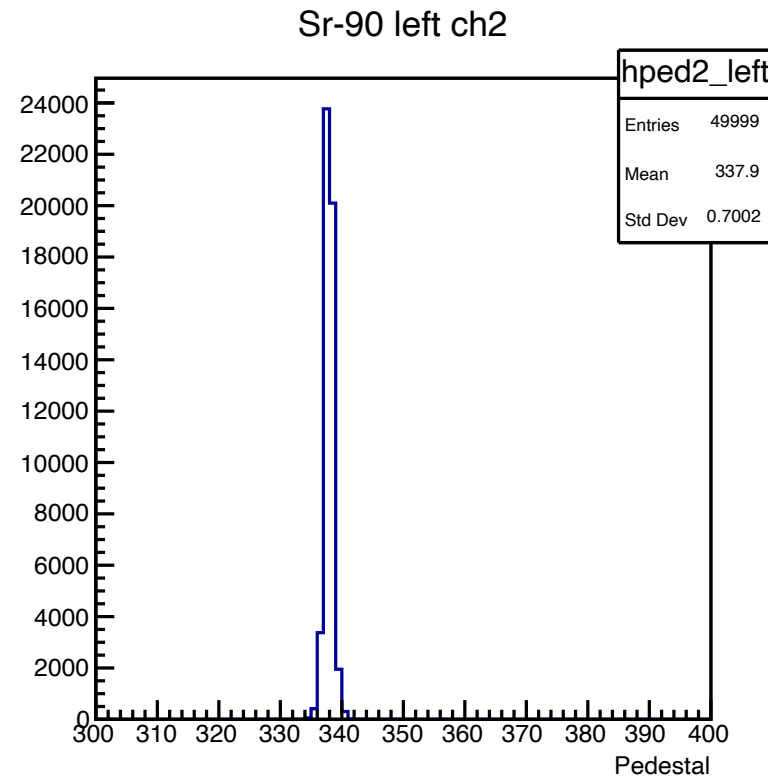
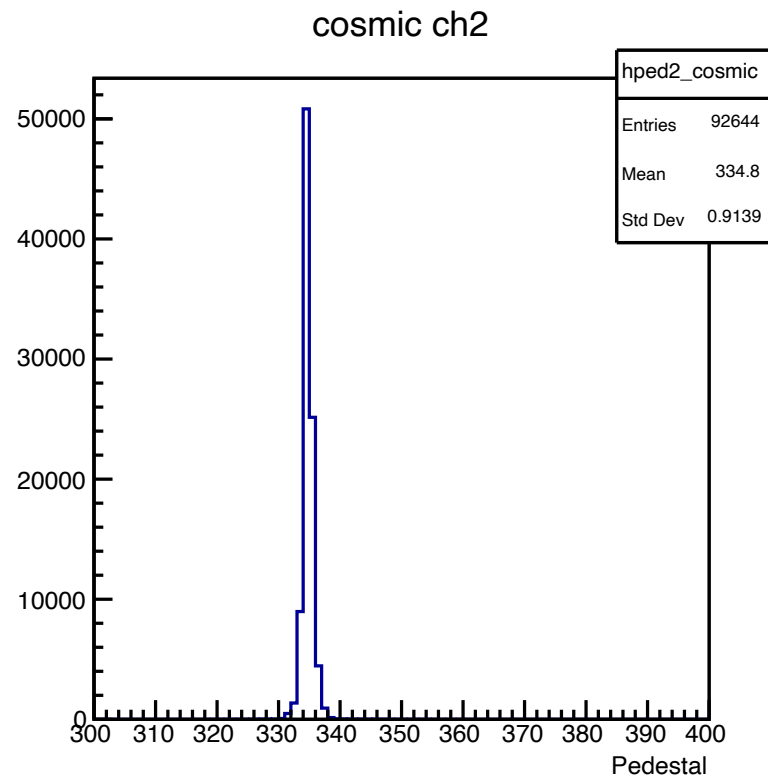
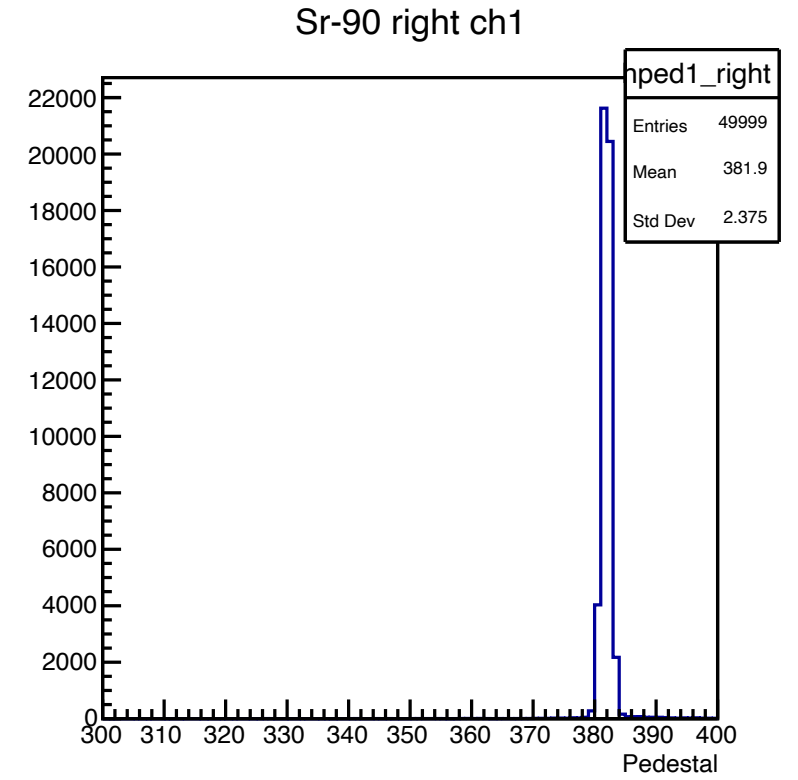
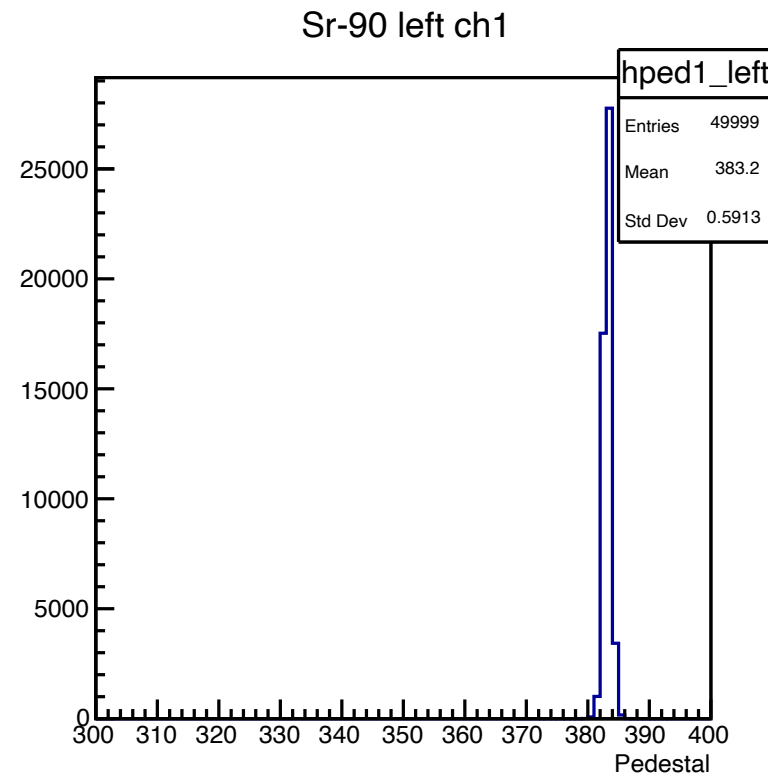
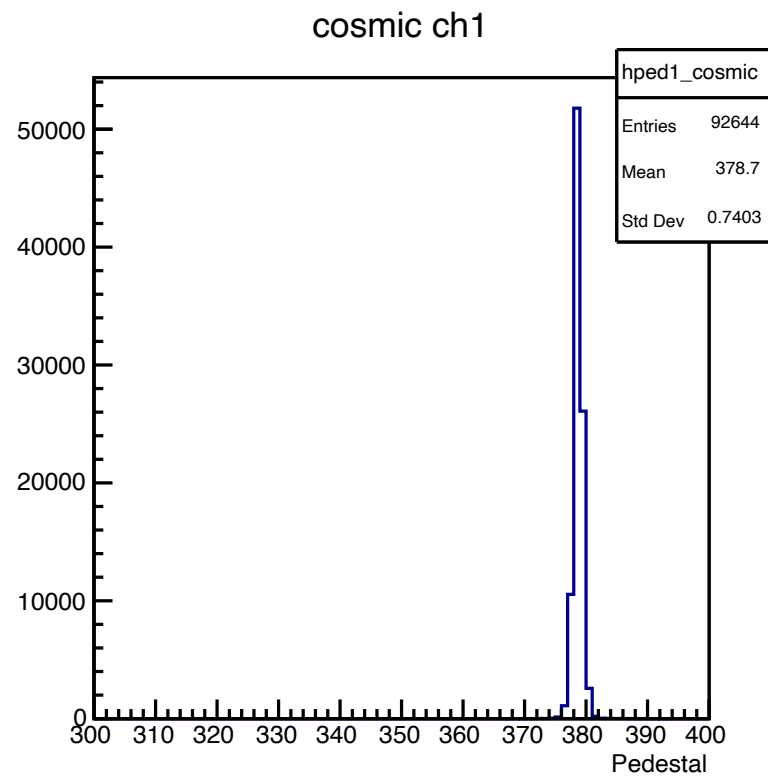
Hardware prototype test

