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SiPM Neutron Irradiation Test

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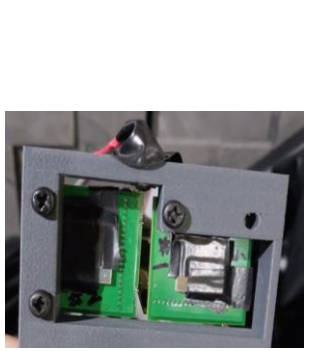
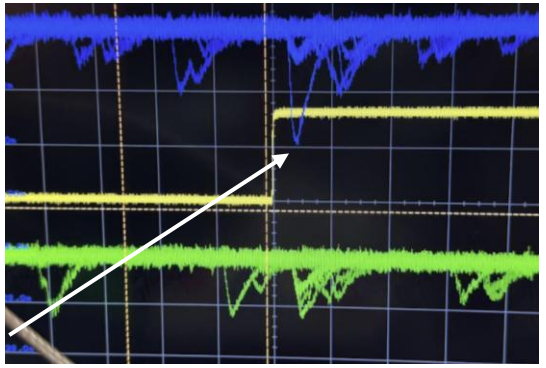
KOMAC Neutron Irradiation Test (20, 26 June)

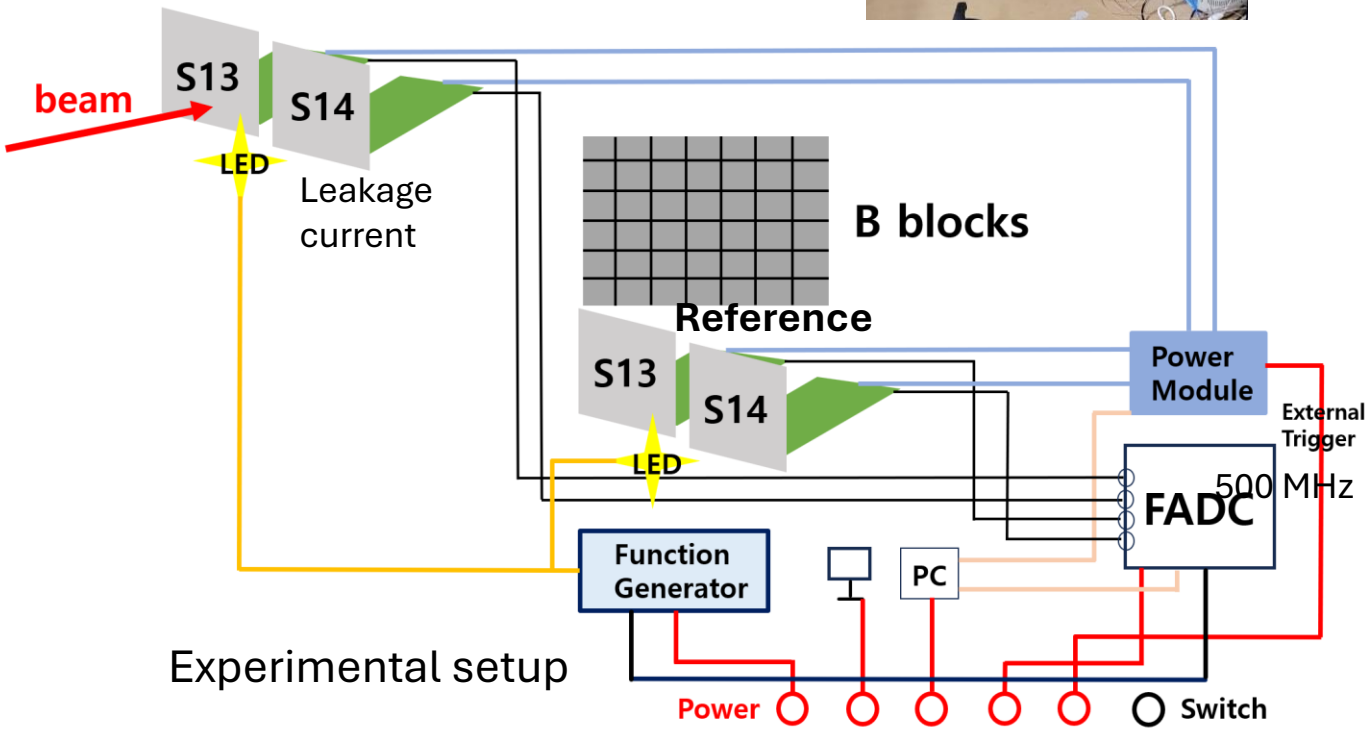


KOMAC, South Korea
20 June, 26 June

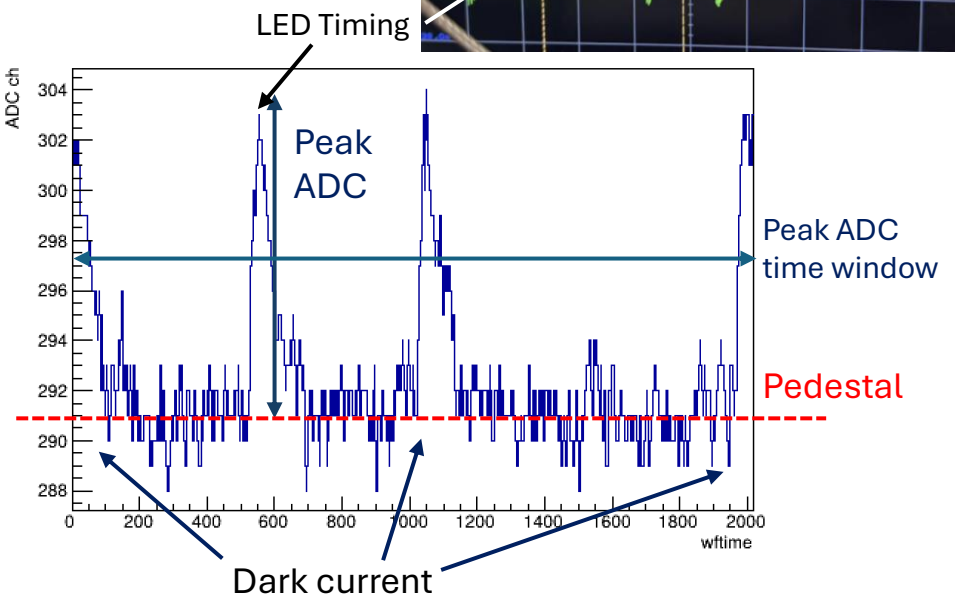
