Welcome to

EURO-LABS

EUROPEAN LABORATORIES FOR ACCELERATOR BASED SCIENCES

A PRESENTSTION BY:

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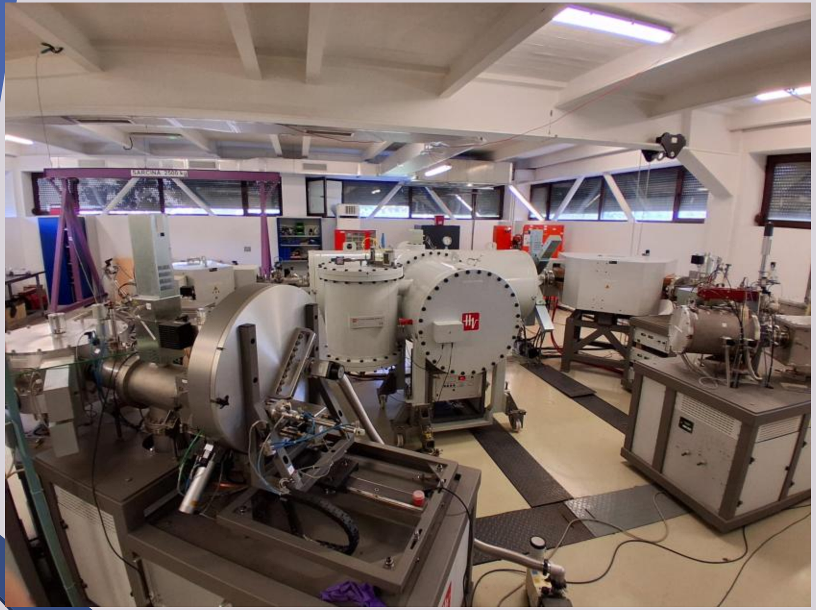
Judith
Mircea

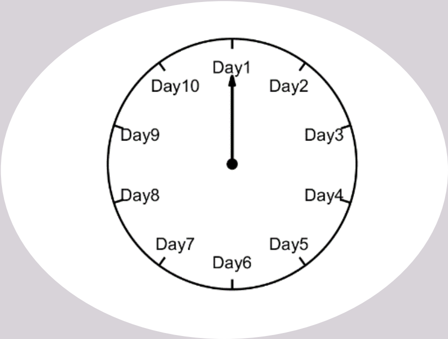
What did we do?

Safety 1st, Euro-lab Intro and Labs visit

AMS facility,
Irradiation facility



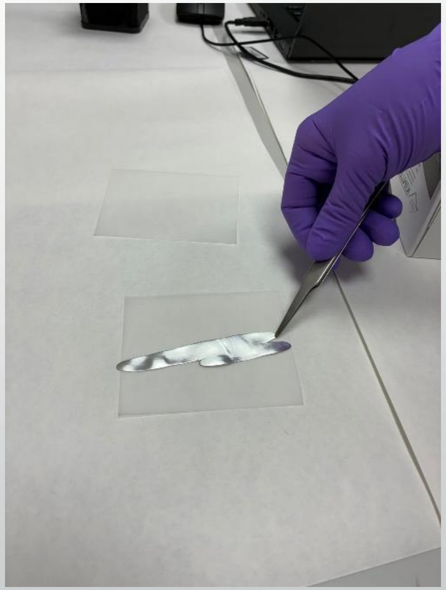
And more…

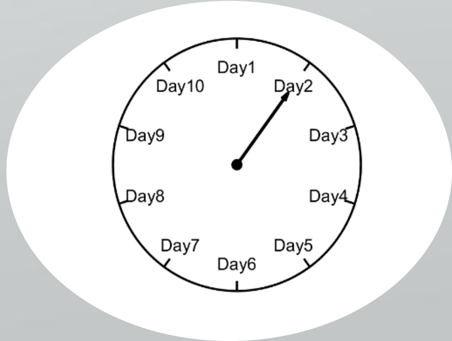


Target preparation

Three targets were made, by Rolling technique:

- 600.7 mg of silver was rolled , cut and mounted on a tantalum holder. The surface density is 22.4 mg/cm^2.

