SAGI Summer School 2024: Astronomical Techniques

Cosmic rays Labwork

- Rate of muons at different zenith angles
- Number of photon in event

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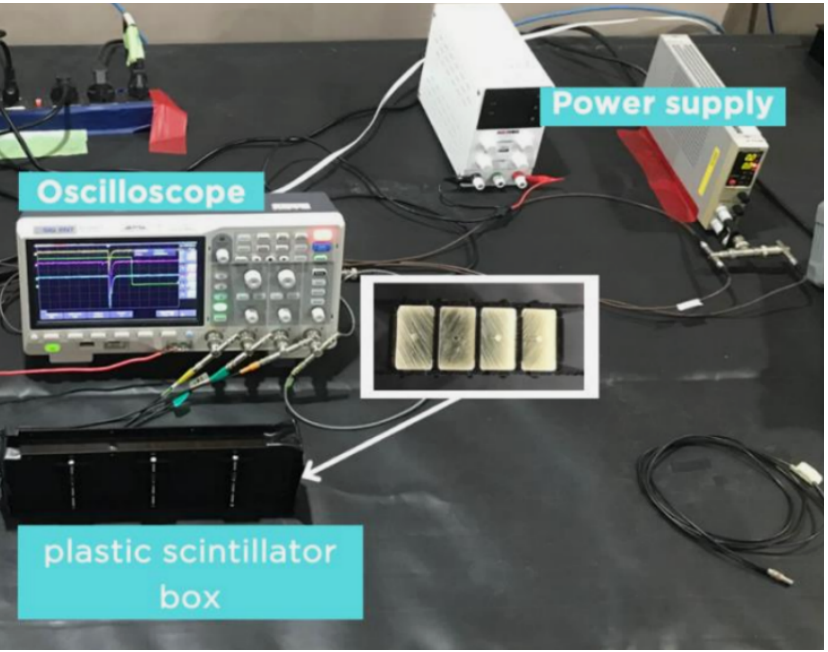
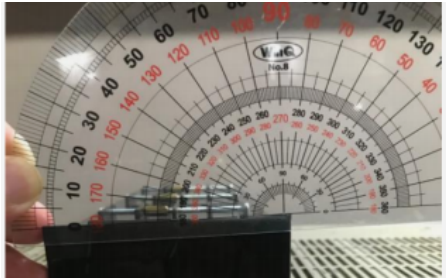
Rate of muons at different zenith angles