Neutron Irradiation on SiPM
[100 MeV p beam, 1Hz (100us pulse), 10^4 / cm^2]

Track effects on
1. Gain (SPE peak)
2. Dark current rate
3. Baseline shift





Experimental setup



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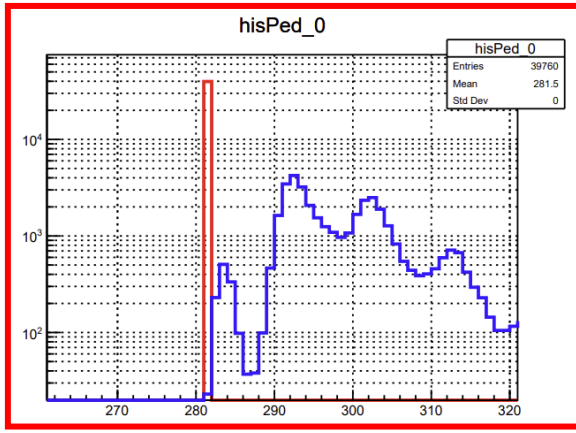
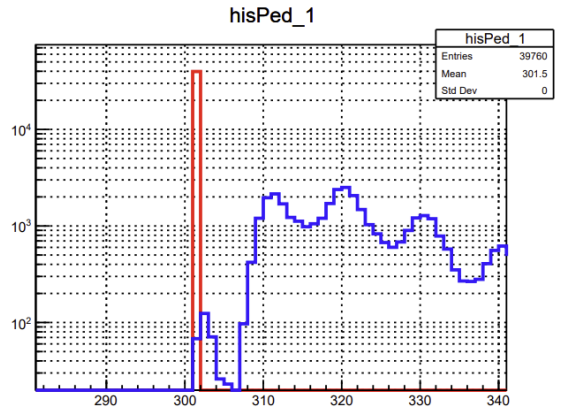
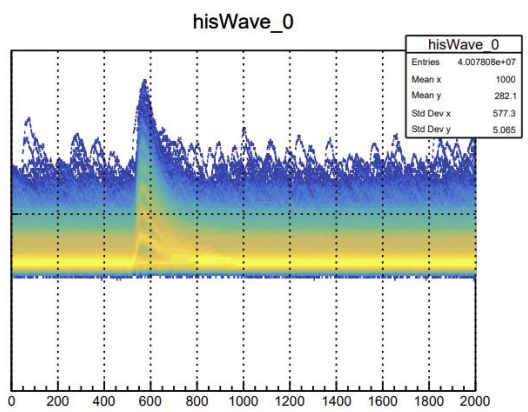
Before Irradiation

