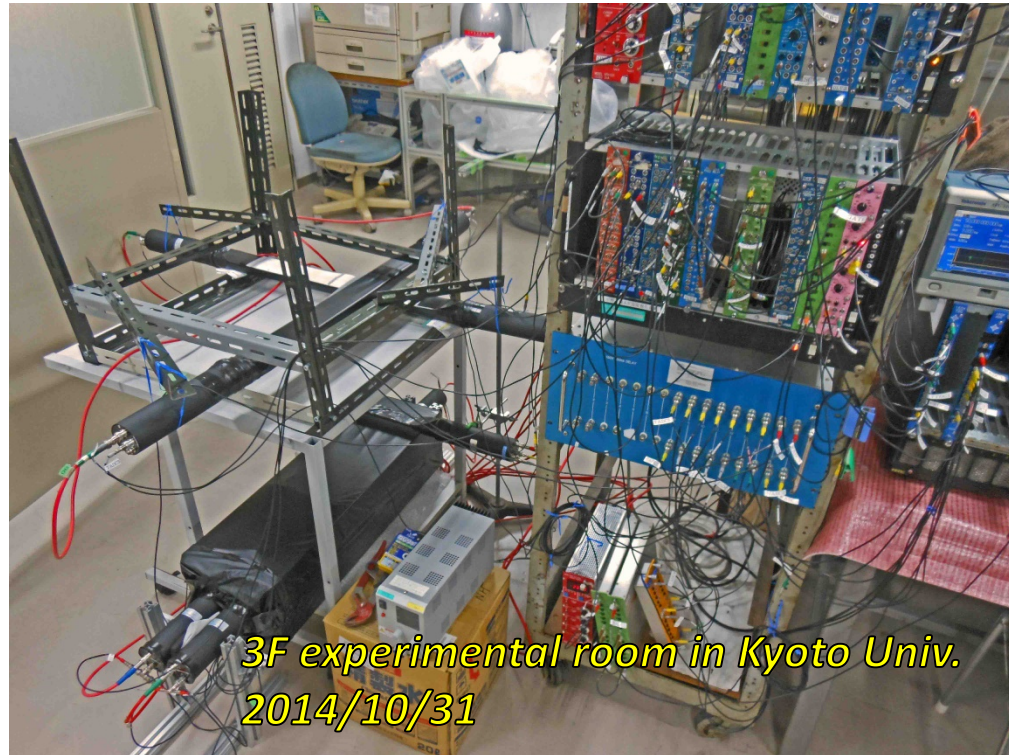


S-2S meeting

Toshiyuki Gogami

11Nov2014



*3F experimental room in Kyoto Univ.
2014/10/31*

Contents

- ❑ Water Cherenkov detector
- ❑ Speed of light in S-2S TOF scintillator
- ❑ About pre-E05 experiment with SKS

Contents

Water Cherenkov detector

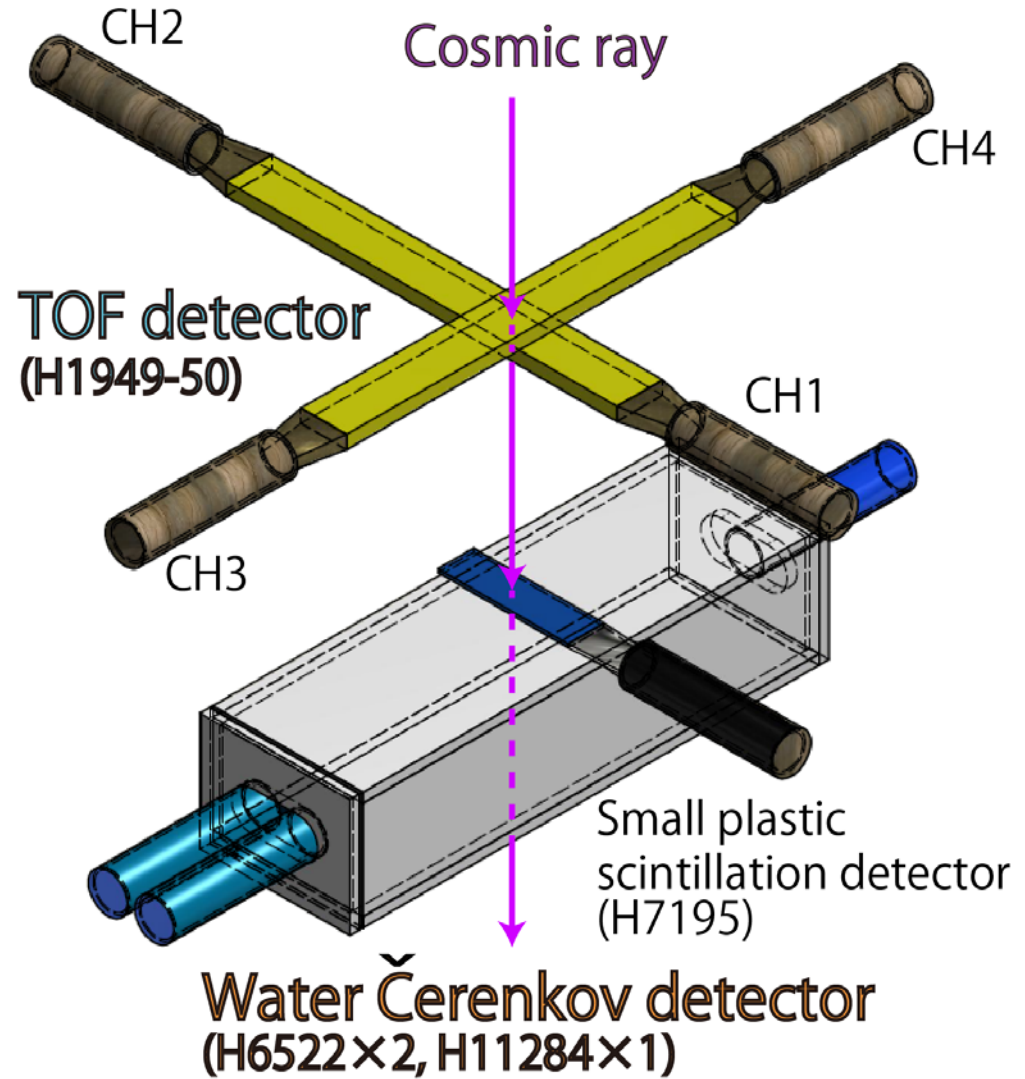
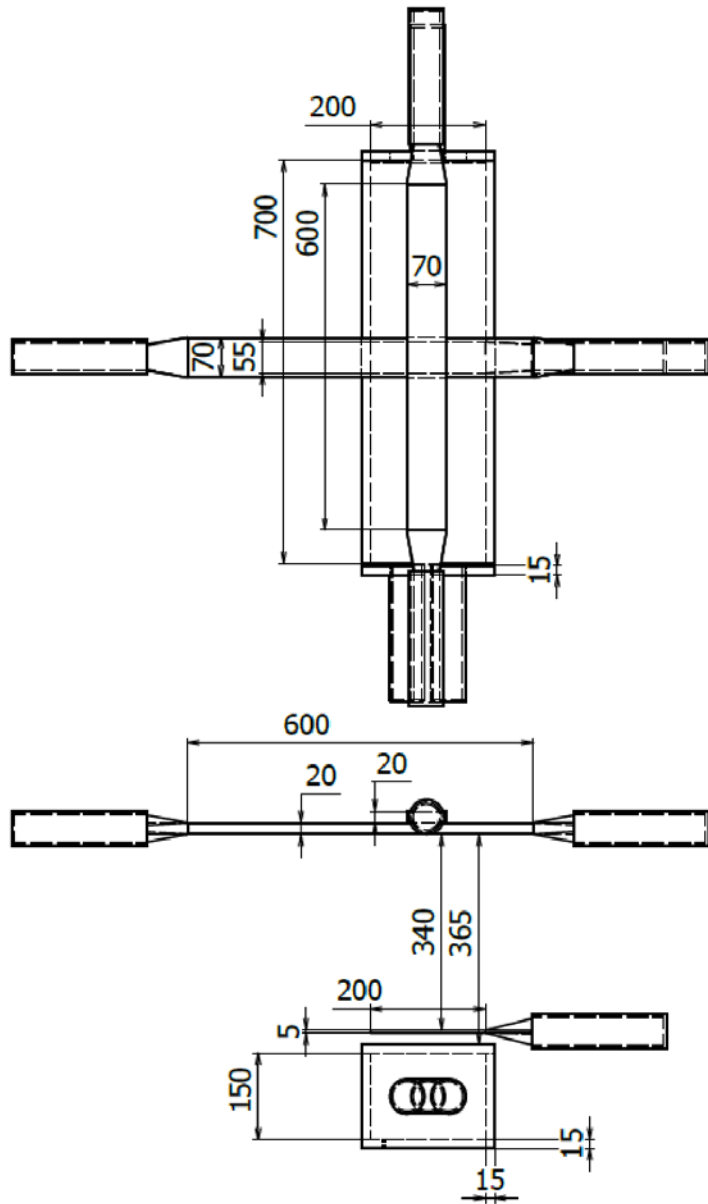
- ✓ N.P.E. analysis

