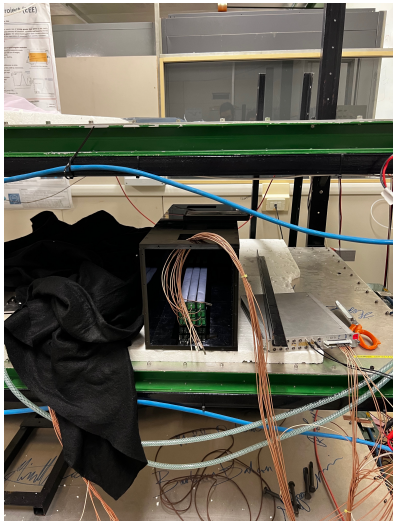
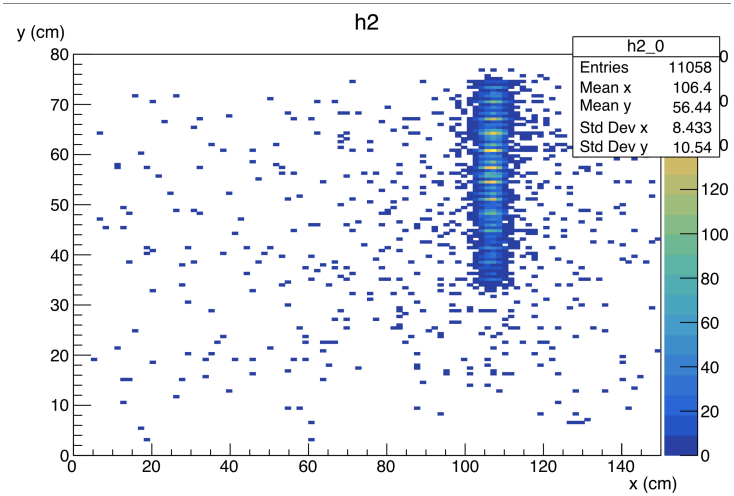
Attenuation length measurement

Attenuation length measured using EEE telescope

- Three TPCs that can be used to measure with high precision cosmic crossing points
- Analyzed signal with coincidence between EEE and glass
- Measured position of Landau peak for different crossing points