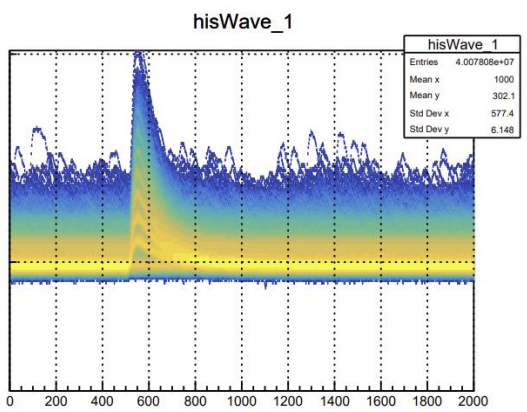
Under beam | Reference | Under beam | Reference

S14

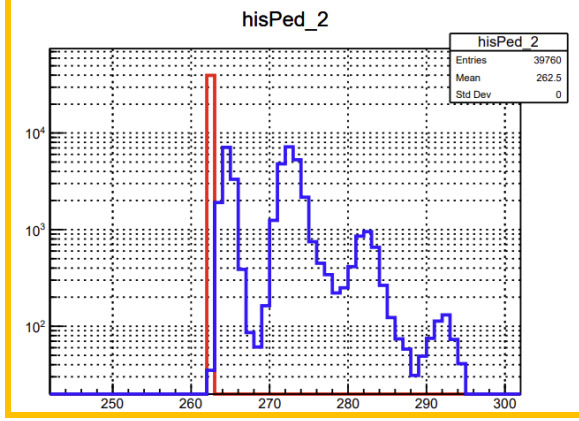


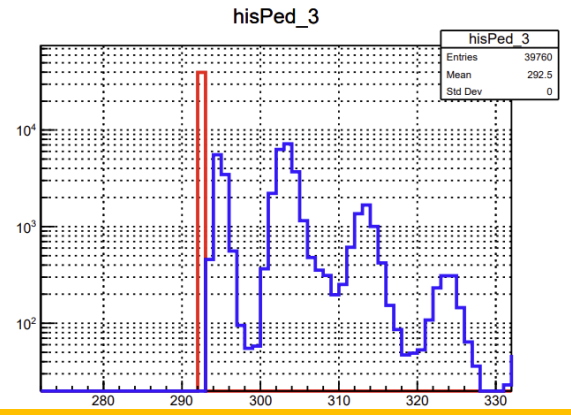


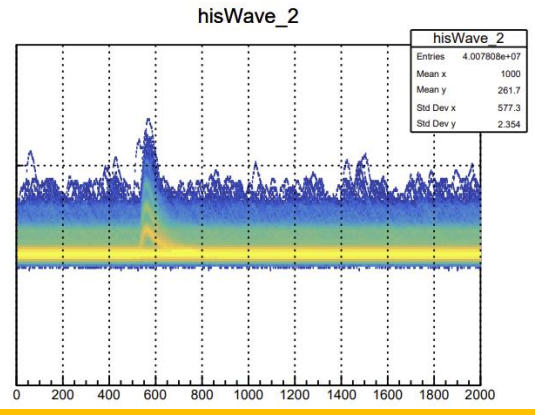


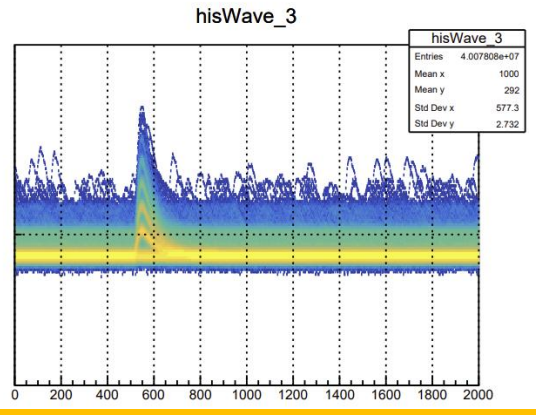


S13









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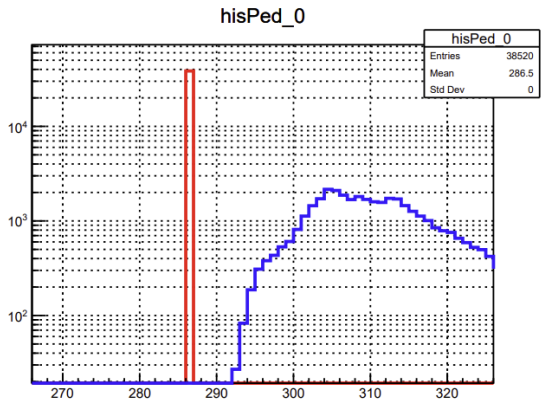
