

# SDU shashlik update

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## Outline

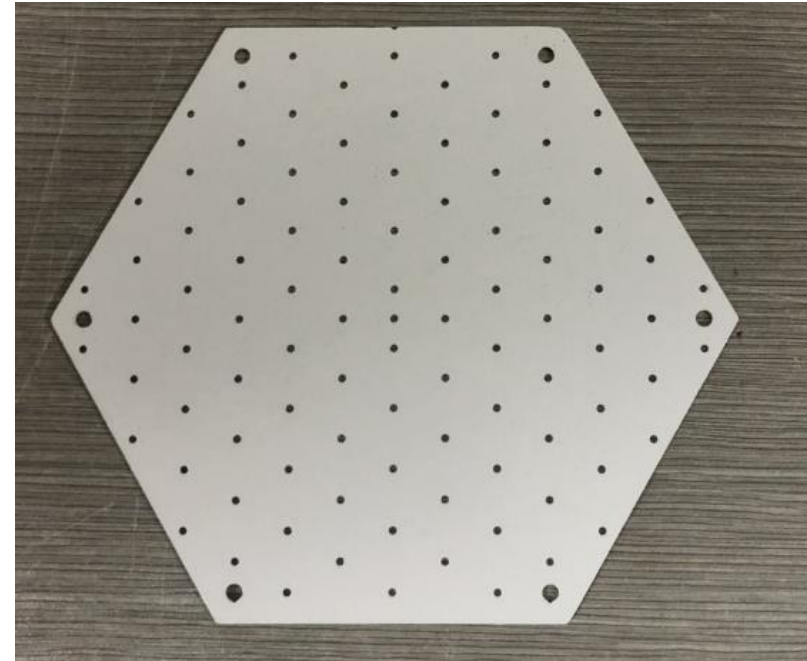
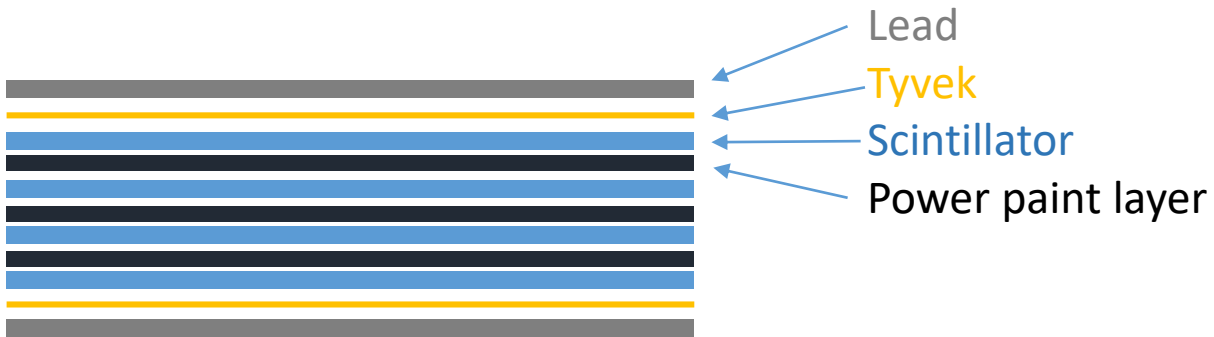
- SDU#4 powder paint reflectivity test
- New batch of scintillator tile test
- Fiber reflector reflectivity test

# SDU#4 powder paint reflectivity test

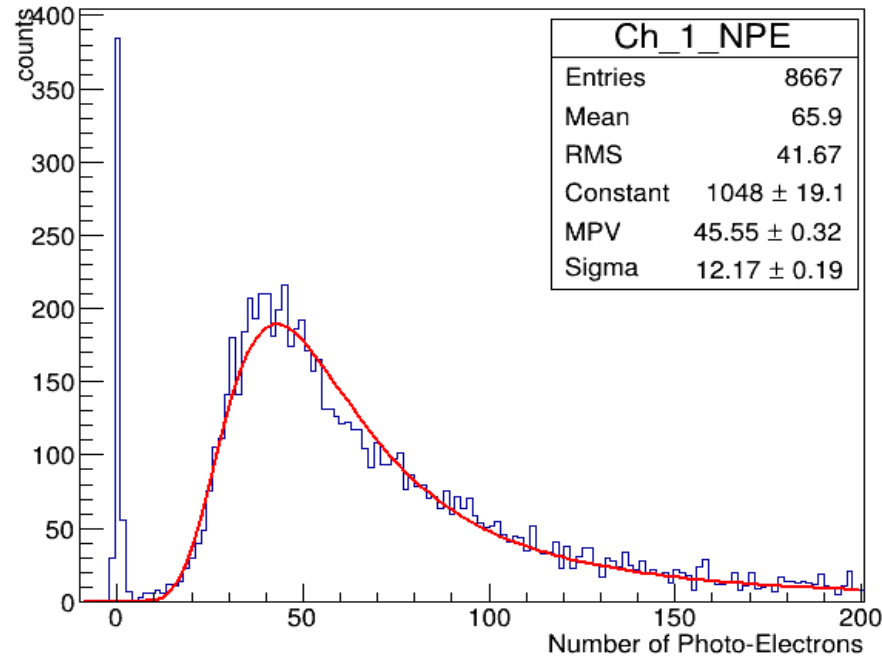
Comparing power paint reflectivity with the sample from THU, test with similar test setup as previous five layers test(only 4 scintillator layers in test now).

