

calibration constant と tube gain の相関 及び tube の saturation

筑波大学 4年 山内伸

1. set up
2. tube gain の求め方。
 - 1- scan
 - 2- H. V. curve
 - 3- single photoelectron peak
3. calibration constant と tube gain の相関
4. まとめ
5. tube の saturation
6. まとめ

tube gain の求め方

- 1- scan
- 2- 最大 response channel での
 - H. V. curve 測定
- 3- 最大 response channel での
 - single photoelectron peak
 - 測定

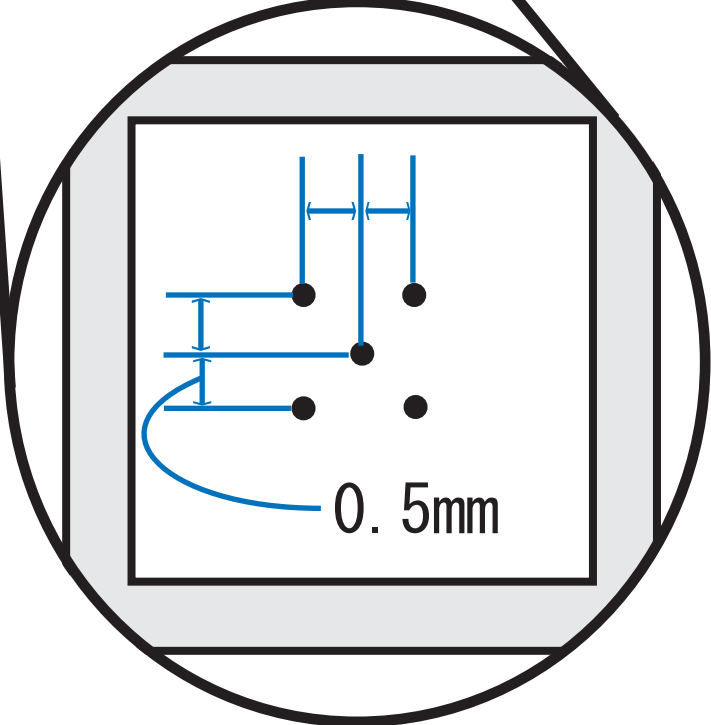
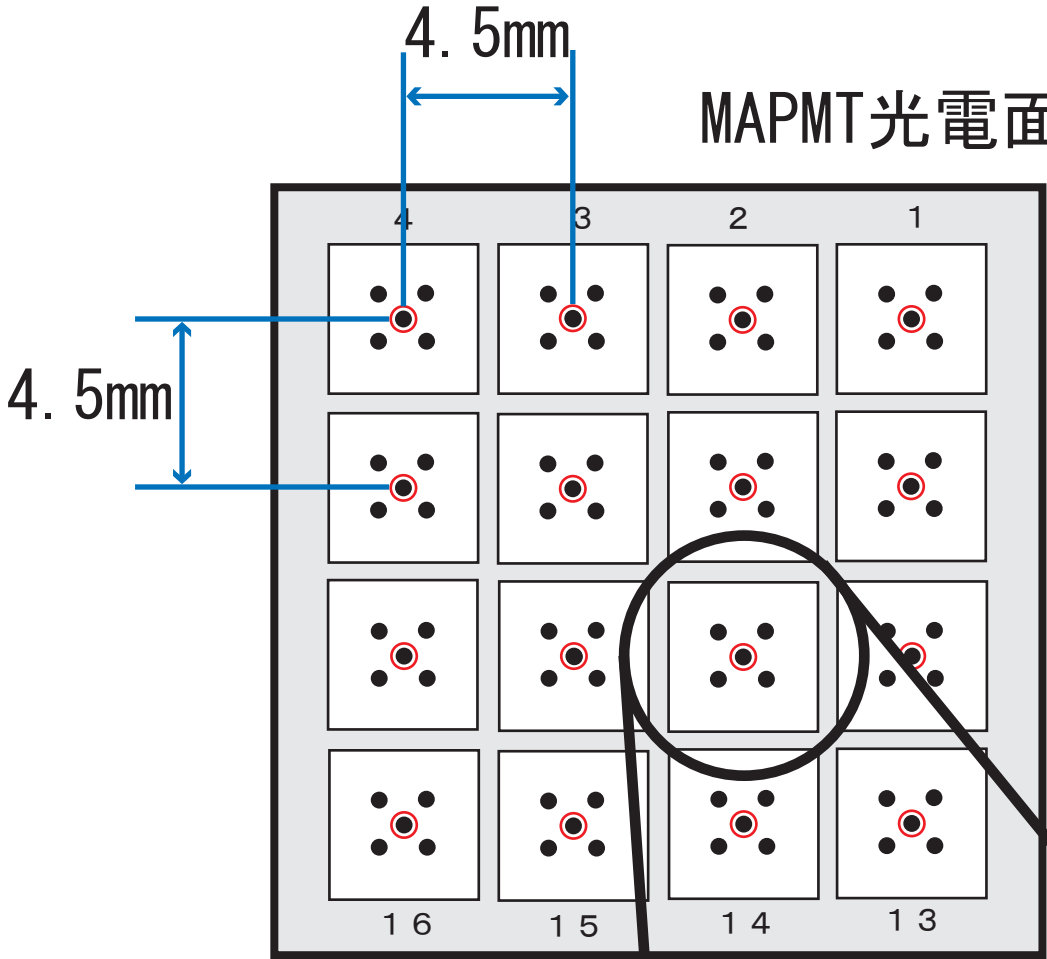
$$\text{最大response channel gain} = \alpha \left(\frac{HV}{1000} \right)^\beta$$

