

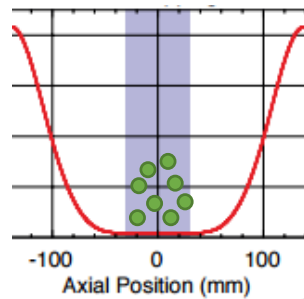
20170125 STATUS REPORT

Ahram lee

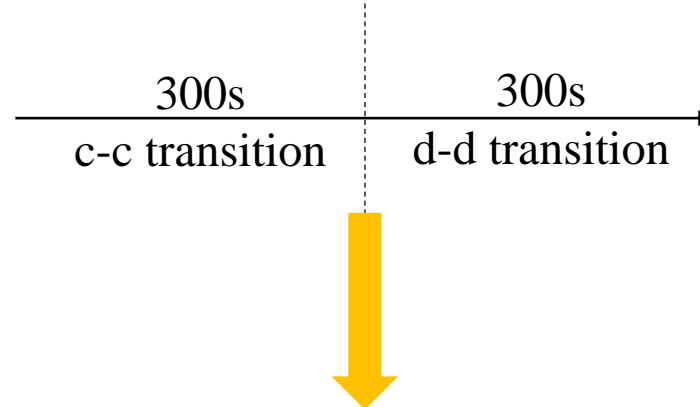
From ALPHA paper review, Nature(2016)

Previous slide (01/04)

producing \bar{H} in the atom trap
pulsing axial electric fields

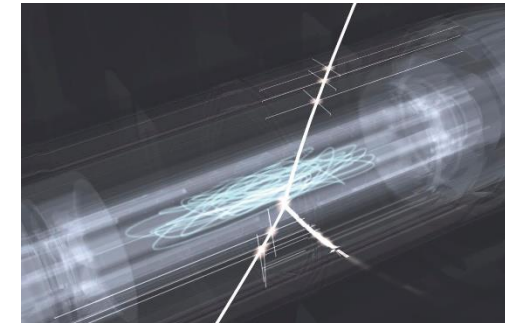


The vertex detector



Reconstruction efficiency
 0.376 ± 0.002
Cosmic background rate
 $0.0043 \pm 0.0003s^{-1}$