- muonDAQ software is successfully installed on PC @ KU.
 - usb3 connection problem(?)
 - simple rebooting of muonDAQ board works
 - must be used with 110V power source
- Making a decoder is under working...
- DAQ test & quick analysis results
 - cosmic / Sr-90 source test
 - pedestal : average of rear 150 points
 - ADC sum
 - time resolution : Fine half maximum (linear interpolation)

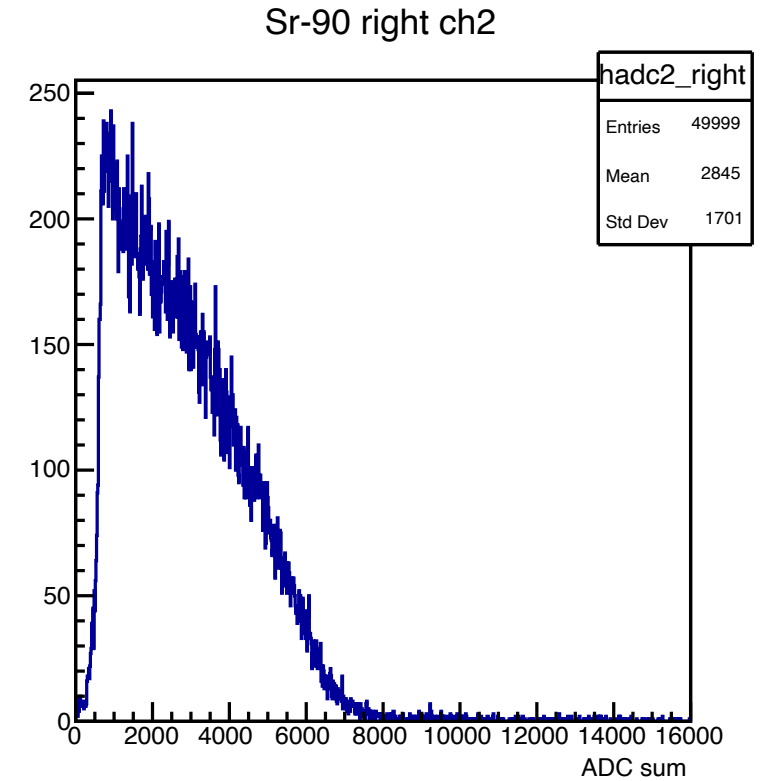
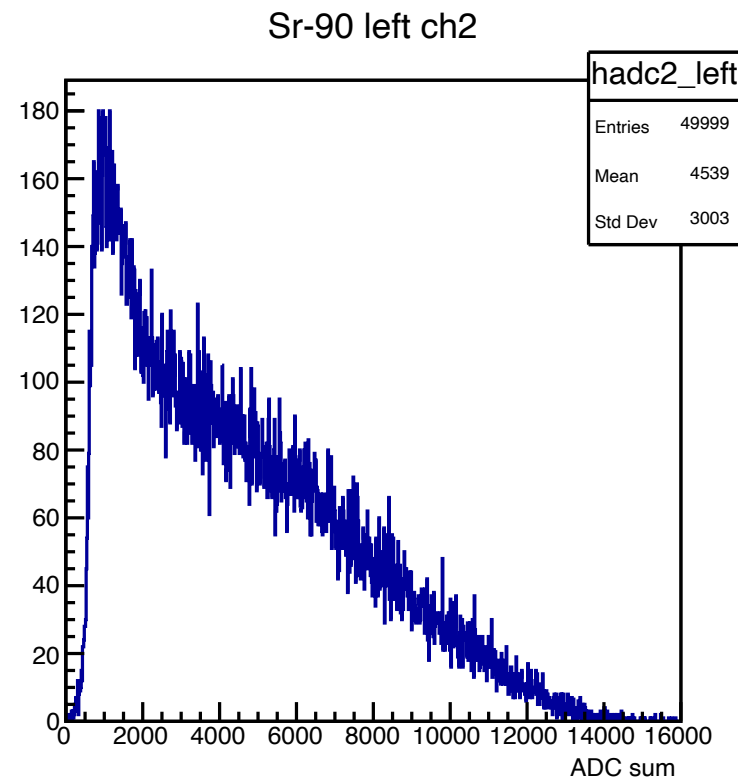
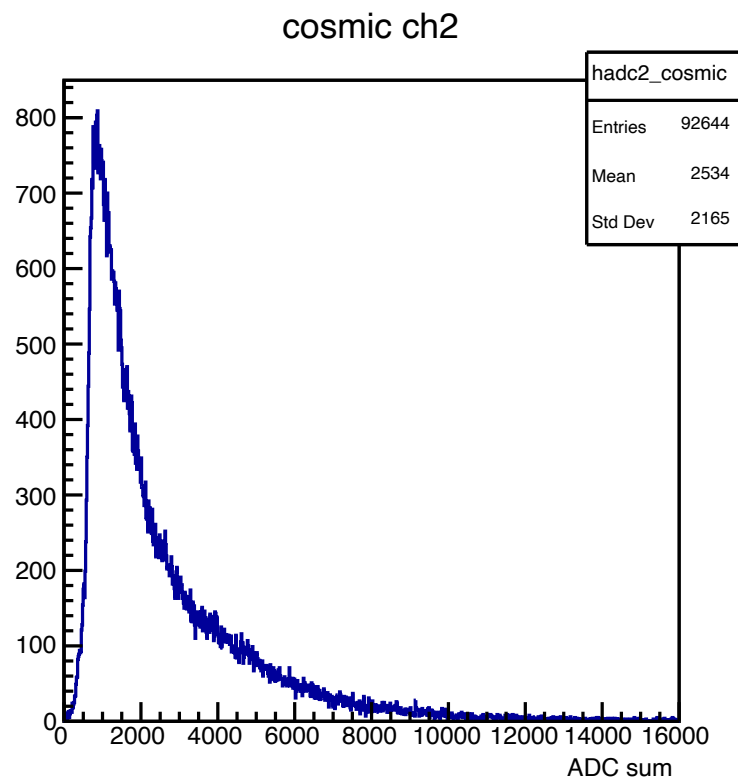
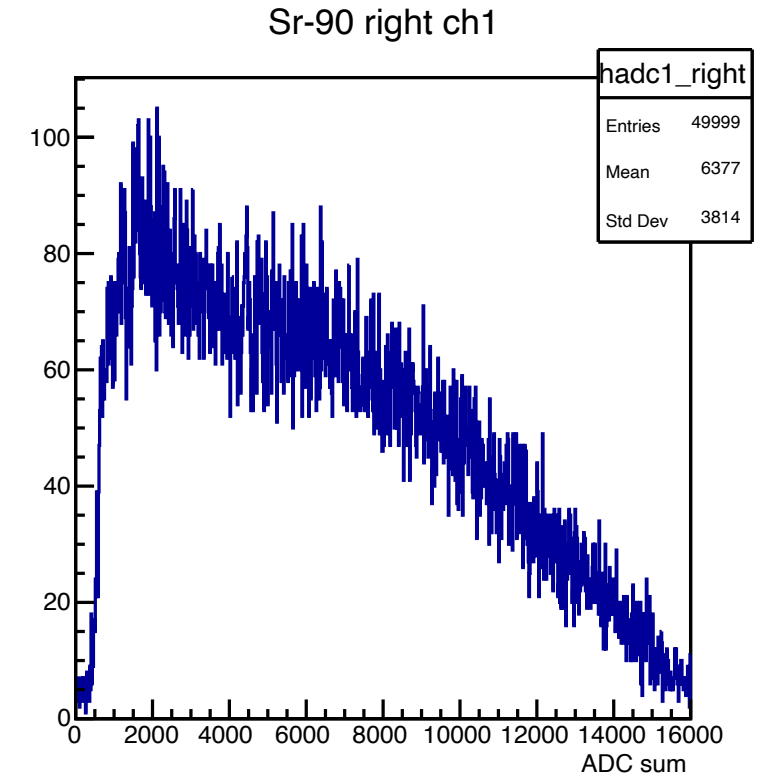
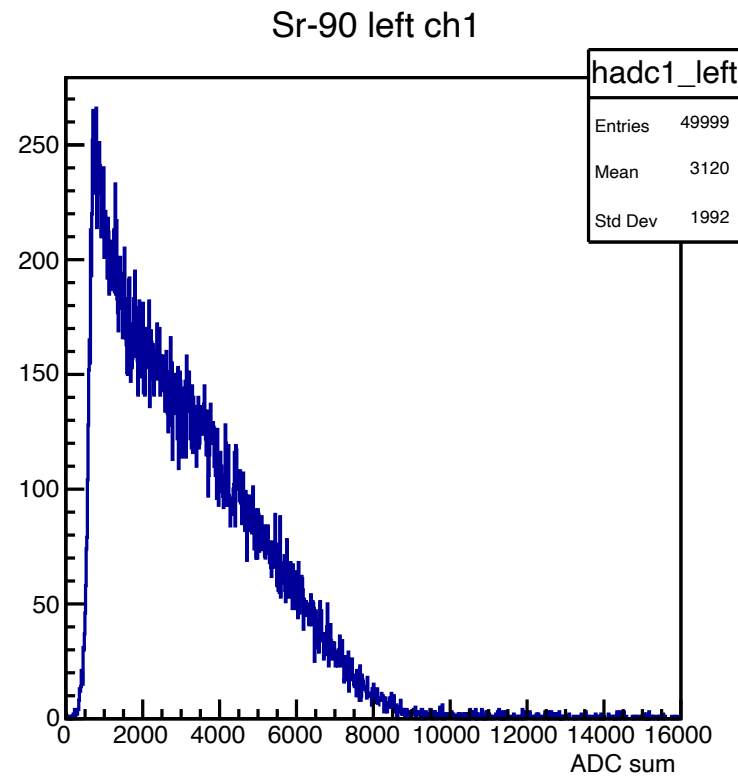
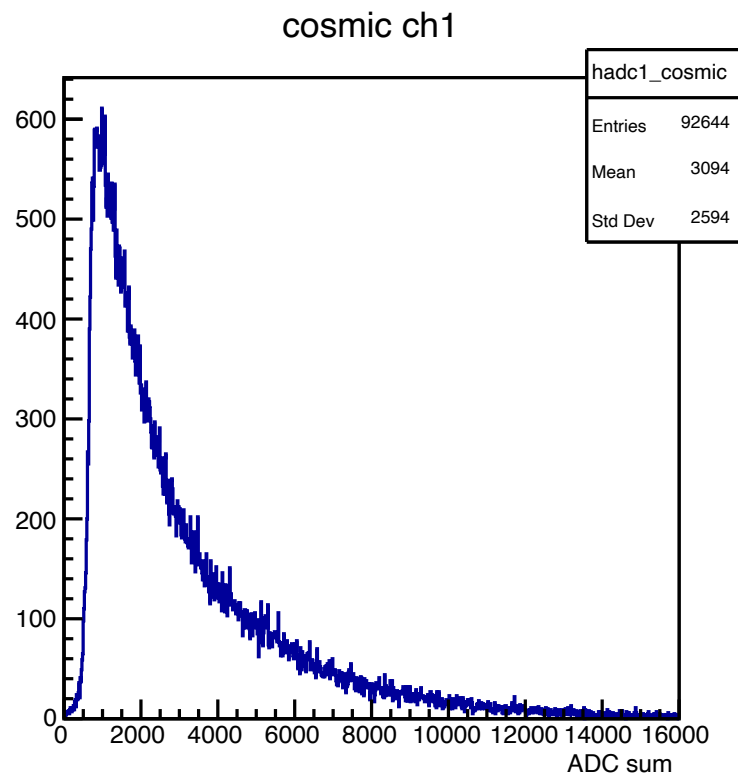
DAQ test - PE type MPPC waveform



