



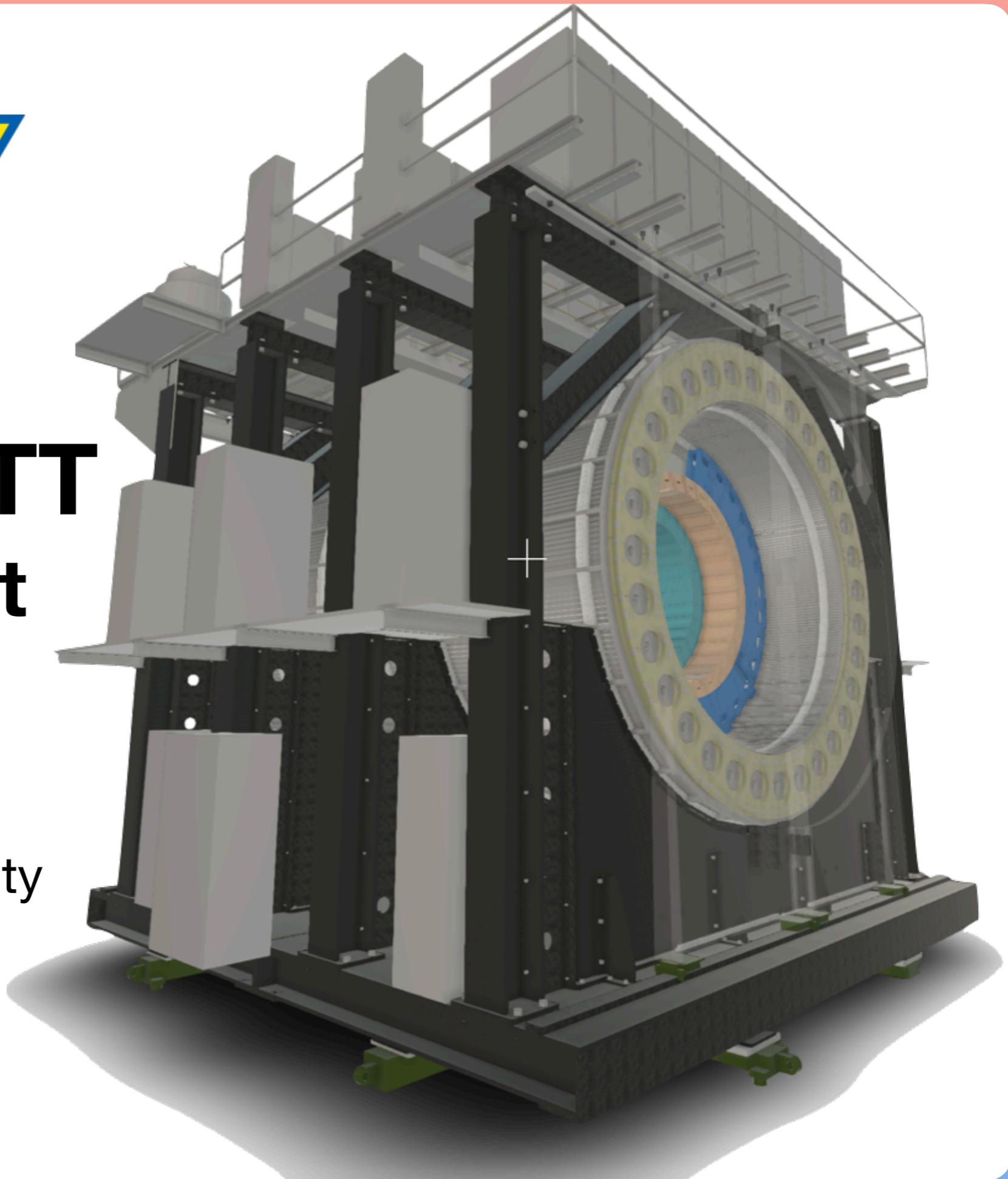
# SPHENIX INTT

## - Weekly Report

Cheng-Wei Shih,  
Chia-Ming Kuo

National Central University

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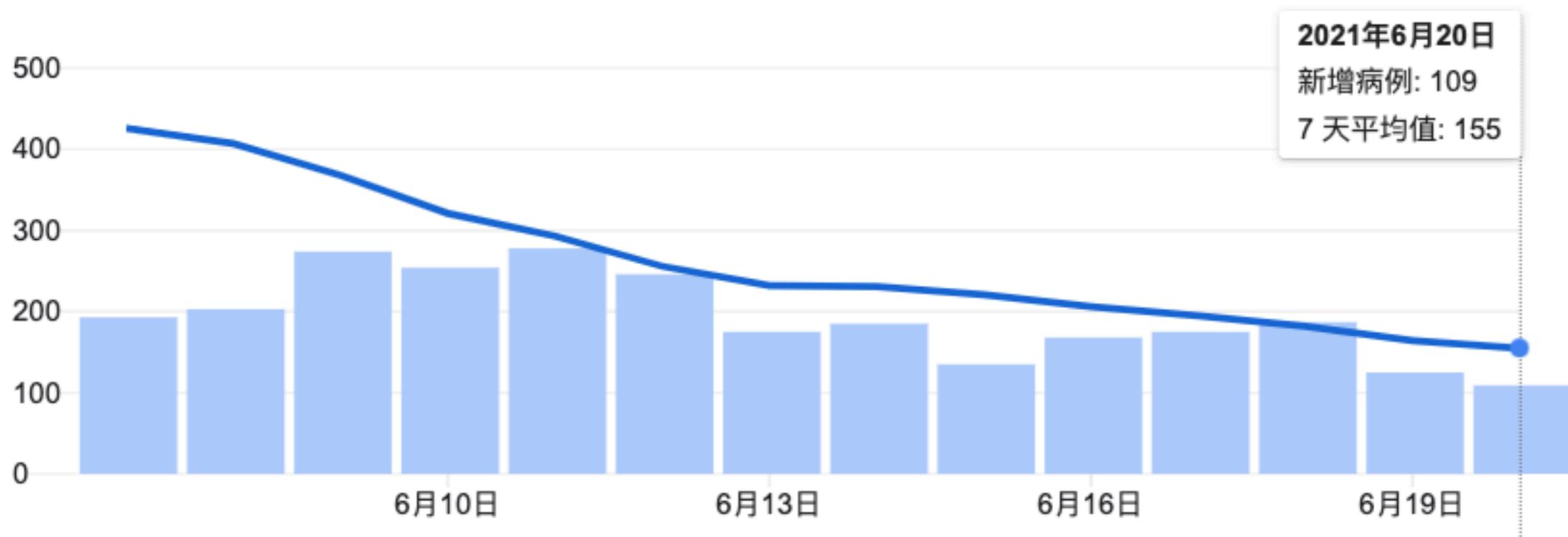


# COVID-19 status in Taiwan



- ~ 100 new COVID-19 cases each day (it's decreasing !).
- National level 3 epidemic warning is extended to **07/12...**
  - We still stop to go to NTU.

Increase cases



# Channel classification v3



- Formate of input file : .dat (not .root)
- Operation root version : 6.01 (after it should be fine)

Principle : the less entries in the plot, the better performance it is.