$$\text{各channel 中心gain} = \text{channel間のgainの比} \times \text{最大response channel gain}$$

$$\text{gain} = \text{中心周りのgainの比} \times \text{各channel 中心gain}$$

scan測定点

MAPMT光電面



channel間のgainの比

ka2418

ch1 72%	ch2 66%	ch3 67%	ch4 72%
ch5 81%	ch6 98%	ch7 84%	ch8 77%
ch9 82%	ch10 100%	ch11 87%	ch12 79%
ch13 79%	ch14 84%	ch15 80%	ch16 76%

channel内での中心と中心周りのgainの比

ka2418

94%	percentage	99%
	100%	
94%		97%

ch1

94%	percentage	95%
	100%	
96%		97%

ch2

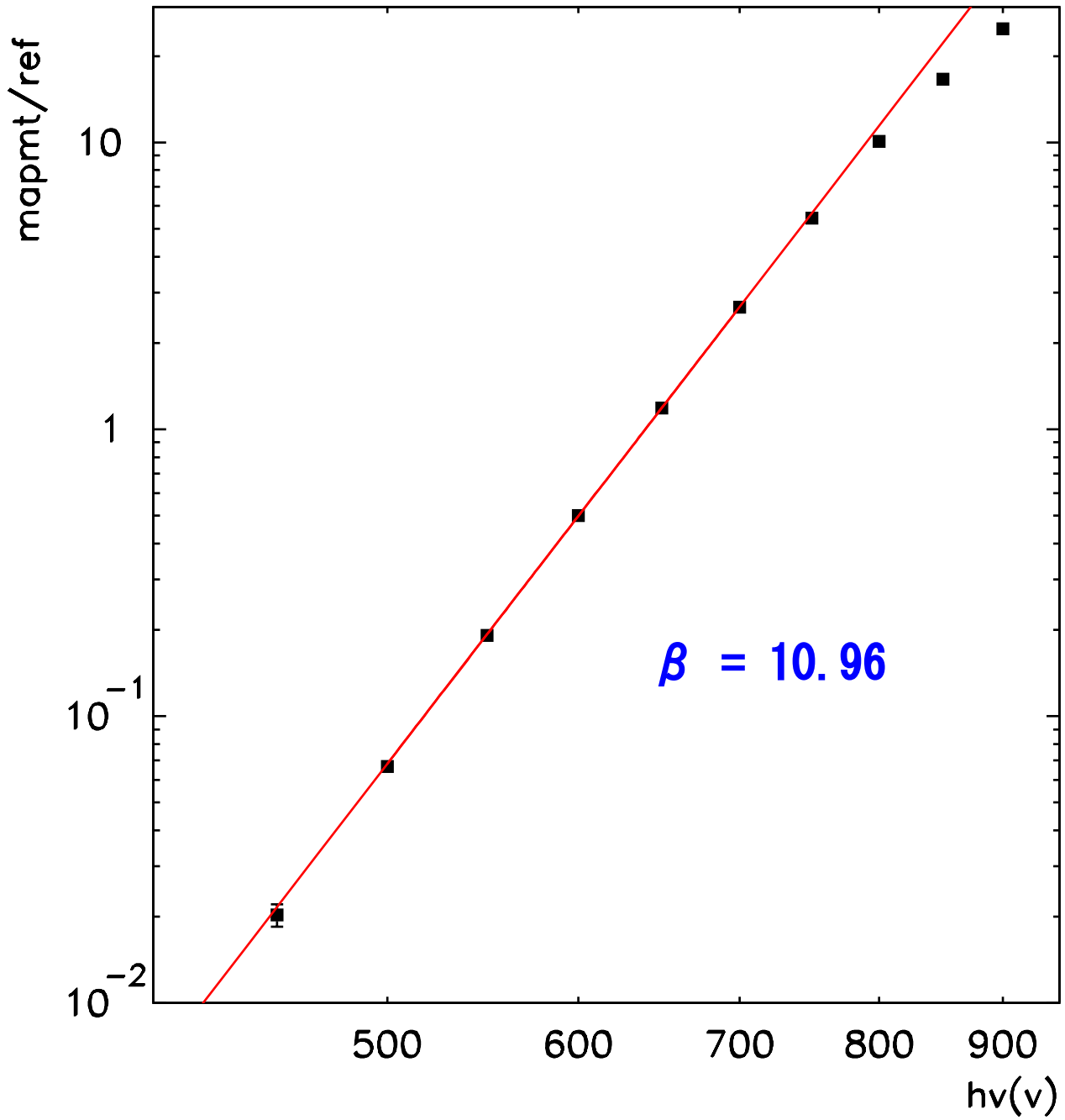
96%	percentage	95%
	100%	
98%		98%

ch3

95%	percentage	95%
	100%	
99%		97%

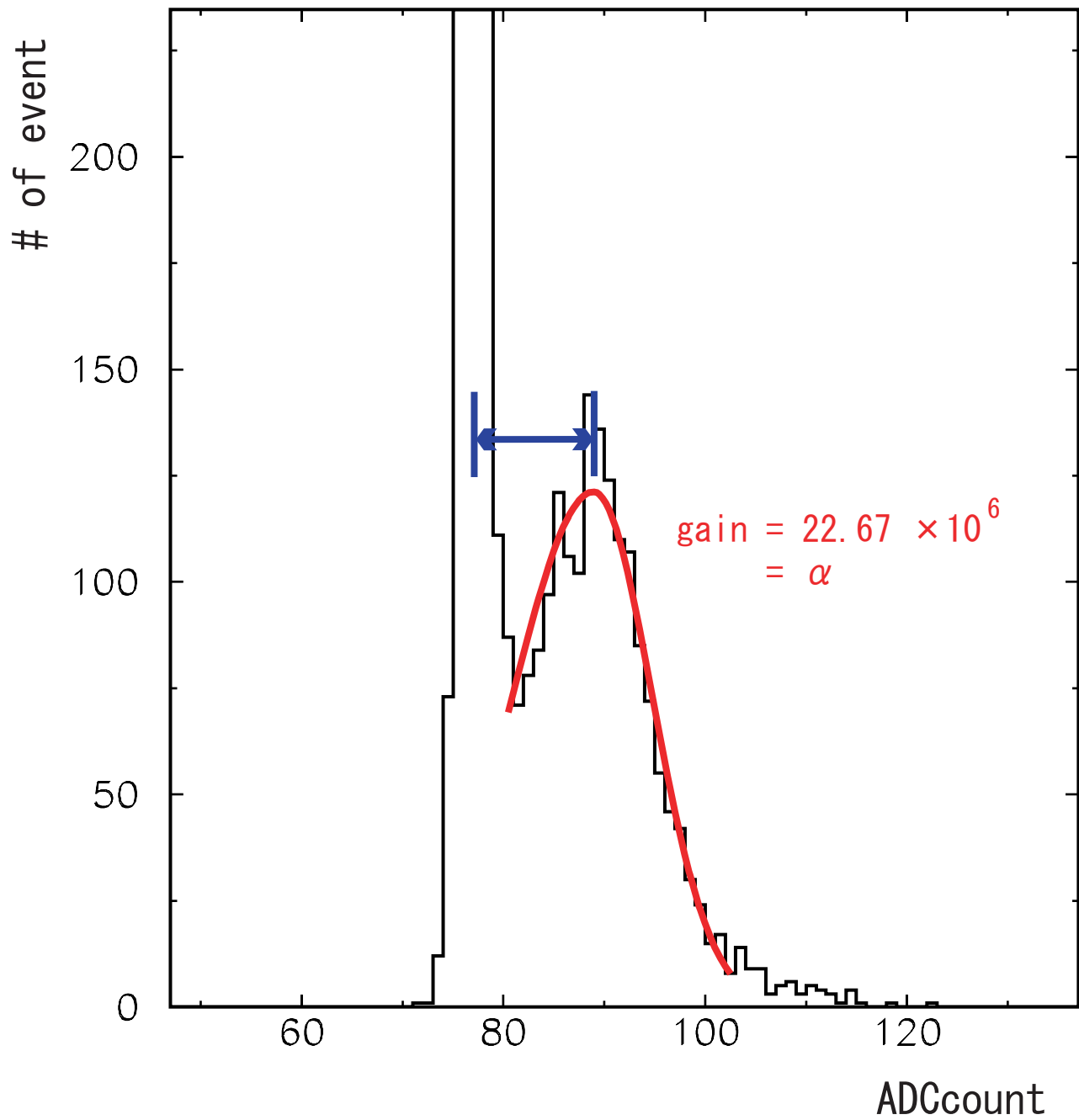
ch4