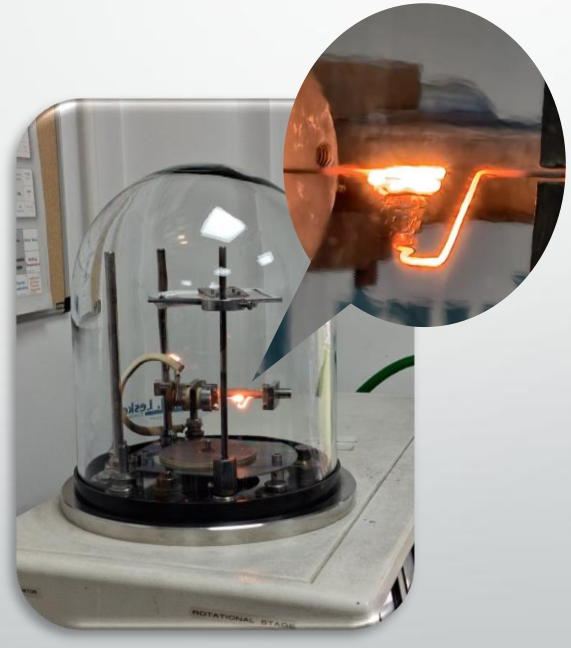


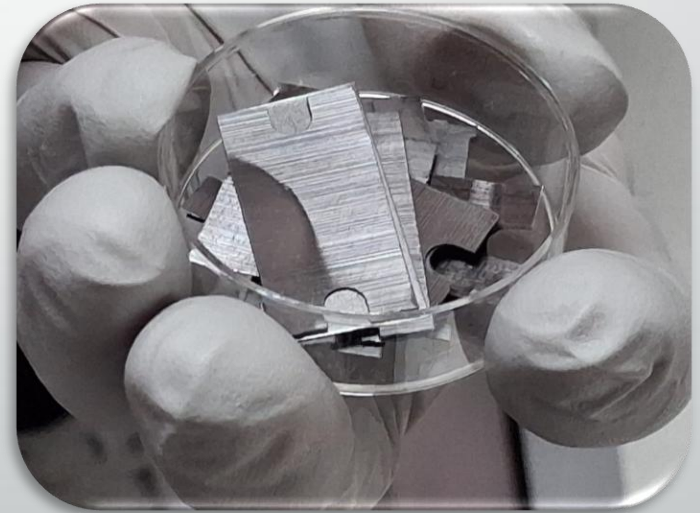


Target preparation

By Evaporation technique:

- Aluminum powder is pressed, put in the Kiln and evaporated on a Tantalum substrate. The surface density is 0.012 mg/cm^2.