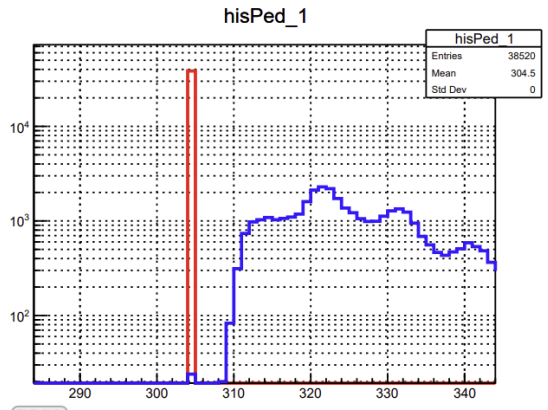
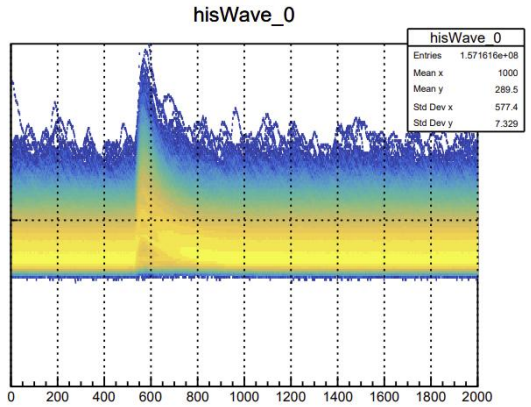
After 20 min Irradiation

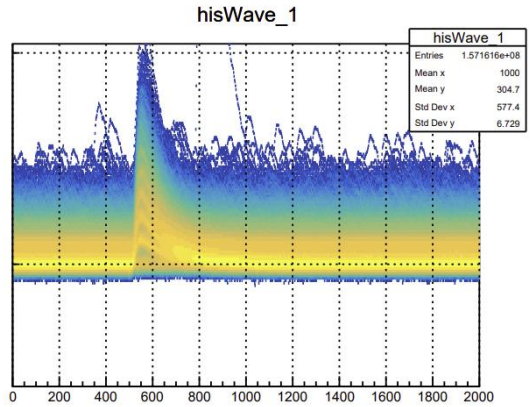
Under beam | Reference | Under beam | Reference

S14









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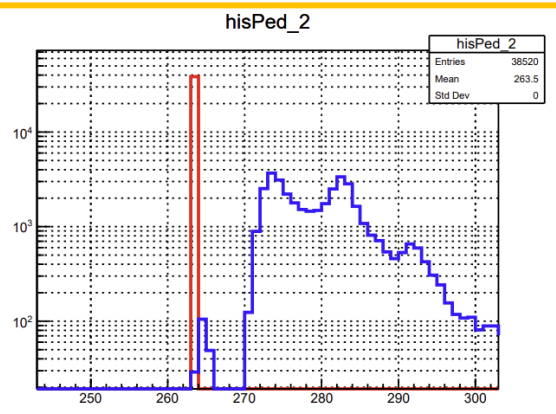

