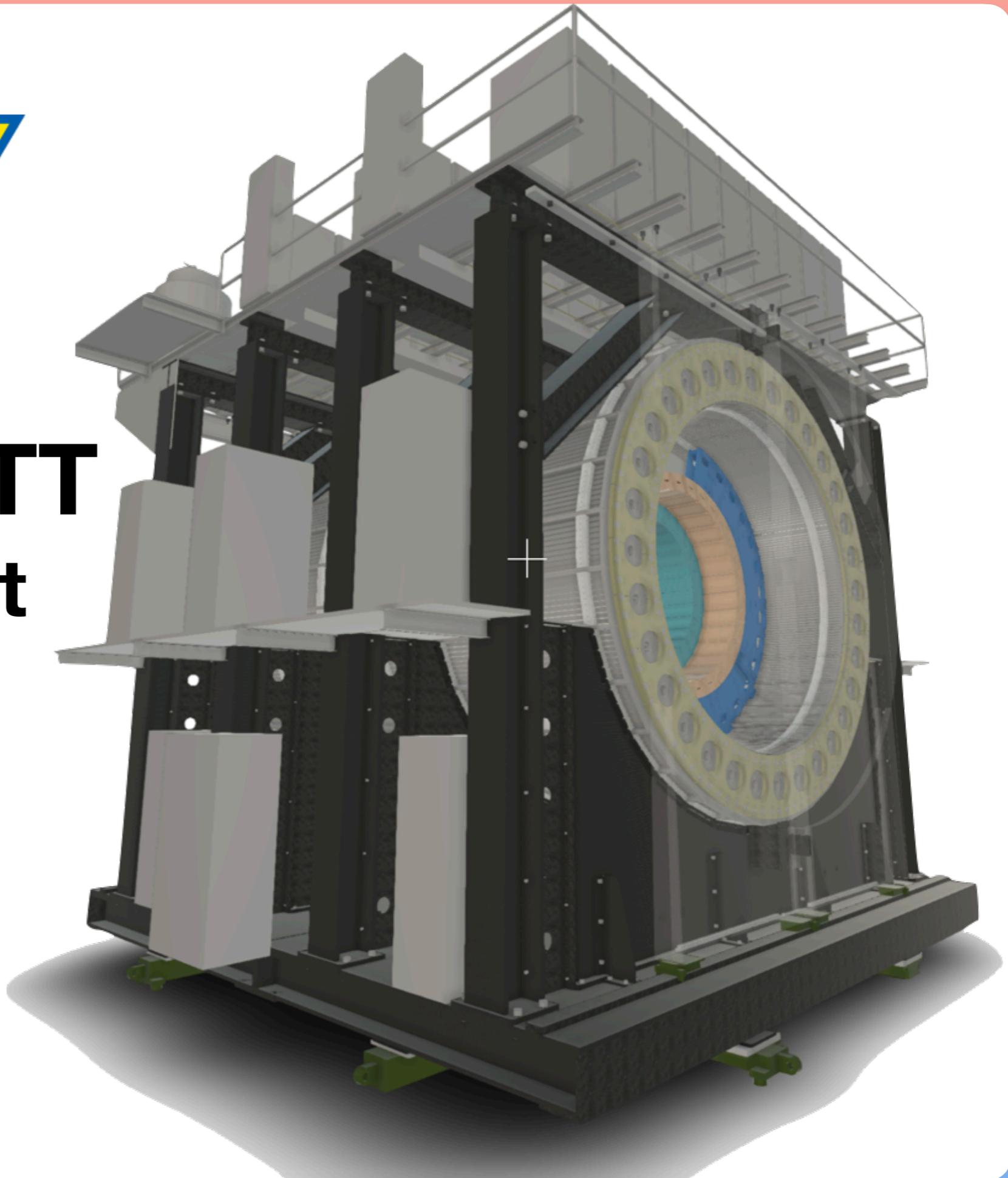# sPHENIX INTT
- Weekly Report
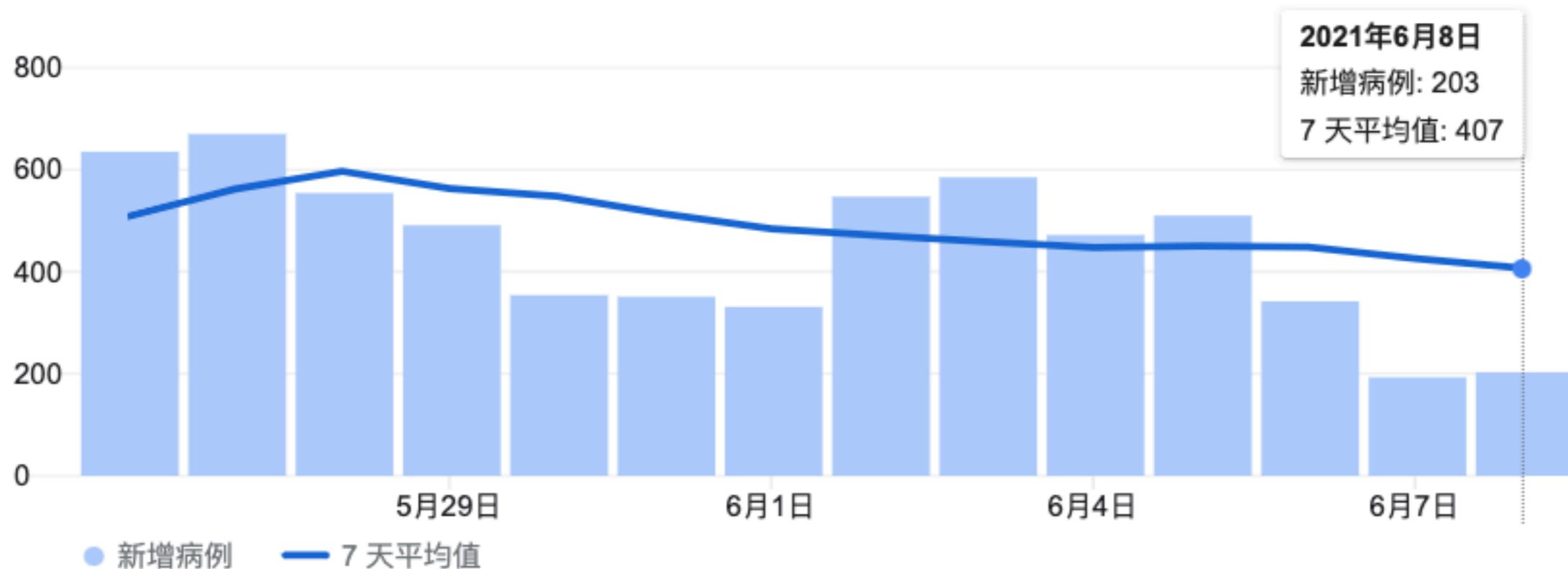
Cheng-Wei Shih,
Chia-Ming Kuo

NCUHEP

2021/6/9

COVID-19 status in Taiwan

- ~ 300 new COVID-19 cases each day (slightly decreases).
  - Most of the cases are from Taipei (NTU) and new Taipei City.
- National level 3 epidemic warning extends to 06/28
  - We still stop to go to NTU

Increase cases

- Cosmic test is performed for supply voltage, threshold cut study
  - NWU Supply voltage : -1100V
  - Test voltage : -750 V to -1200V

@ 10th floor
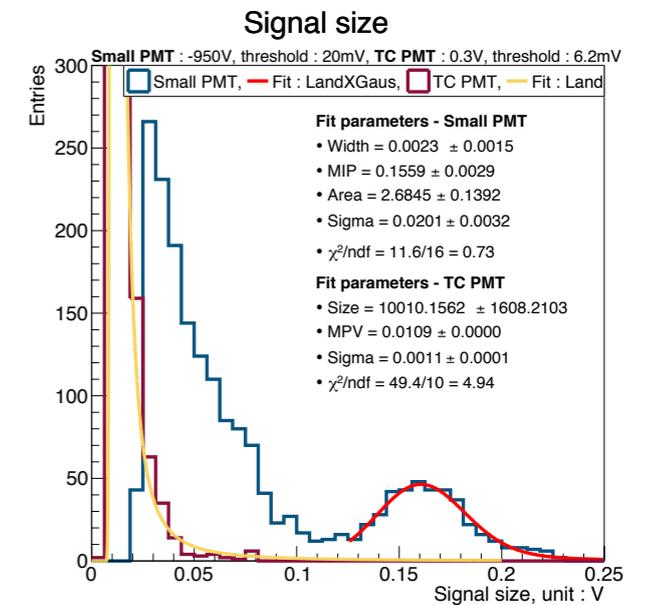
2 PMT+scintillator overlaps

