

GYAGG summary

GYAGG samples: test results

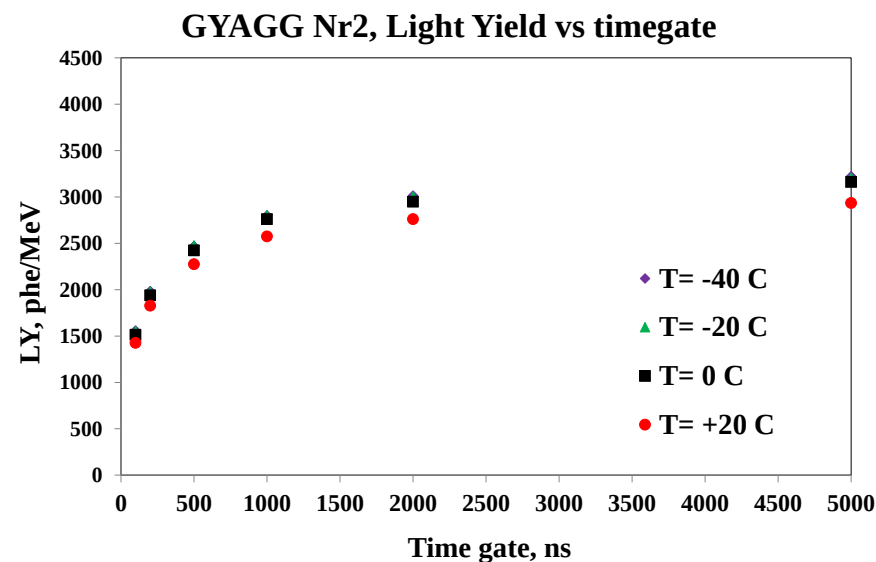
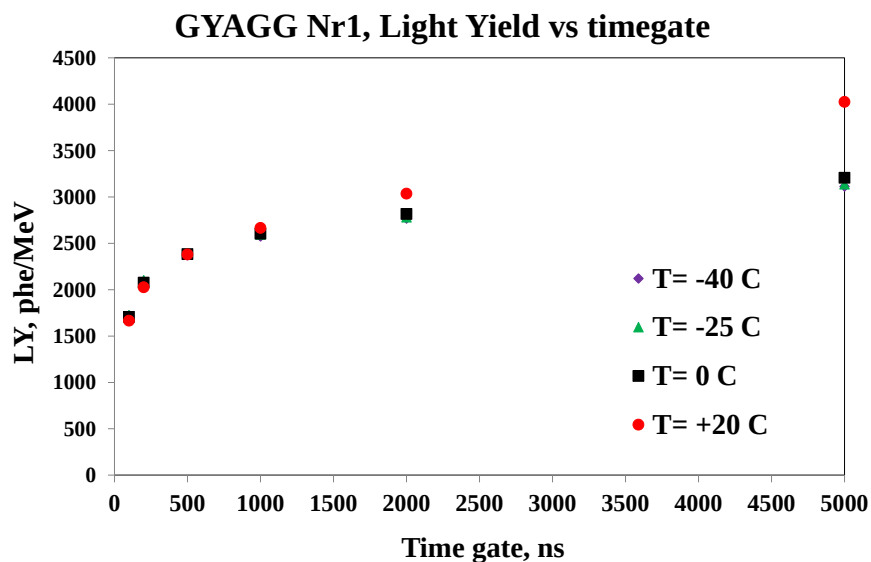
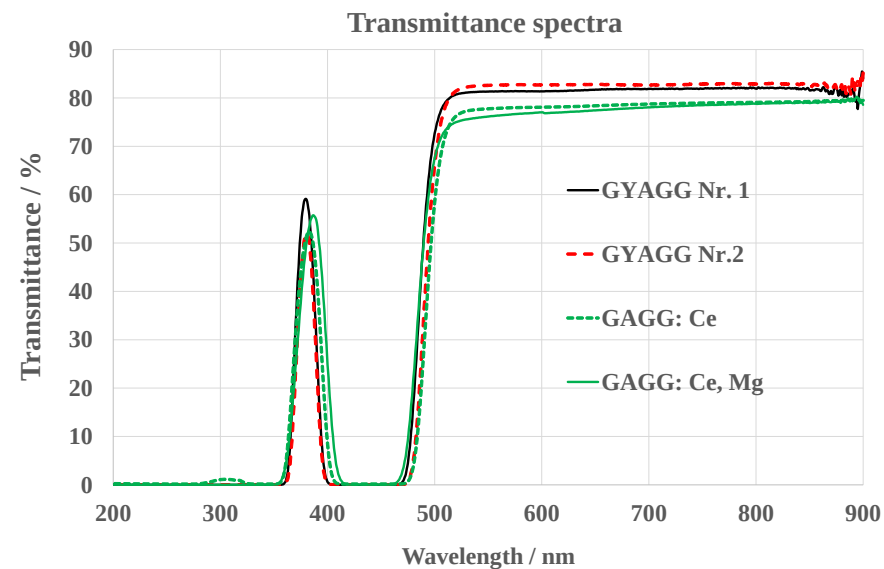
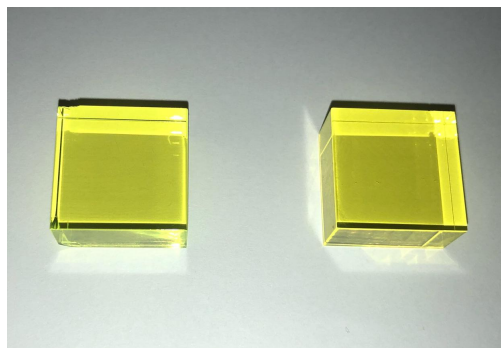
Two samples of $(\text{Gd}_x\text{-Y}_{1-x})_3\text{Al}_2\text{Ga}_3\text{O}_{12}:\text{Ce, Mg}$ (20x20x10 mm) produced by FOMOS