DAQ test - PE type MPPC pedestal

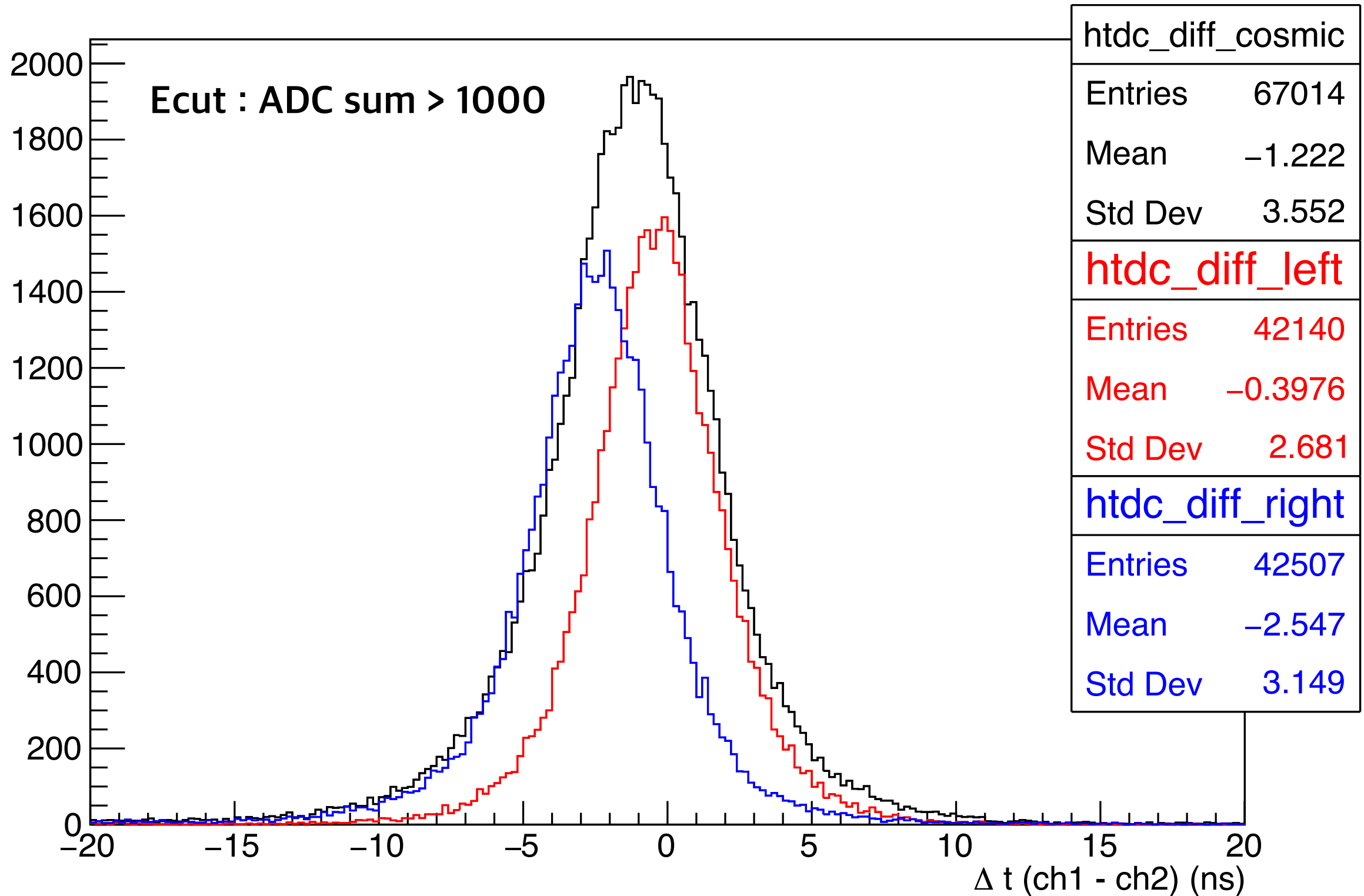


DAQ test - PE type MPPPC ADC sum