INTT PMT

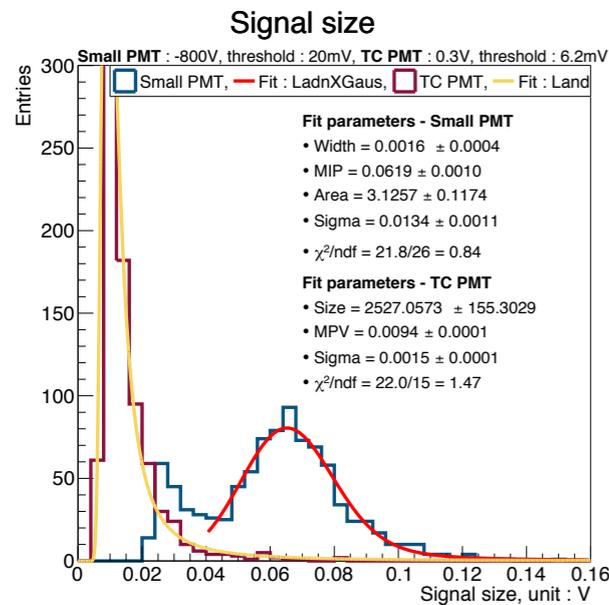INTT PMT scintillator size ~ 1 cm^2

Threshold cut on oscilloscope : 20mV. Without noise cut
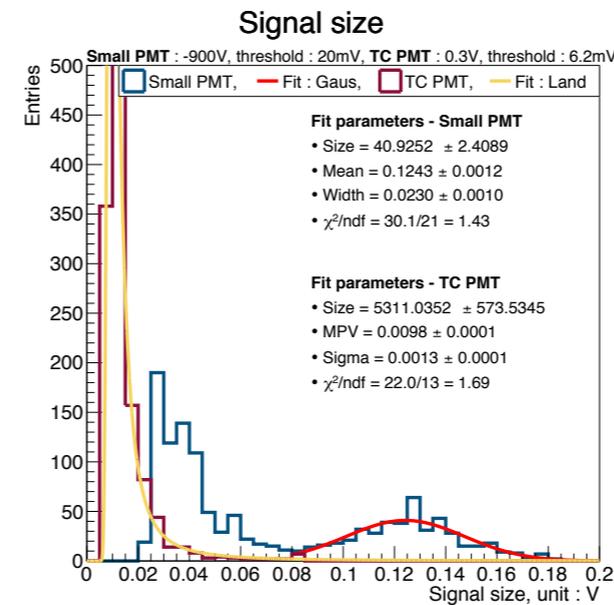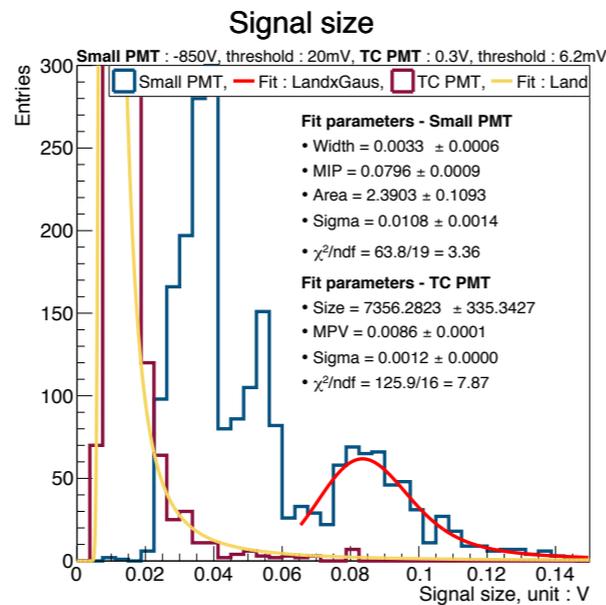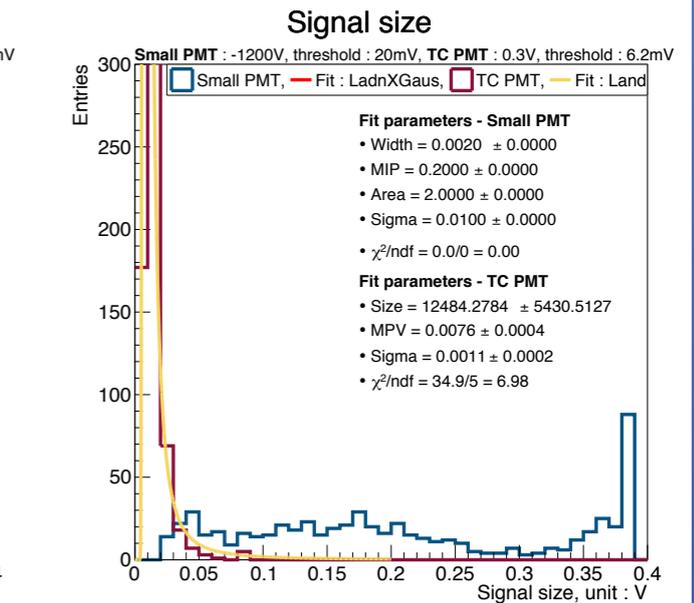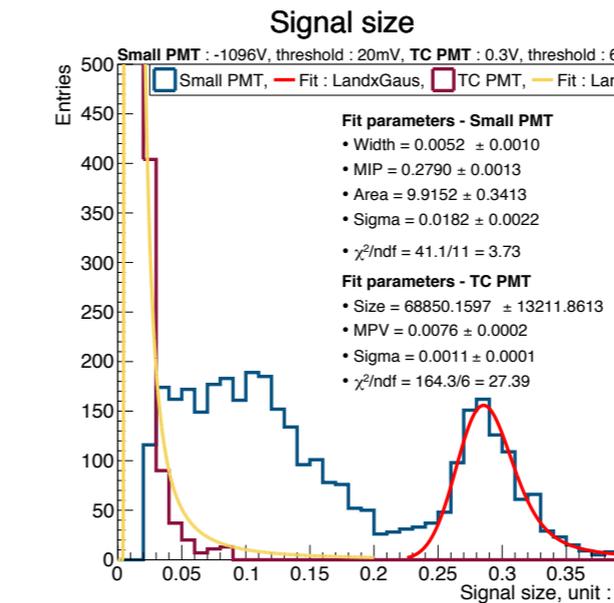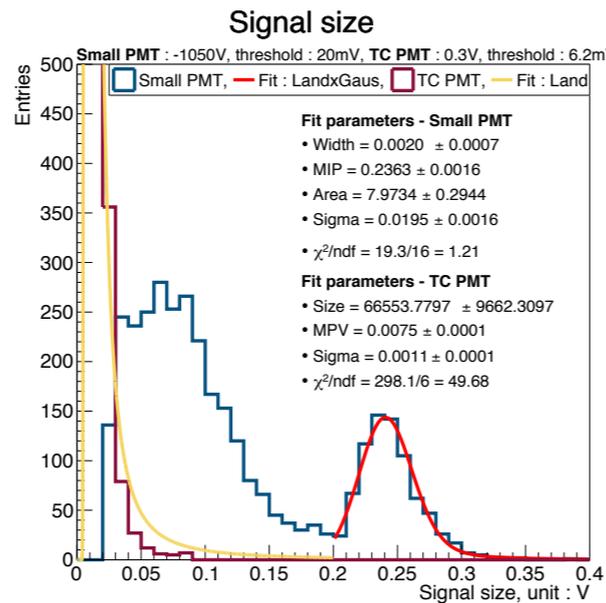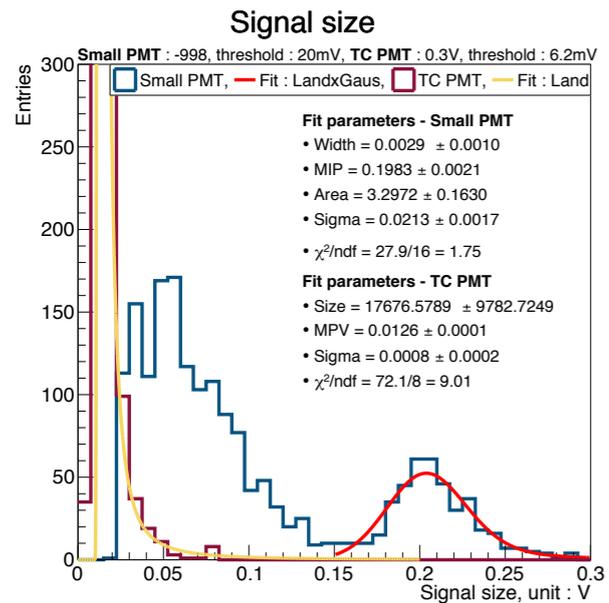
INTT teststand : PMT