Sample Nr. 1: Gd = 50% / Y = 50%

Sample Nr. 2: Gd = 67% / Y = 33%

Reference samples: GAGG: Ce

GAGG: Ce, Mg

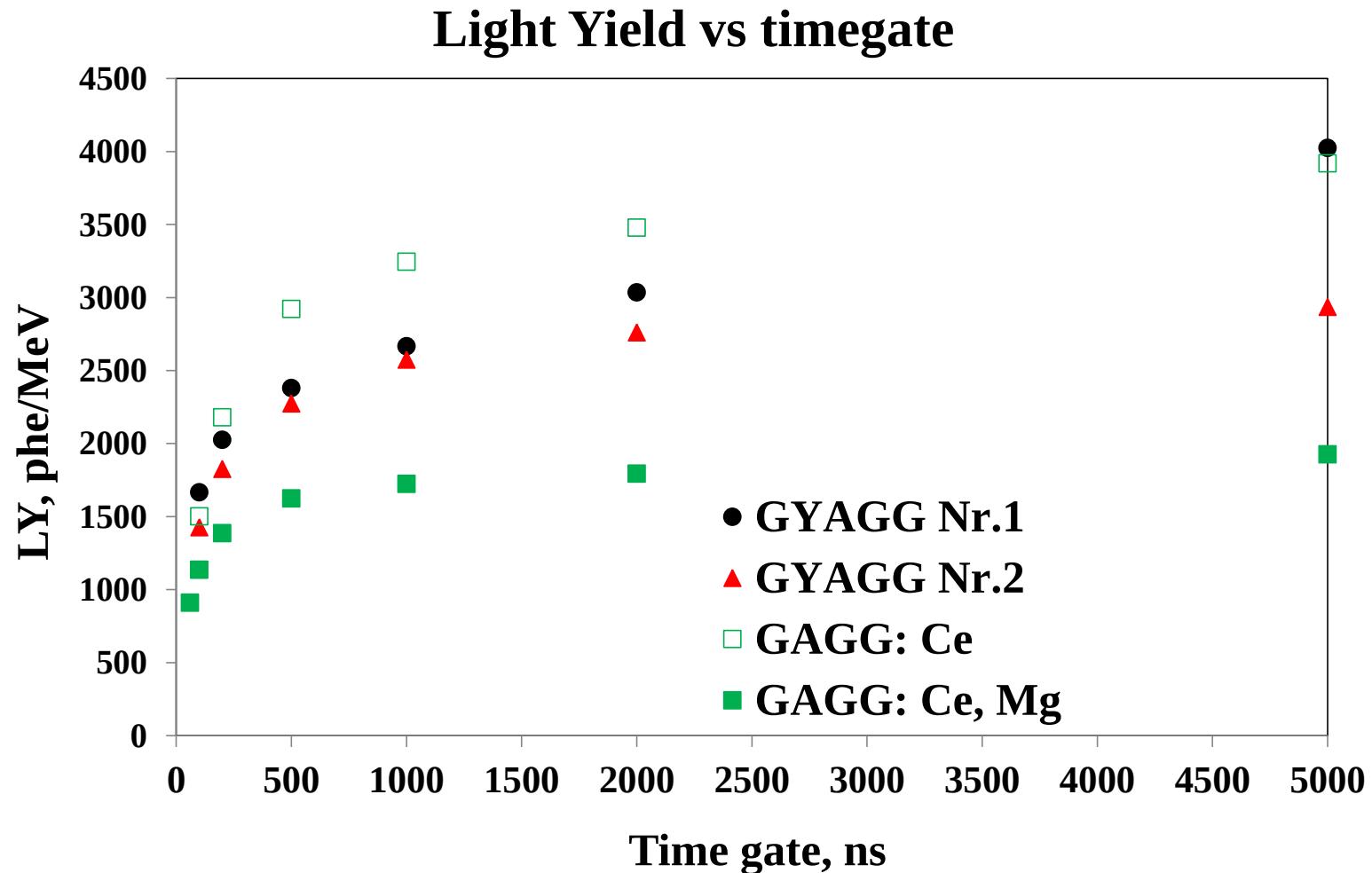


GYAGG samples: test results