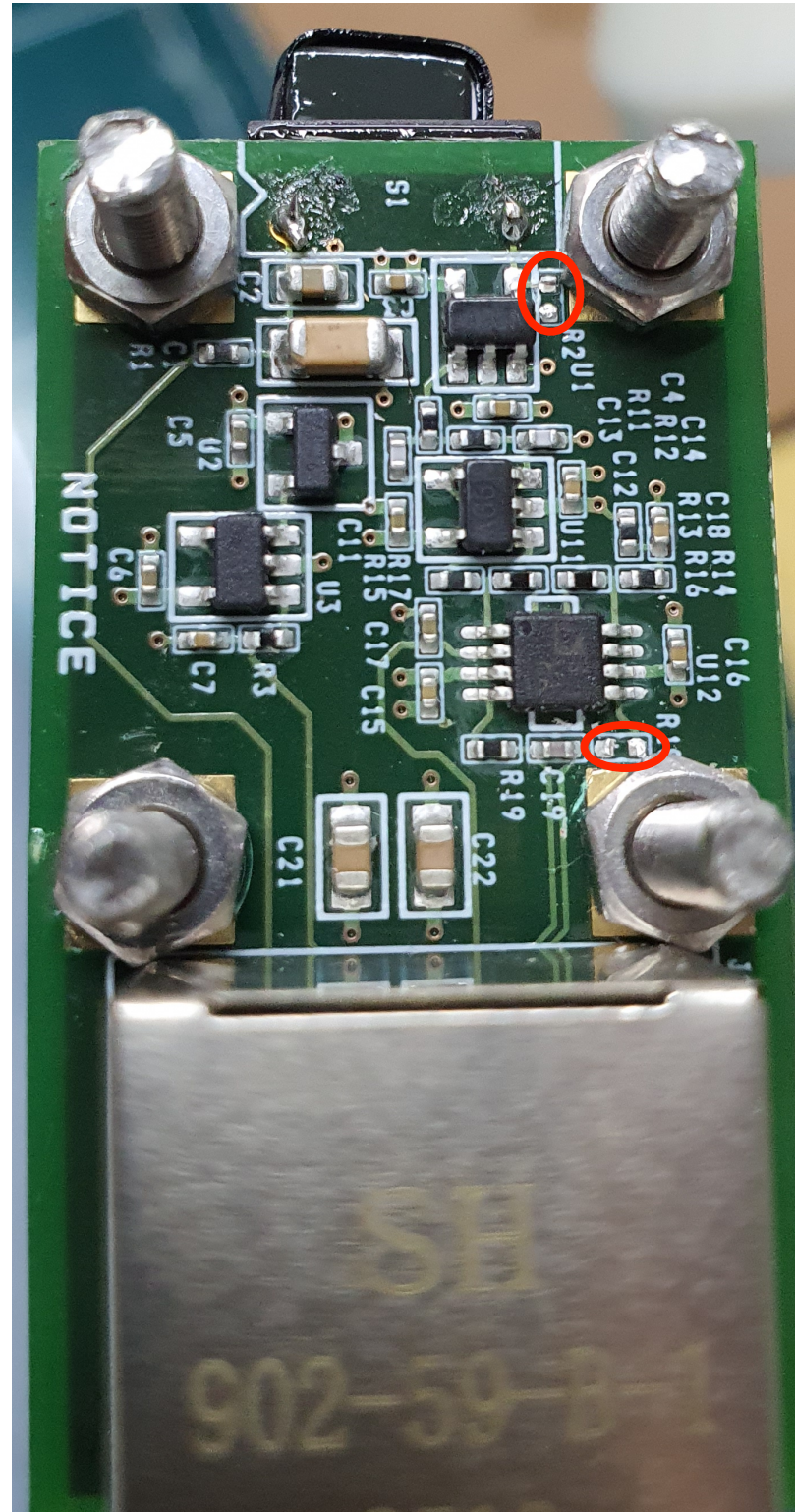
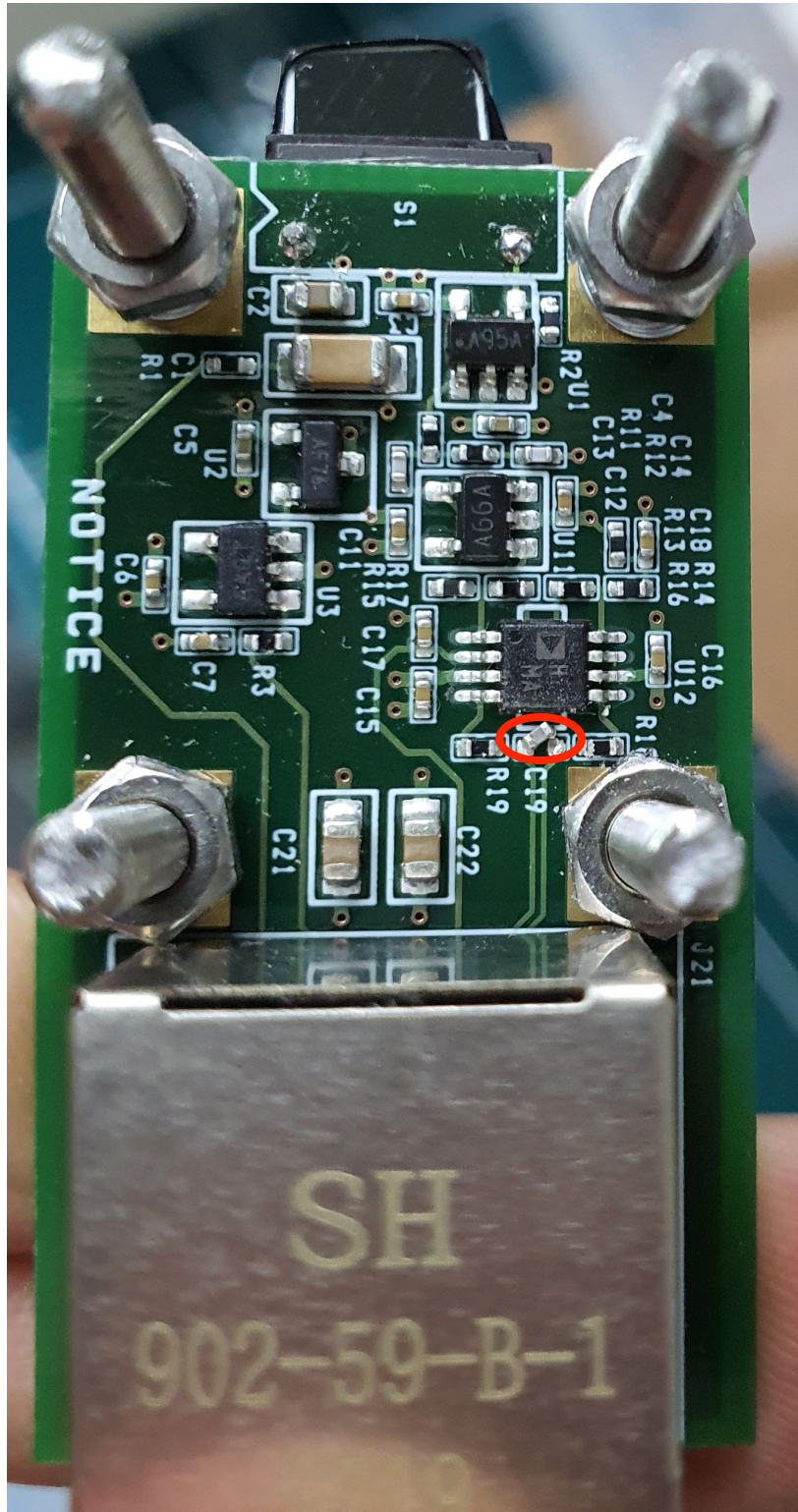