- ✓ Design of cap for window test

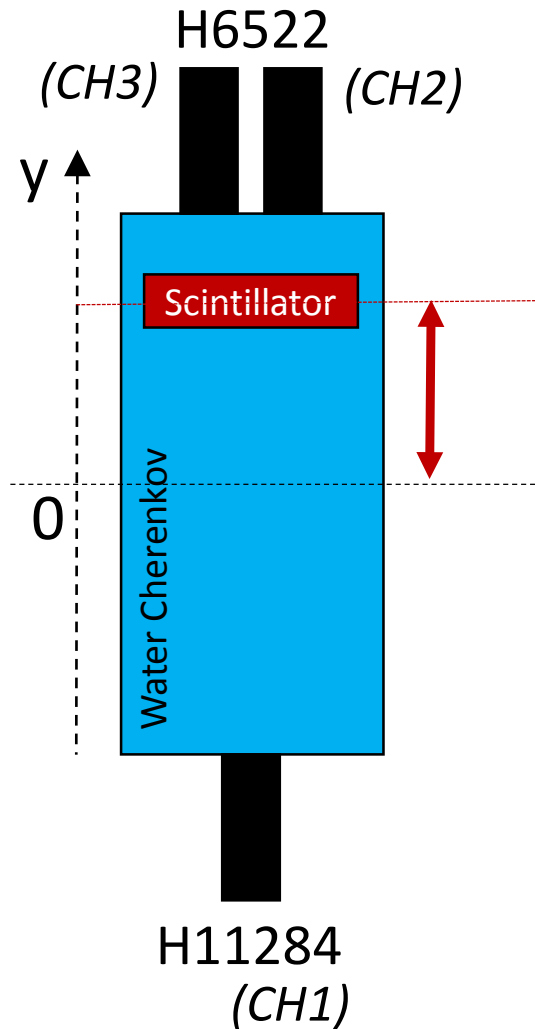
Speed of light in S-2S TOF scintillator

About pre-E05 experiment with SKS

Experimental setup

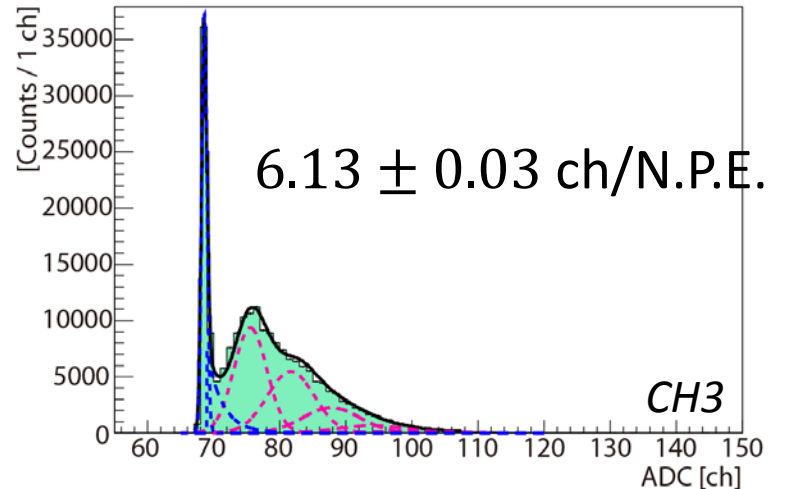
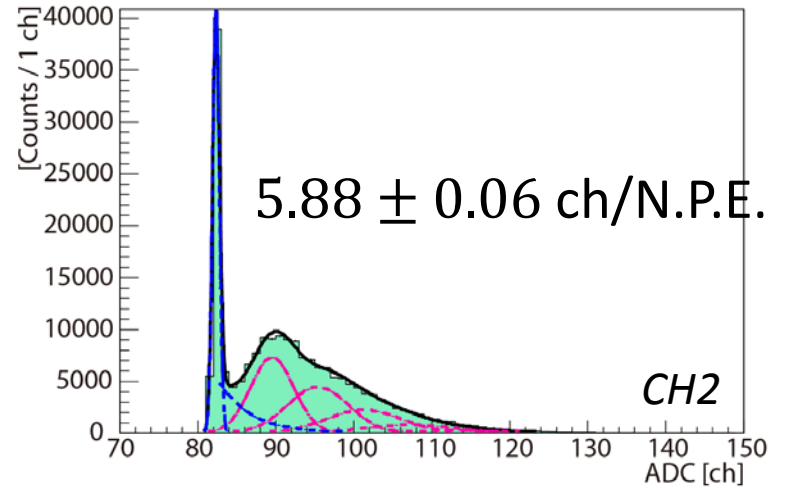
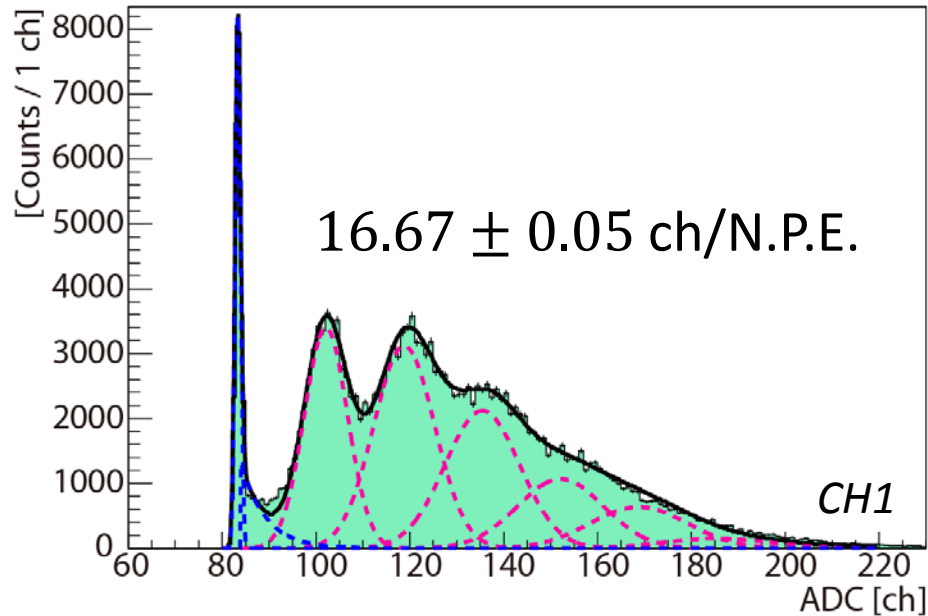


