

Dark rate measurement status report

Tokyo University of Science

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mPMT meeting

List of the PMTs

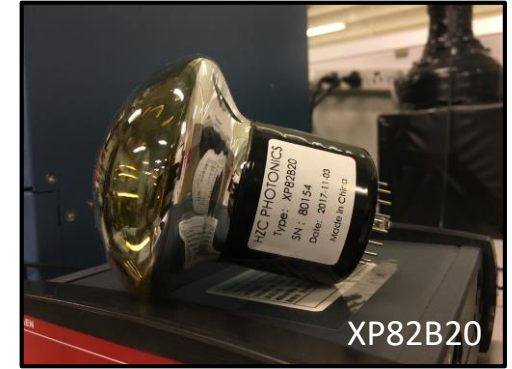
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R14374



XP72B2F



XP82B20

	ID	type	HV	Negative	Positive
Hamamatsu	HPK	R14374	1250	○	×
HZC new PMT	HZC-B1	XP72B2F	1100	×	○
	HZC-B2	XP72B2F	1160	○	×
HZC old PMT	HZC-A1	XP82B20	1050	○	×
	HZC-A2	XP82B20	1160	○	○

HV values are not tuned to give the same gain
(gain: Hamamatsu > HZC old > HZC new)

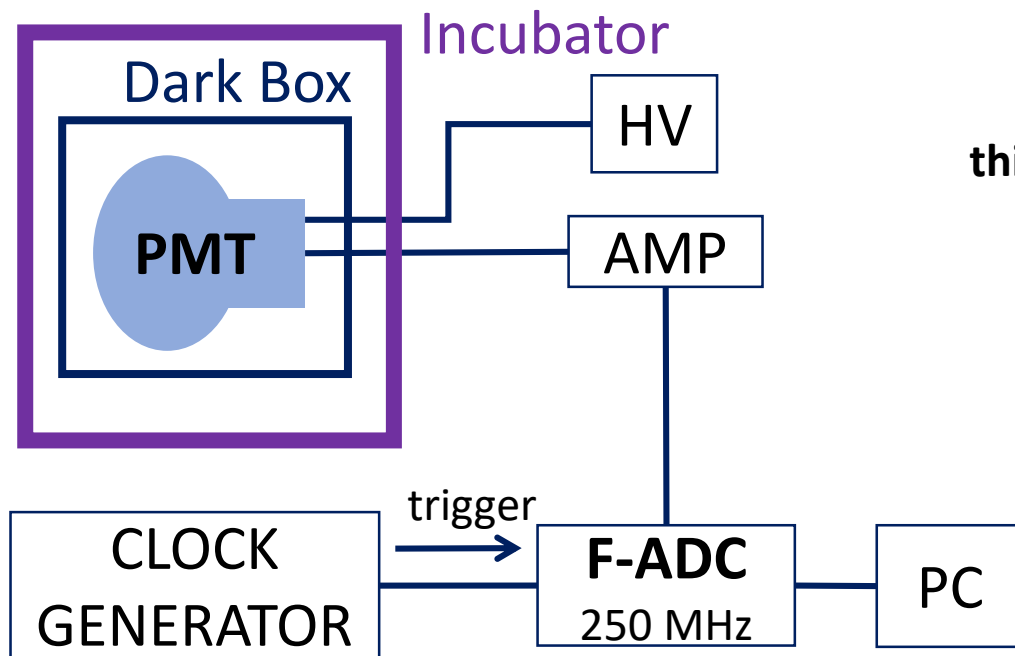
This week...

- I measured the dark rate of HZC-A2 with positive HV.

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 0.3 p.e. and 0.4 p.e.
- To check the consistency, I took the data twice for each PMT.
 - I waited for 1 hour between 1st and 2nd measurement.