## Test setup

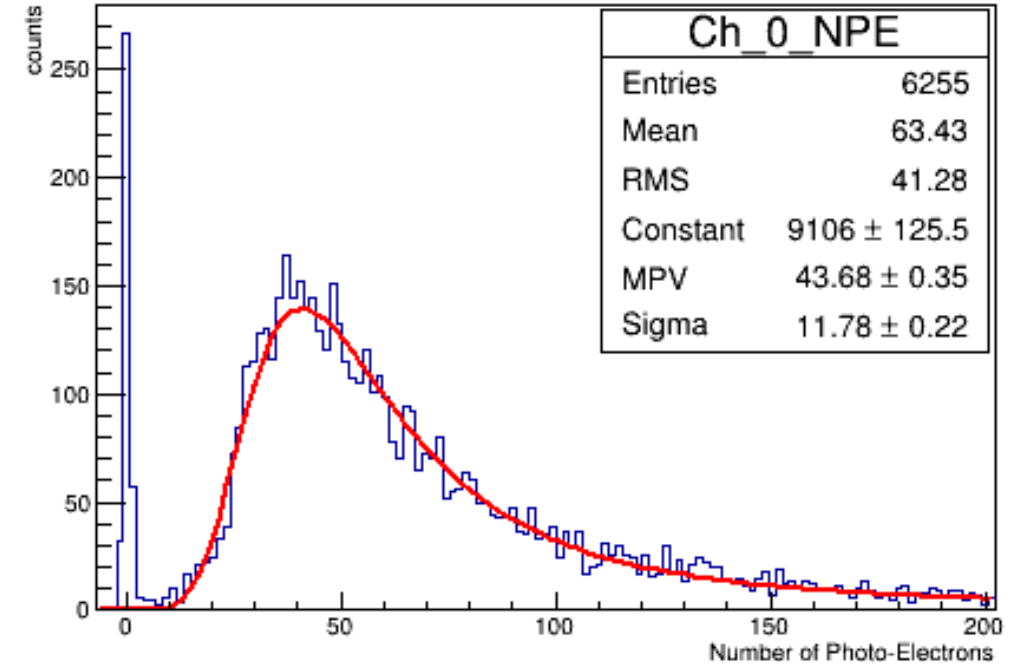
comparing with same setup that only powder paint layer replaced with Tyvek-lead-tyvek