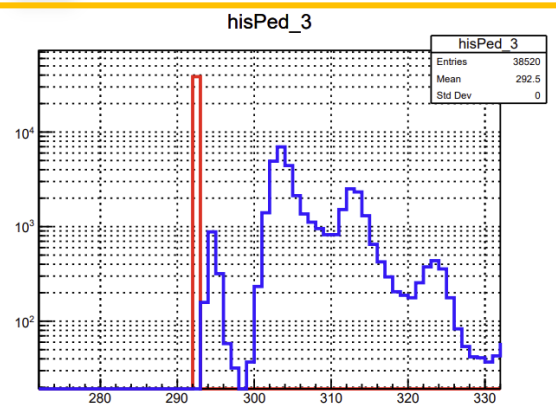

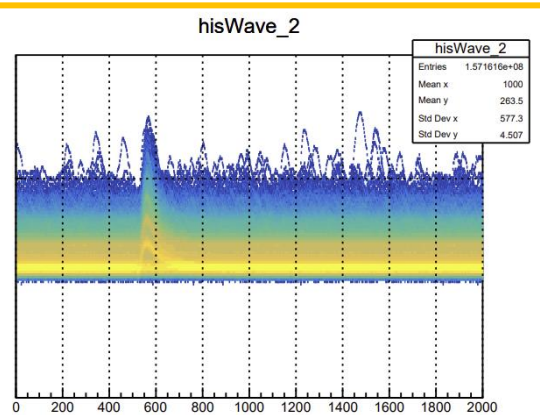

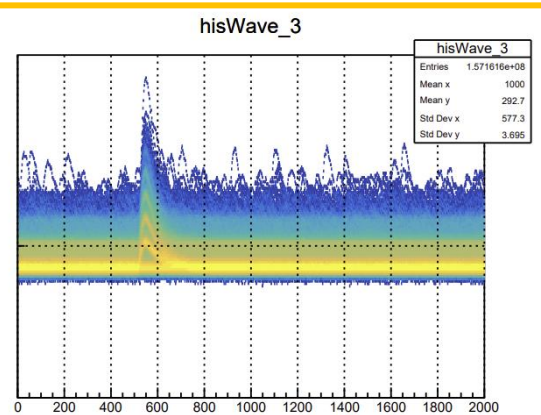