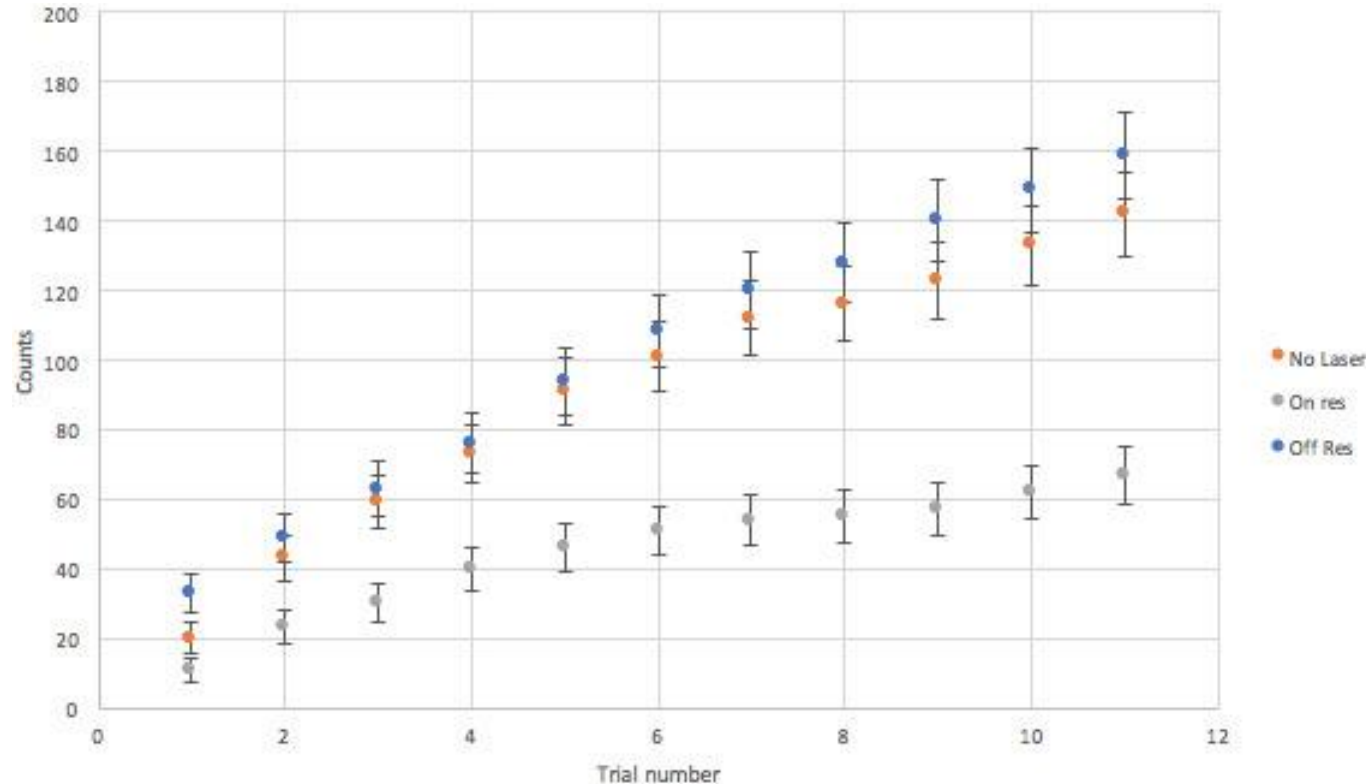
ramping down the fields
to release



Reconstruction efficiency
 0.688 ± 0.002
Cosmic background rate
 $0.042 \pm 0.001s^{-1}$