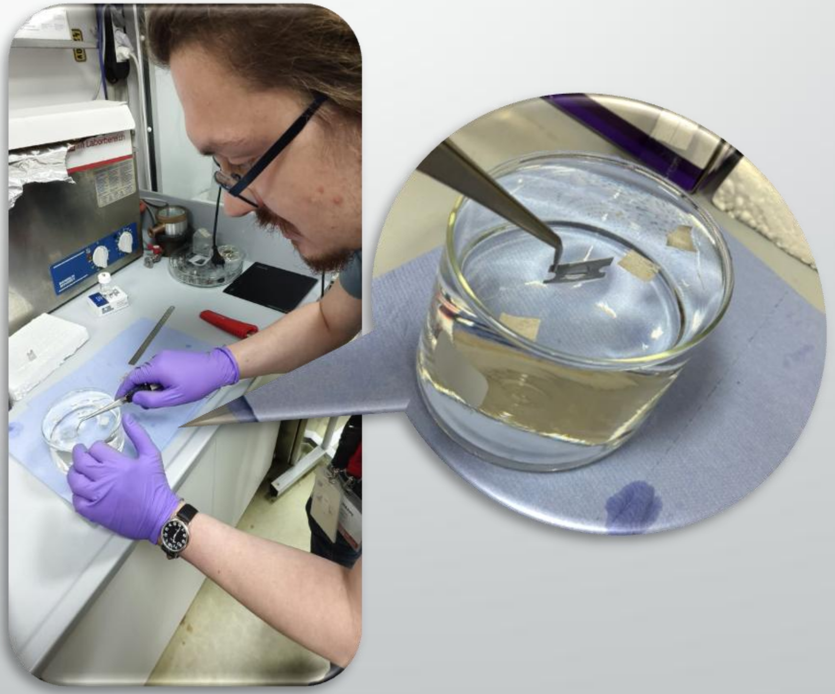




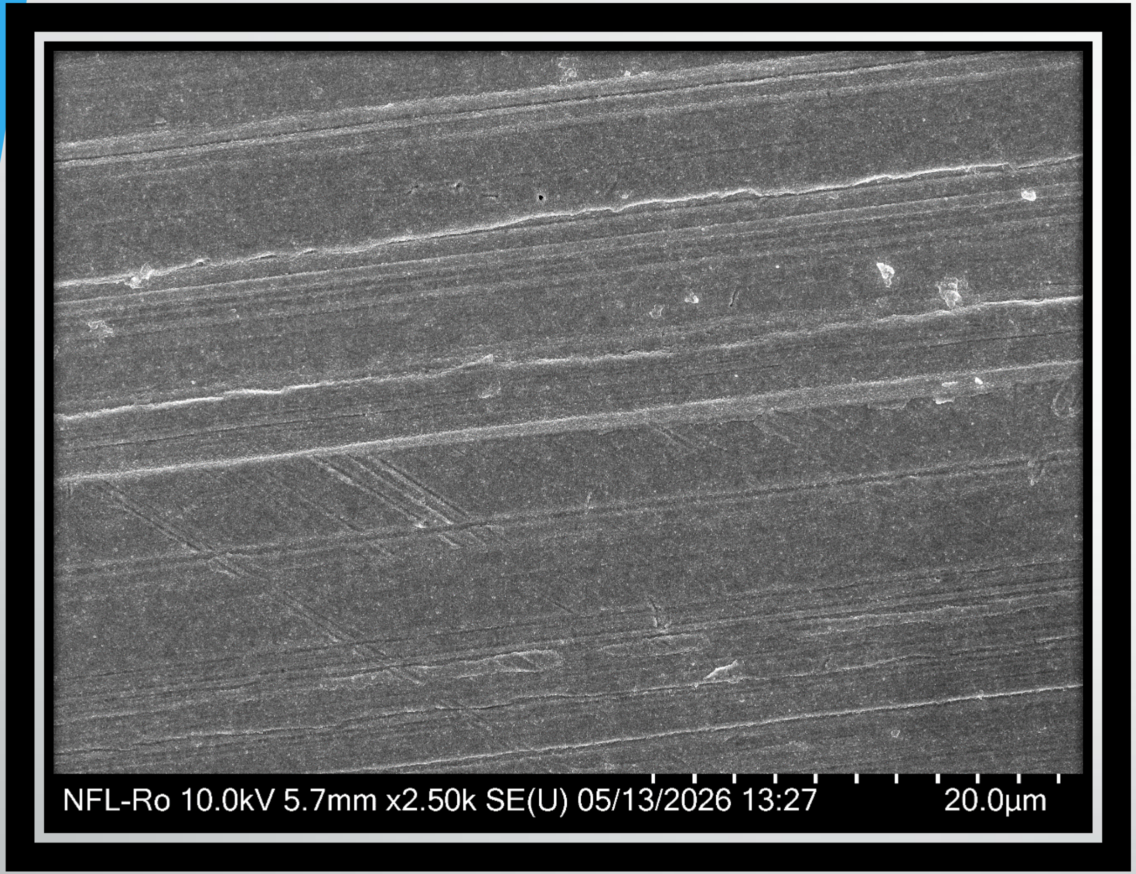
Target preparation

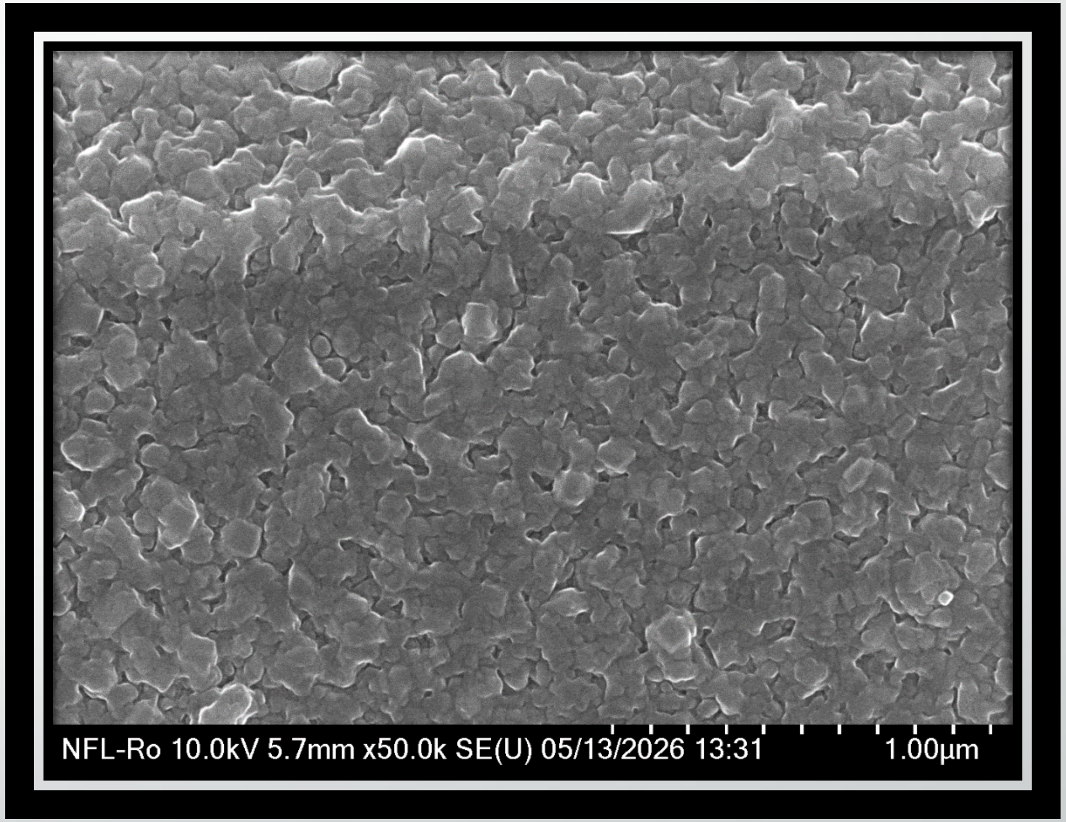
By Evaporation technique also

- Aluminum is also evaporated on a glass substrate covered with a layer of Betaine to make a self supported target.

