

Dark rate measurement status report

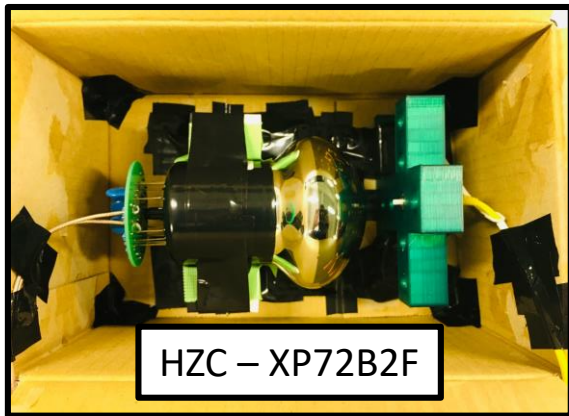
11/29/2019

Tokyo University of Science

Tatsushi Kinoshita

Until this week...

- I measured the dark rate of another two Chinese PMTs.



(new type PMT)

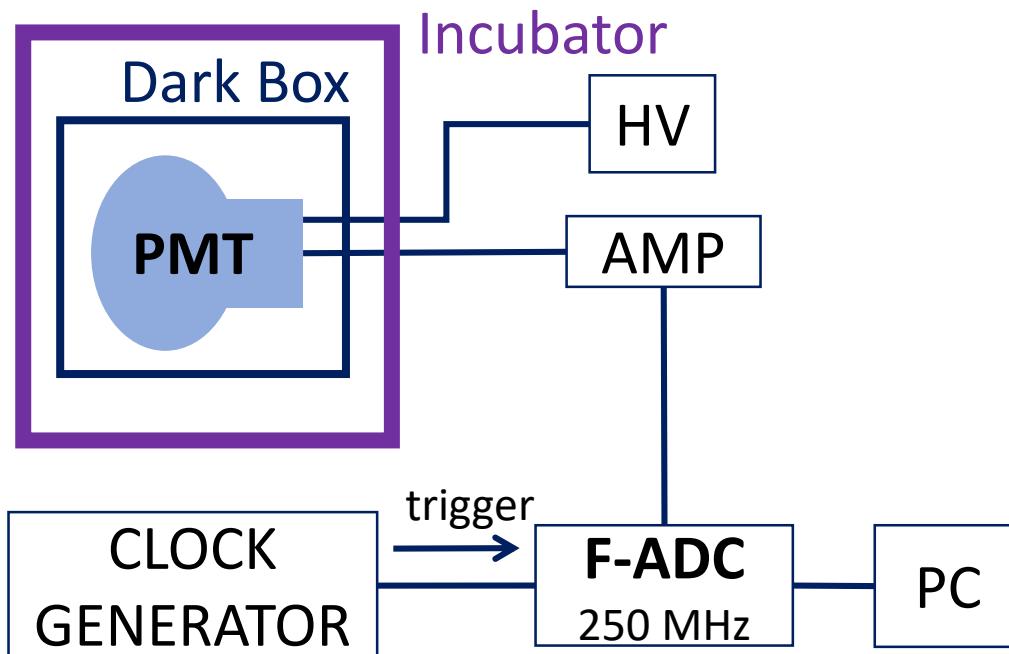


(old type PMT)

Dark rate measurement

- We measured dark rate by F-ADC, keeping the temperature at 13 and 20 °C with incubator.
- We counted the dark noise signals above the threshold 0.25 p.e. and 0.4 p.e.
- To check the consistency, I took the data twice for each Chinese PMT.
 - I waited for 1 hour between 1st and 2nd measurement.

Setup (for dark rate measurement)



1st PMT (I reported last week)