Threshold cut on oscilloscope : 20mV. With noise cut

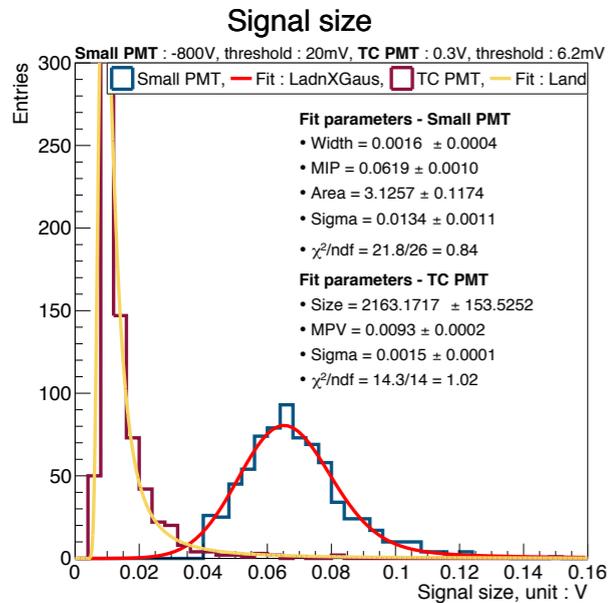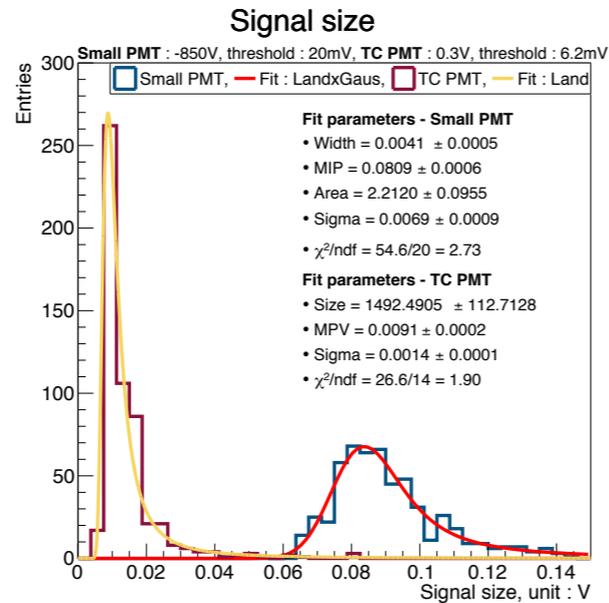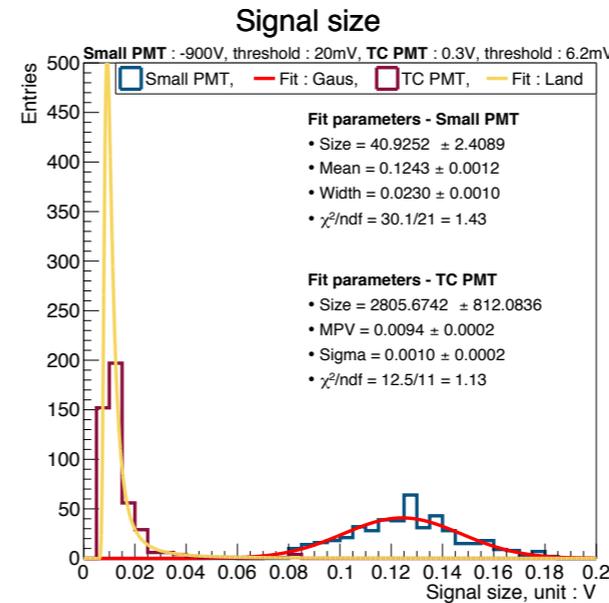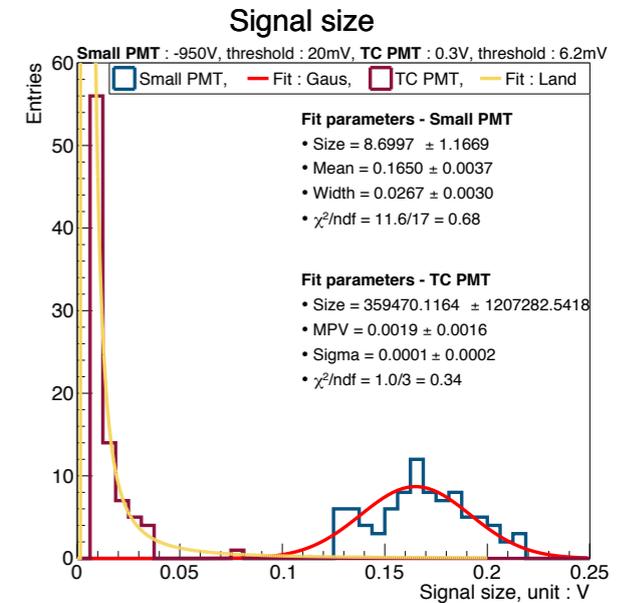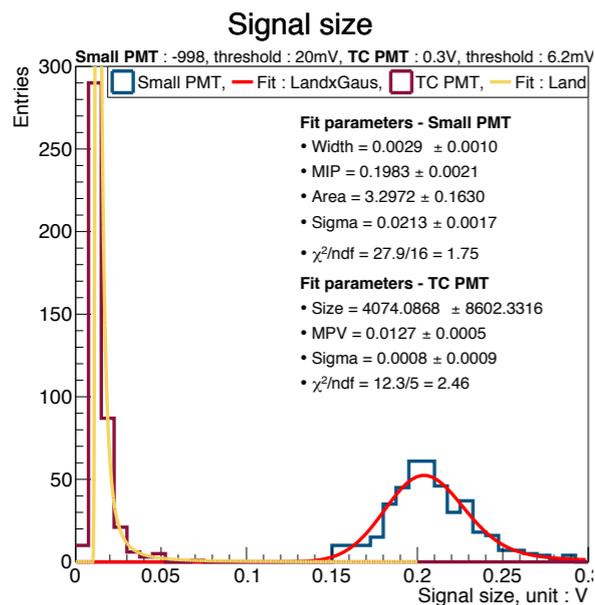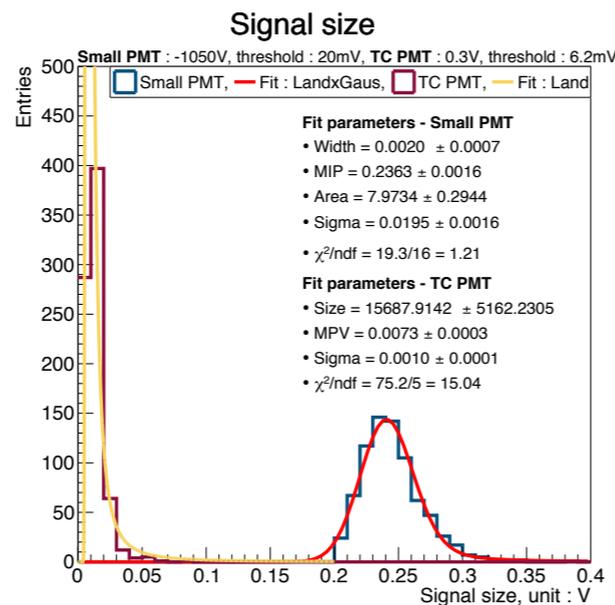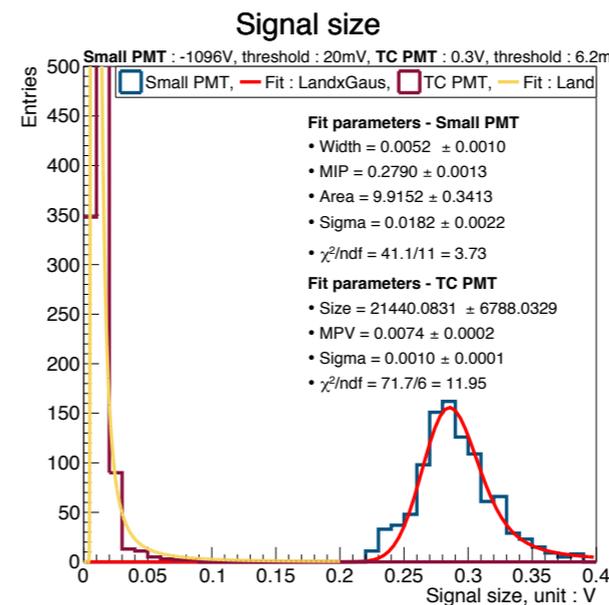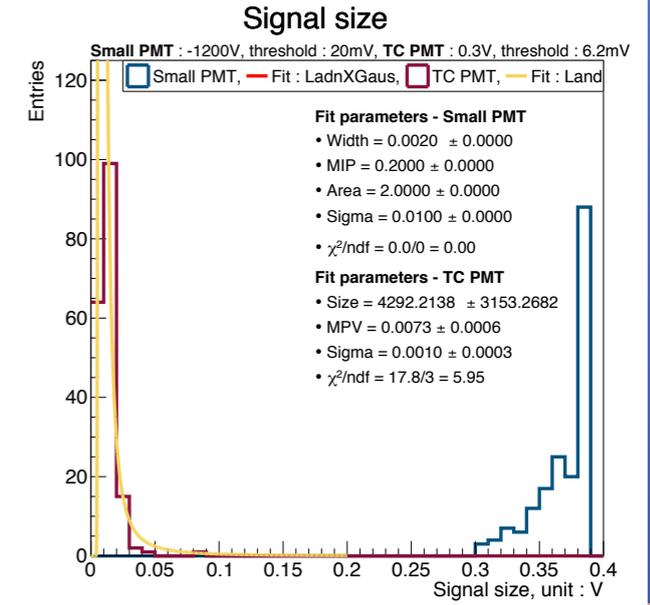# INTT teststand : PMT