From ALPHA paper review, Nature(2016)

Previous slide (01/11)



Extended Data Figure1

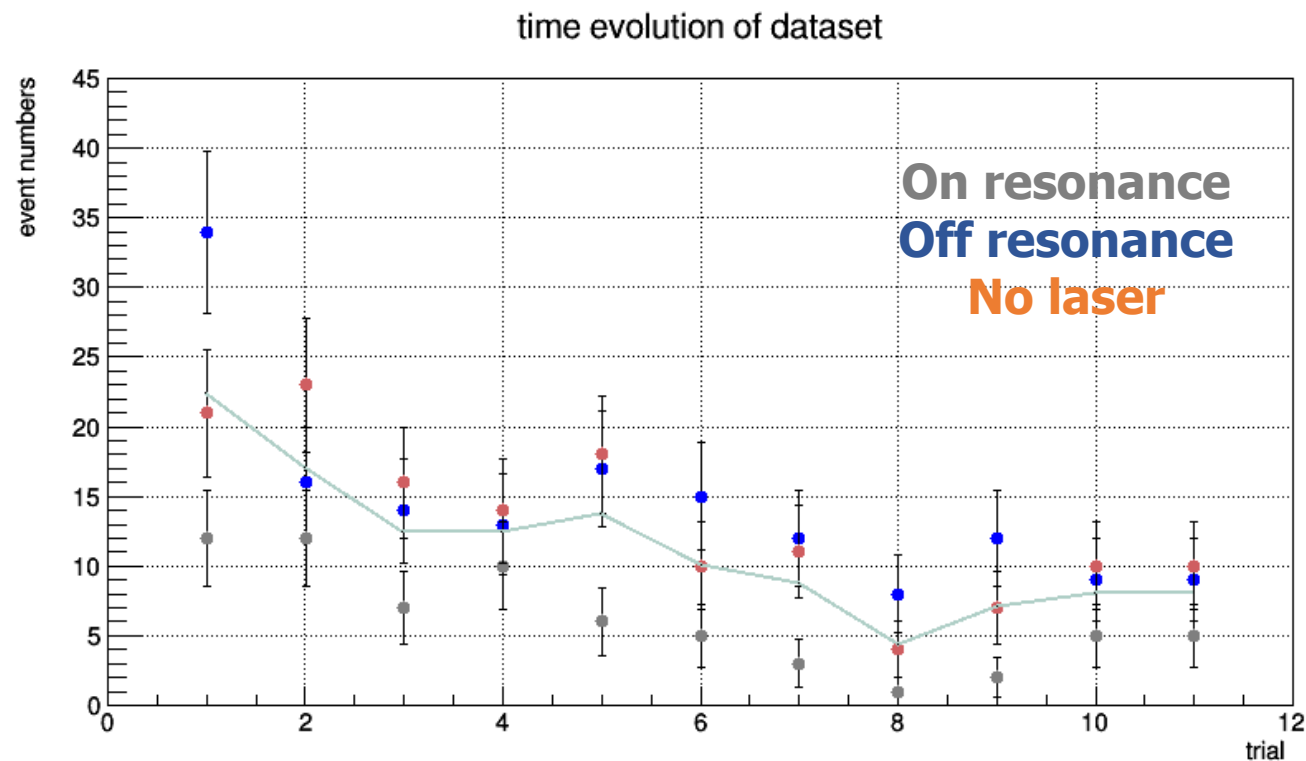
Time evolution of the dataset.