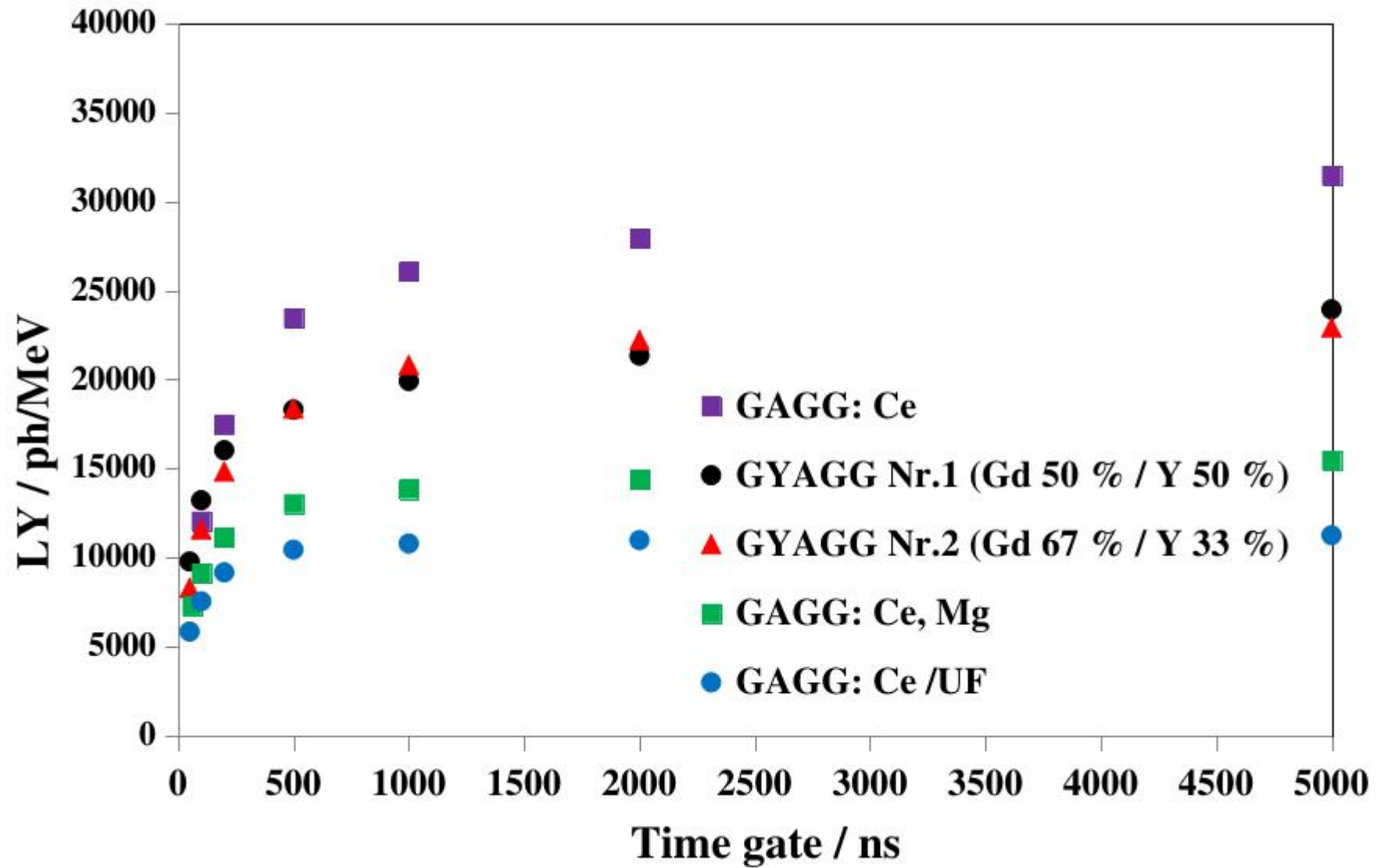
Sample Nr. 1: Gd = 50% / Y = 50%

Sample Nr. 2: Gd = 67% / Y = 33%

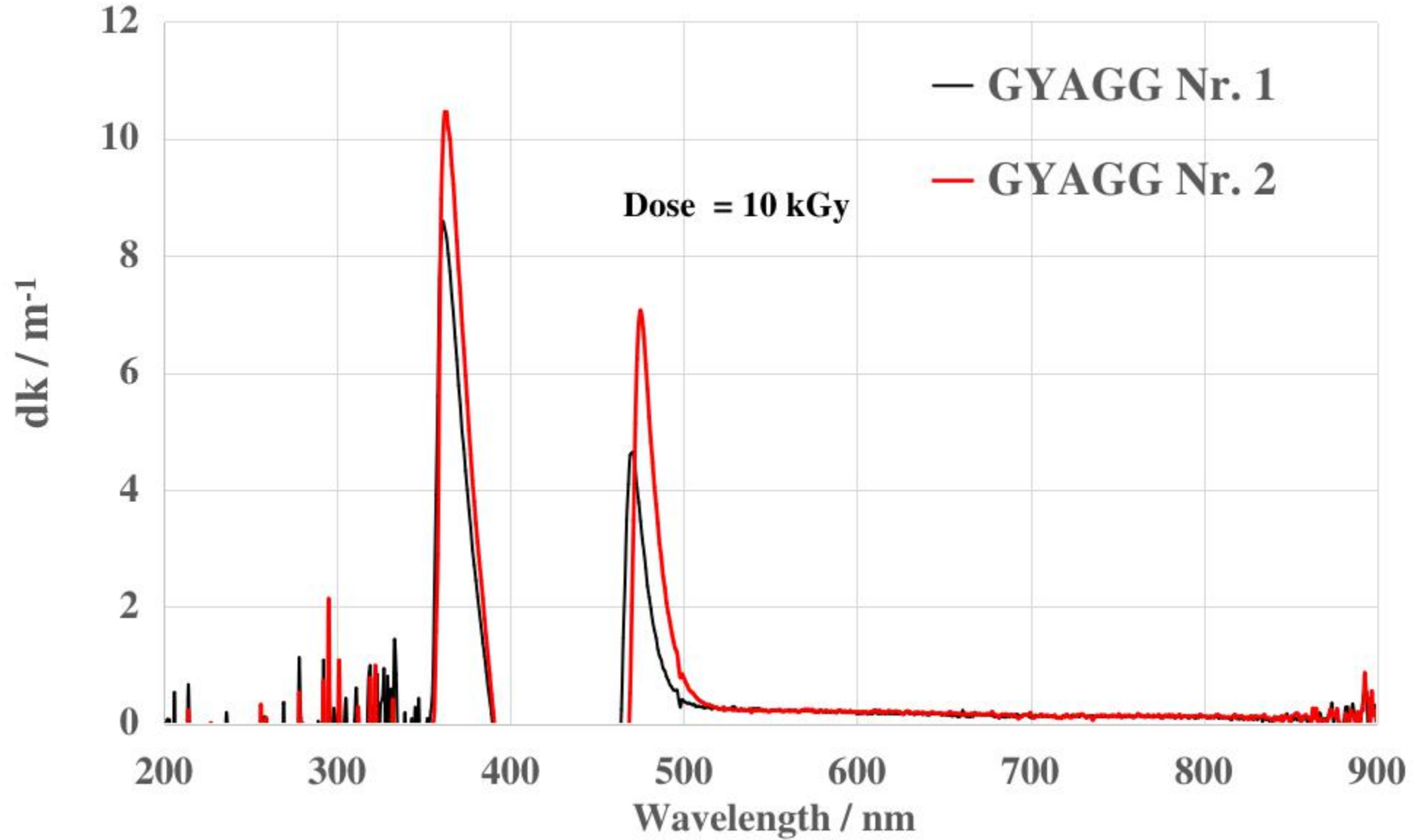
Reference samples: GAGG: Ce and GAGG: Ce, Mg