Signal MPV vs supply voltage
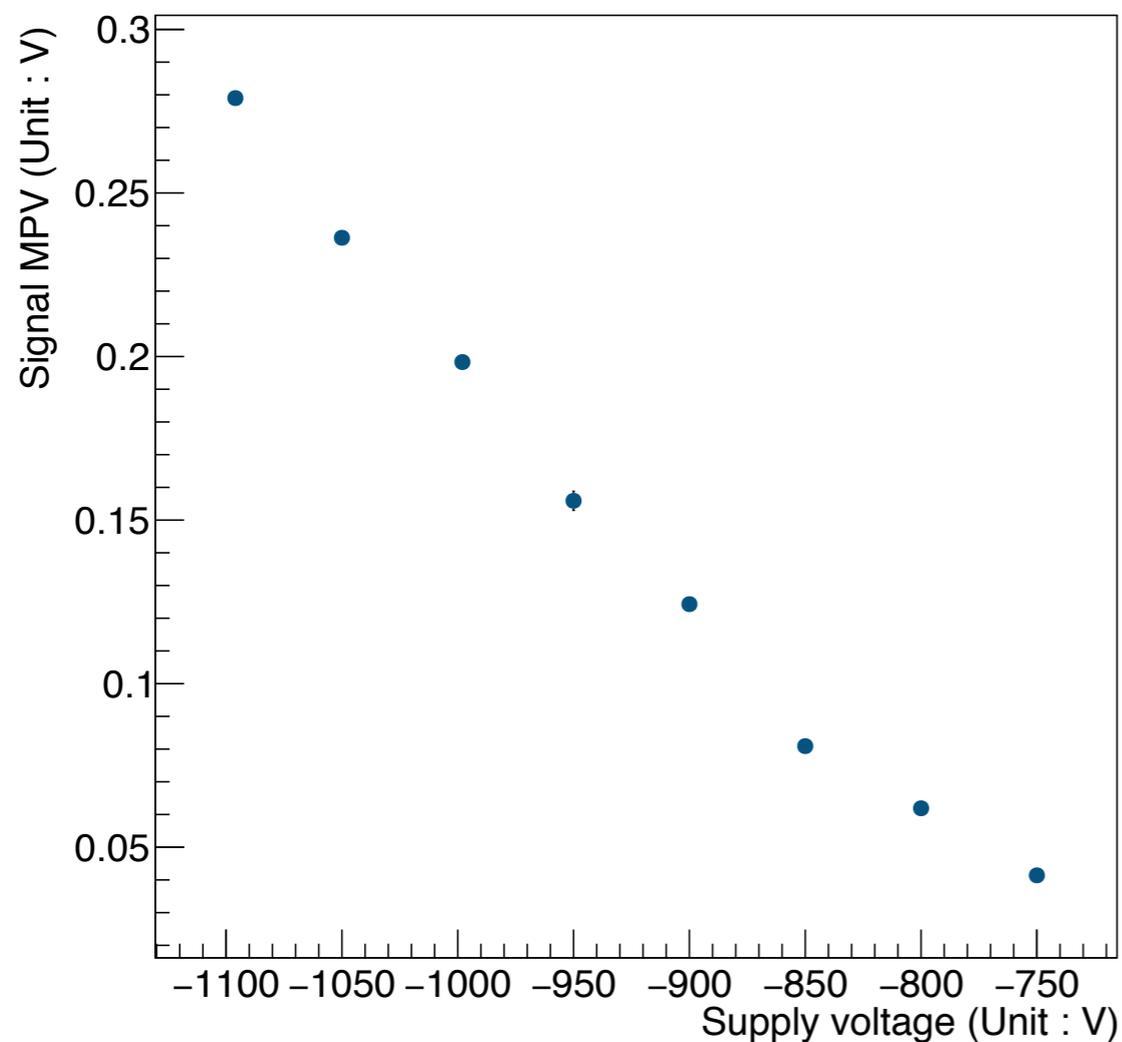
Event rate vs supply voltage
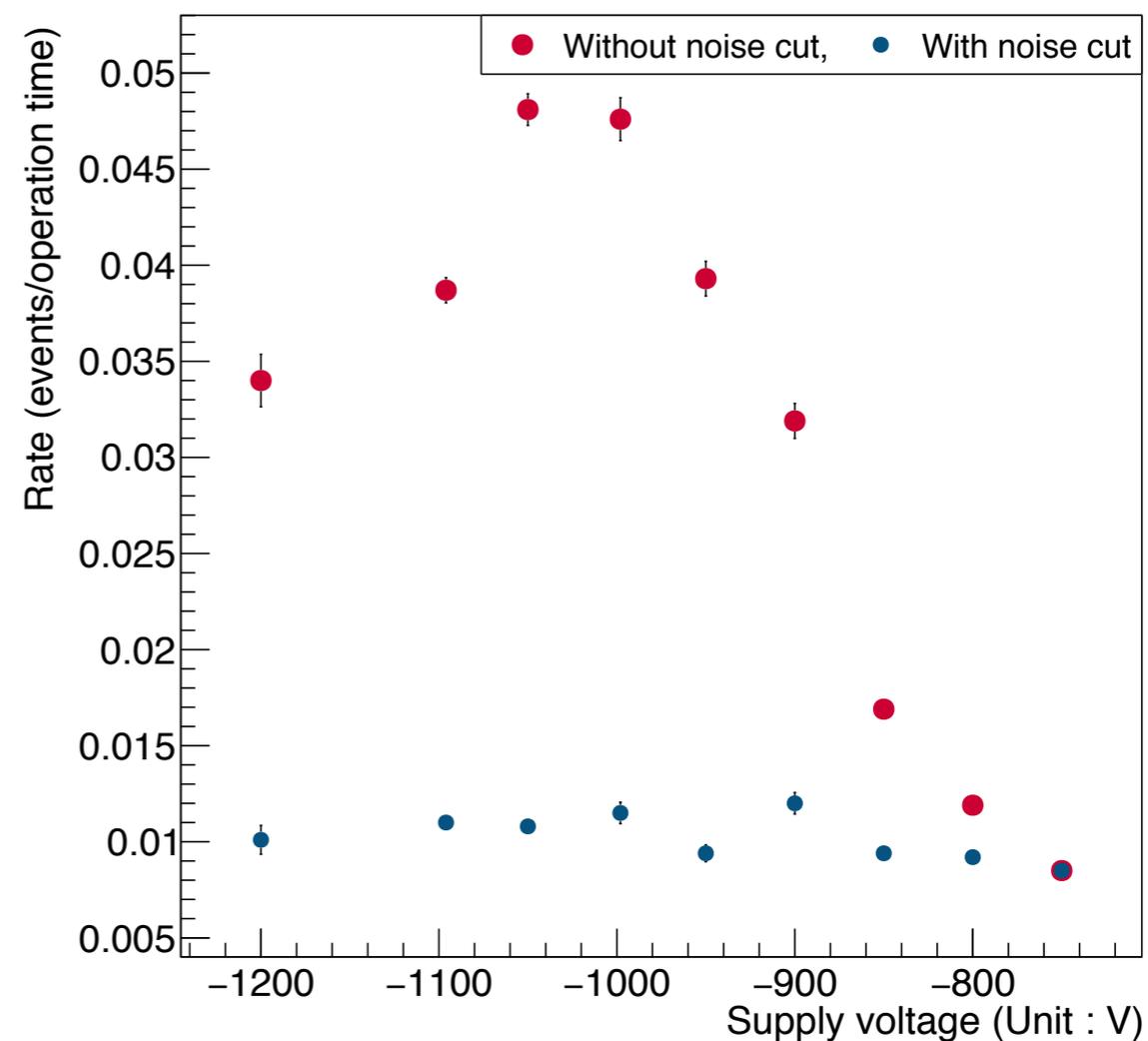
After applying noise cut, the event rate is stable at ~ 0.01