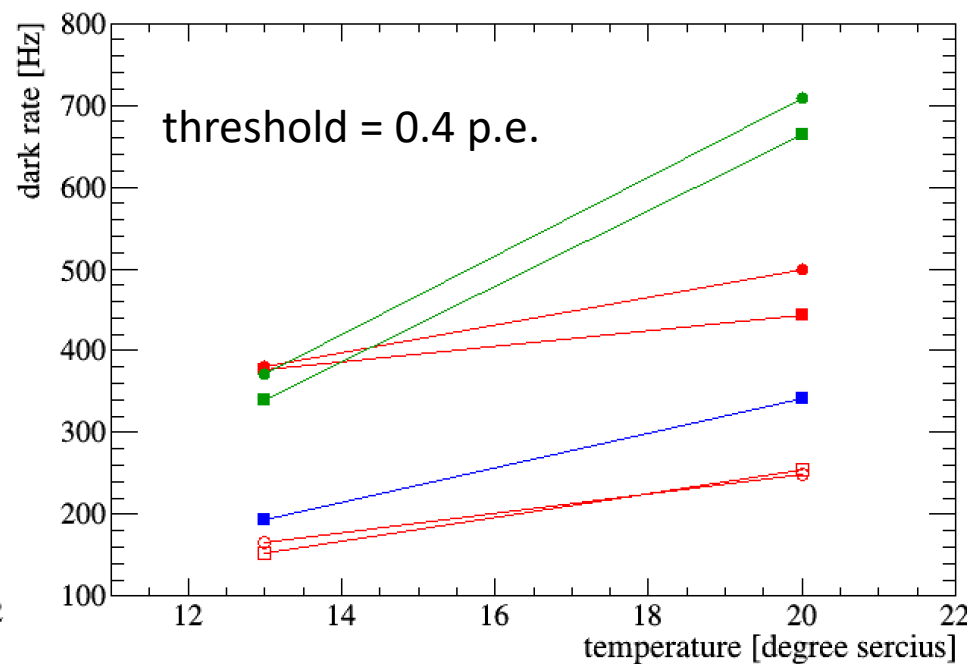
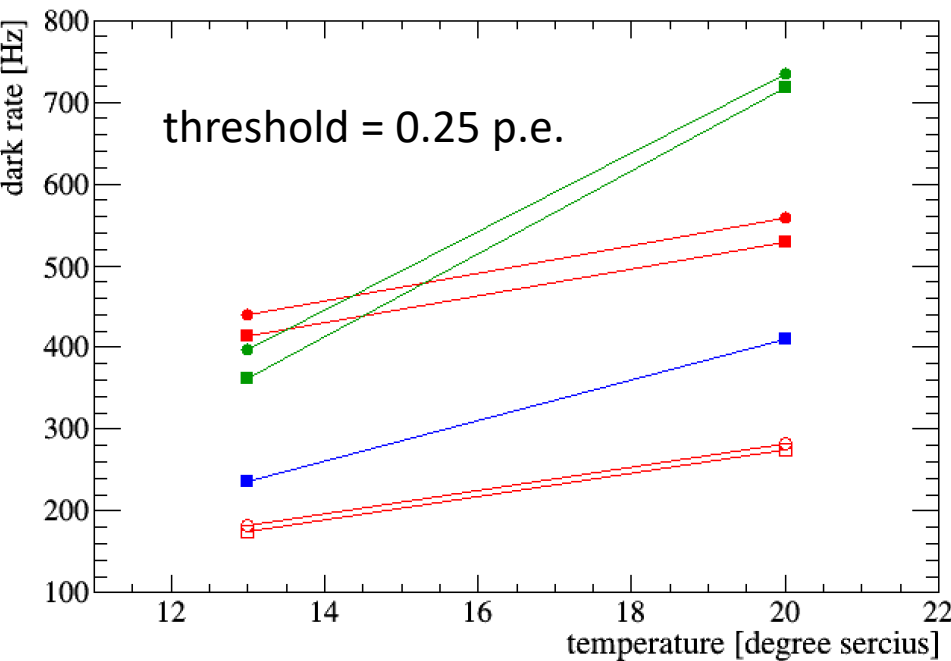
- Negative HV for Hamamatsu
- Positive HV for XP72B2F
- Negative HV for XP82B20

2nd PMT

- Negative HV for XP72B2F
- Positive HV for XP82B20
- 1 GHz F-ADC for XP72B2F

Dark rate measurement

4



The temperature dependence of dark rate

1st PMT (I reported last week)

- - HZC_XP82B20 1st time ● - 2nd time
- - HZC_XP72B2F 1st time ● - 2nd time
- - Hamamatsu_R14374

2nd PMT

- - HZC_XP72B2F 1st time ○ - 2nd time

- The rates of 2nd PMT were lower than those of 1st PMT for two times.

For XP82B20 (which I received last week)

- There was no signals when I checked by oscilloscope.

→ I will check with another socket.