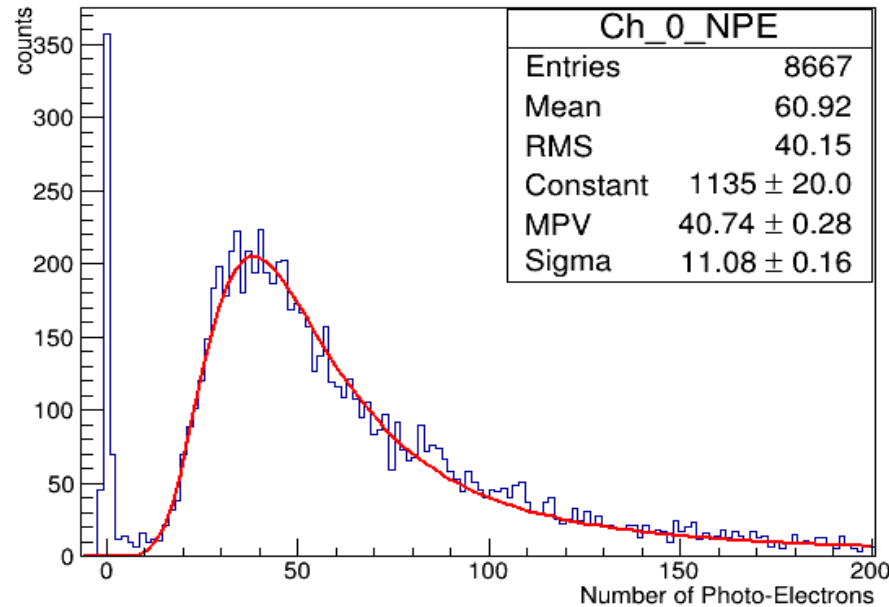
## First test result



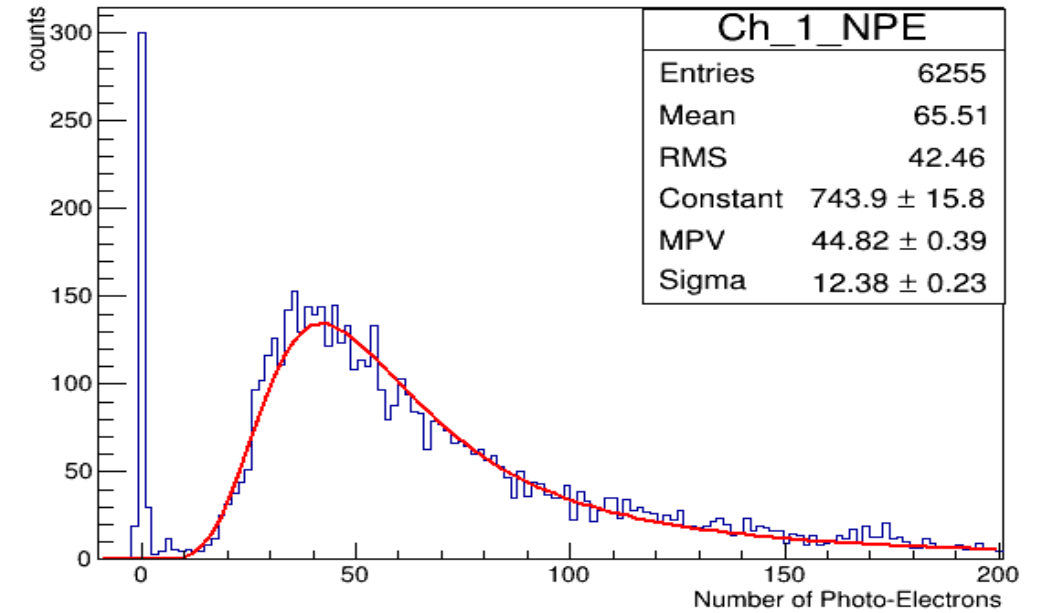
## Replace channel and PMT comparing with First test