DAQ test - PE type MPPC Time resolution

TDC difference



DAQ test - CS type MPPPC



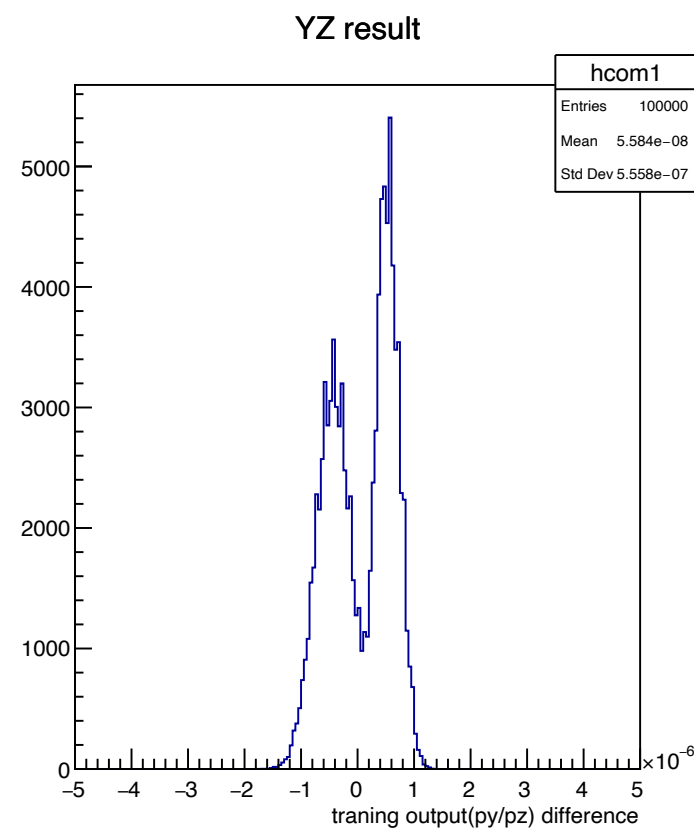
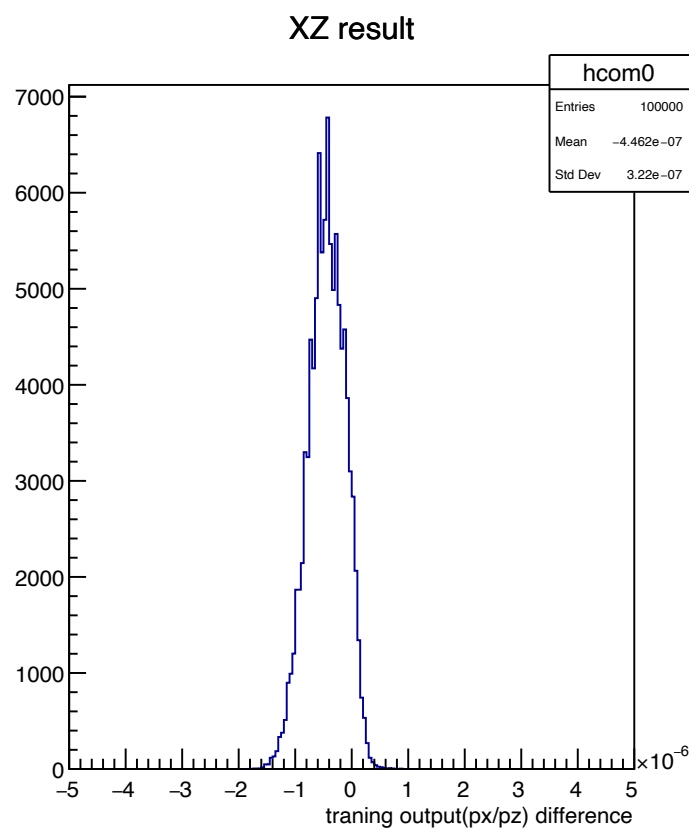
Board broken..