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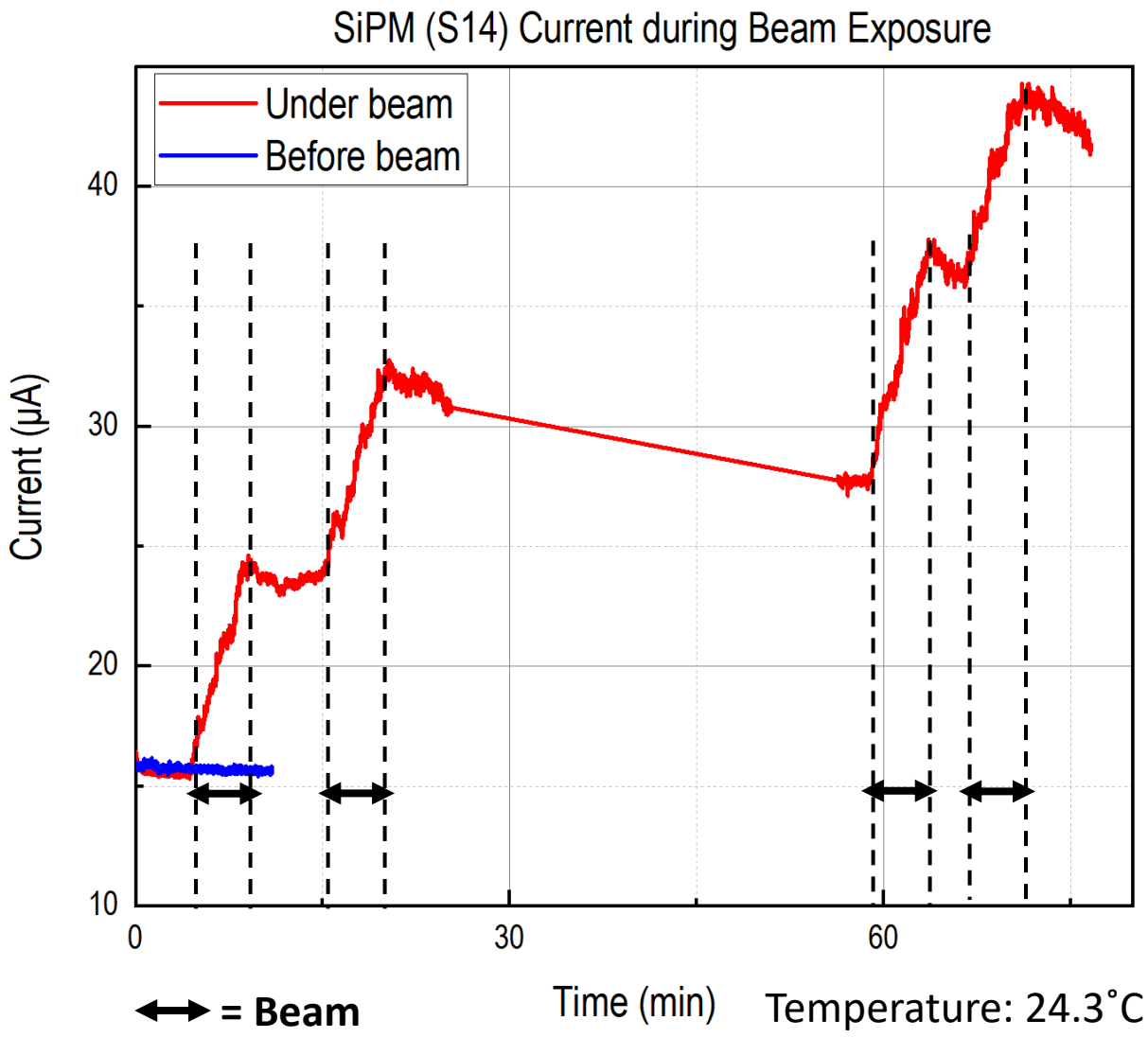
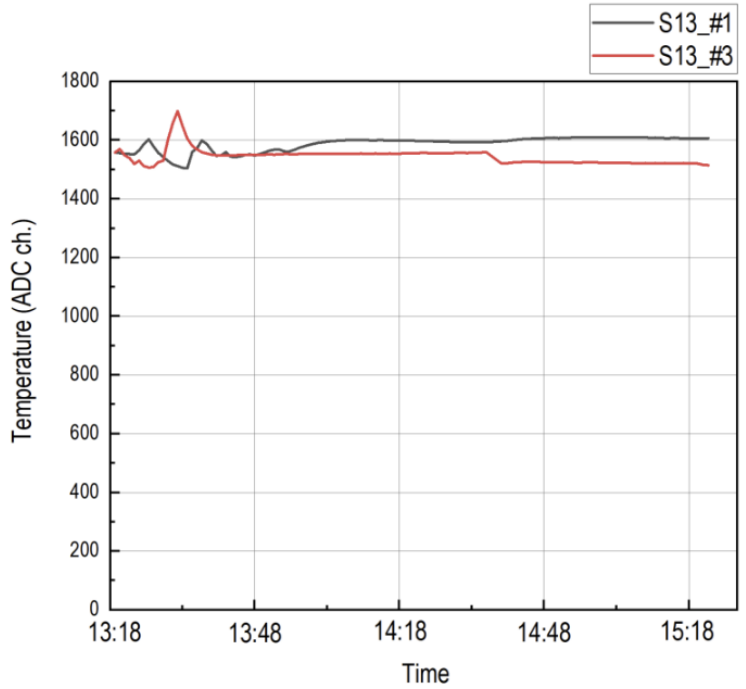
Leakage Current : Before and Under Beam