Powder paint  
lead from THU



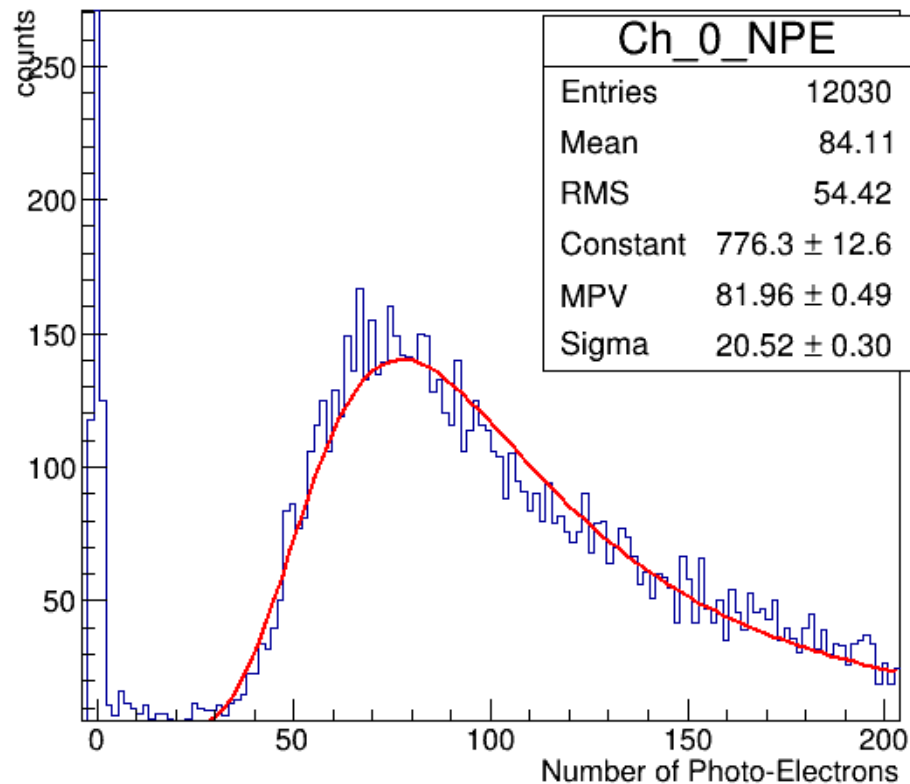
Powder paint  
lead in SUD#4



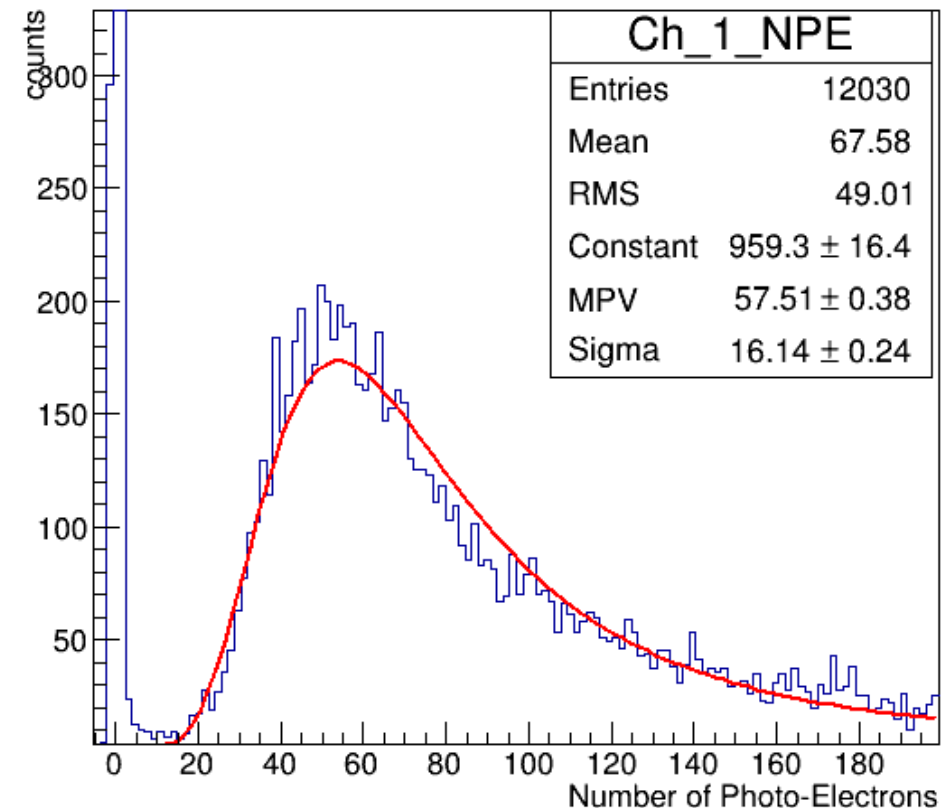
# New batch of scintillator tile test

- 1400 piece of scintillator tiles arrived in SDU
- Similar 5 layers test setup is performed as before: 5 layers of scintillator + 6 layers of powder painting lead as reflector