The cumulative number of **observed events** for each type of trial is plotted as a function of chronological trial number to illustrate the time history of the dataset.

The errors are due to counting statistics(\sqrt{N}) only.

From ALPHA paper review, Nature(2016)

Previous slide (01/11)



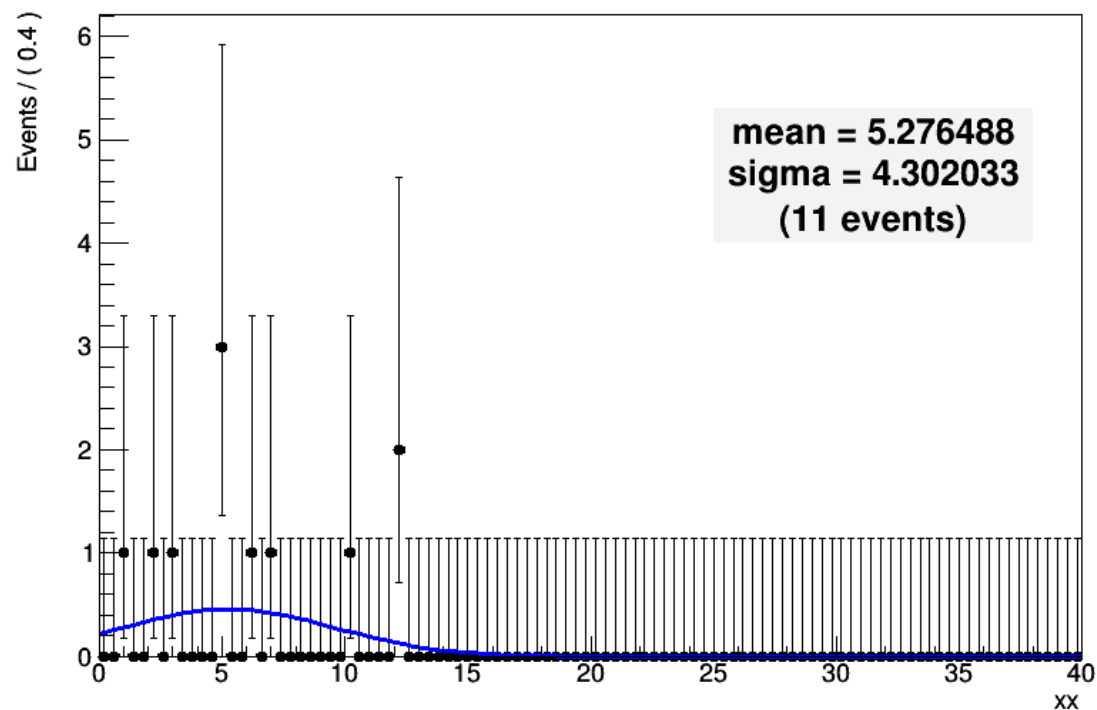
Total average ~ 12.3

But fluctuations exist

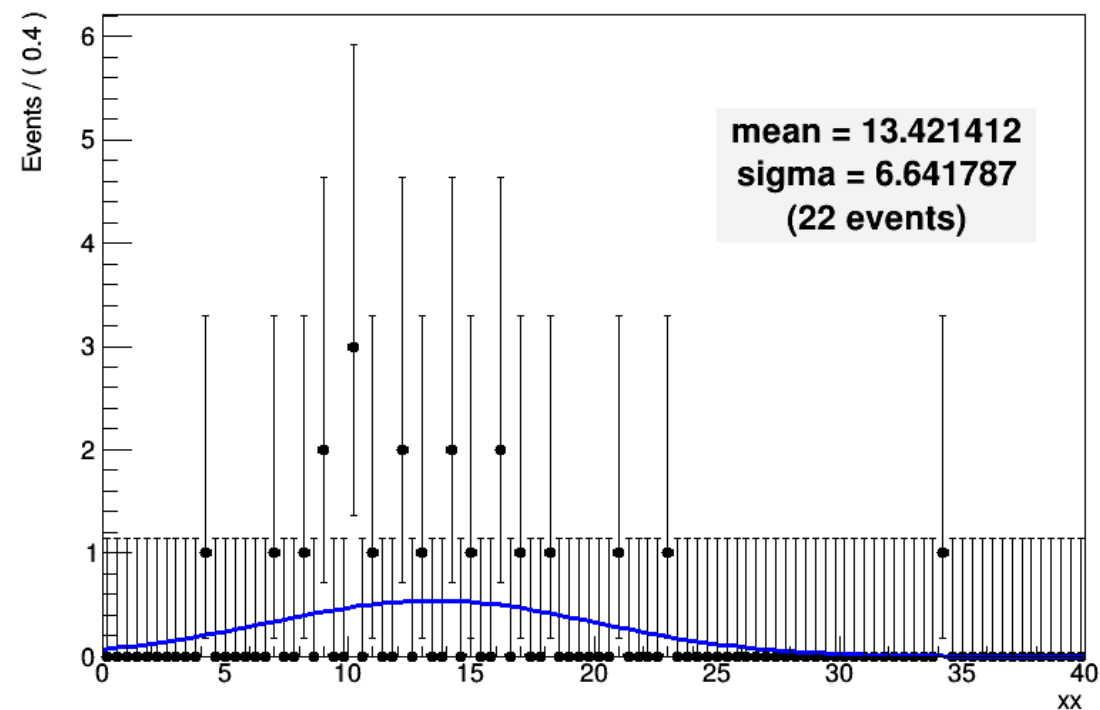
From ALPHA paper review, Nature(2016)