## Channels failed in noise criteria

```

=====
Noise channel found, chip : 7  channel : 12  failed times : 20/20  ratio : 1
Noise channel found, chip : 19  channel : 36  failed times : 20/20  ratio : 1
~~~~~
Noise channel, chip : 2  channel : 0
failed in file index : 2  file name : fphx_raw_20210428-1320_0.root, gaus width : 46.9425
failed in file index : 3  file name : fphx_raw_20210428-1321_0.root, gaus width : 78.376
failed in file index : 4  file name : fphx_raw_20210428-1322_0.root, gaus width : 4.47558
failed in file index : 5  file name : fphx_raw_20210428-1324_0.root, gaus width : 4.59855
failed in file index : 6  file name : fphx_raw_20210428-1331_0.root, gaus width : 75.7756
failed in file index : 7  file name : fphx_raw_20210428-1332_0.root, gaus width : 32.8639
failed in file index : 8  file name : fphx_raw_20210428-1333_0.root, gaus width : 38.3274
failed in file index : 11  file name : fphx_raw_20210428-1654_0.root, gaus width : 147.086
failed in file index : 12  file name : fphx_raw_20210428-1656_0.root, gaus width : 127.588
failed in file index : 14  file name : fphx_raw_20210428-1659_0.root, gaus width : 4.8683
failed in file index : 15  file name : fphx_raw_20210428-1700_0.root, gaus width : 4.15262
failed in file index : 17  file name : fphx_raw_20210428-1703_0.root, gaus width : 4.41939
failed in file index : 19  file name : fphx_raw_20210428-1706_0.root, gaus width : 33.9221
=====
    
```

## Channels failed in entry criteria

```

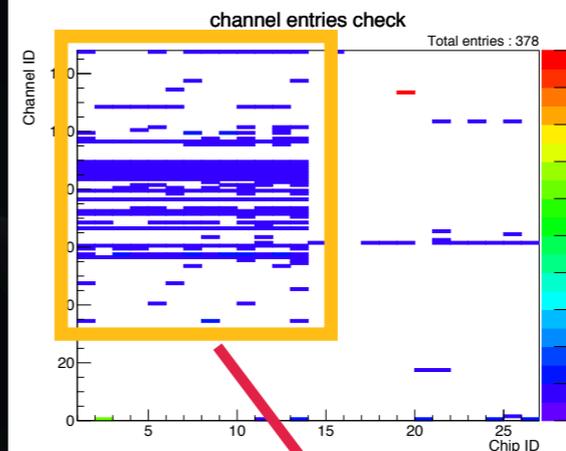
=====
Weird entries found, chip : 2  channel : 0  failed times : 12/20  ratio : 0.6
Weird entries found, chip : 19  channel : 113  failed times : 20/20  ratio : 1
~~~~~
Bad entries channel, chip : 2  channel : 0
bad in file index : 2  file name : fphx_raw_20210428-1320_0.root, entries : 4410
bad in file index : 3  file name : fphx_raw_20210428-1321_0.root, entries : 5820
bad in file index : 5  file name : fphx_raw_20210428-1324_0.root, entries : 645
bad in file index : 6  file name : fphx_raw_20210428-1331_0.root, entries : 7557
bad in file index : 7  file name : fphx_raw_20210428-1332_0.root, entries : 2104
bad in file index : 8  file name : fphx_raw_20210428-1333_0.root, entries : 4062
bad in file index : 11  file name : fphx_raw_20210428-1654_0.root, entries : 20615
bad in file index : 12  file name : fphx_raw_20210428-1656_0.root, entries : 17784
bad in file index : 14  file name : fphx_raw_20210428-1659_0.root, entries : 569
bad in file index : 15  file name : fphx_raw_20210428-1700_0.root, entries : 422
bad in file index : 17  file name : fphx_raw_20210428-1703_0.root, entries : 467
bad in file index : 19  file name : fphx_raw_20210428-1706_0.root, entries : 2125
=====
    
```

```

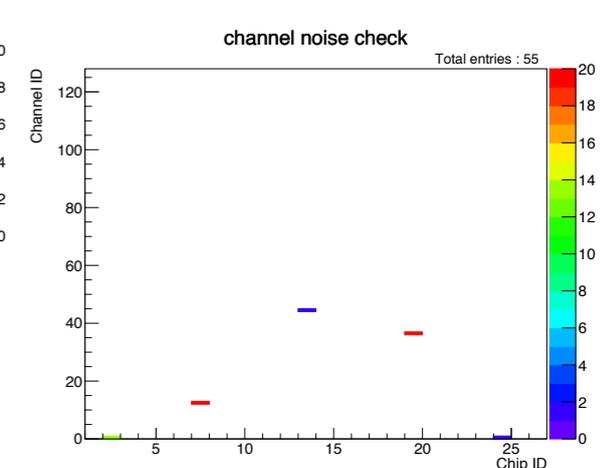
===== Final summary =====
# of noise channels : 3
# of bad entry chan : 2
# of double counting: 1

Total bad channels : 4
Overall good channel ratio : 3324 / 3328 = 99.880%
===== Final summary =====
Final result
    
```