Coordinate definition



Data were taken with
 $y = -25.0, -12.5, 0.0, 25.0$ cm

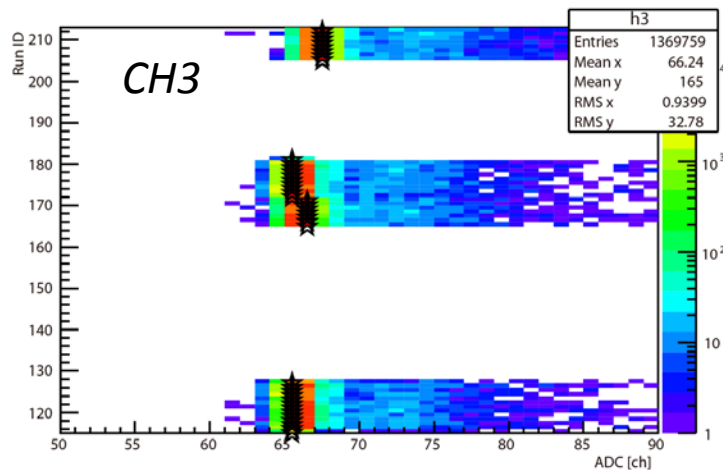
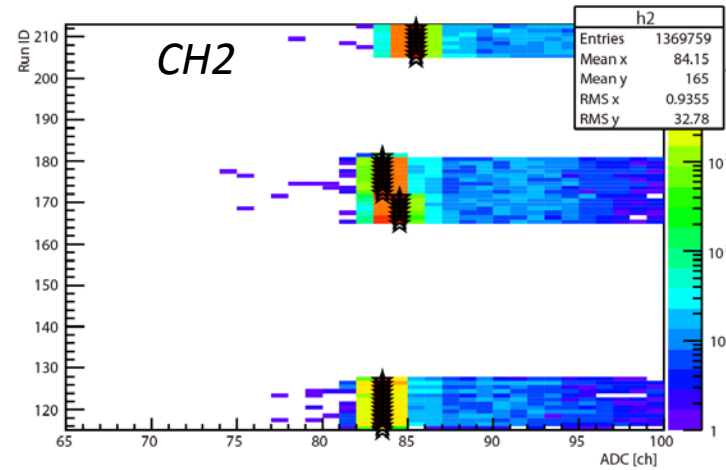
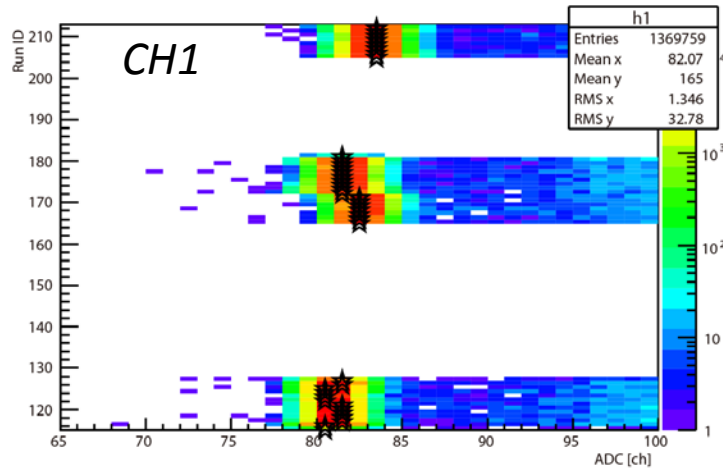
Calibration with LED data



Fitting function:

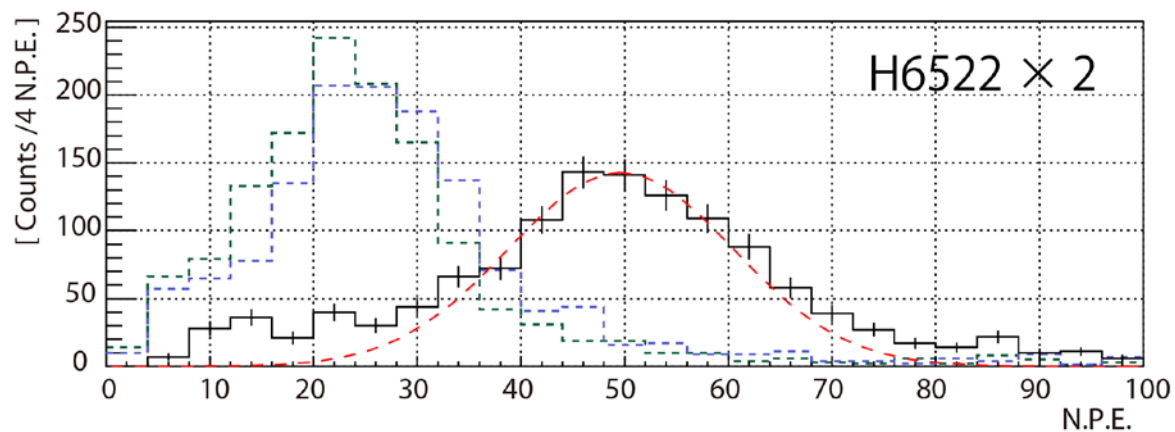
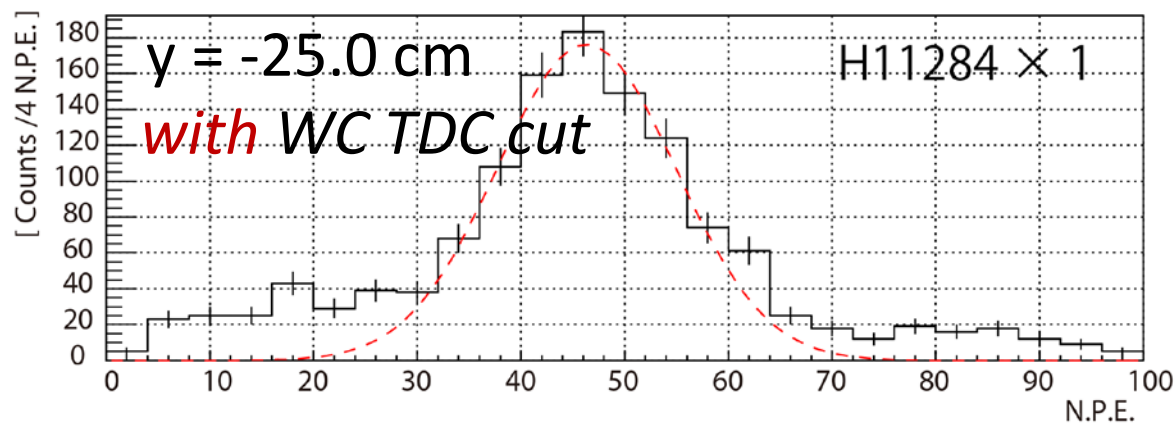
E.H.Bellamy *et al.*, *NIM A* 339, 468-476 (1994)