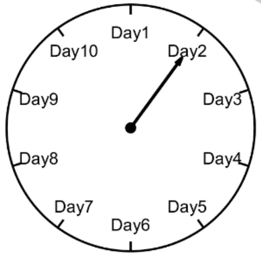


Target surface analysis by SEM

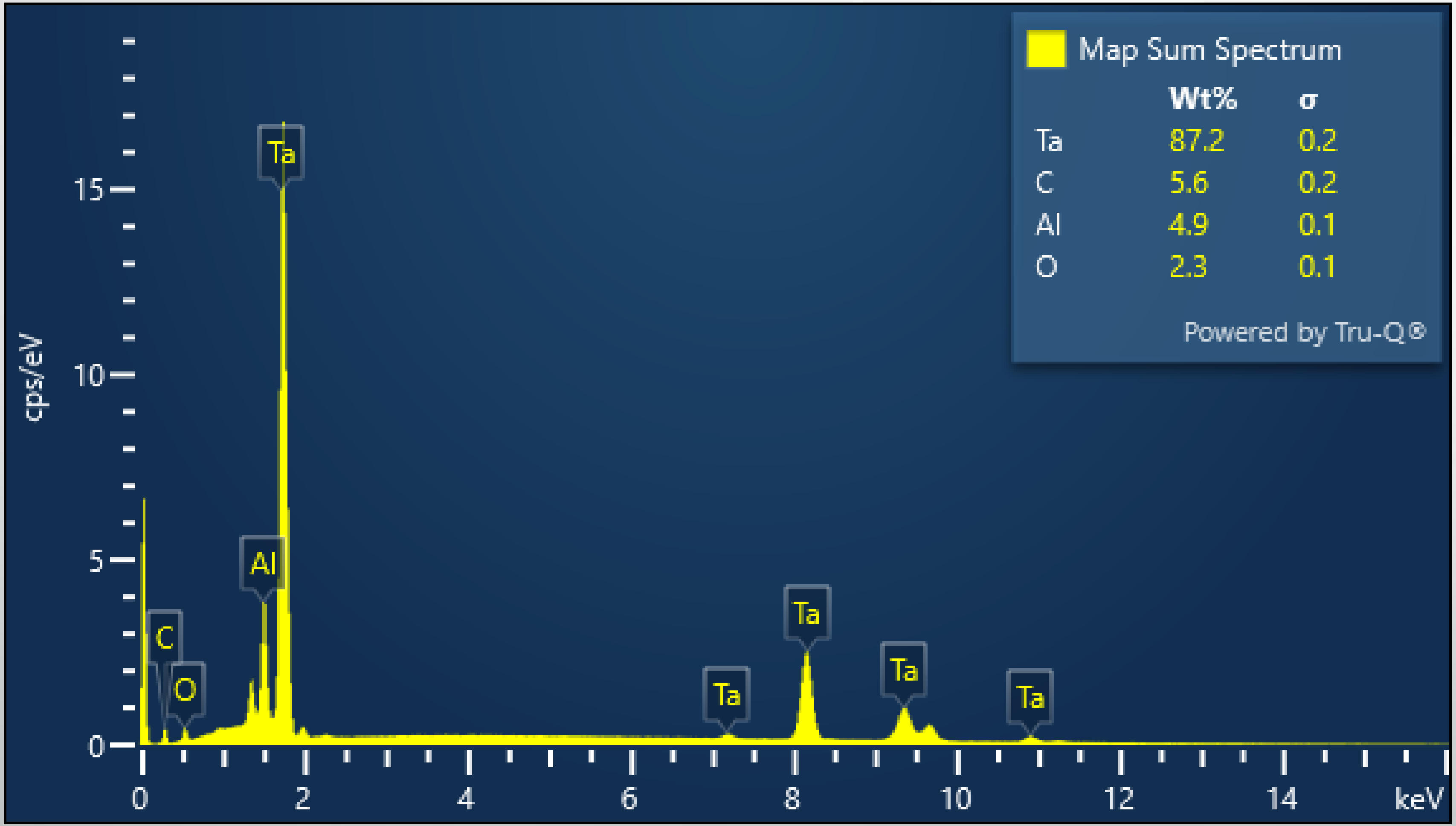




The laminar structure of the Aluminum can be noticed

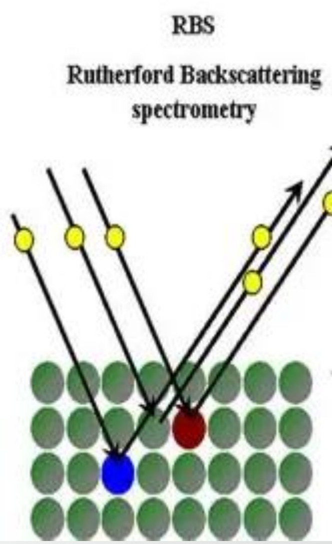


Target composition analysis by SEM



Few impurities can be noticed

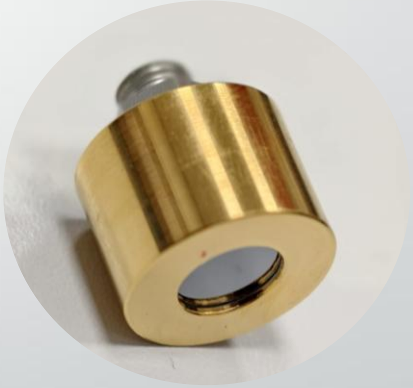
Rutherford Back Scattering



Aims of the experiment:

- Measuring the target thickness.
- Determining the target composition.