1. *Set up*



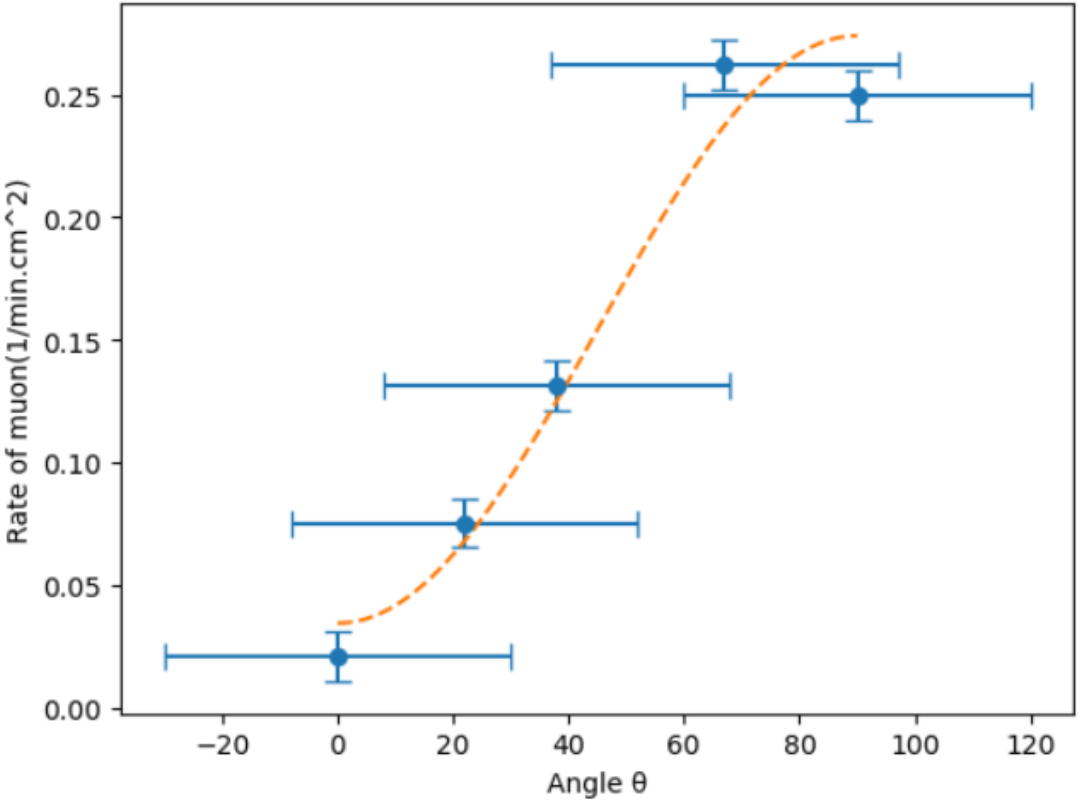


Change angle from 0 to 90 deg

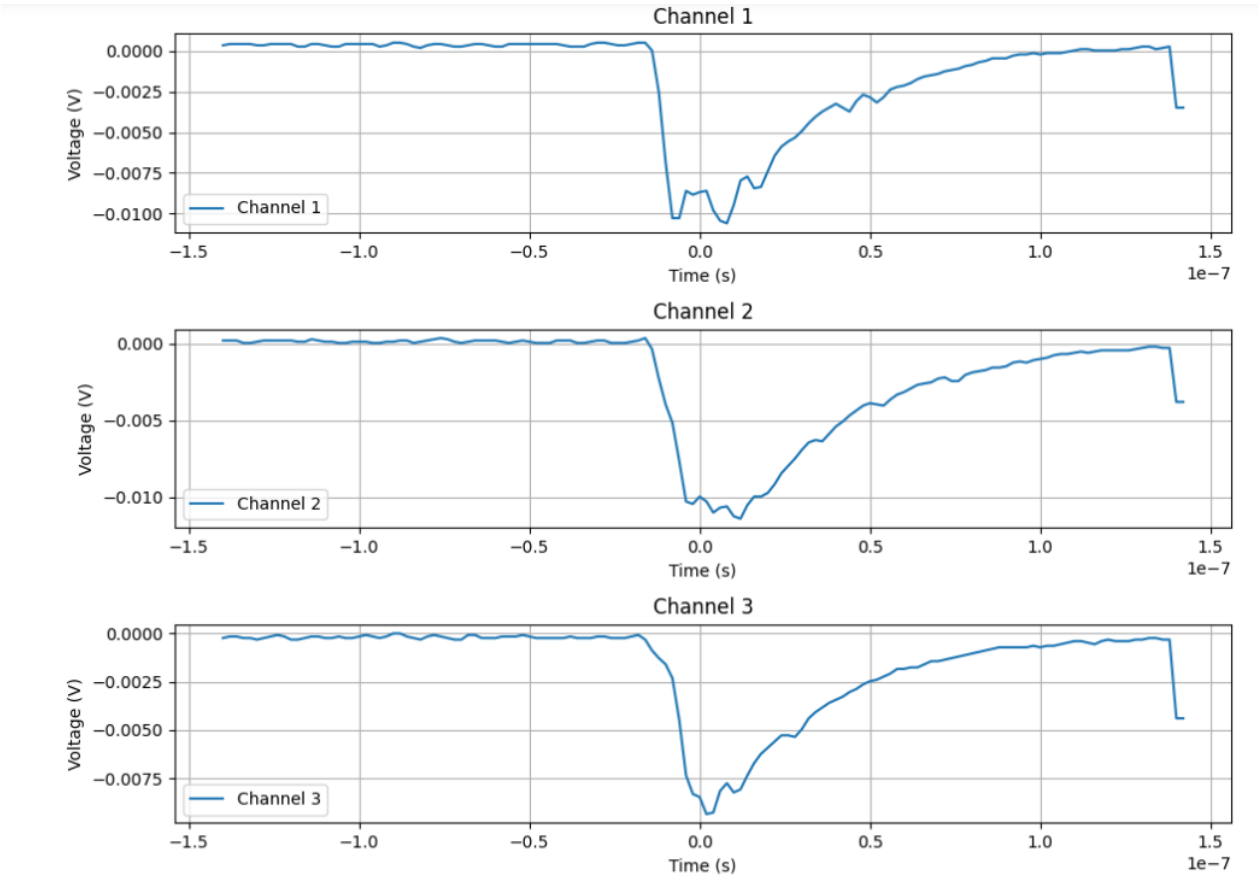
2. Record Data

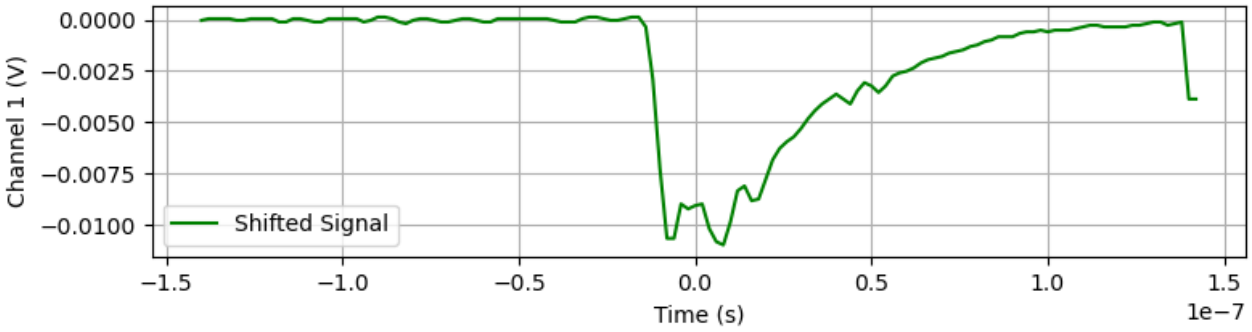
Angle (deg)	Hits	Time (min)	Rate of muons (1/min.cm^2)
0	13	10	0.0208
22	47	10	0.0752
38	82	10	0.1312
67	164	10	0.2624
90	156	10	0.2496

3. Analysis: use function Acos2(θ) + b to fit the curve (A is factor, b is background)



Number of photon in event (Compute the light yield of muons)