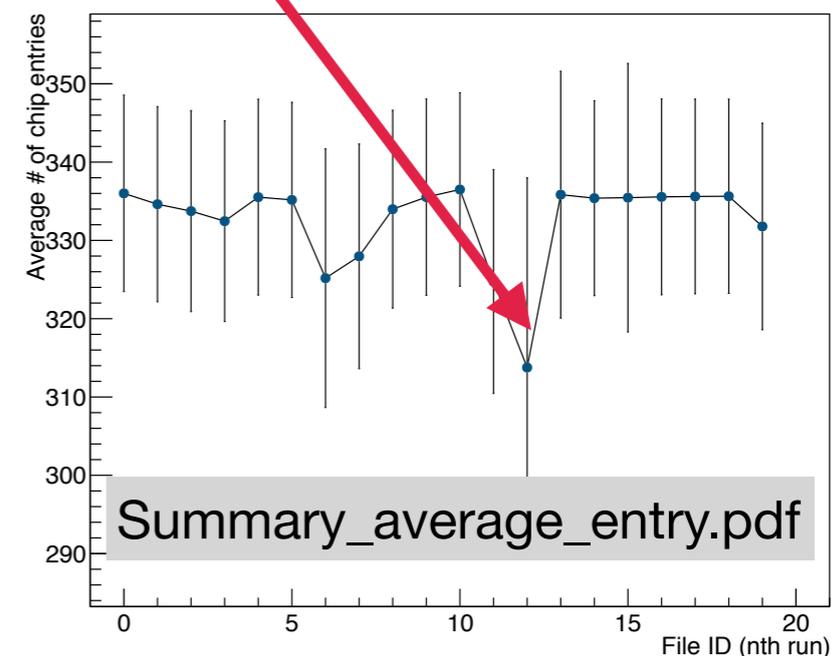
Summary\_entry.pdf



Summary\_noise.pdf



Average # of entries of each channel vs file ID.

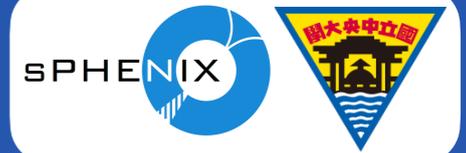


# Criteria of bad channel

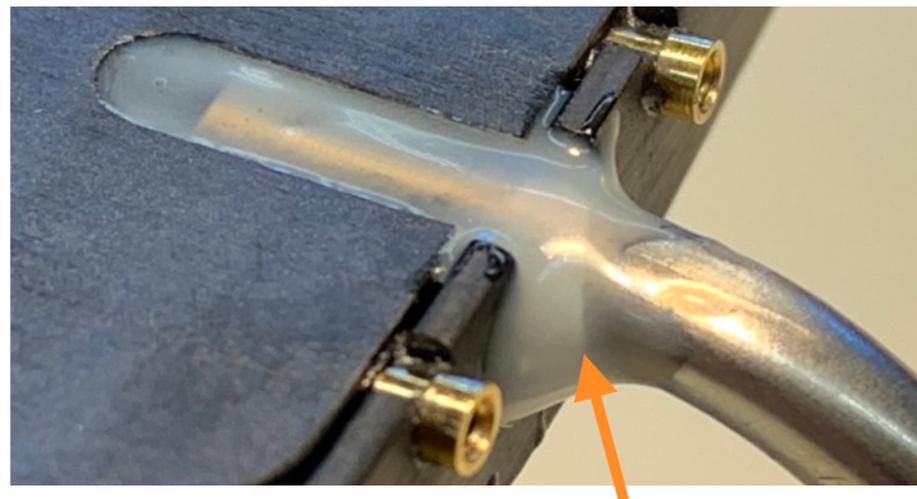


- # of input files  $> 10$  files.
- Single channel is tested by 2 criteria :
  - Entry :
    - If channel with entry  $< 280$  OR entry  $> 400$ .
    - If it happens more than 2 times in all calibration runs -> **Bad.**
  - Noise :
    - If channel with fit gaussian width  $> 4$ .
    - If it happens more than 2 times in all calibration runs -> **Bad.**
- If channel fails in both criteria, it is counted by 1 only.
  - **No double counting.**