Experiment scheme:

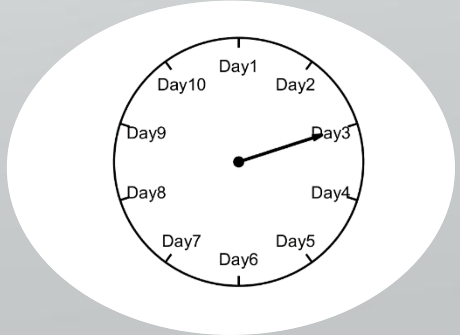


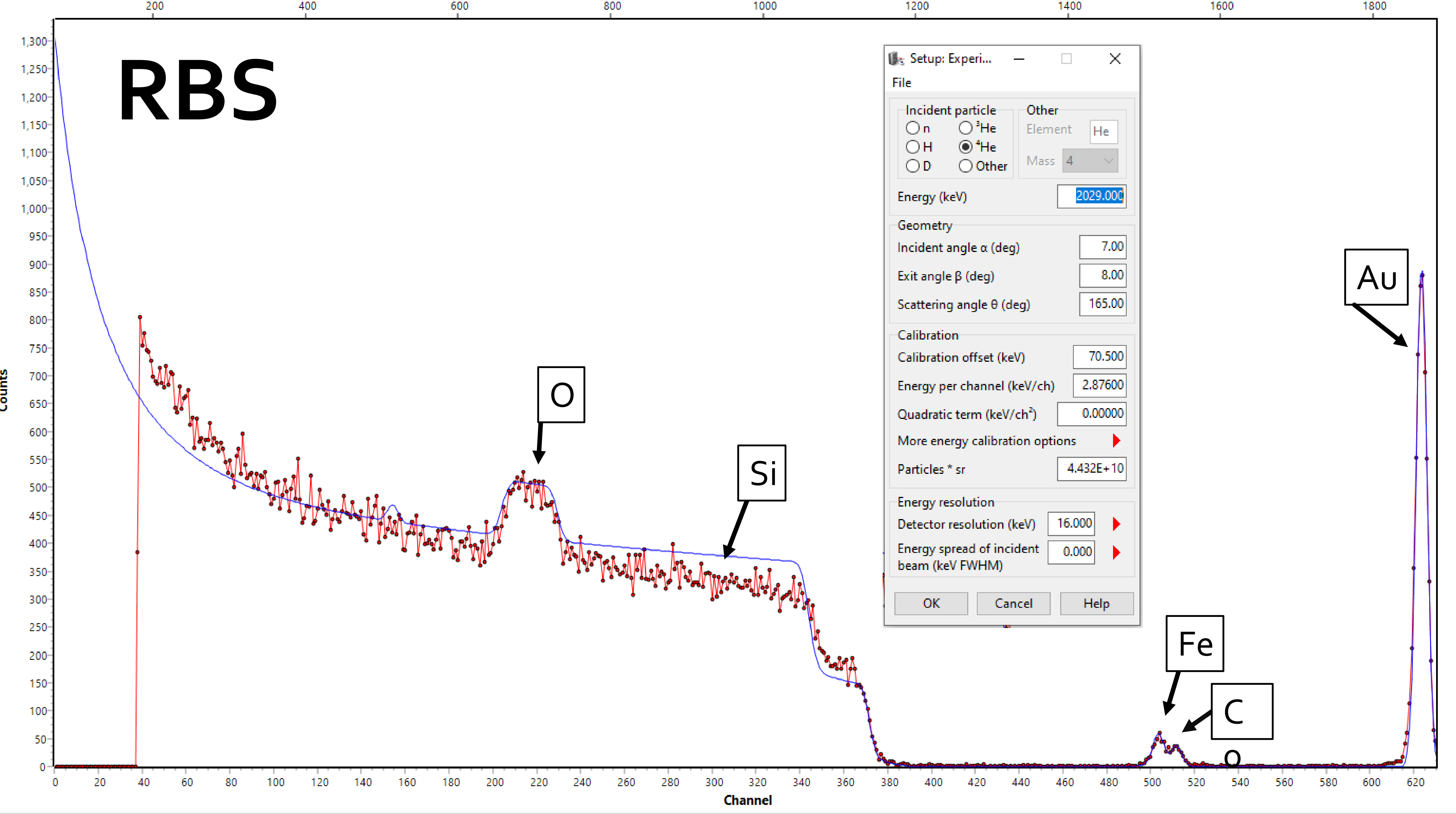
2 MeV alpha beam with a current of I_{beam} = 30 nA impinges on a 12 **μg/cm²** target of Aluminum evaporated on Tantalum backing.