Pedestal movement



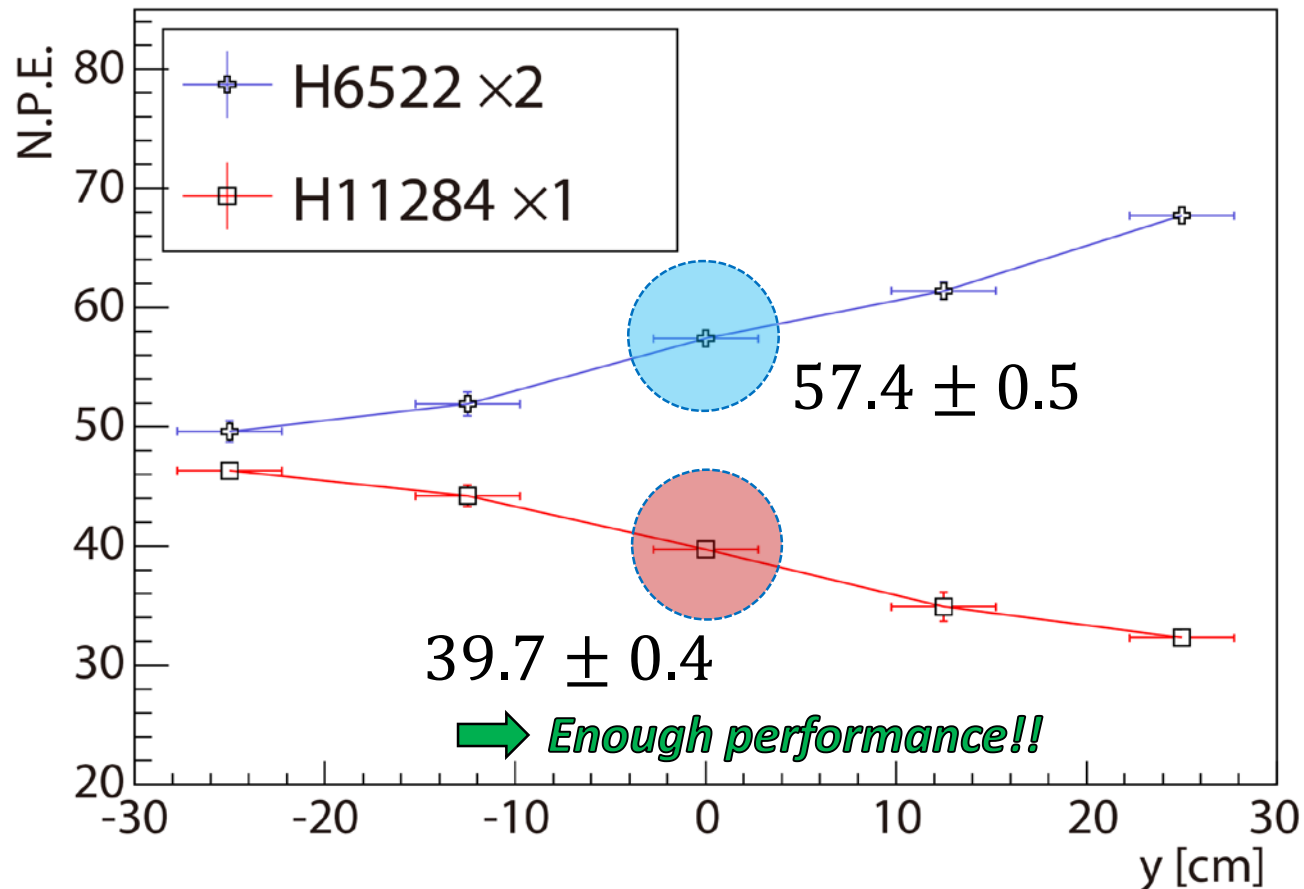
Pedestal parameter was applied for run by run.