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Average of the selected y-values: 0.00038782608695652165
Integral of the signal in CH1: -2.0758295833370905e-10
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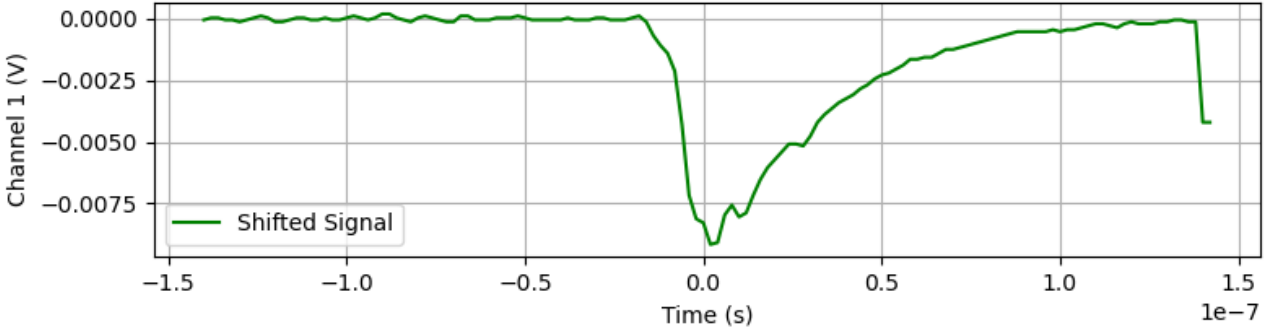


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Average of the selected y-values: -0.00018956521739130436
Integral of the signal in CH2: -2.0758295833370905e-10
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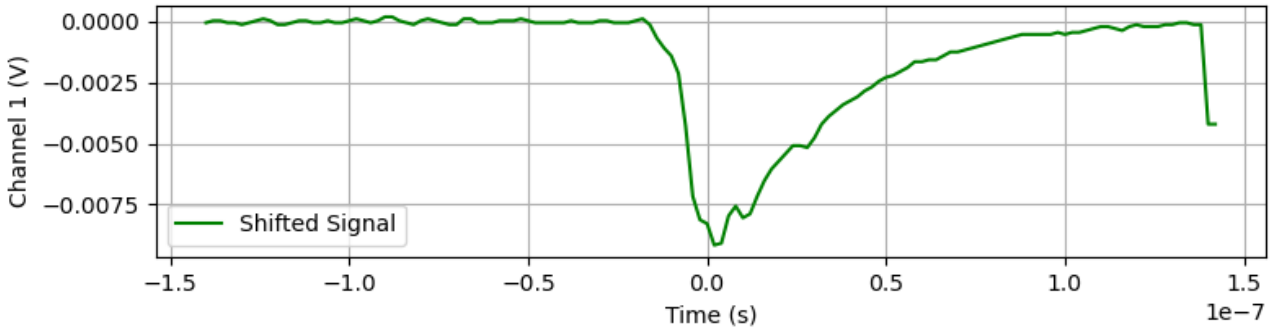