KOTO Collaboration meeting

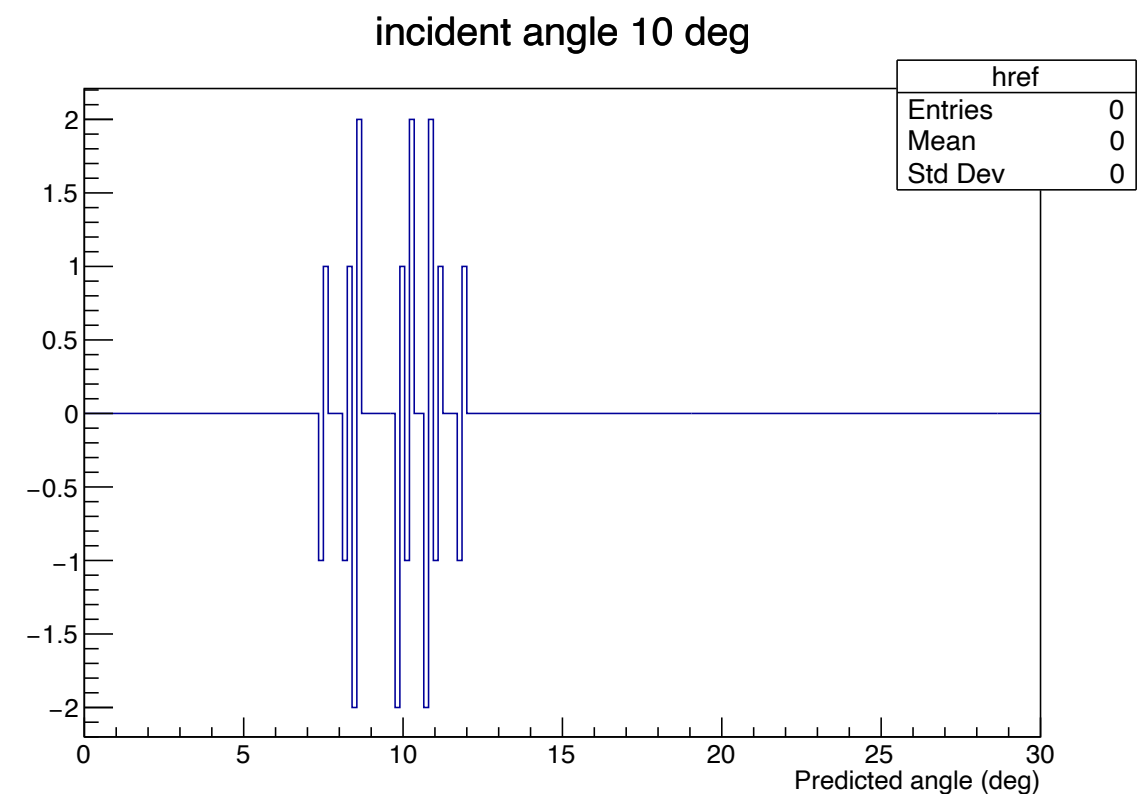
- **Development of the gamma tracking detector for the KOTO step 2.**
- Contents
 - Motivation : KOTO step2 에서 gamma tracking이 얼마나 중요한지?
 - Sandwich type detector : geometry
 - ML
 - ML parameter optimization
 - Geometry optimization
 - Energy dependency of incident gamma(?)
 - ...
 - Detector properties
 - Moliere radius, visible ratio,
 - event veto rate from backslash gamma/electron
 - pure CsI와 sandwich type 비교?
 - ...