Temperature: 24.3˚C

Humidity: 27%



Temperature tracking

Current increase under beam

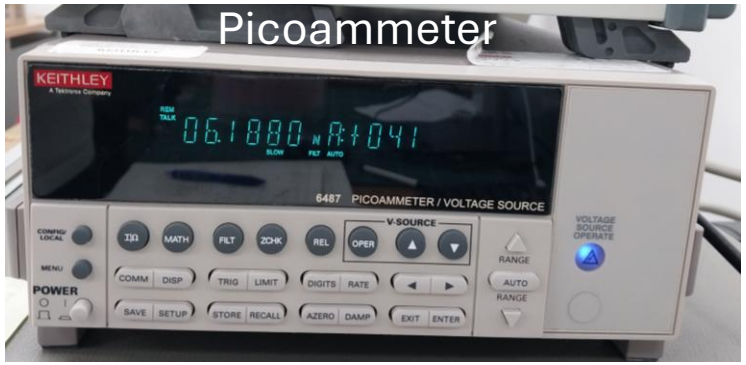
Current recover after beam

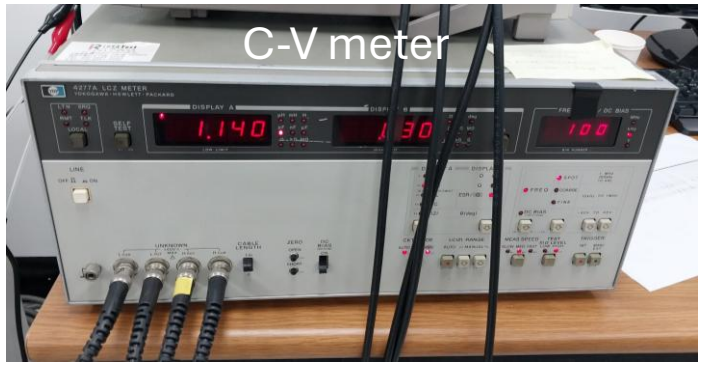
20 min irradiated on 20 June

Up to 8hours of beam time on 26 June

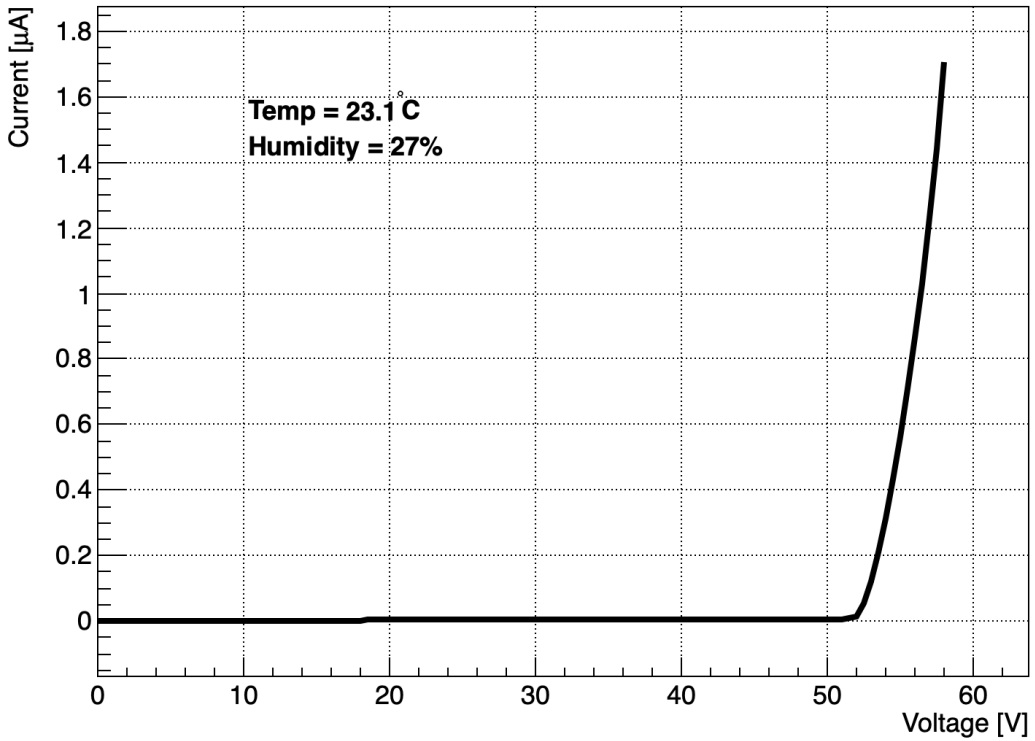
Any comments are welcome!