Unbinned(RooFit) : Gaussian Fit

On resonance events hist



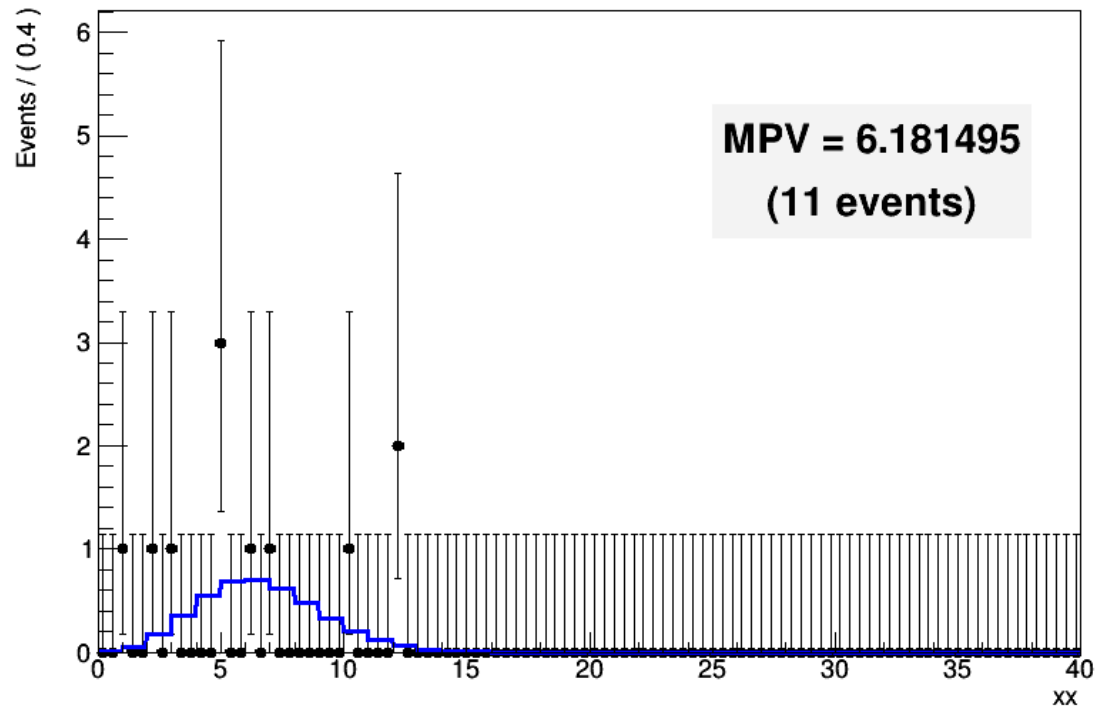
Off res + No laser events hist



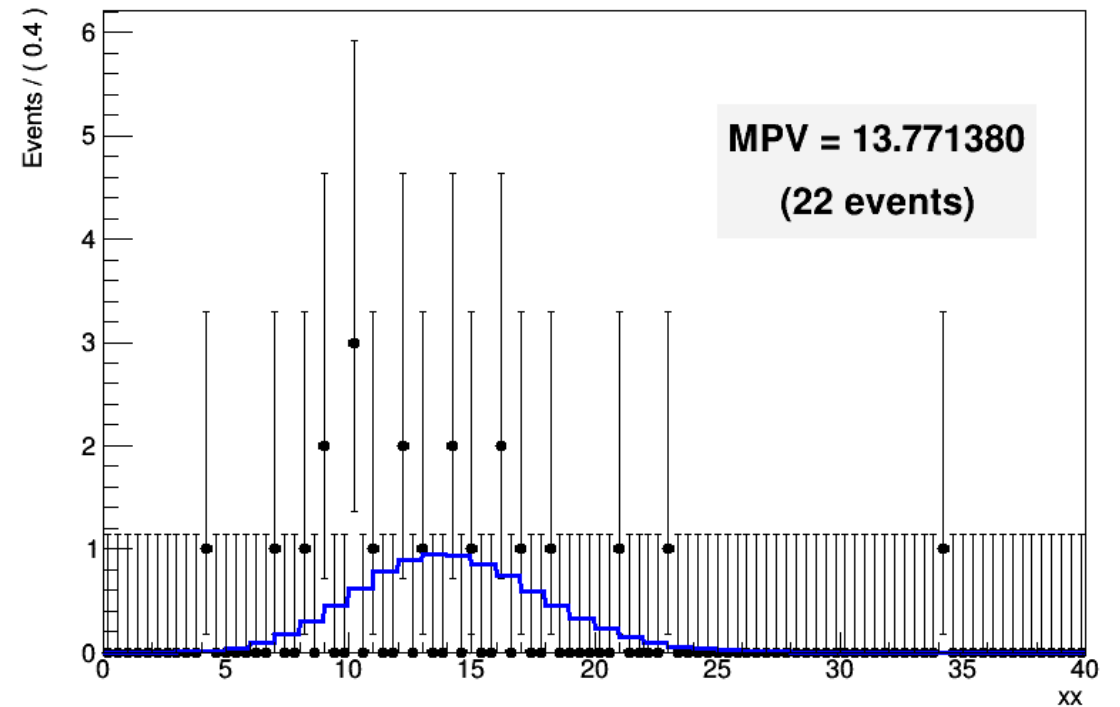
From ALPHA paper review, Nature(2016)