Sandwich type result reproduction

Training output subtraction
my result - ji result



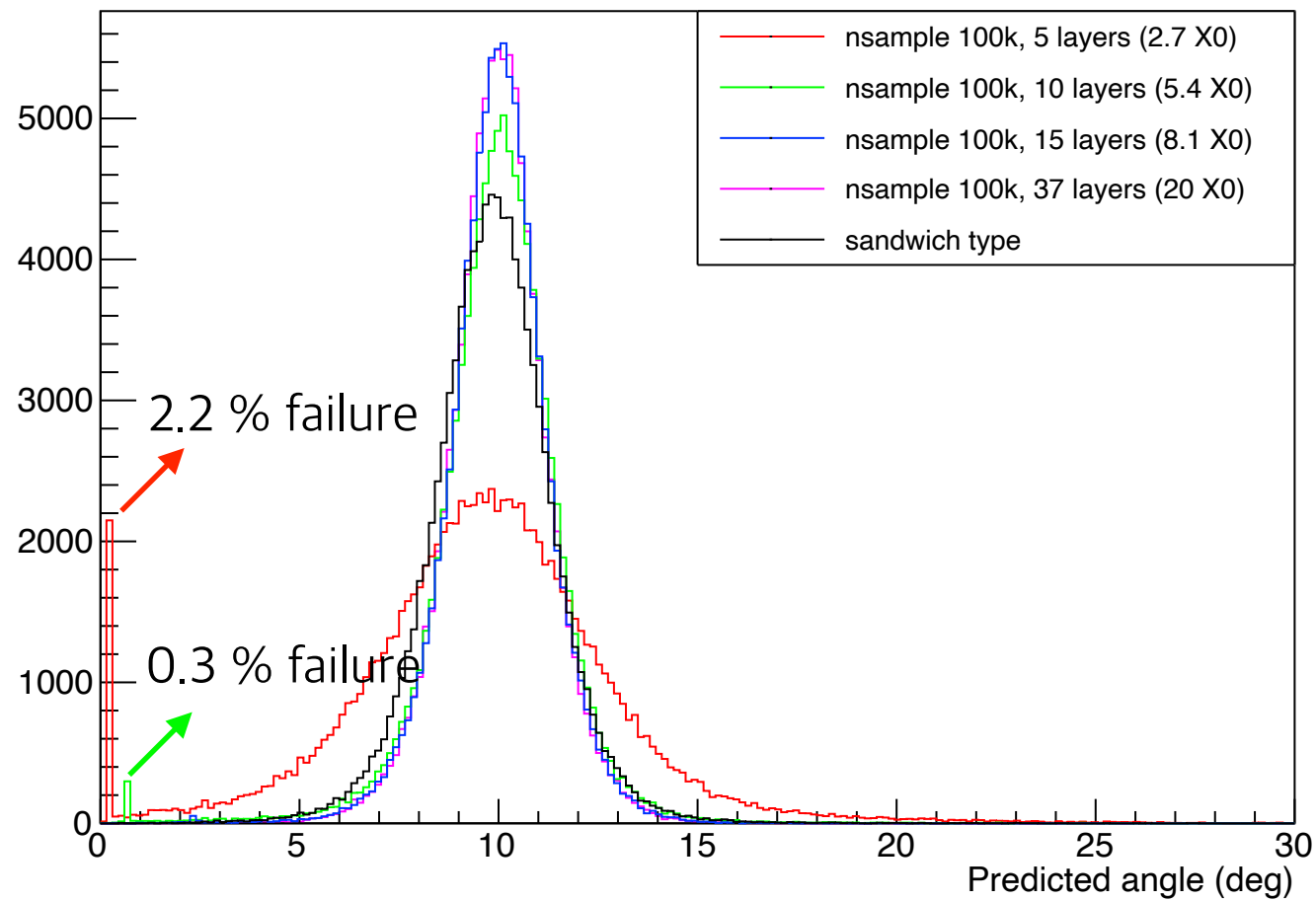
θ hist bin contents subtraction
my result - ji result



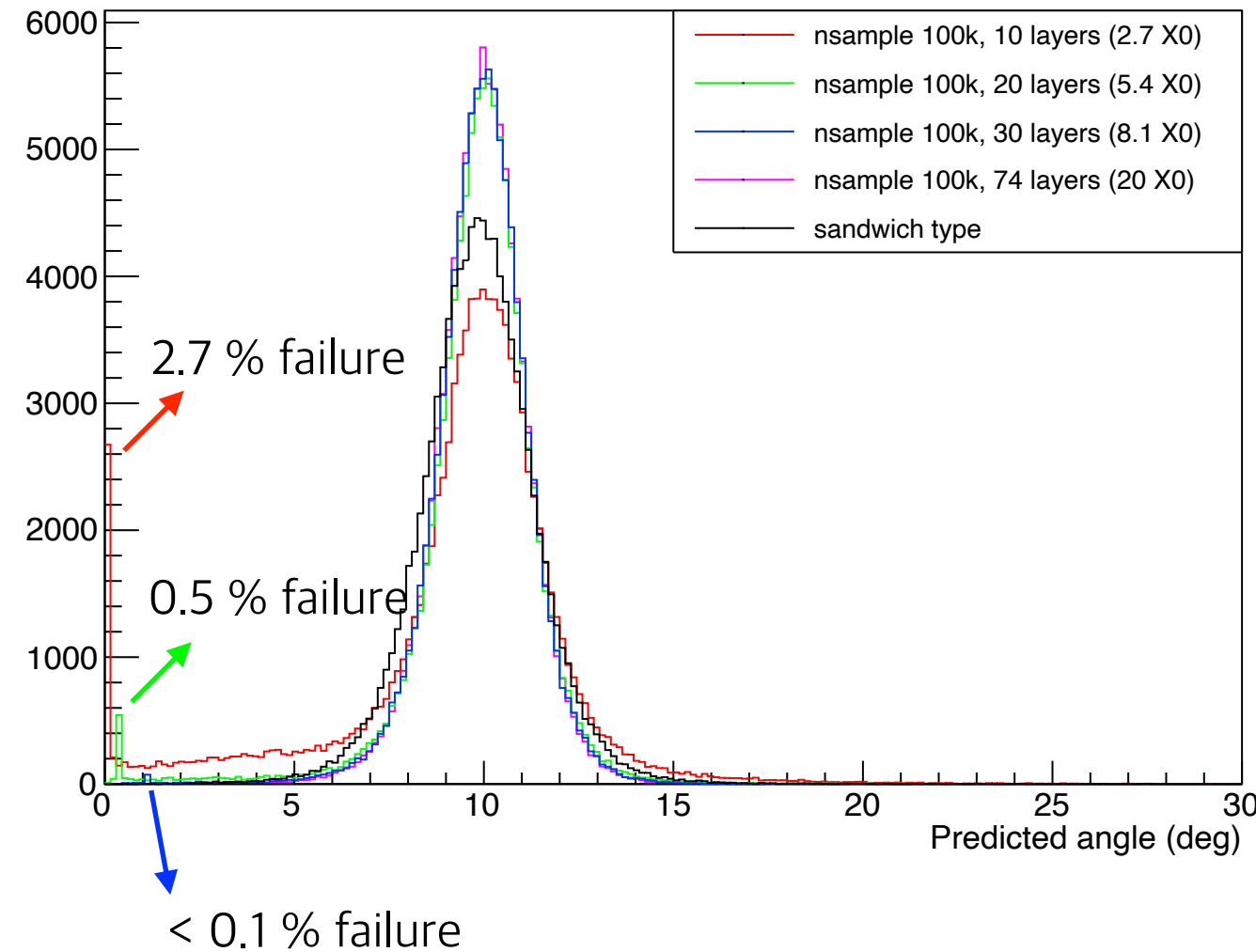
- $\sim 10^{-6}$ differences between ji's result and my result
- training at cbu server \rightarrow model loading at cbu
 \rightarrow model loading at kekcc \rightarrow training outputs are exactly same

Backup - training output θ distribution

1cm x 1cm x 50cm, 37 layers



5mm x 5mm x 50cm, 74 layers



Backup - Angular resolution