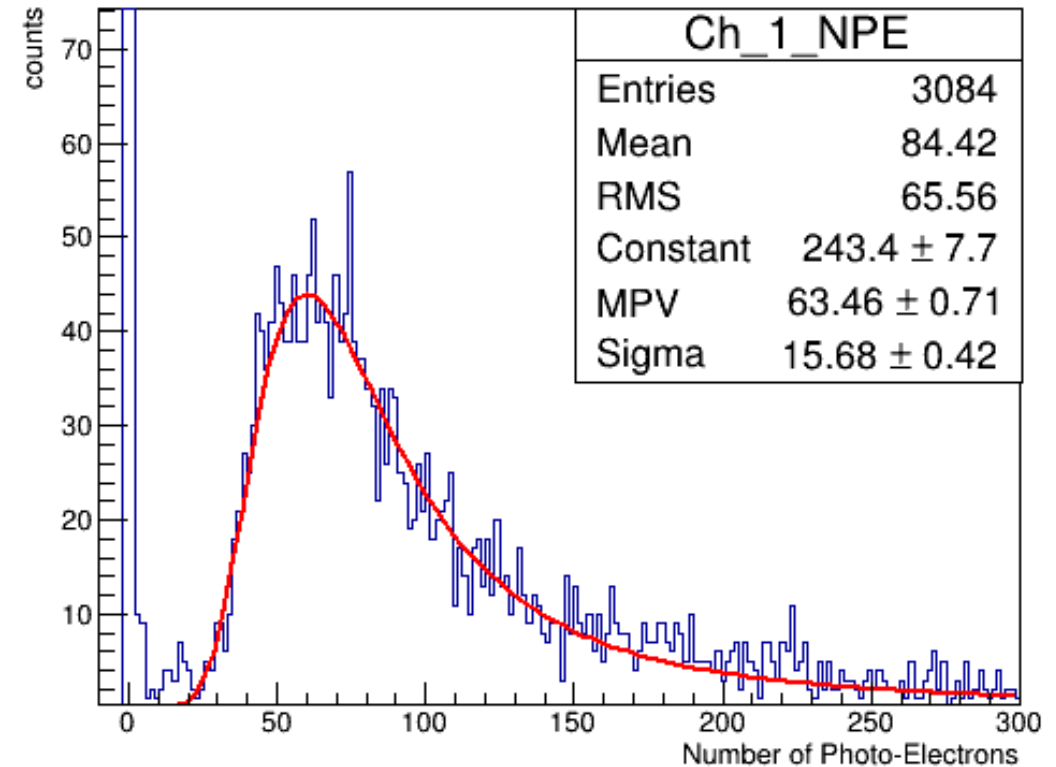
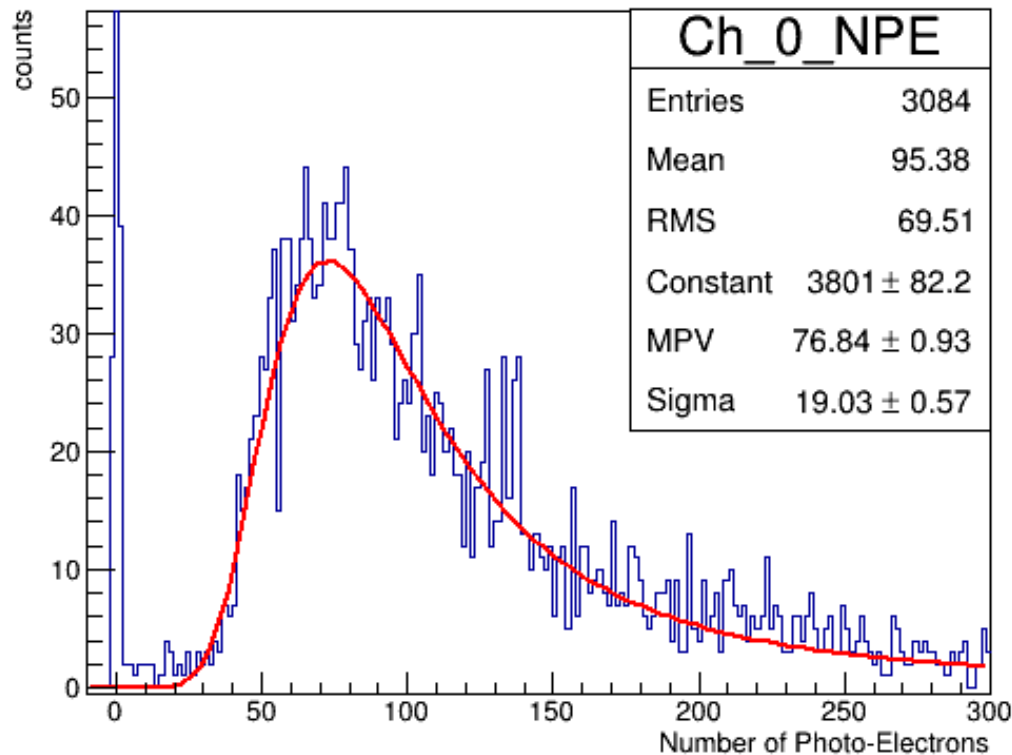
New scintillator tile batch result



Previous scintillator(used in SDU#2, #3 and #4)