# DP460 and Twist test



- In first & second trials, we applied DP460 on 7 staves.
  - Twist test with 3 staves :
    - 1 passed, 2 failed (single side of each stave passed the test).
    - Pass rate : 4/6.
- Third trial (tested with 3 staves bad in flatness, batch-1)
  - No glue stir this time.
  - Twist test with 3 staves : all passed.
  - Leakage test afterward: all passed.

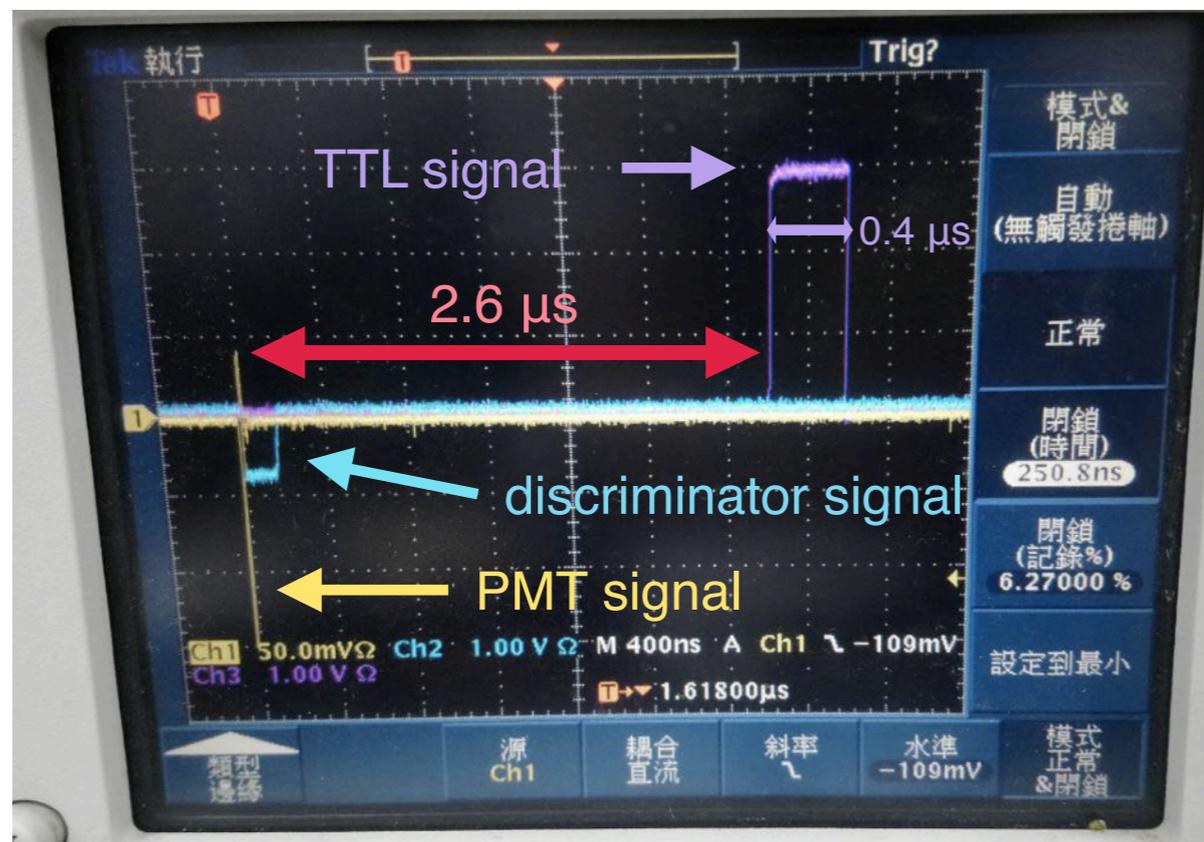
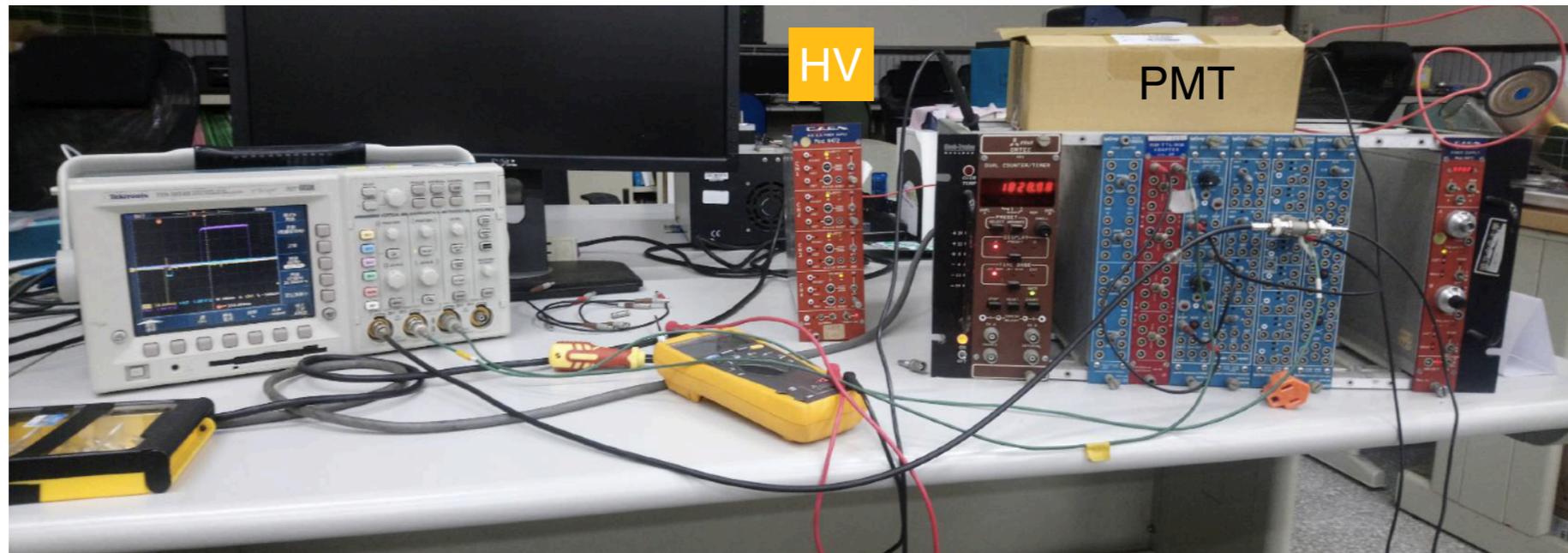


Part of glue and tube were separated after twisting, still passed

- Twist test video [Link](#), DP460 application [Link](#)

# Source test electronics

- All the basic required hardwares are ready.



- Tested modules
  - PMT + scintillator
  - Discriminator
  - Dual gate generator
  - NIM-TTL adapter
  - HV module

All functional !