ADC \rightarrow Number of Photo Electron

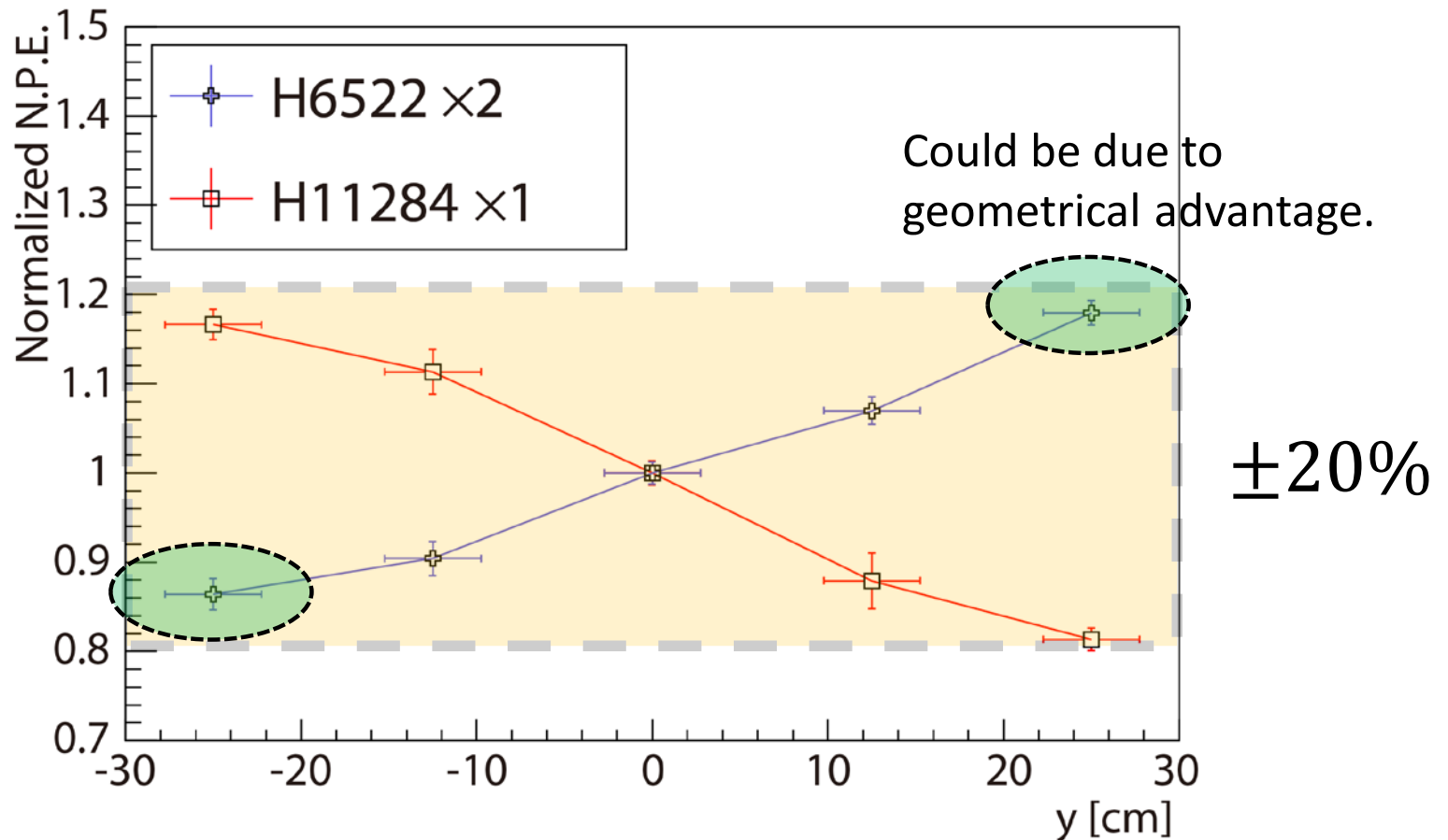


Gaussian fitting
 \rightarrow N.P.E.

The number of photoelectron (absolute value)



The number of photoelectron (ratio)

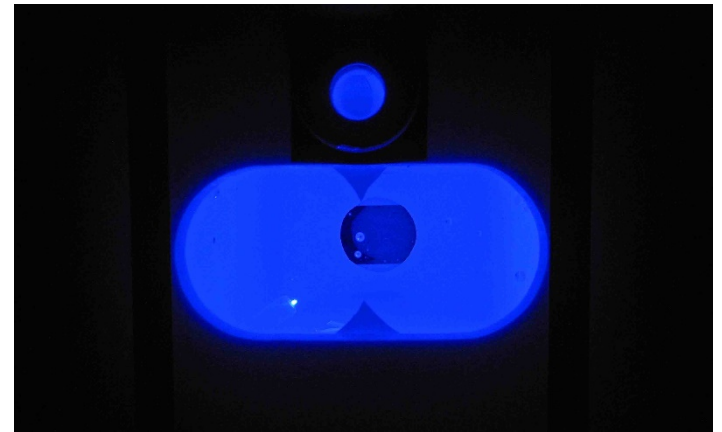
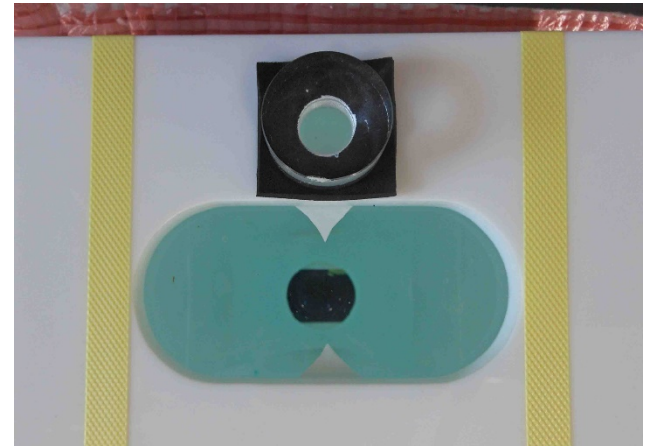




Outlooks for WC development

- Individual difference of PMT → *Test is available.*
- Window
Test will be done in this month. → *Design was done.*
- p rejection efficiency and K^+ detection efficiency with a Monte Carlo simulation, taking into account:
(*Geant4.9.10.p02*)
 - ✓ decay and
 - ✓ reactions.→ *In progress.*

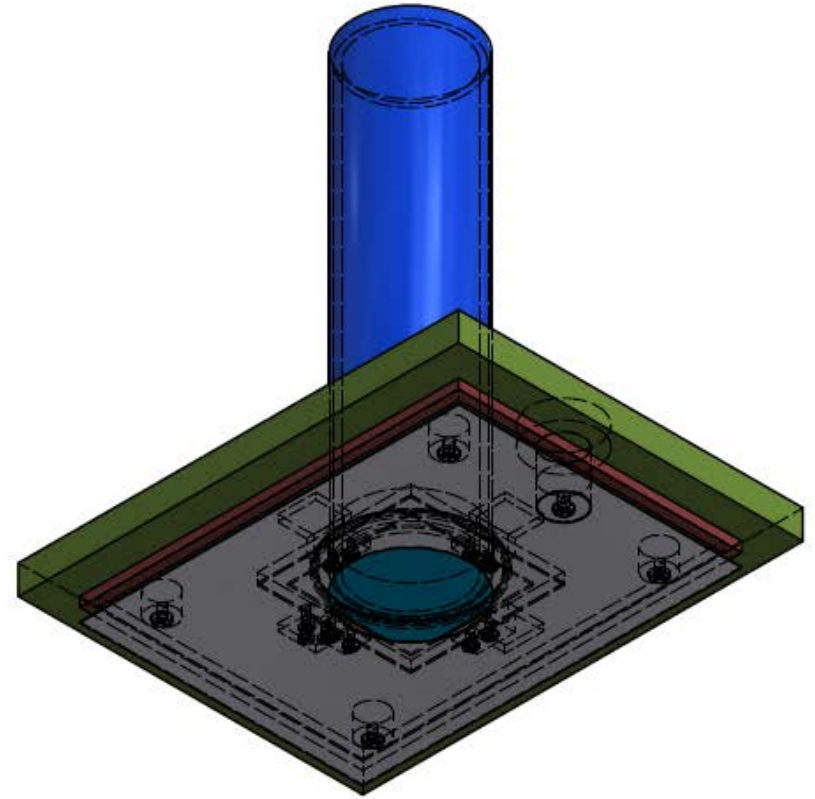
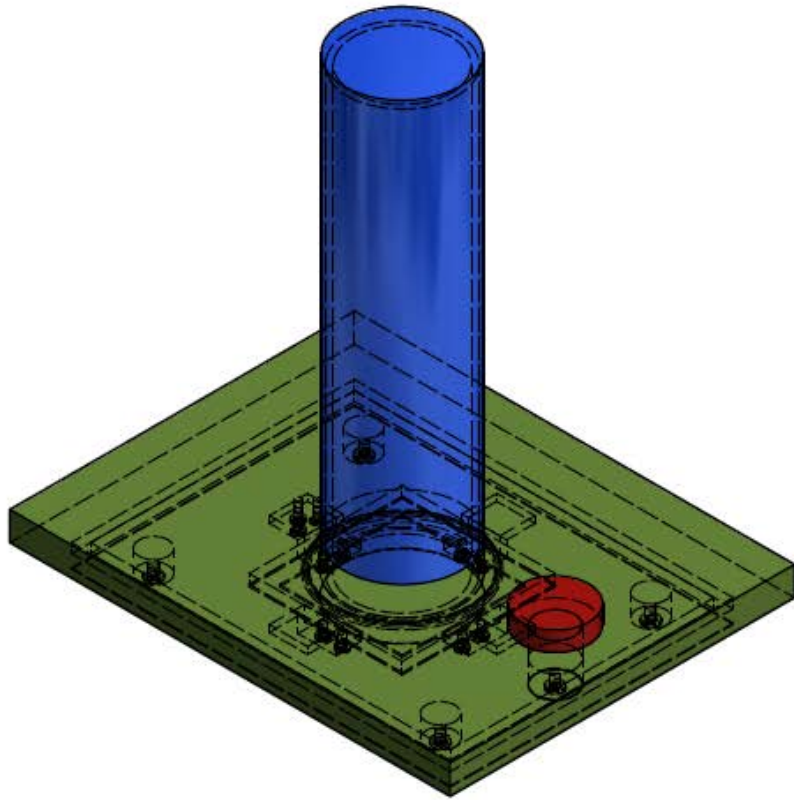
Design of WC CAP for window test