- We have DP460 in hand.

Clean the surface by acetone before applying glue

Glue gun with mixing nozzle

Apply DP460

Practice

Remove additional glue by blade
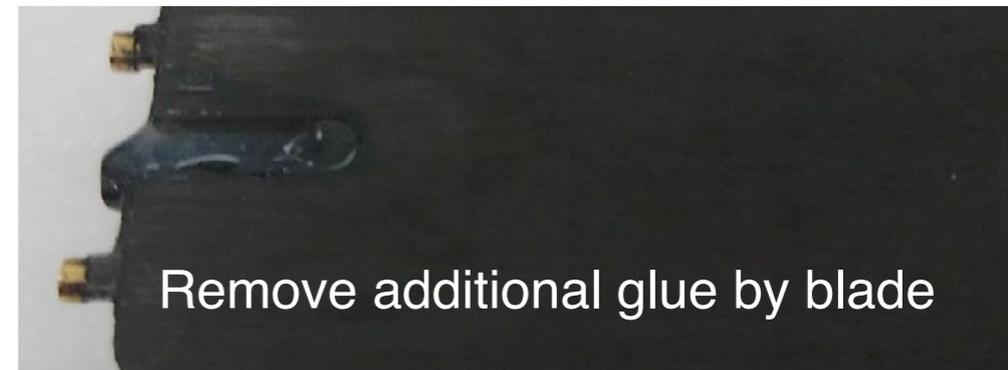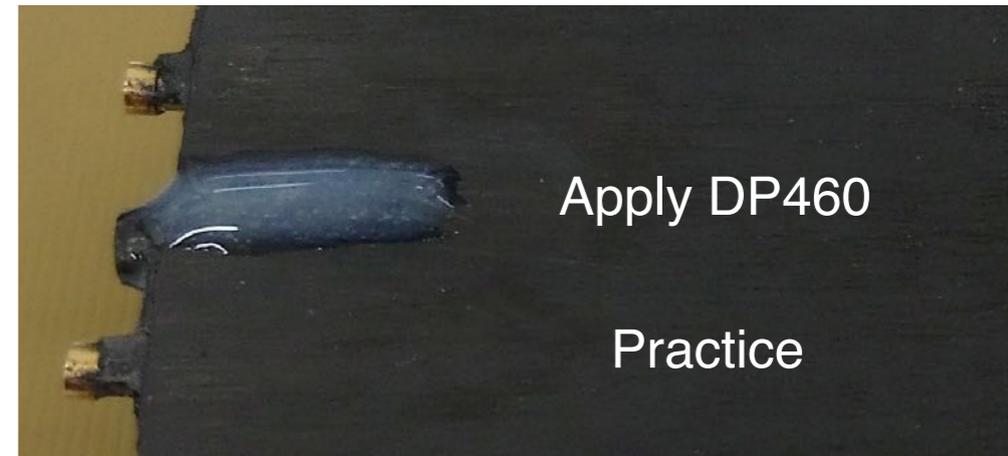
Glue stirred by chopsticks
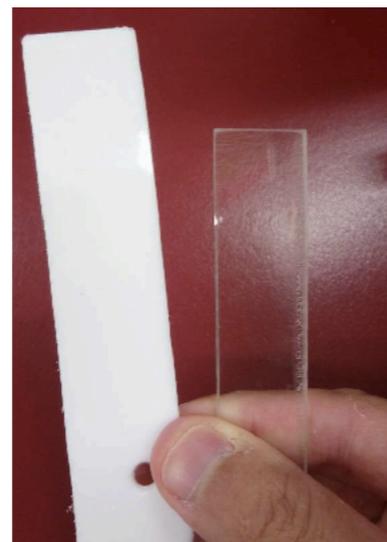
Blade for removing surface glue

Glue is shorter than stave surface
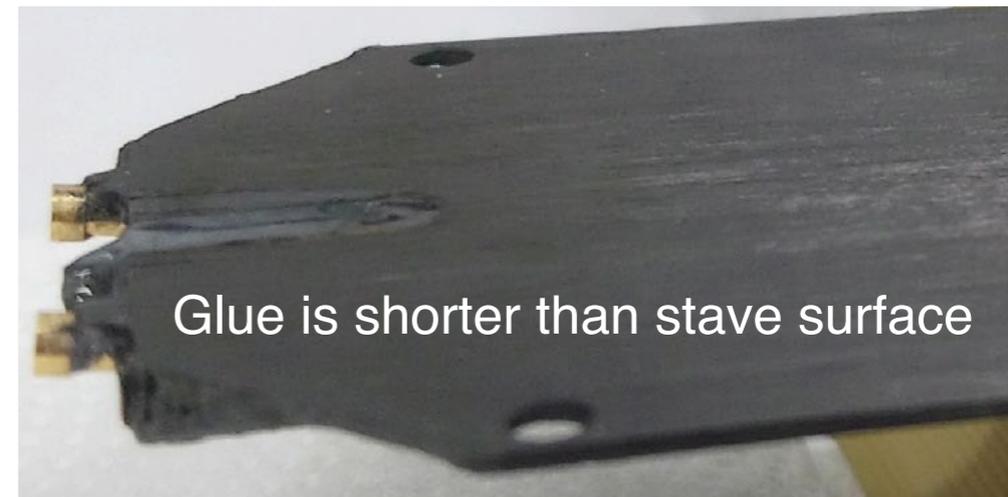
DP460 for stave