Light Yield in photons/MeV

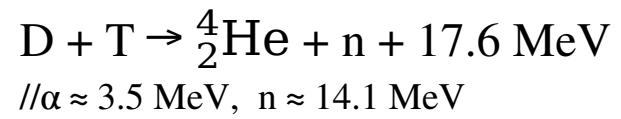
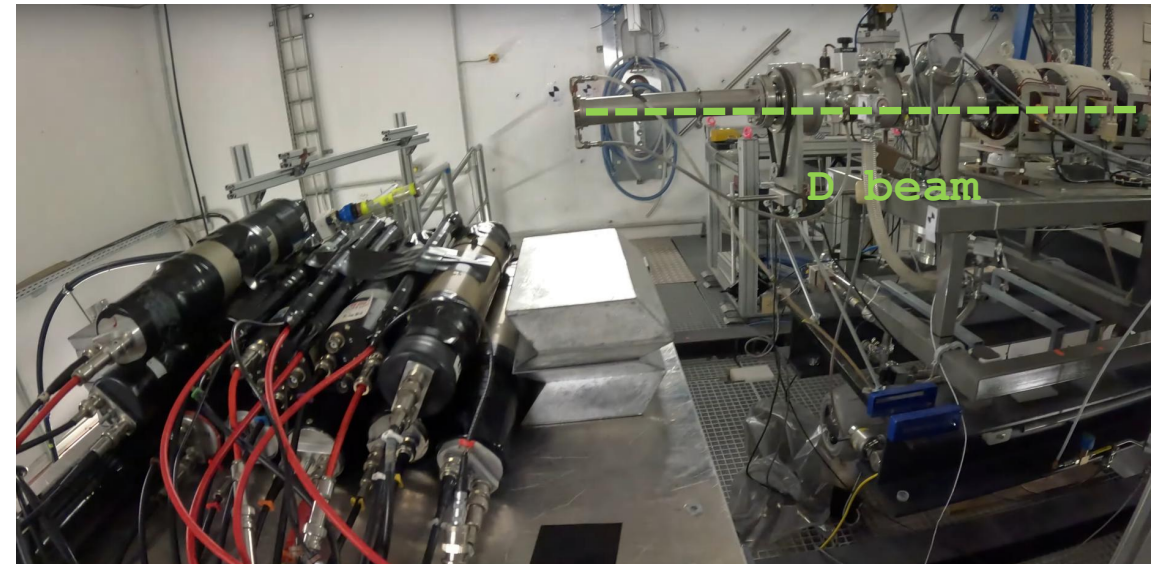
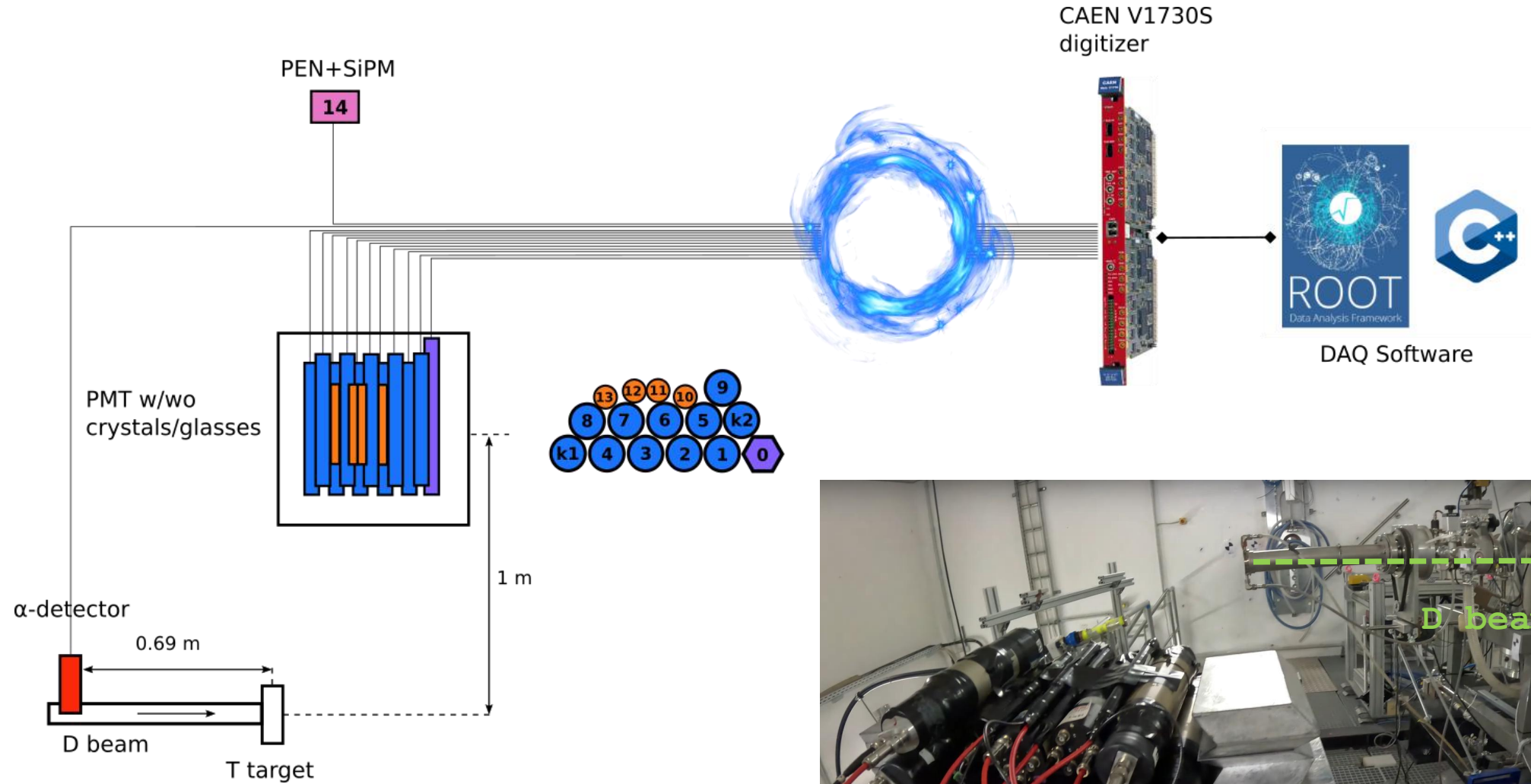


Radiation induced absorption coefficient spectra



Dresden data analysis

Experiment scheme



DAQ info

| run | output file | hist | time, s | Pretrigger, bins | Moderator | Notes | Day |
|-----|-------------|---------|---------|------------------|-----------|----------------------------------|------------|
| | | histo_1 | | 25 | - | | 19.09.2024 |
| 1 | run1_tud | | 300 | 25 | - | | |
| 2 | run2_tud | | 914 | 25 | - | | |
| 3 | run3_tud | | 300 | 25 | - | | |
| 4 | run4_tud | histo_2 | 2647 | 25 | - | | |
| | | histo_3 | 1200 | 25 | v1 | | |
| 5 | run5_tud | | 300 | 25 | v1 | | |
| 6 | run6_tud | histo_4 | 300? | 25 | v1 | background measurement, beam off | |
| 7 | run7_tud | | 2000 | 50 | v2 | ch15 - alpha detector | |
| 8 | run8_tud | | 300 | 50 | v2 | ch0-ch3 switch off | |
| 9 | run9_tud | histo_5 | 300? | 50 | v2 | ch0-ch3, ch8 switch off | |
| 10 | run10_tud | histo_6 | 1800 | 50 | - | ch9 - BGO+BNNT, ch13 - GAGG+BNNT | 20.09.2024 |
| 11 | run11_tud | histo_7 | 300 | 50 | - | background measurement, beam off | |