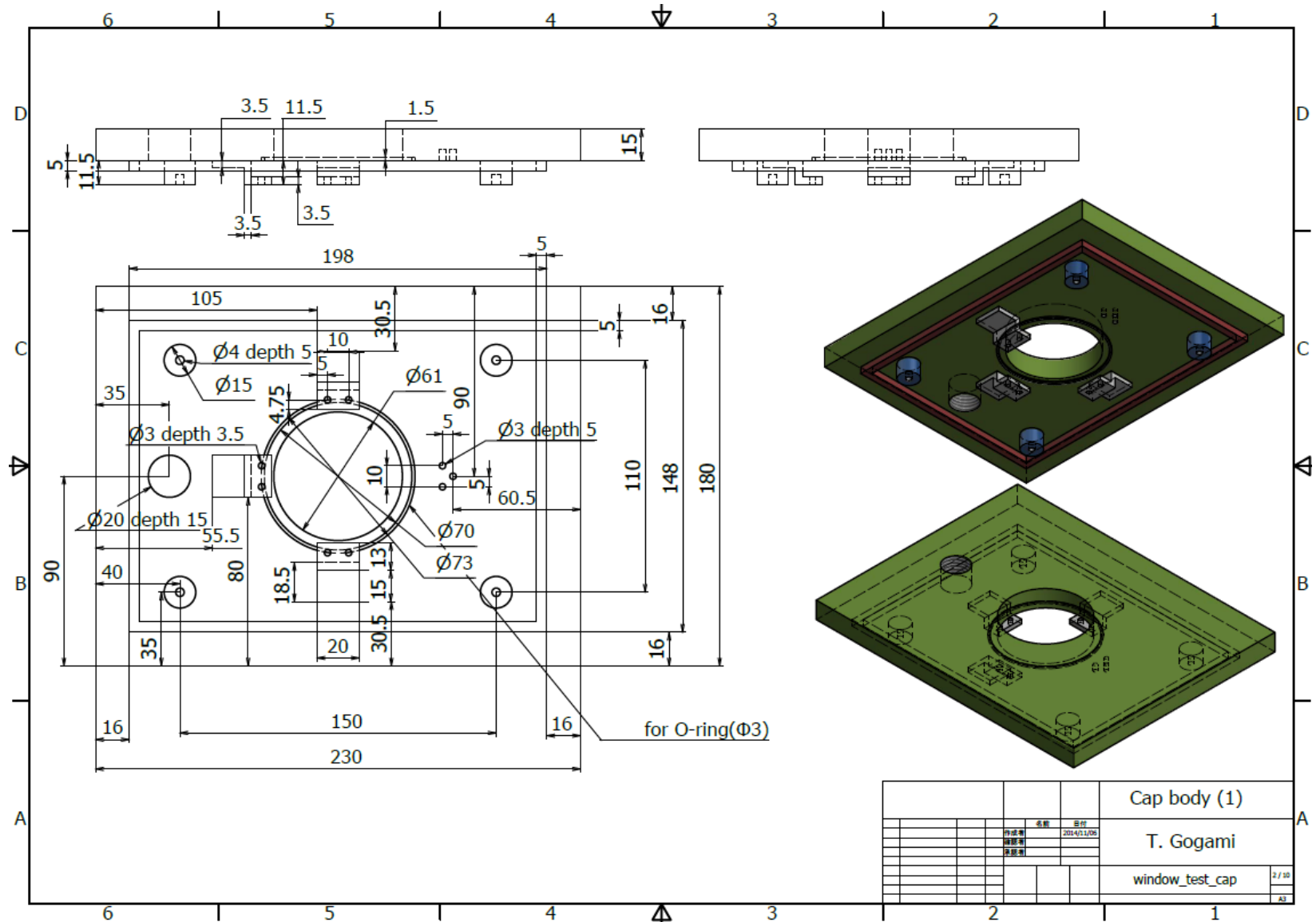
Pictures can be found on the following URL:

<http://www-nh.scphys.kyoto-u.ac.jp/~gogami/s-2s/doc/tof/toftest2014/>

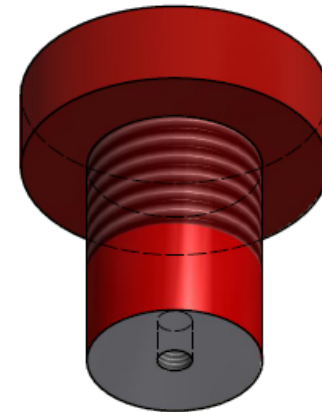
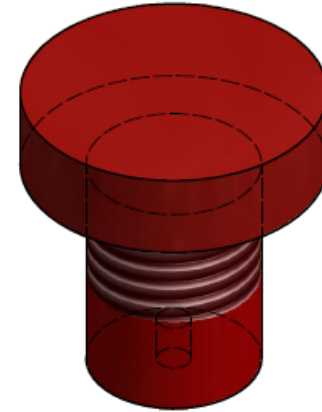
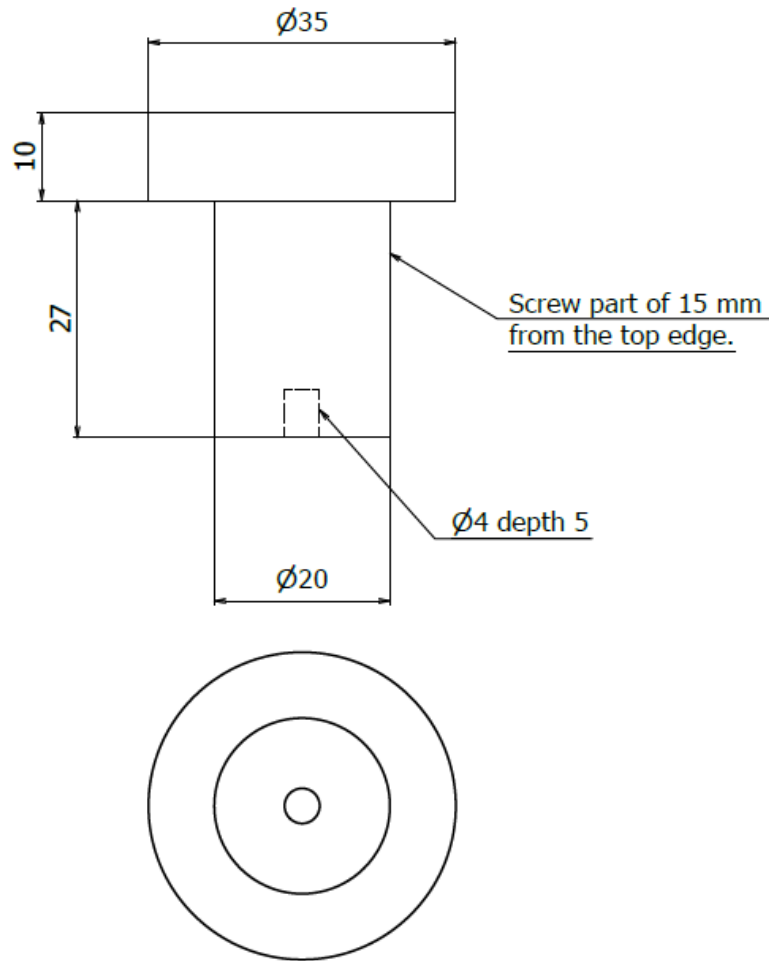
WC CAP for window test



Cap body (WC CAP for window test)



Filling port cap WC CAP for window test

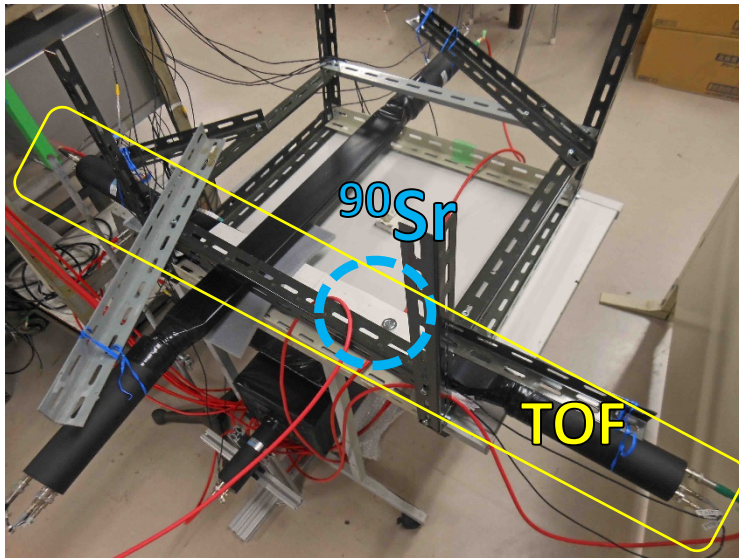


		Filling port cap (1)	
		名称	日期
		作成者	2014/11/05
		確認者	
		承認者	
		T. Gogami	
		window_test_cap	

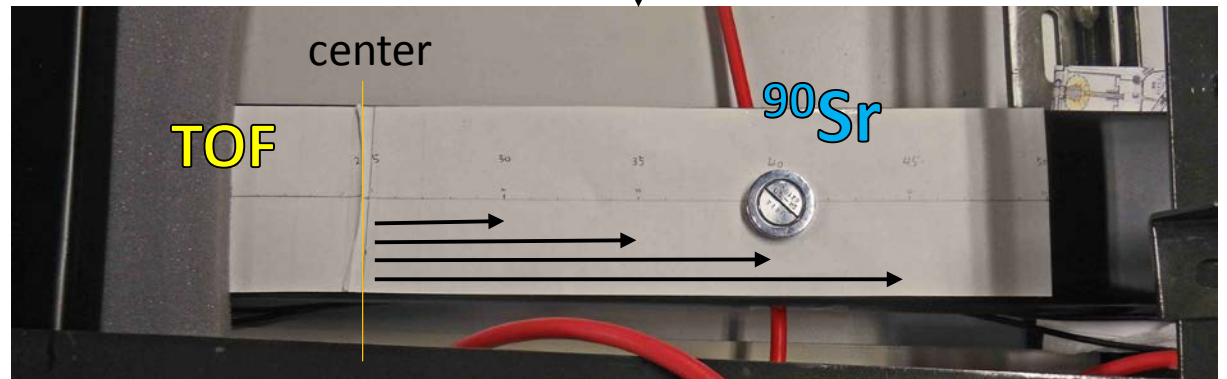
Contents

- Water Cherenkov detector
- **Speed of light in S-2S TOF scintillator**
- About pre-E05 experiment with SKS