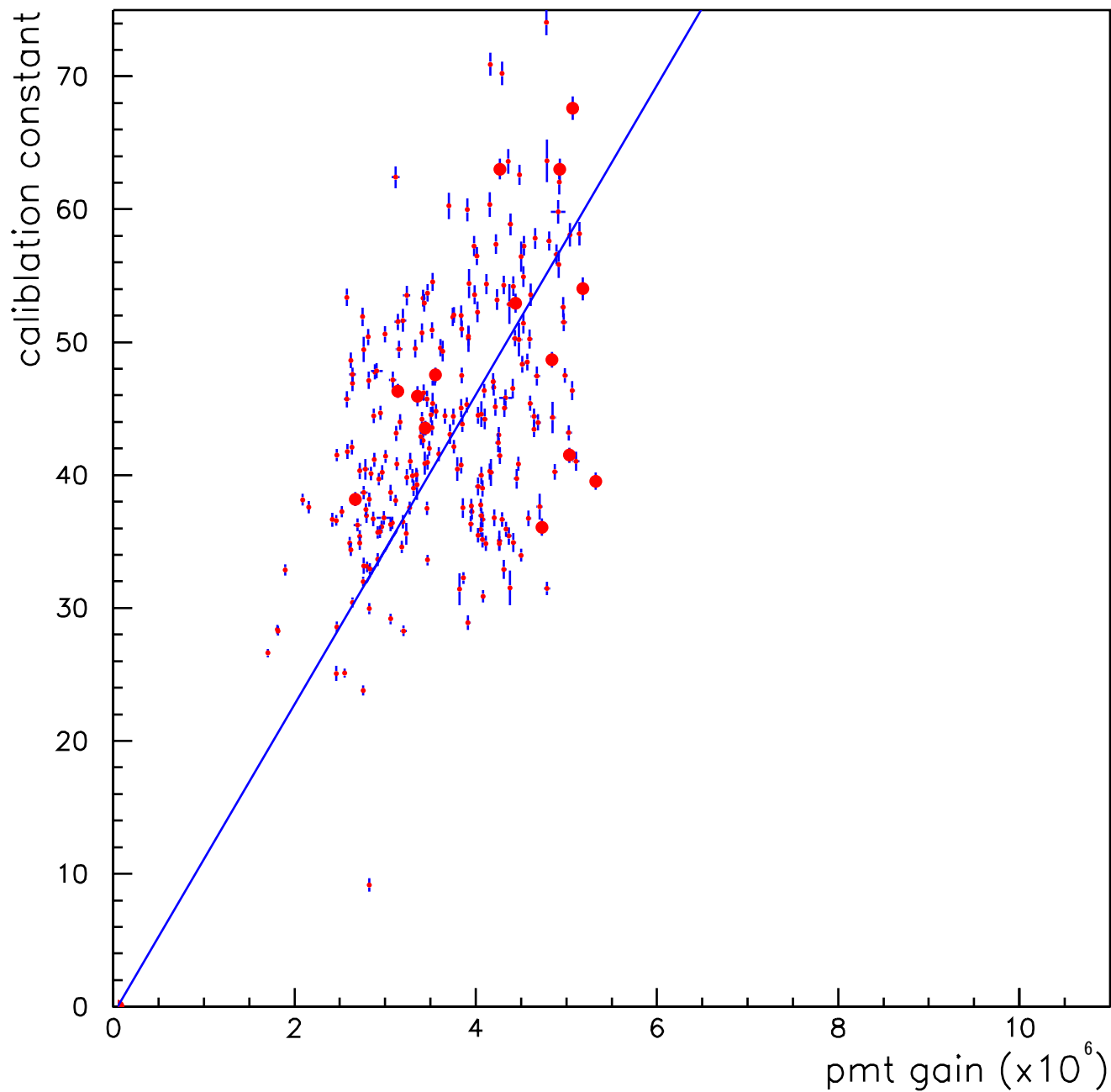
H. V. curve

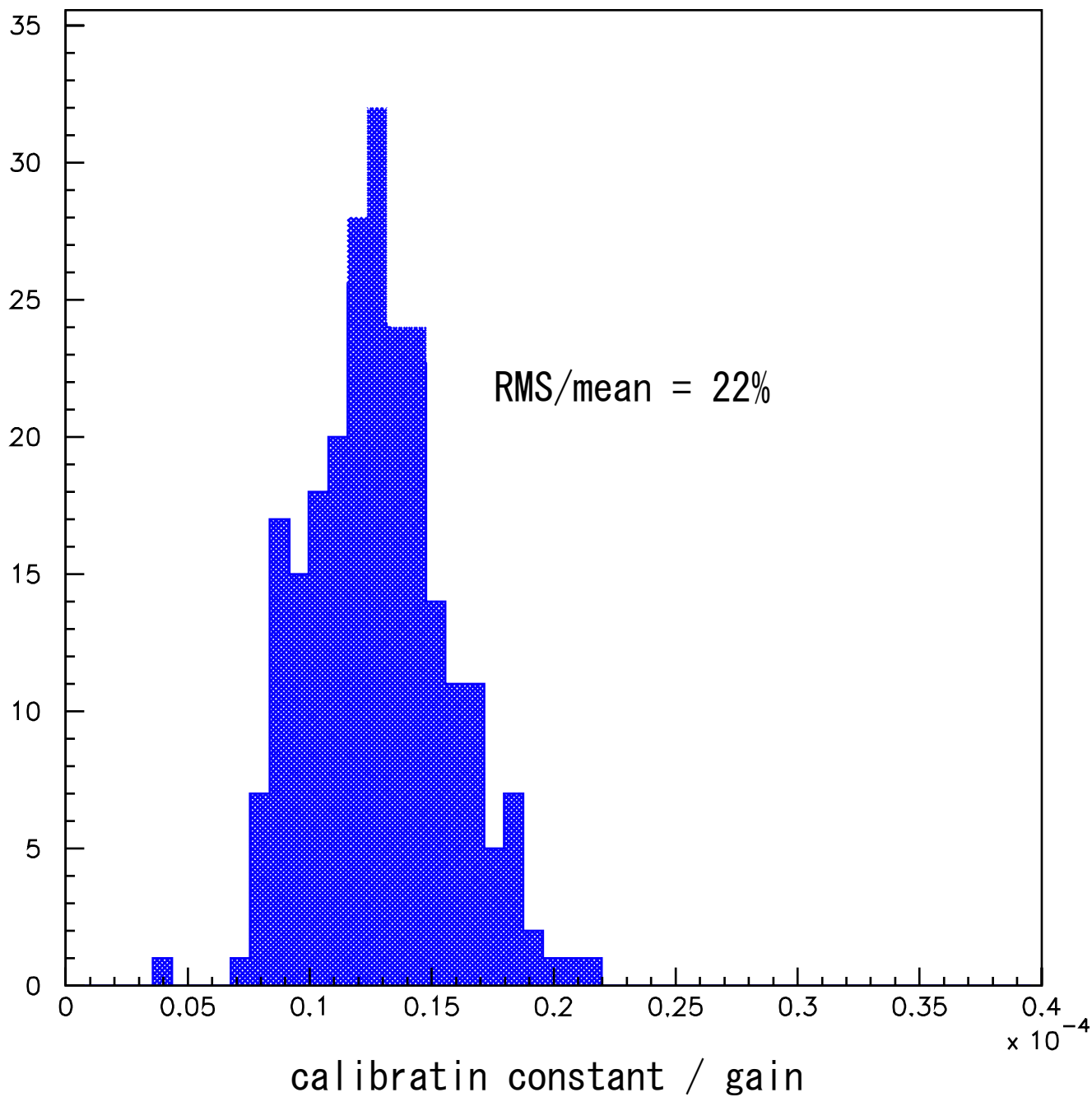


single photoelectron peak

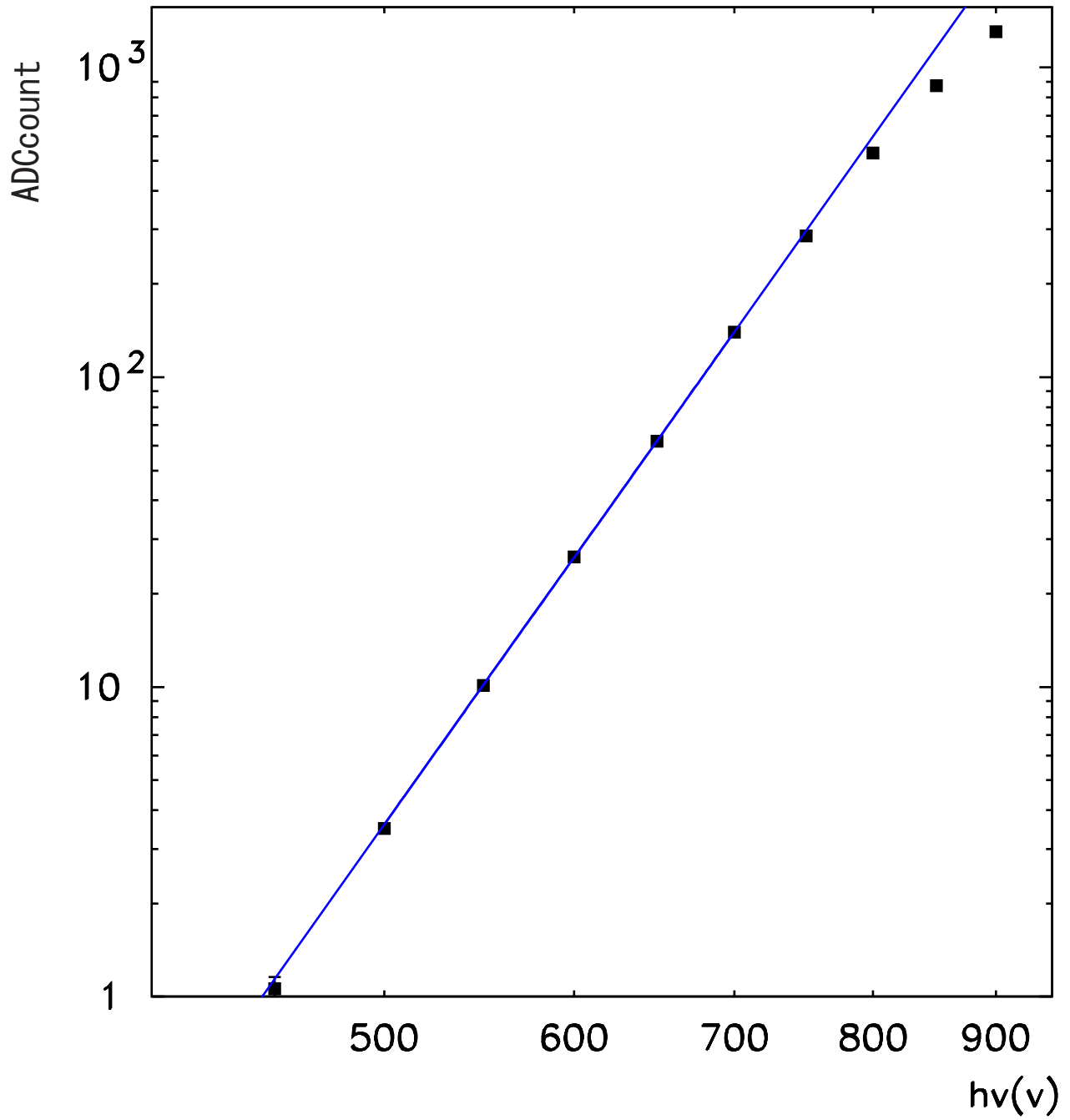