Unbinned(RooFit) : Poisson Fit

On resonance events hist



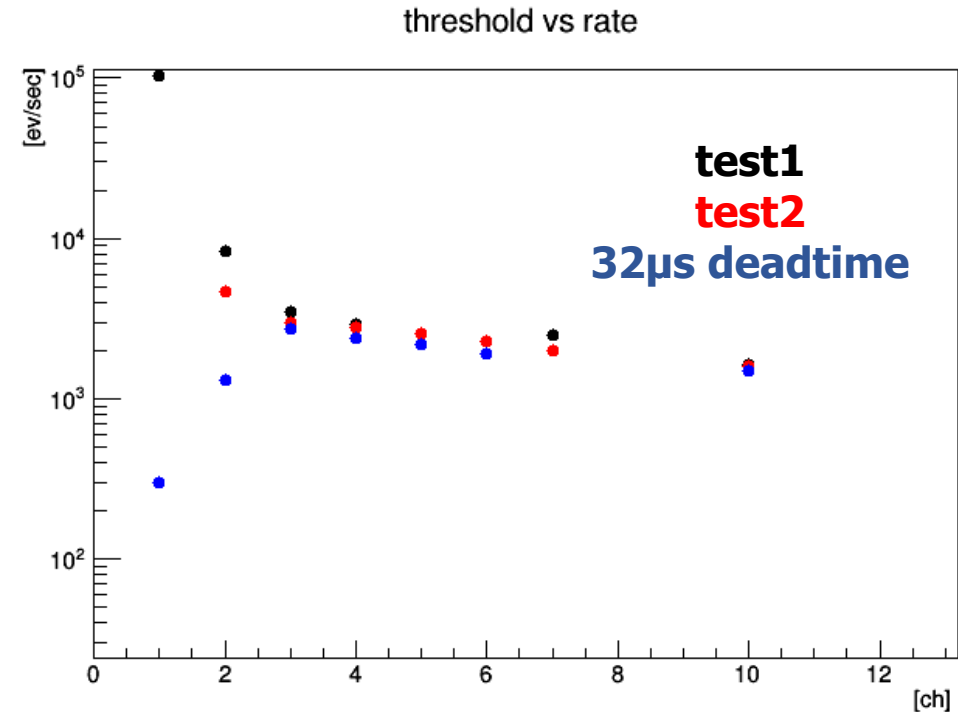
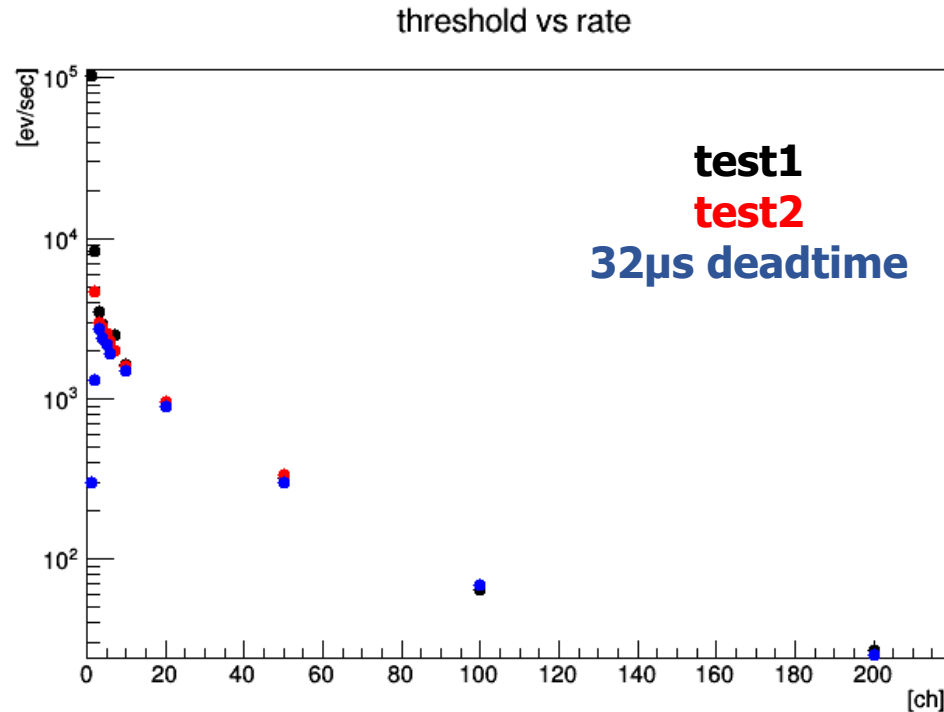
Off res + No laser events hist



FADC Module

Previous slide (01/11)