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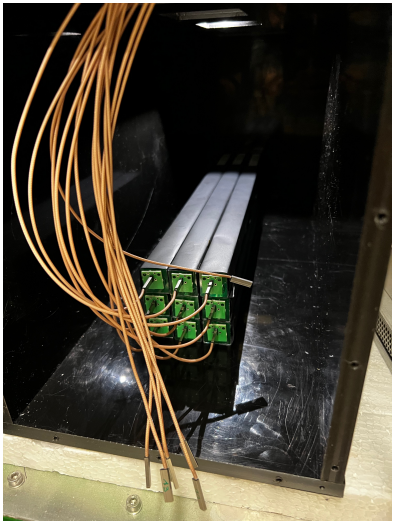
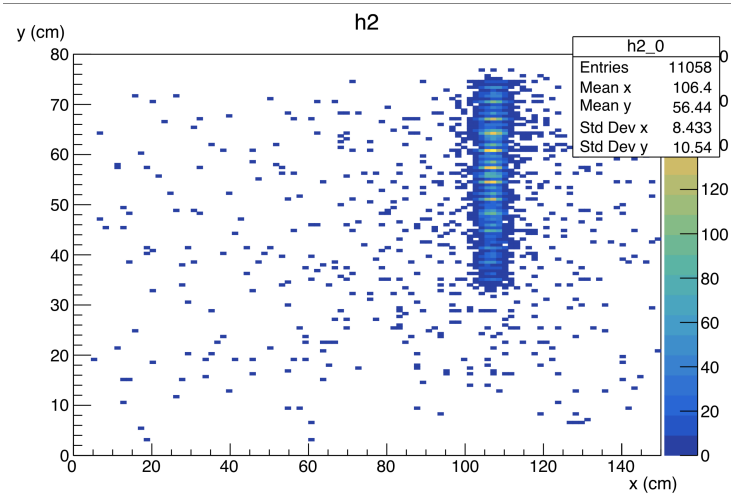
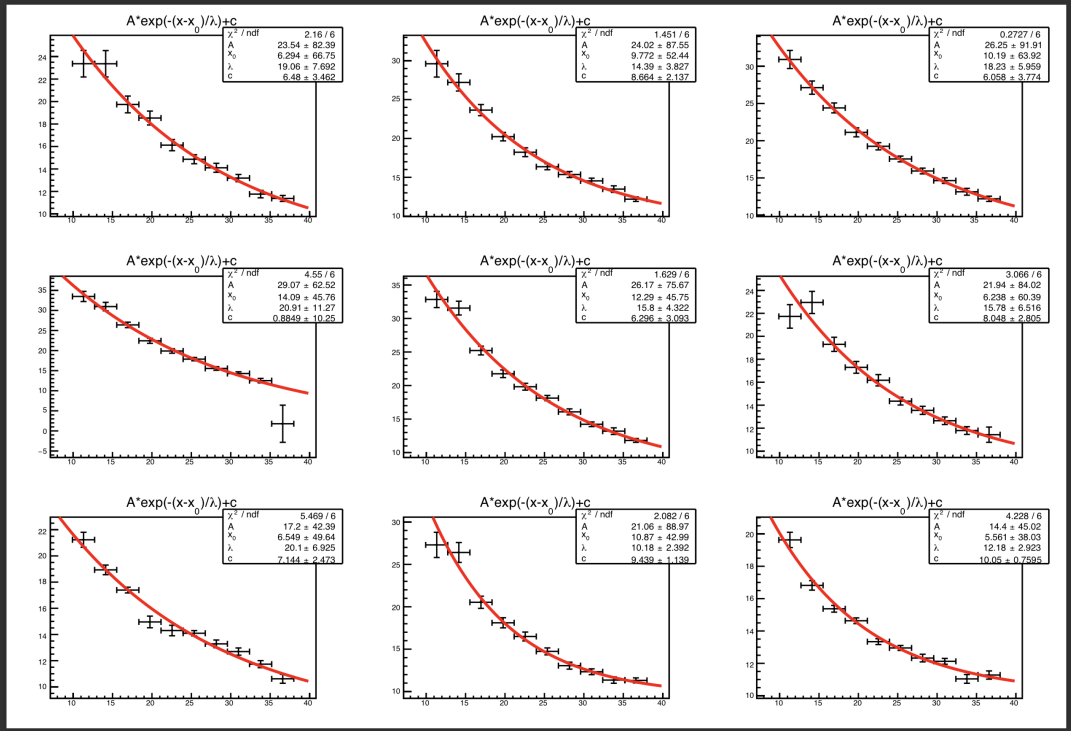




Attenuation length

Attenuation length estimated for 15 of the crystals in Genoa

→ for crystal 13 measurement failed and will be measured if crystal come back to Genova



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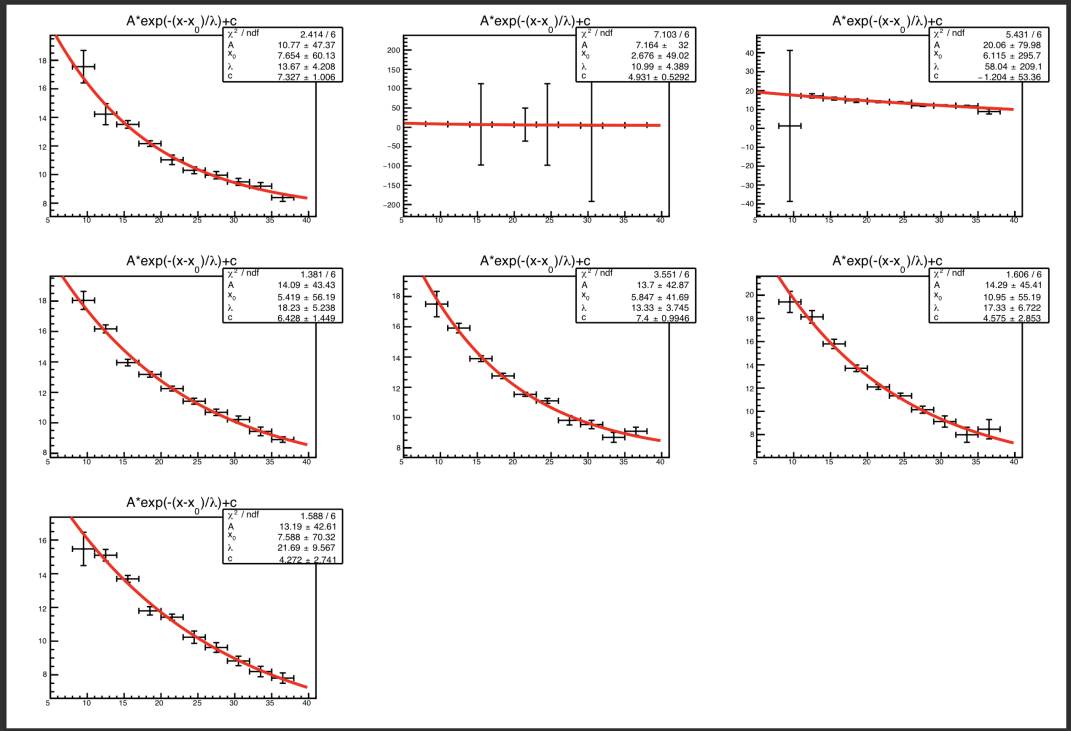