- First try with 2 staves

Glue surrounds the tube
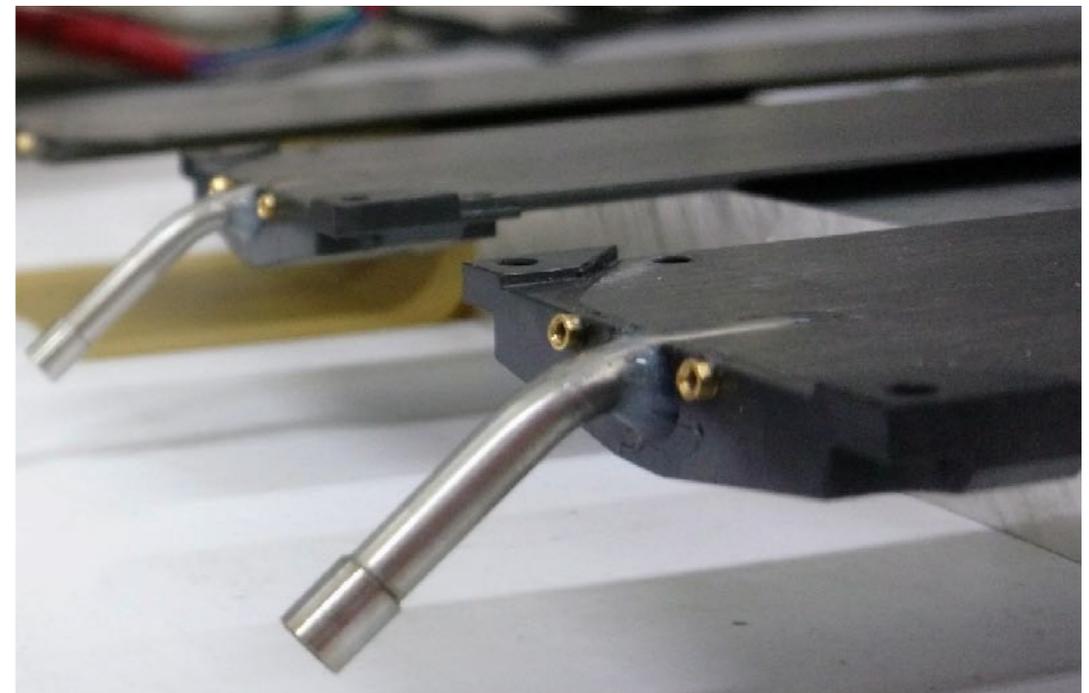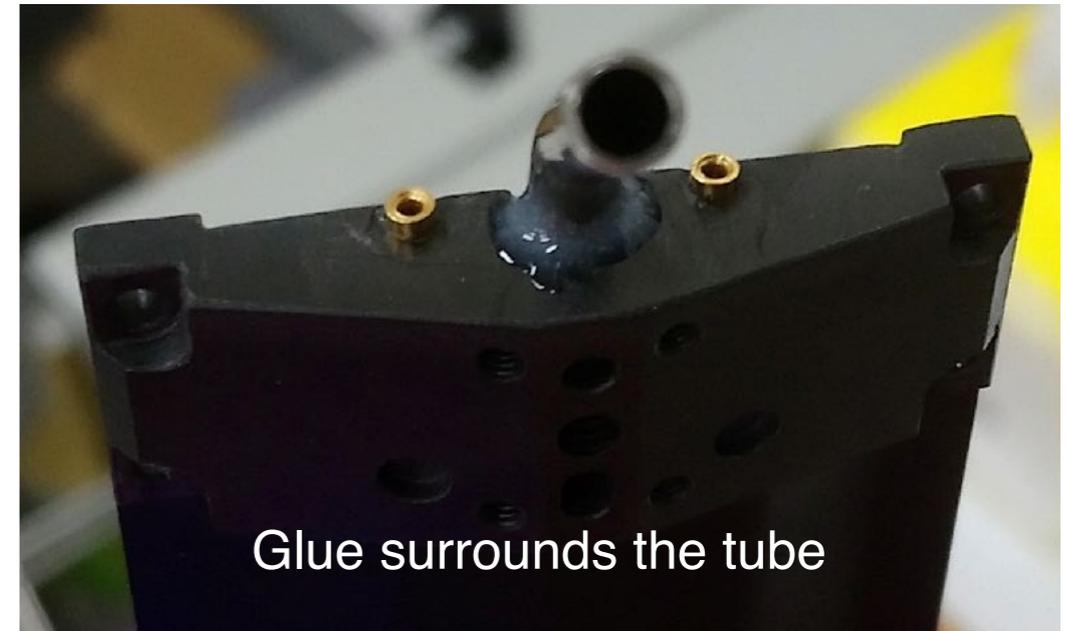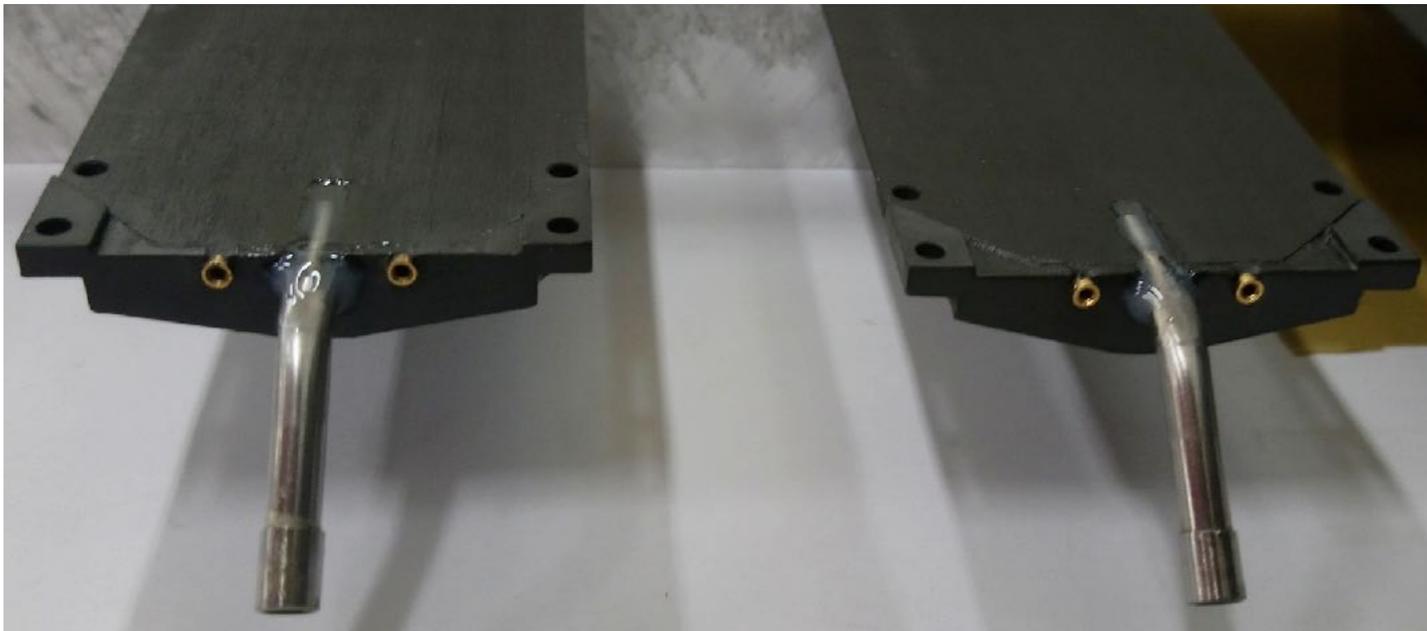
DP460 for stave