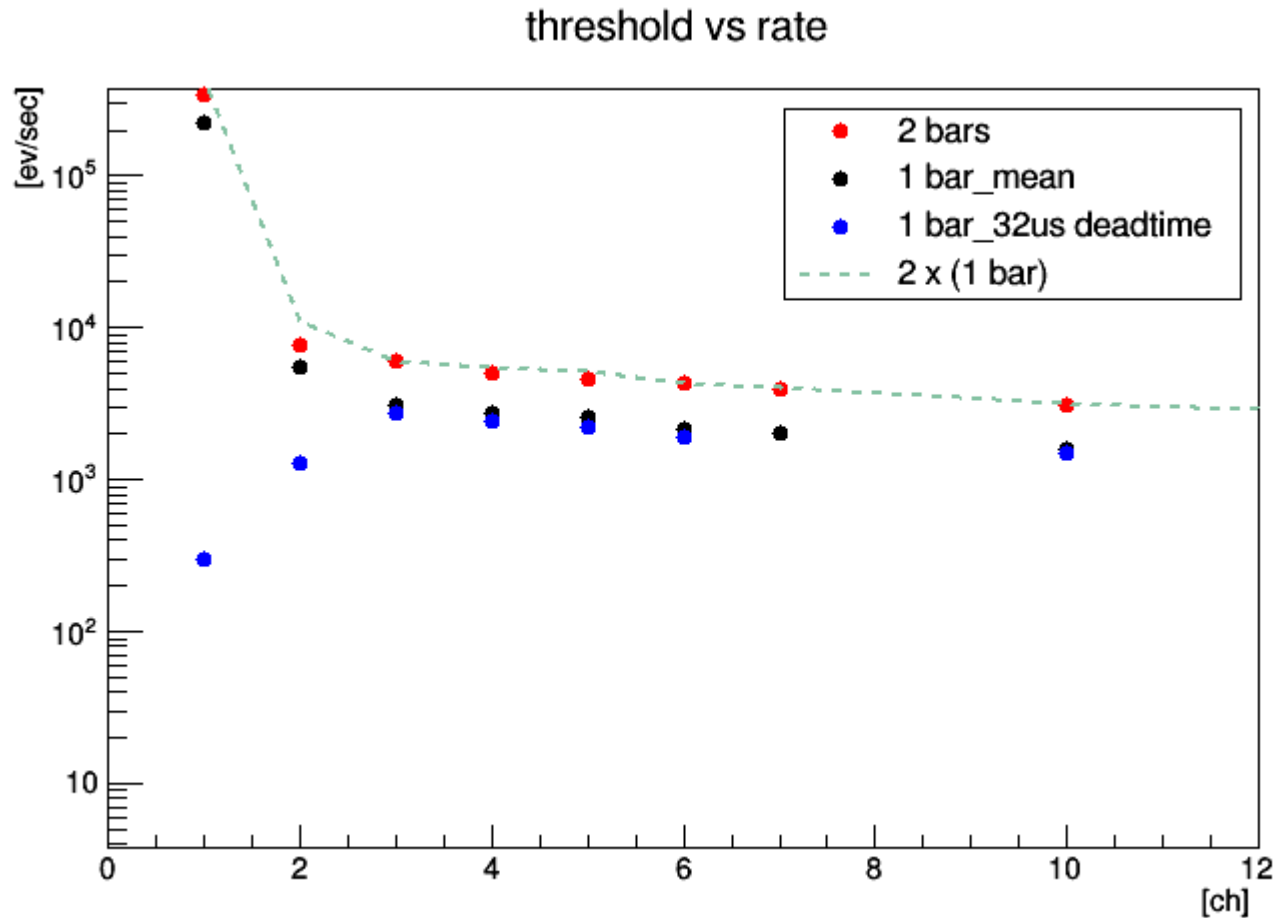
(threshold) vs (event rate) check



All similar after th=10.
But Before th=3, 32 μ s deadtime has opposite trend.