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Glass	λ (cm)
2	19 ± 7
3	14 ± 4
4	18 ± 6
5	21 ± 11

Glass	λ (cm)
6	16 ± 4
7	16 ± 6
8	20 ± 7
9	10 ± 2

Glass	λ (cm)
10	12 ± 3
11	14 ± 4
13	
14	13 ± 6

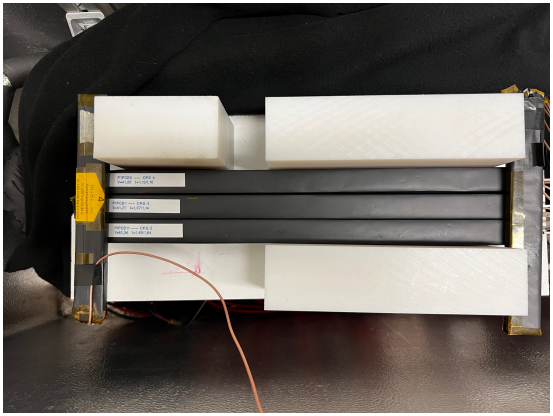
Glass	λ (cm)
15	18 ± 5
16	13 ± 4
18	17 ± 7
19	22 ± 9

- Attenuation length consistent with transmission measured
- Uncertainty dominated by EEE position uncertainty and limited statistics
- Trend suggest slightly lower attenuation length for second batch

Light Yield Measurement

LY measured using INFN waveboard:

- Measured signal requiring coincidence with plastic scintillator
- Scintillator placed on top and on bottom of 3x3 matrix near SiPM
- Measured position of Landau Peak in WB units
- Value converted into nWb and then in number of phe
- Glasses 2, 3, 4, 13, 14 used to calibrate WB to nWb conversion
- Glass 10 used to cross check consistency between data taking



Light Yield results

Light Yield measured for 15 crystals

- Crystal 15 not measured due to errors in connection
- For crystals measured with oscilloscope results consistent between the two measures
- Certain glasses (e.g. 10, 14) no longer seem to have higher LY
  - Single phe area was evaluated incorrectly

Glass	LY (pe/MeV)
2	$4.29^{+0.425}_{-0.3}$
3	$4.07^{+0.447}_{-0.3}$
4	$3.6^{+0.446}_{-0.3}$
5	$3.92^{+0.47}_{-0.4}$

Glass	LY
6	$3.46^{+0.408}_{-0.3}$
7	$4.05^{+0.534}_{-0.4}$
8	$3.64^{+0.403}_{-0.3}$
9	$4.25^{+0.7}_{-0.5}$

Glass	LY
10	$4.32^{+1}_{-0.8}$
11	$4.34^{+0.5}_{-0.4}$
13	$3.76^{+0.5}_{-0.3}$
14	$3.41^{+0.5}_{-0.4}$

Glass	LY
15	Not measured
16	$4.19^{+0.4}_{-0.3}$
18	$3.28^{+0.3}_{-0.3}$
19	$3.13^{+0.3}_{-0.3}$