- Twist test : 24 hours after glue application.
- Torque : 0.8 N*m

- Test with 2 staves :
  - 02-0083 : both sides good
  - 01-0074 : one side bad
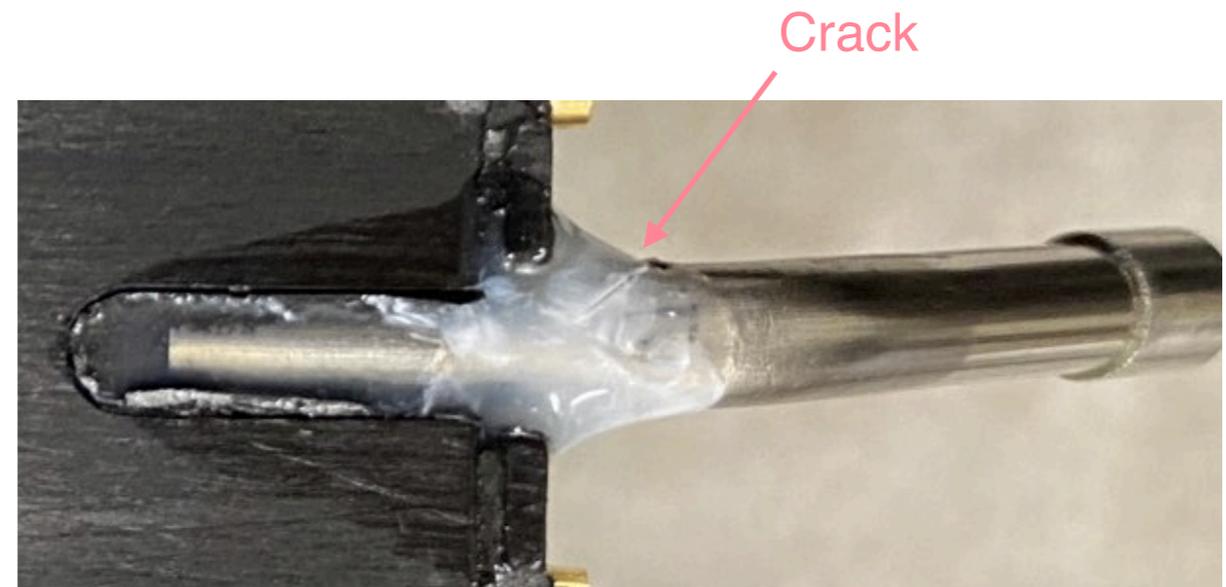
Crack

The crack is on DP460
Would 0.8 N*m be too strong ?

Trial good example

Trial bad example
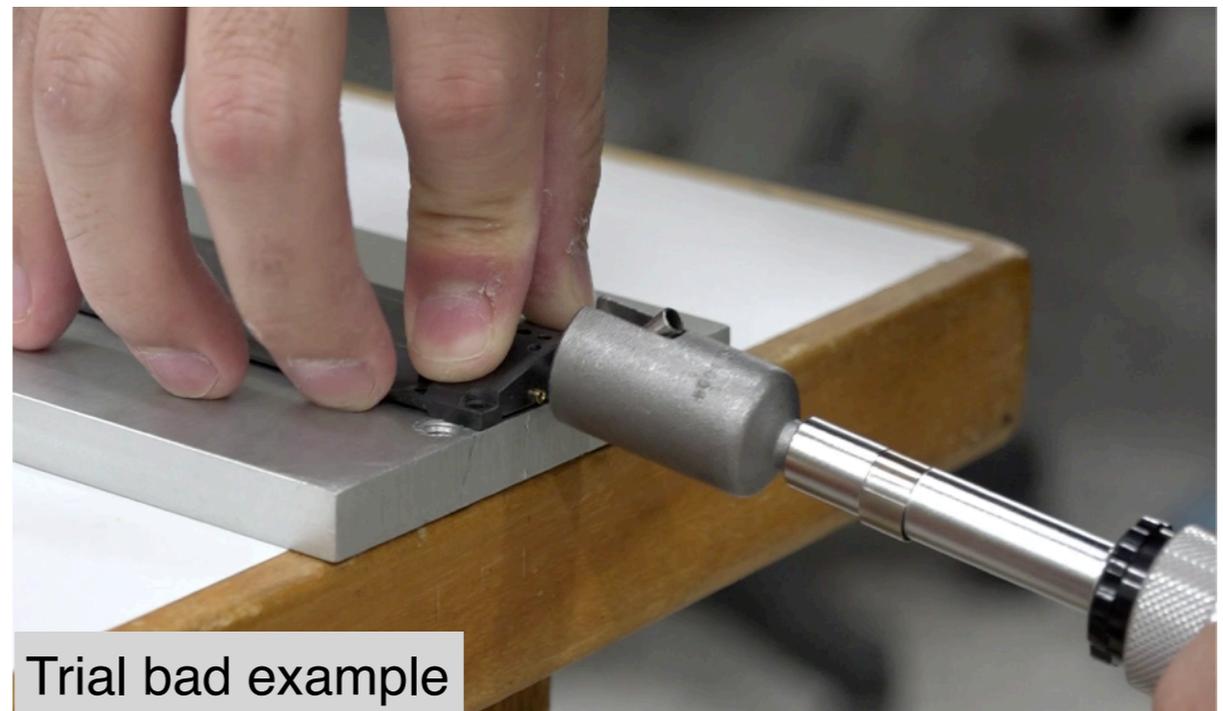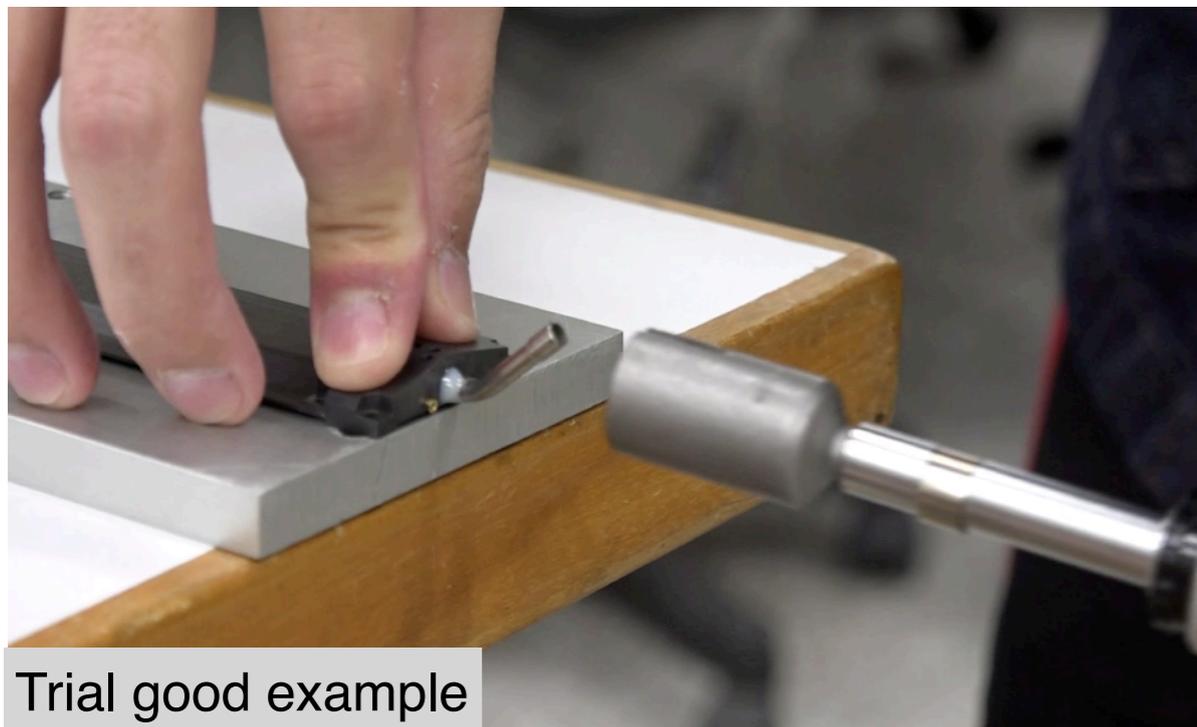
ROC FPGA firmware