H. V. 1000v



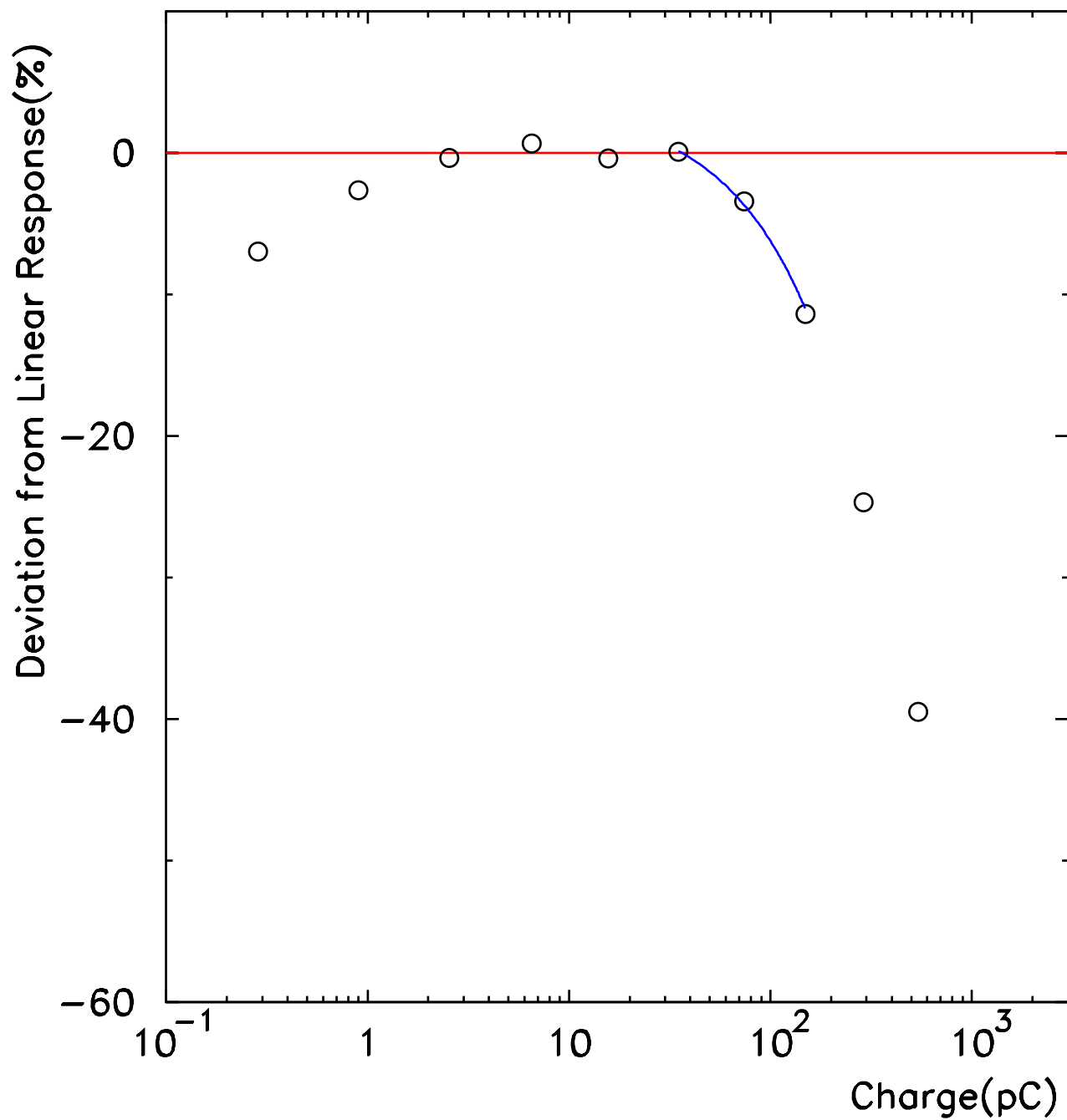




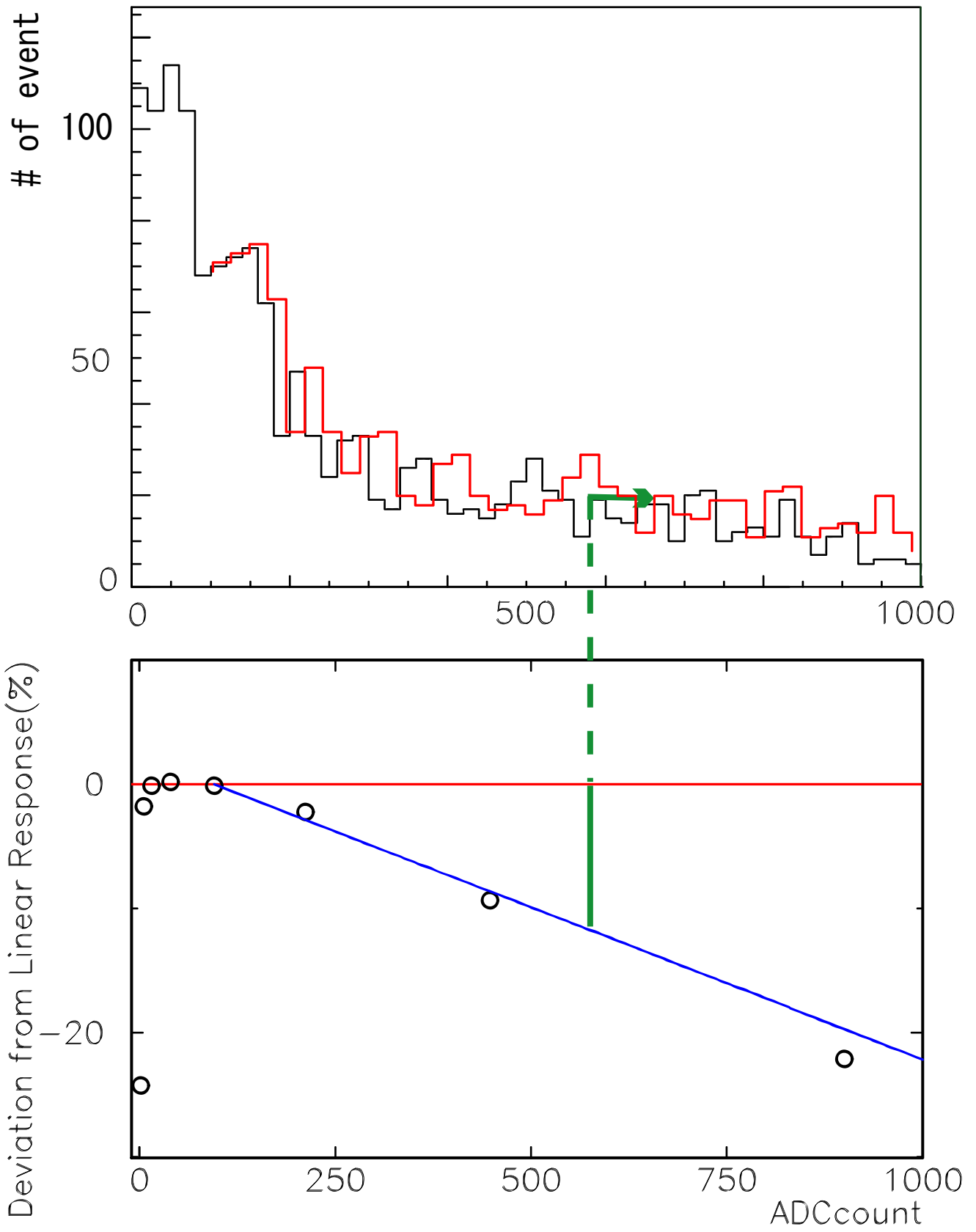
H. V. curve



H. V. curve



saturation



まとめ

calibration constant と tube gain の相関

- ・ 相関のばらつきが約20%ある
→ calorimeterのstrip間の
ばらつきが20%?

tube の saturation

tubeはsaturationを起こしている。
光量に対するlinearityを見ていない。