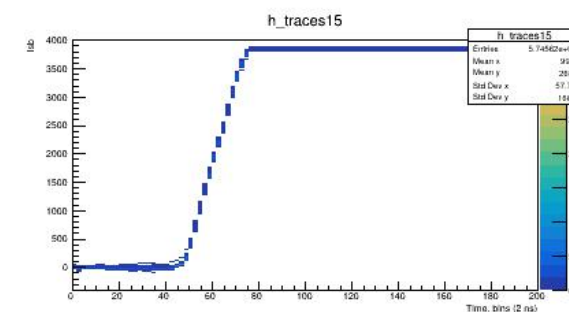
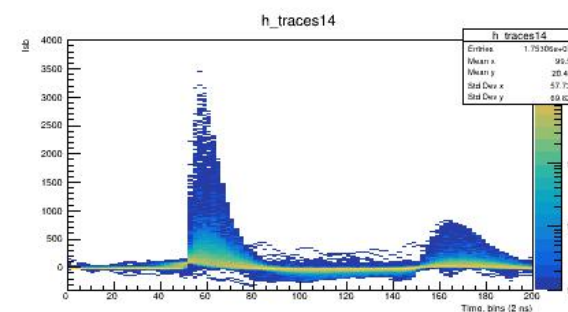
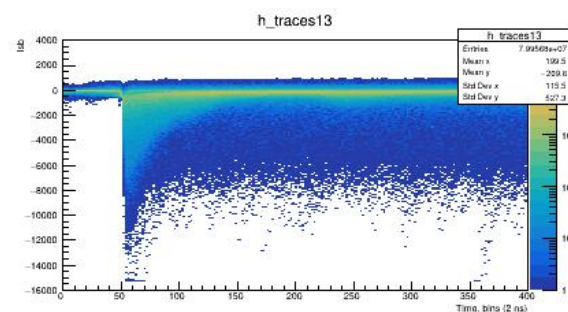
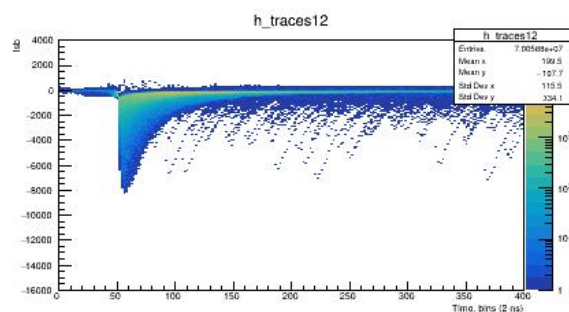
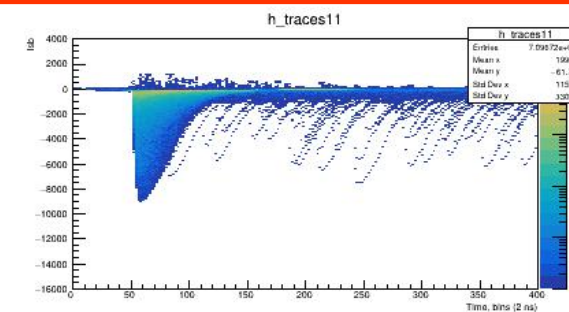
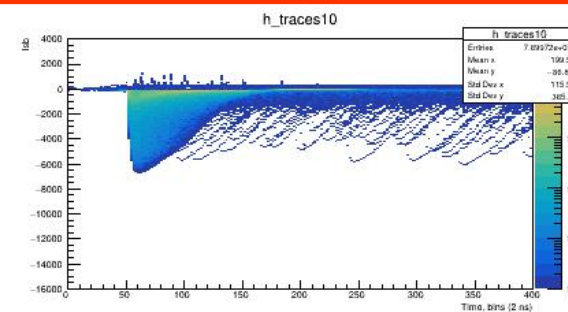
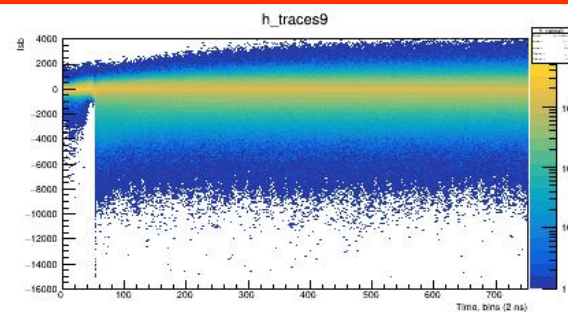
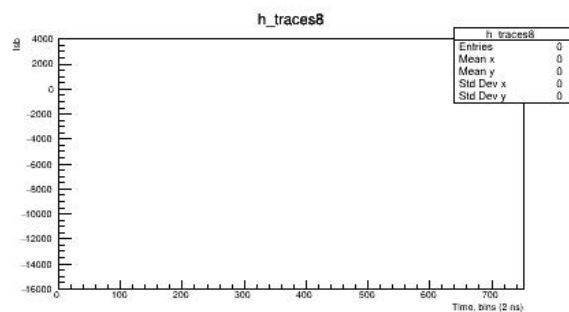
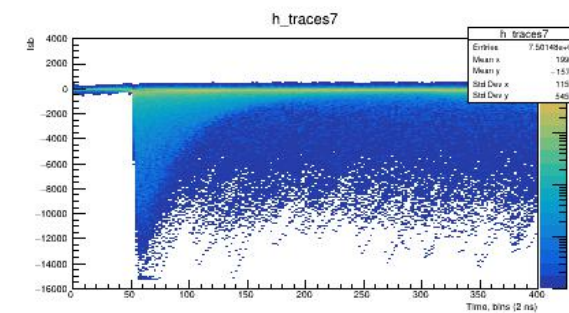
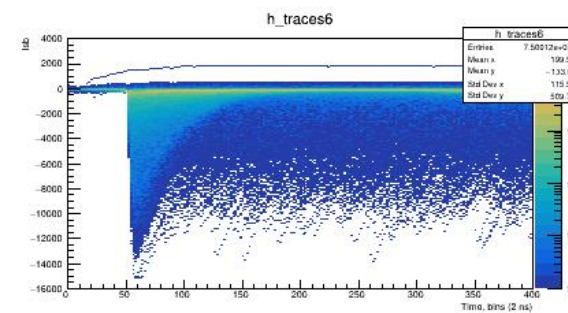
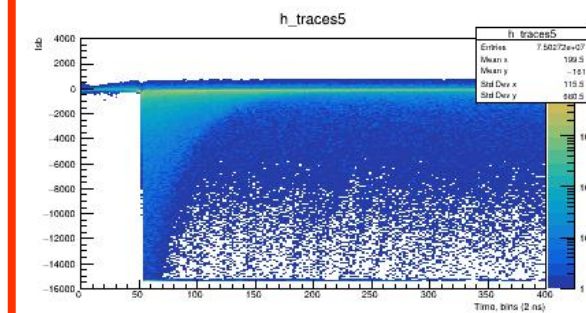
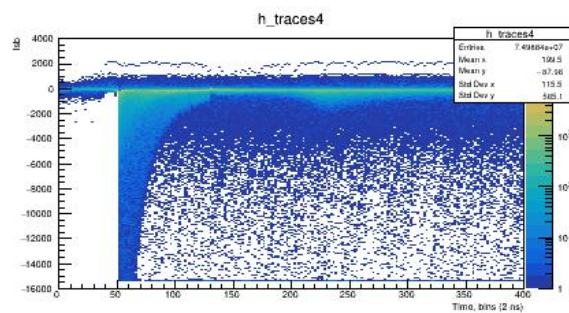
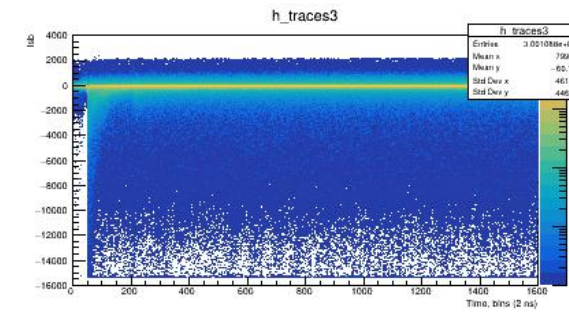
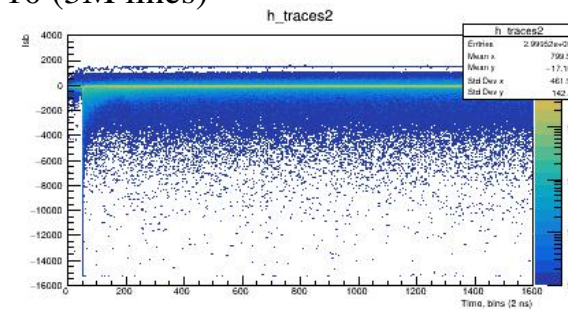
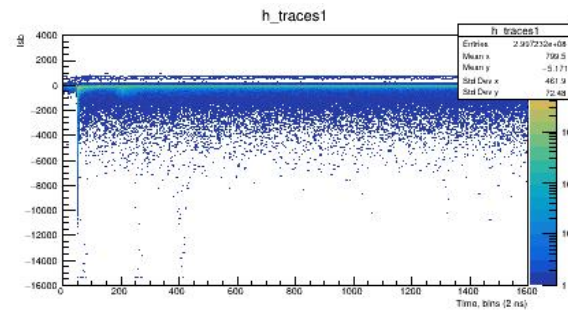
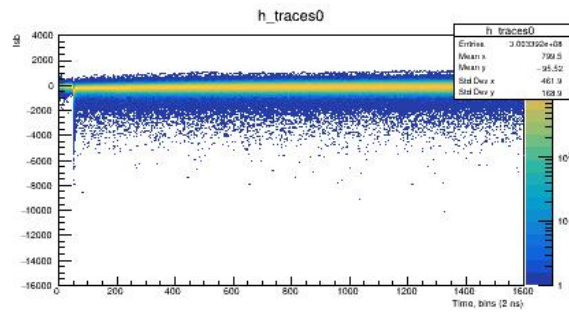
| ch# | Det | RecordLength, ns | threshold, lsb | HV, V (original) | HV, V (run4-11) |
|-----|---------------|------------------|----------------|------------------|-----------------|
| 0 | BaF | 3200 | 500 | 1900 | 1900 |
| 1 | DSB no Gd | 3200 | 50 | 2200 | 2200 |
| 2 | DSB Schott | 3200 | 500 | 2200 | 2200 |
| 3 | DSL | 3200 | 500 | 2100 | 2100 |
| 4 | PEN | 800 | 200 | 2200 | 2100 |
| 5 | GAGG_UF | 800 | 200 | 1600 | 1500 |
| 6 | GYAGG_50 | 800 | 200 | 1600 | 1550 |
| 7 | GYAGG_67 | 800 | 200 | 1600 | 1600 |
| 8 | LYSO_b | 800 | 1000 | 1900 | 1900 |
| 9 | bare PMT | 800 | 100 | 1900 | 1900 |
| 10 | LYSO_s | 800 | 100 | 1070 | 920 |
| 11 | LGSO_s | 800 | 100 | 1070 | 920 |
| 12 | GYL | 800 | 500 | 1070 | 920 |
| 13 | bare PMT_s | 800 | 500 | 1070 | 1070 |
| 14 | PEN+SiPM | 400 | 100 | 32.5 | 32.5 |
| 15 | α -det | 400 | 500 | | |