# Summary

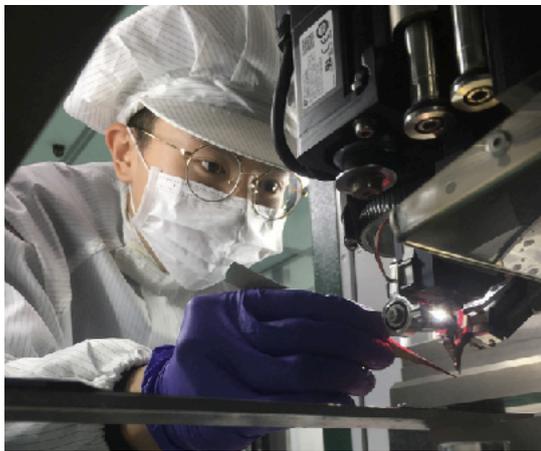


- The National level 3 epidemic warning is extended to **07/12**.
- The channel classification macro v3 is finished, and uploaded on GitHub.
- 3<sup>rd</sup> DP460 trail :
  - All (3) staves passed twist and leakage test.
  - We will applied DP460 on more staves.
- All the required hardwares for source test are ready and tested to be functional.

# Back up



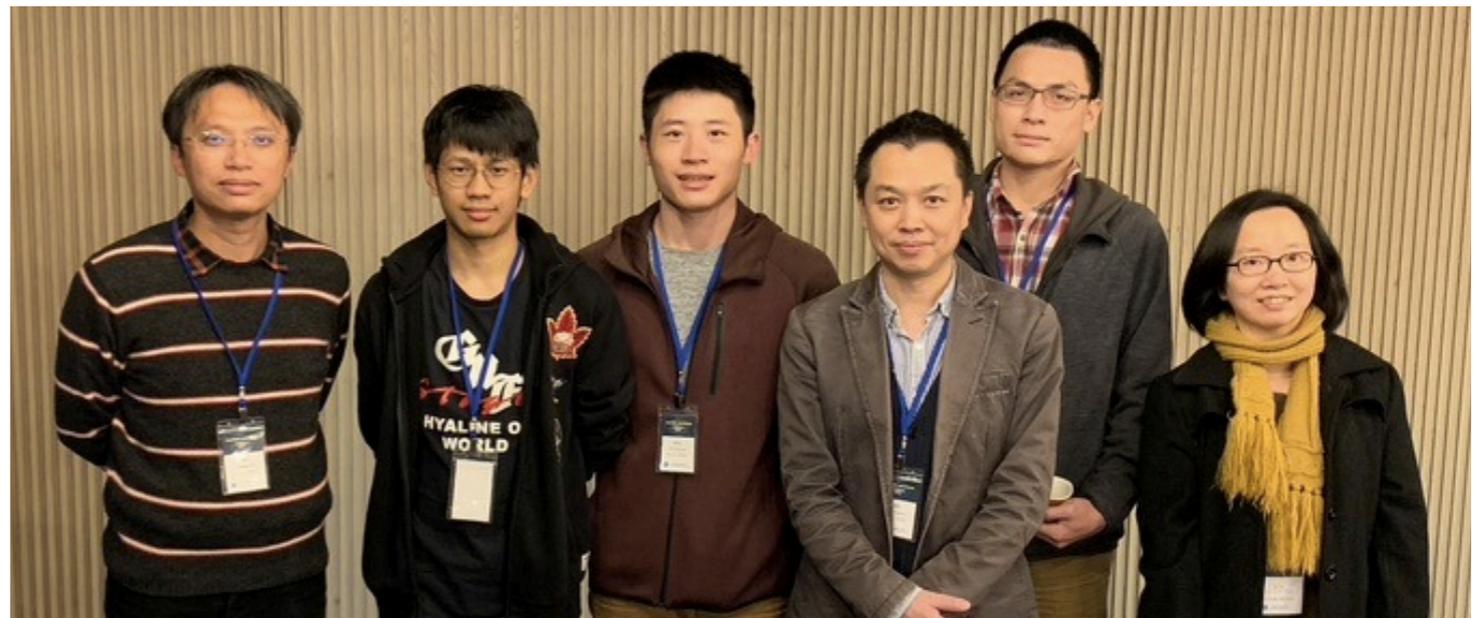
# Taiwan INTT team



Ou-Wei Cheng



Kai-Yu Cheng



Chia-Ming Kuo

Cheng-Wei Shih

Lian-Sheng Tsai

Wei-Che Tang

Rong-Shyang Lu

Jenny Huang

# Source test signal flow