Setup (for dark rate measurement)



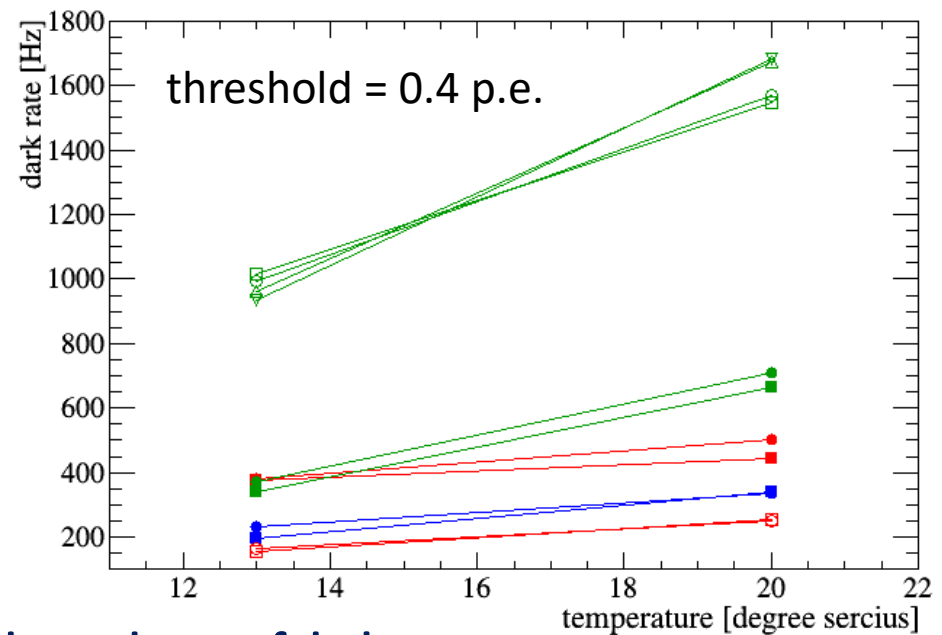
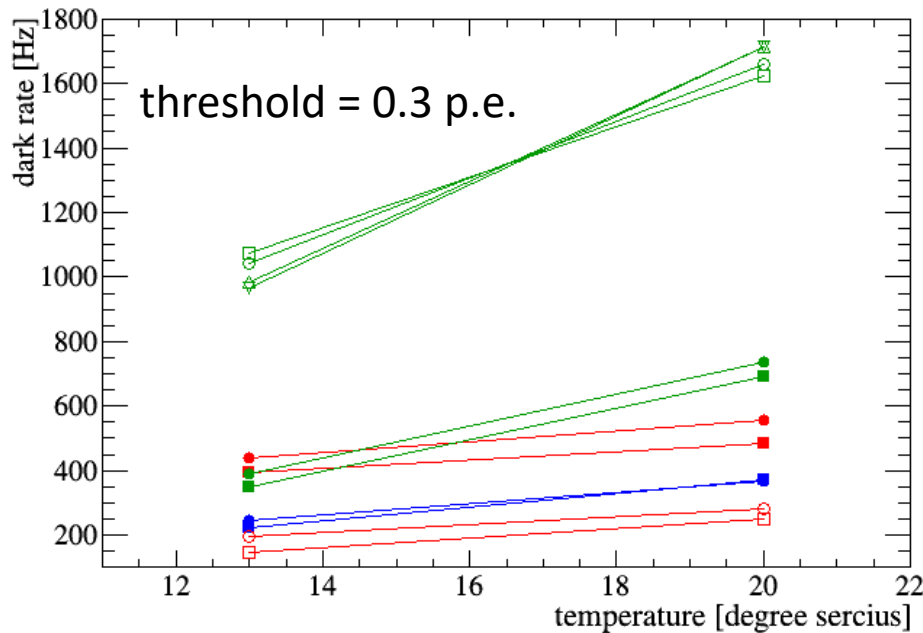
this week measurement

- Positive HV for HZC-A2

- 1 GHz F-ADC for XP72B2F

Dark rate measurement

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The temperature dependence of dark rate

- - HZC-A1 1st time (negative)
- 2nd time
- - HZC-B1 1st time (positive)
- 2nd time
- - HPK 1st time (negative)
- 2nd time

- - HZC-A2 1st time (negative)
- 2nd time
- △ - HZC-A2 1st time (positive)
- ▽ 2nd time
- - HZC-B2 1st time (negative)
- 2nd time

- No clear difference between positive and negative HV (HZC-A2)

Next week...

- I will measure the dark rate of HZC-A1 with positive HV.