- We modified CLK90 to CLK180 & CLK270.
- The code has sent to NWU.
- License for IDE 9.1 is not free, price : 1000 USD for 1 year.
  - IDE version we are using now : 11.9
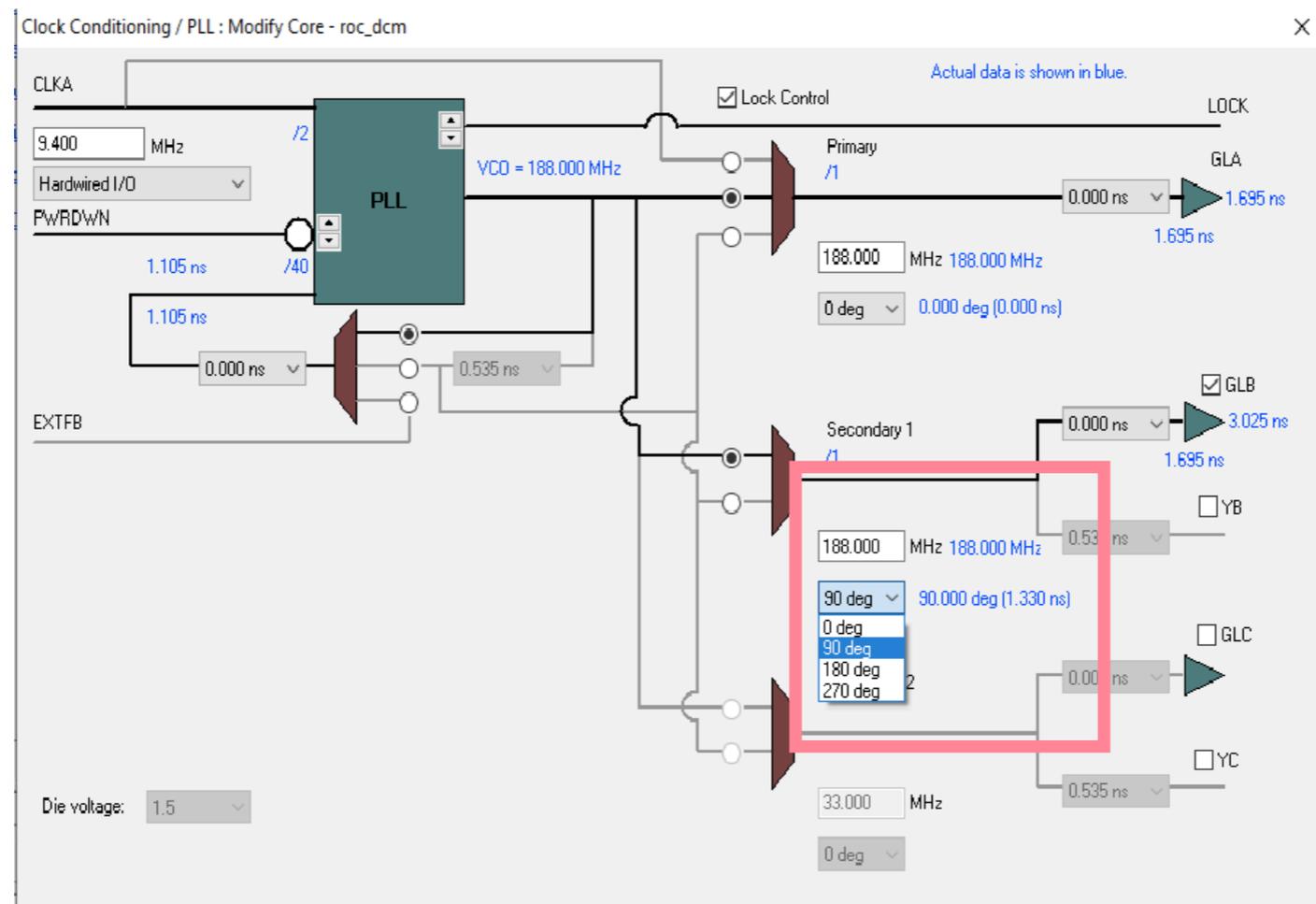
Summary

- Level 3 warning is extended to 6/28

- The PMT test is finished,
  - Supply voltage -1000V, threshold cut 0.15 V is good for use.

- We applied DP460 on 2 staves this week.
  - We will keep applying DP460 on staves.
  - Twist test results : 3 / 4 sides good.
  - Question : Would 0.8 N*m be too strong ?

Summary

- We will try to apply the DP460 in NCU.

- The PMT and Motor are almost ready for test stand

- To do list :
  - We will change the clock phase by the GUI, and send the code to NWU for testing.

    - Concern : if FPGA fails to work, it is dead. We don't have solution to recover it (we don't know the original code version in FPGA).

  - We may have to compile the code with different IDE

  - Test the PMT with different supply voltage

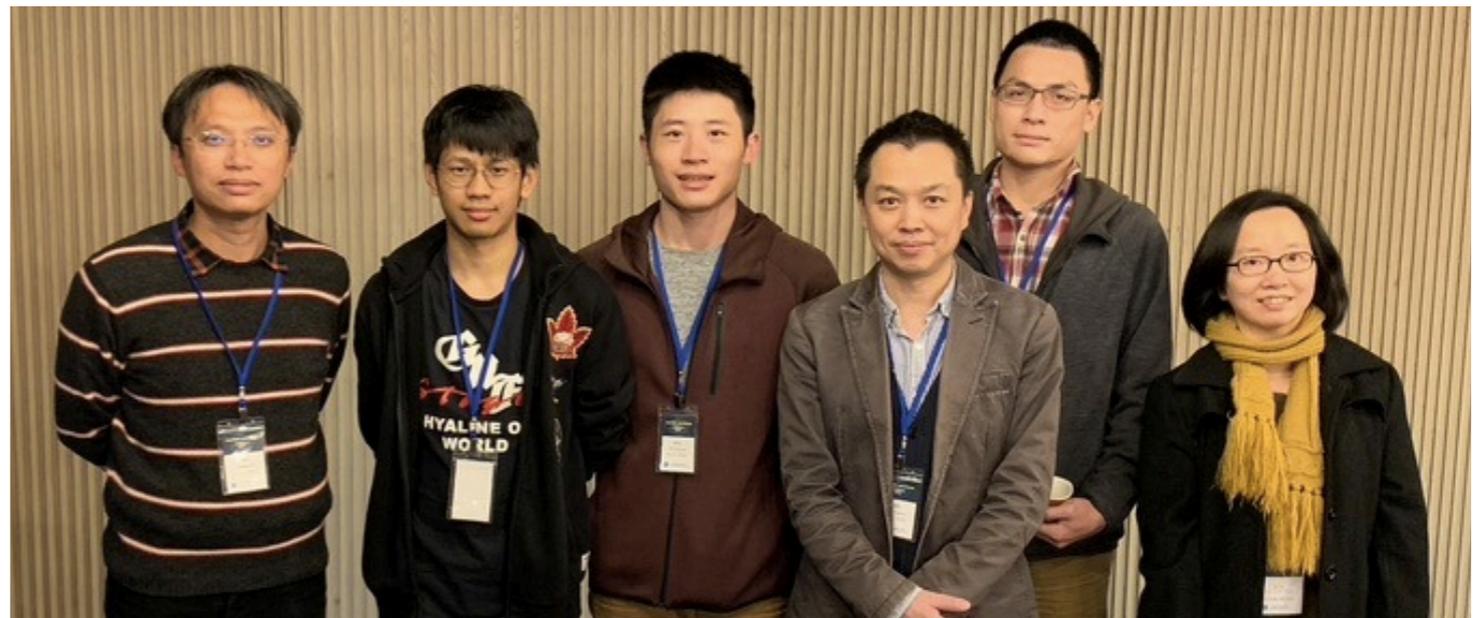# Back up

Taiwan INTT team
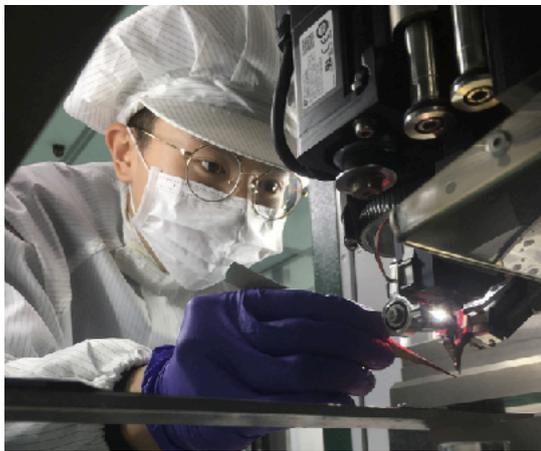
Ou-Wei Cheng

Kai-Yu Cheng

Chia-Ming Kuo   Cheng-Wei Shih   Lian-Sheng Tsai
Wei-Che Tang   Rong-Shyang Lu   Janny Huang

Ladder assembly

- Ladder glue issue
  - According to previous test, glue spreads well.

60 um SS plate in between

- To do
  - Test glue spread with full size acrylic plate.
  - Tune the gantry glue deposit parameters (more rings).
  - Optional : glue mask for applying glue (the same as BNL).

Thickness : 50um
Glue mask from BNL