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Average of the selected y-values: -0.00018956521739130436
Integral of the signal in CH3: -1.8682466250033808e-10
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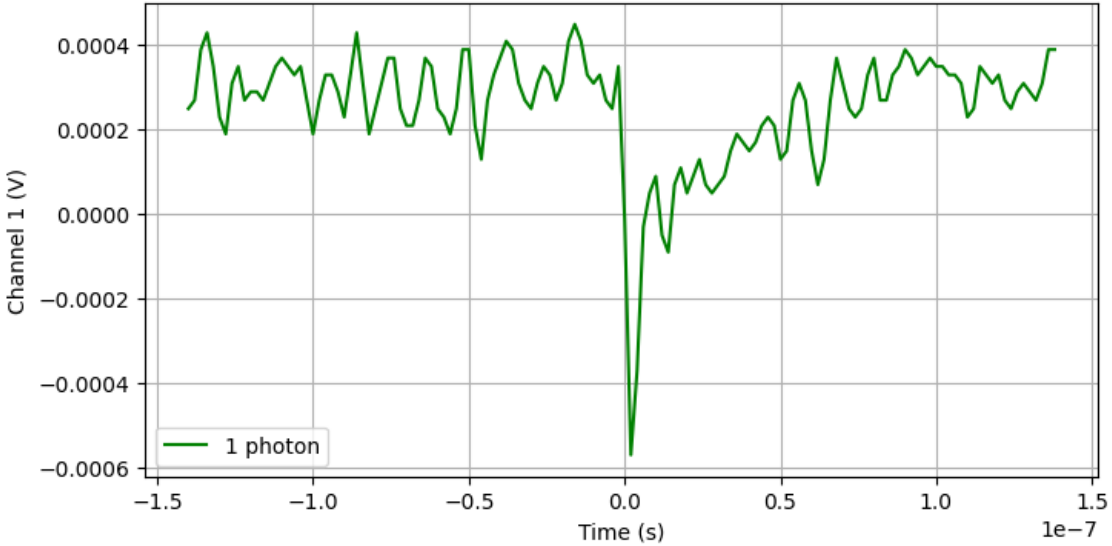

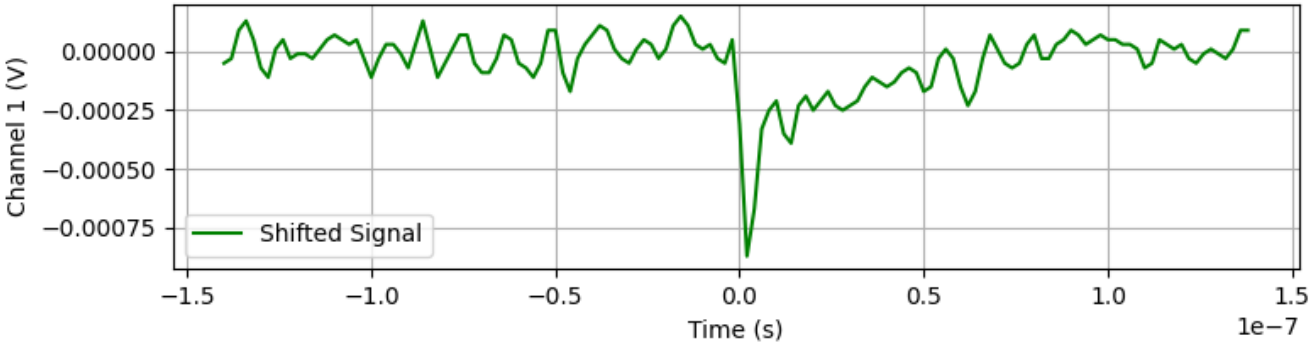


```
Average of the selected y-values: 0.00030126760563380285
Integral of the signal: -8.183558934309673e-13
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	Integral	Number of photon
CH1	-2.08E-10	2.54E+02
CH2	-2.08E-10	2.54E+02
CH3	-1.87E-10	2.28E+02
1 photon	-8.18E-13	