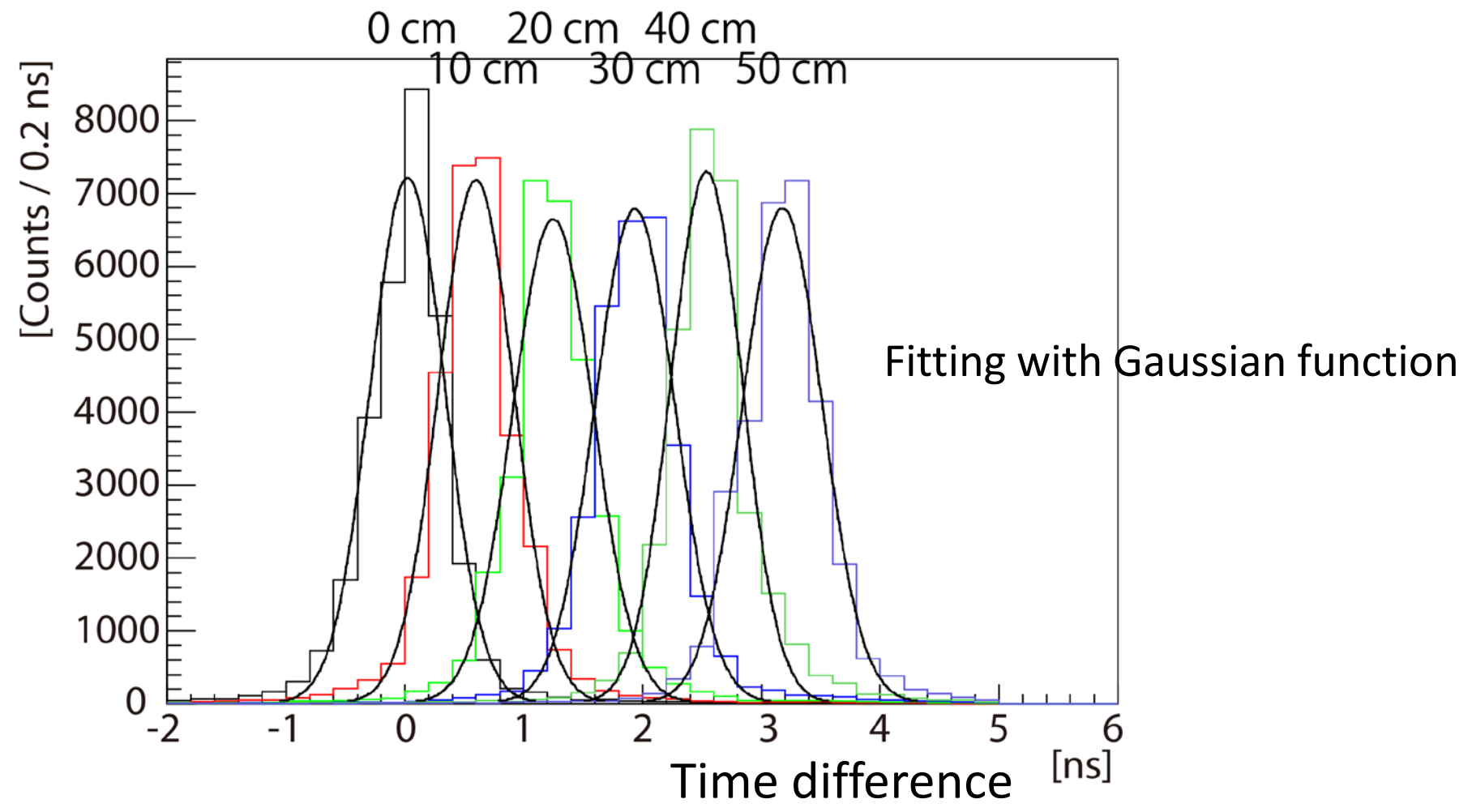
Experimental setup (Photograph)



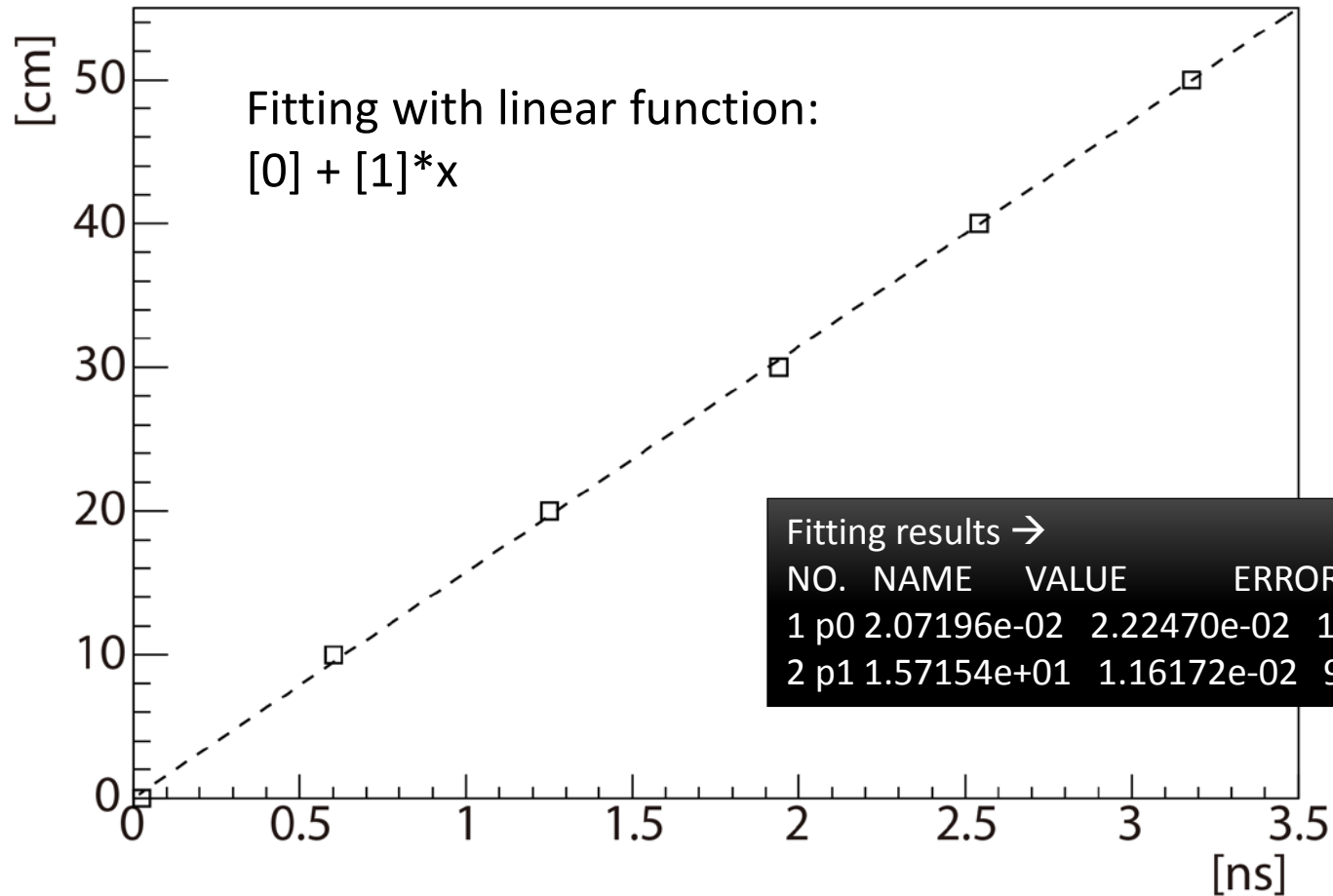
ZOOM



Time difference between two PMT signals



Results




The effective speed of light in TOF detector:

$$(1.57 \pm 0.01) \times 10^8 \text{ [m/s]}$$

Contents

- Water Cherenkov detector
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For discussion of pre-E05 experiment with SKS

□理論武装 素過程

□定量的見積もり

- バックグラウンド (ビーム・反応起因)
- 計数率
- 収量

□E13からのセットアップ変更

- 下流にAC入れる必要があるか？
- 水チェレンコフ (置くだけ置けるか)
- 上流AC
- 標的 ポリエチ

□ランスケジュール

- 場合分けでいくつかのパターンを考える
- 優先度を明確にする

Summary

□ Water Cherenkov detector

- N.P.E. were:
 - 57.4 ± 0.5 (H6522× 2)
 - 39.7 ± 0.4 (H11284× 1) → Enough performance
- Cap design for window test was done.
- Simulation with Geant4 is in progress.

□ Speed of light in S-2S TOF scintillator

1.57 ± 0.01 m/s

□ About pre-E05 experiment with SKS

Need to prepare materials for discussion with E13 group.

頑張ろー！



二条城アートアクアリウム