| ch# | Det | RecordLength, ns | threshold, lsb | HV, V (run10-11) |
|-----|-----------|------------------|----------------|------------------|
| 9 | BGO+BNNT | 1504 | 500 | 2000 |
| 13 | GAGG+BNNT | 800 | 500 | 1700 |

v1 - the first version of the moderator: a single wall of polyethylene blocks 8 cm thick;
v2 - the second version of the moderator: a wall of two block, thickness - 16 cm.

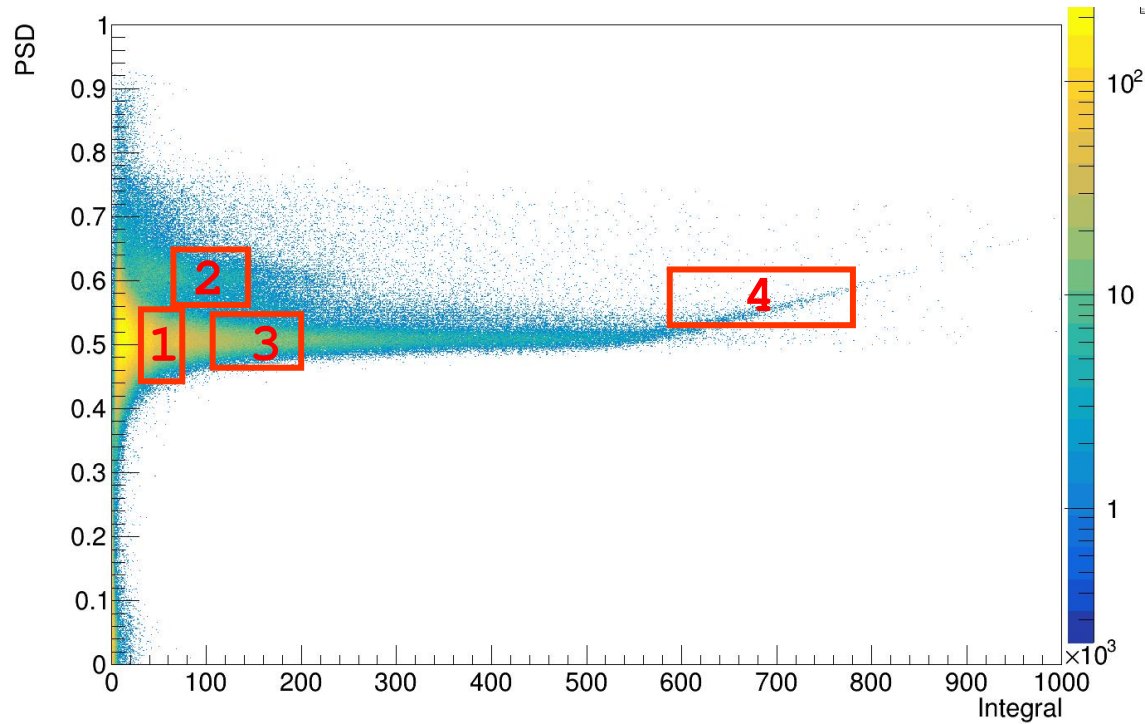
Examples of raw traces

run 10 (3M lines)



GAGG_UF

run 10

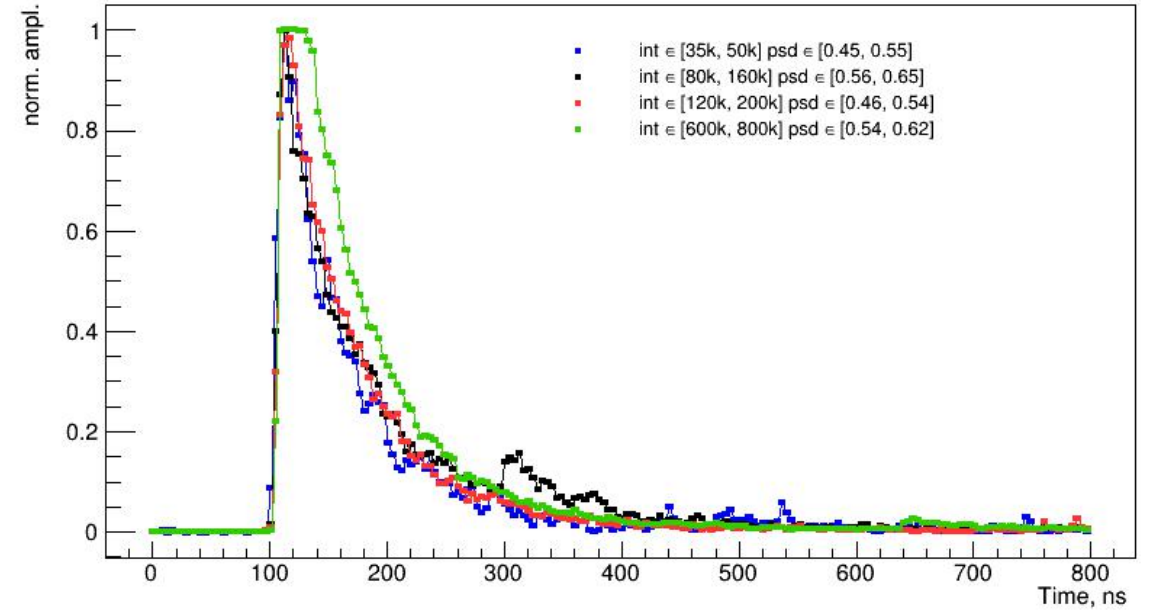


1

2

3

4



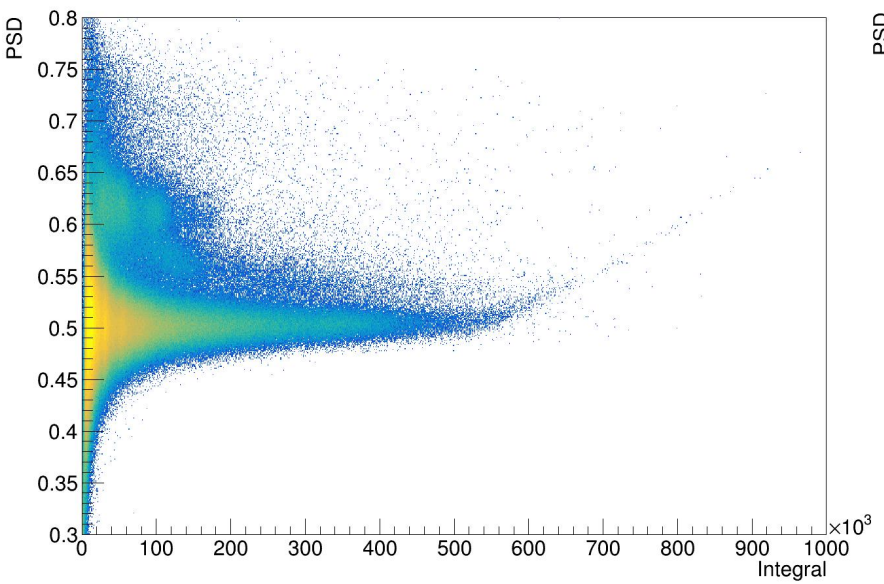
psd calc :

m_stamp \in [50, 65]