I-V curve

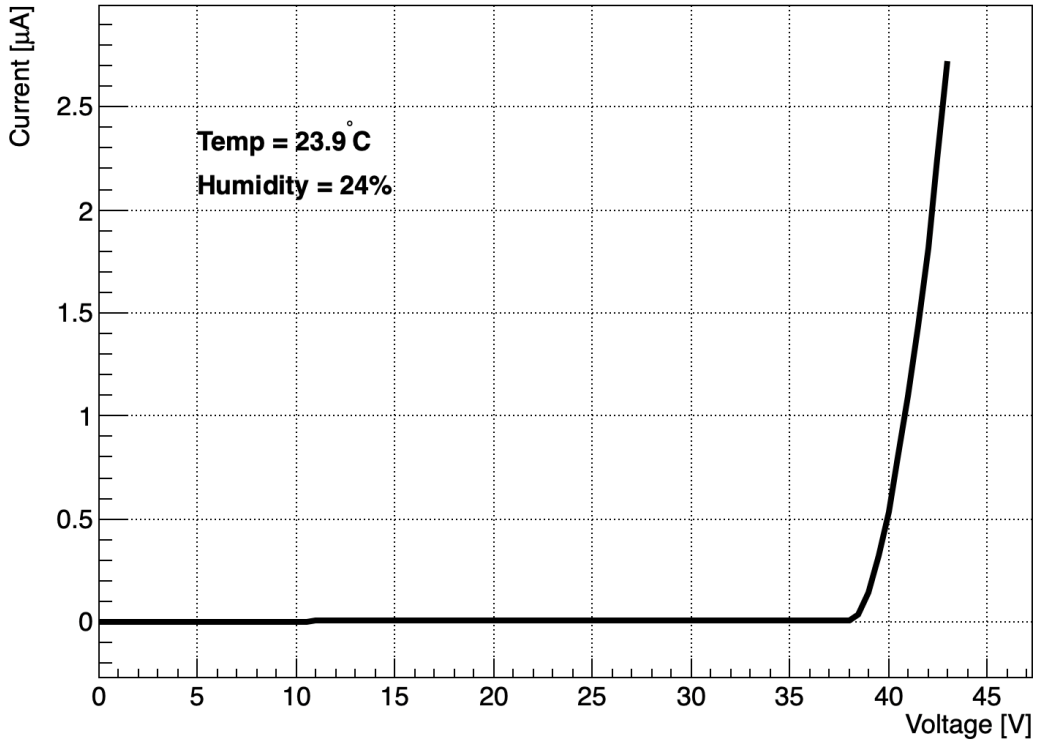




S13#3 IV Curve



S14#2 IV Curve



Supplementary

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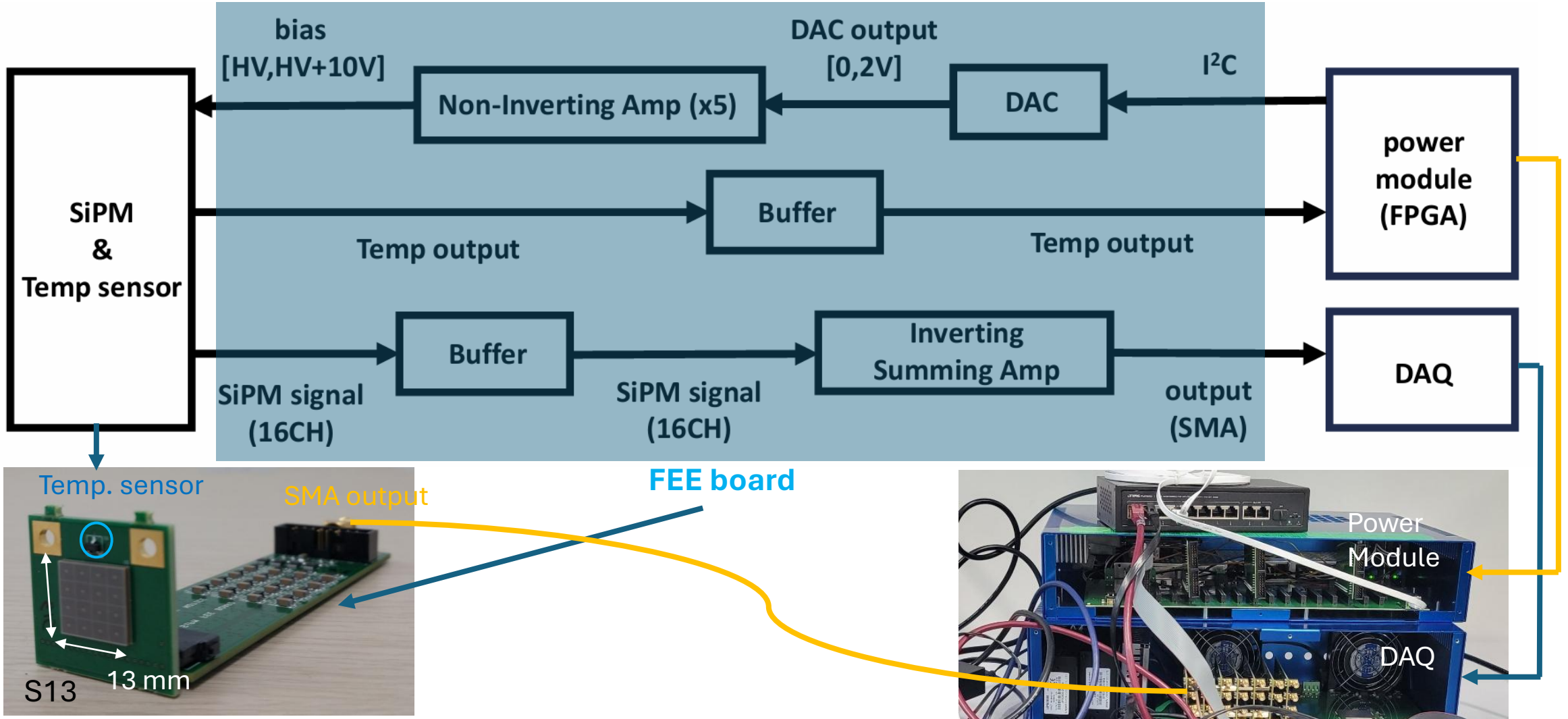
LED Test Setup

Beam Setup

	Time	Energy	Beam Flux	Beam Repetition Rate	Pulse Length
Beam#1	16:30-16:35(5min)	100MeV	$10^4/cm^2$	1Hz	100 μsec
Beam#2	16:40-16:45(5min)	100Mev	$10^4/cm^2$	1Hz	100 μsec
Beam#3	17:25-17:30(5min)	100Mev	$10^4/cm^2$	1Hz	100 μsec
Beam#4	17:33-17:38(5min)	100Mev	$10^4/cm^2$	1Hz	100 μsec



SiPM : consists of 16 ch

FEE board : **amplifying** and **summing 16 SiPM signals**

distribute different bias voltage to each SiPM ch

temperature readout

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