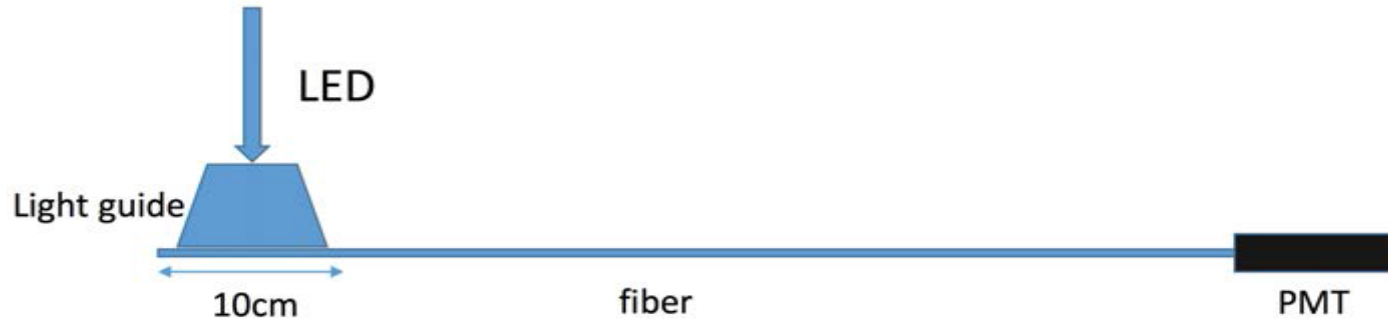


# Other two samples of new batch tests result



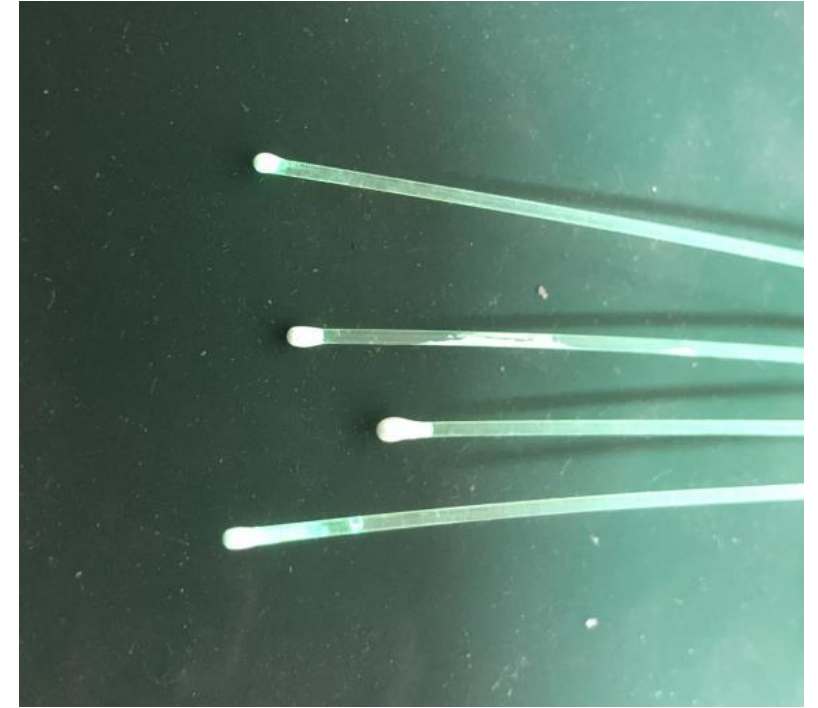
- The Kedi company told me they use same formula. The problem may be caused by non-uniform mixing. Since the less production of scintillator, the company have to mix the material by worker.
- Since the scintillator could achieve more light yield as result, why not try to add more scintillating material in scintillator. Necessary discuss with Kedi company.

# Fiber reflector reflectivity test



- Add TiO<sub>2</sub>+glue as reflector in test, comparing with silver and no reflector.
- Light source(laser/LED), light intensity and HV of PMT have tried to be changed in test, and the result is similar.

Reflector type	Fiber readout end	Charge(pC)	Amplitude(mV)
No reflector 1		-12.9	426.5
		-13.4	481.8
No reflector 2		-12.0	432.6
		-11.0	382
TiO <sub>2</sub> reflector	TiO <sub>2</sub>	-14.2	514
		-2.8	85.2
Silver reflector 1		-11.8	421
	silver	-1.1	33
Silver reflector 2		-15.4	587
	silver	-1.34	46



- No significant improvement of light yield with reflector comparing with no reflector. Previous result shows get at least 70% more light yield with reflector, which only test several fibers.
- Need to check this problem, may cause from fiber polishing or the test method.
- 2 no reflector fibers, 4 silver reflectors and 4 TiO<sub>2</sub>+glue reflectors are used in test, same reflector has similar result.