FADC Module

(threshold) vs (event rate) check : $th = 0 \sim 1000[ch]$



2 bars : rate check with 2bars

* trigger
condition

<u>0</u>	<u>1</u>	<u>2</u>	<u>3</u>
1	1	0	0
0	0	1	1
1	1	1	1

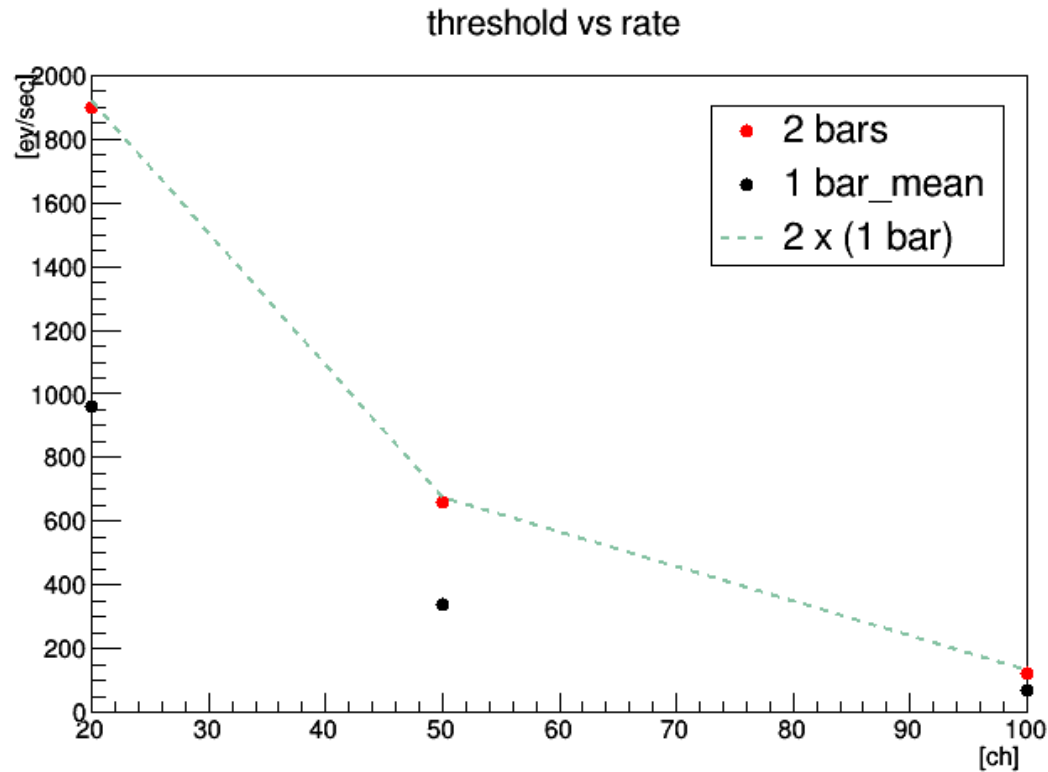
1 bar_mean : mean of 2 trials with 1bar

1 bar_32us deadtime : with 32us deadtime

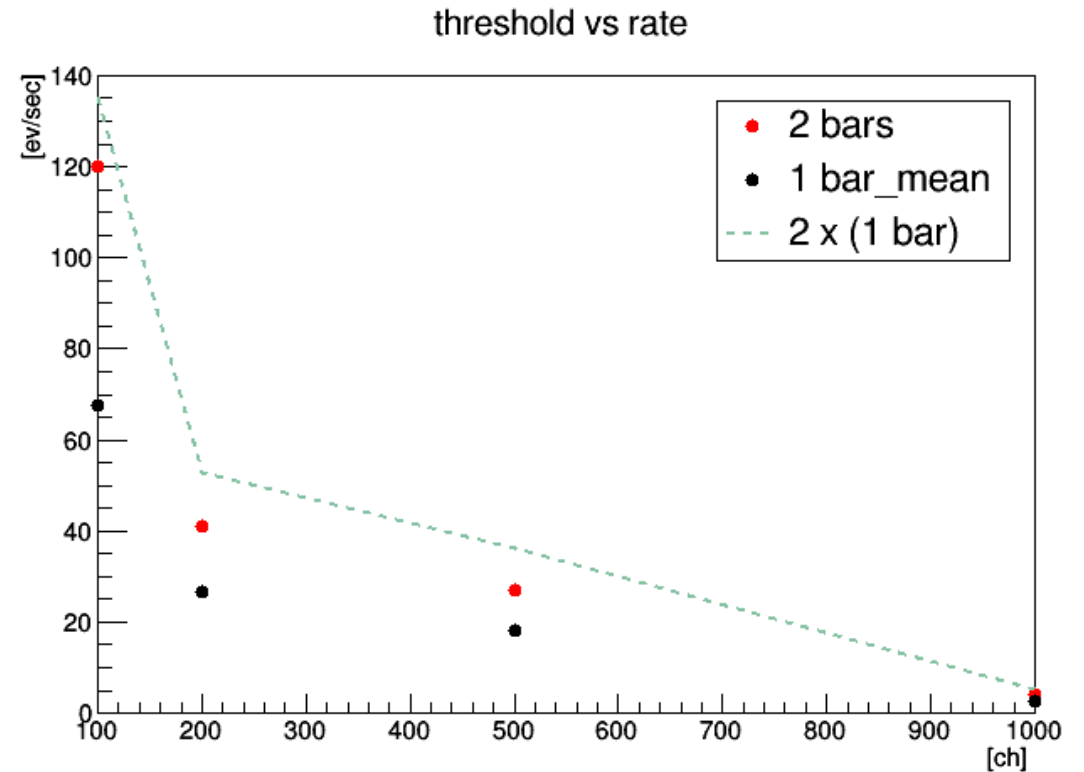
2 x (1 bar) : double of (1 bar_mean)

FADC Module

(threshold) vs (event rate) check : $th = 0 \sim 1000[ch]$



$th = 20 \sim 100[ch]$
 $= 0.24 \sim 1.2[MeV]$



$th = 100 \sim 1000[ch]$
 $= 1.2 \sim 12[MeV]$

Next step is...

At the end of Jan., cutted plastic bars will be delivered to SNU.

- shielding, attaching PMTs
- should order bakelite guides