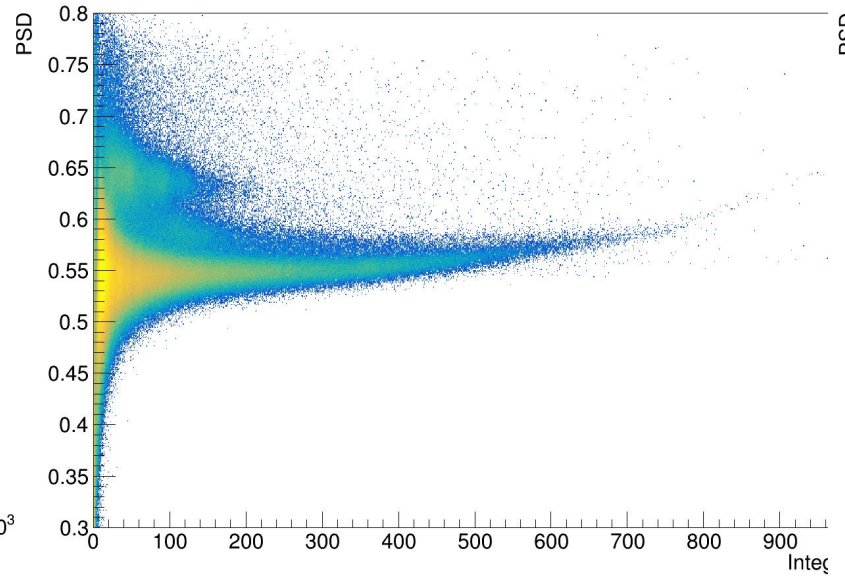
[m_stamp, 200], PSD_BIN = 20

// numbers in bins, 1 bin = 2 ns

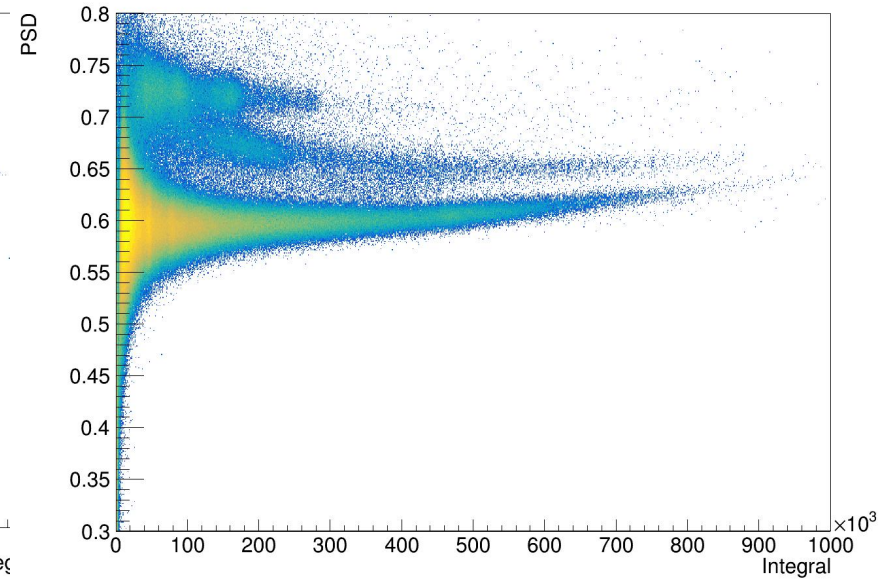
RUN 4



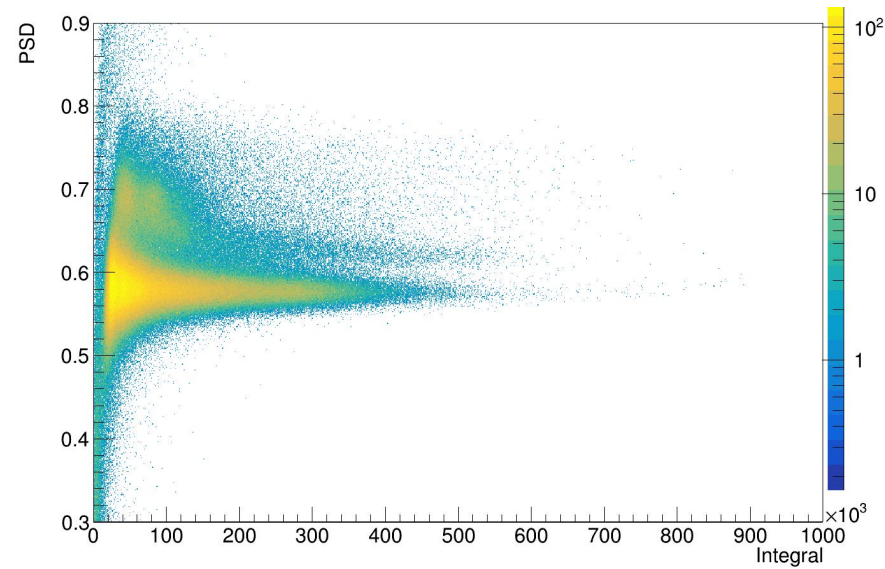
GAGG_UF



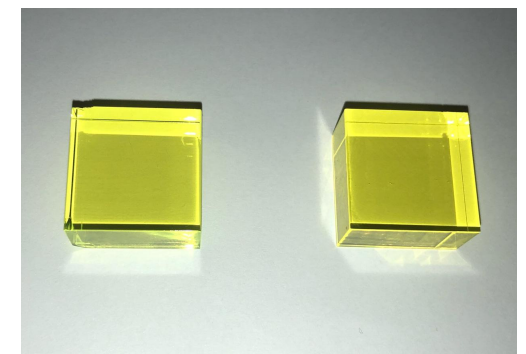
GYAGG_50|50



GYAGG_67|33



run 10, GAGG_Big



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