A Silicon detector place at an angle of 165 -relative to the beam- is used to collect the energy from the scattered alpha`s.

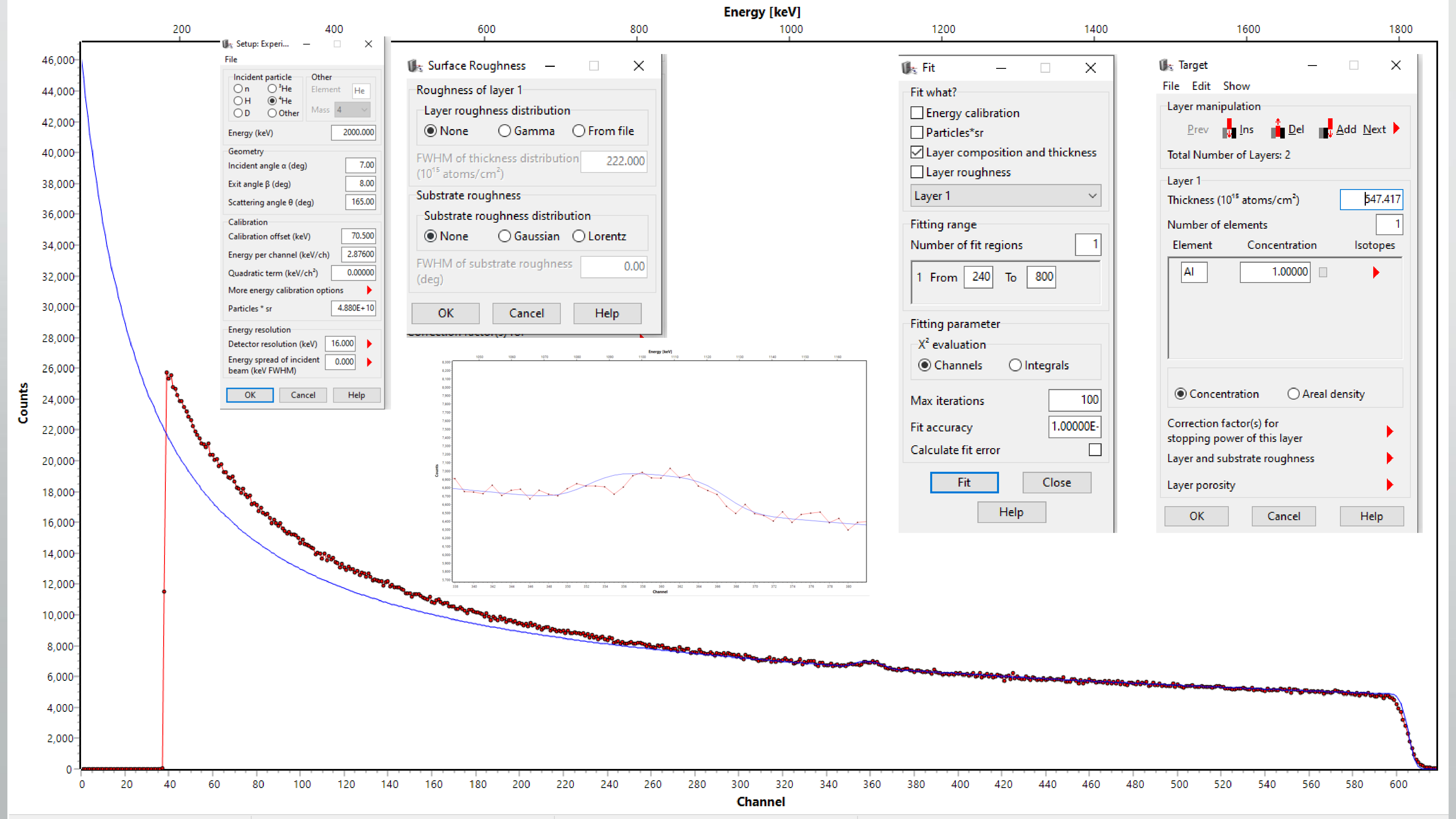
SIMNRA software is used to generate the spectrum from the data collected as well as for the simulation.

A gold plated silicon is placed next to our target for calibration.

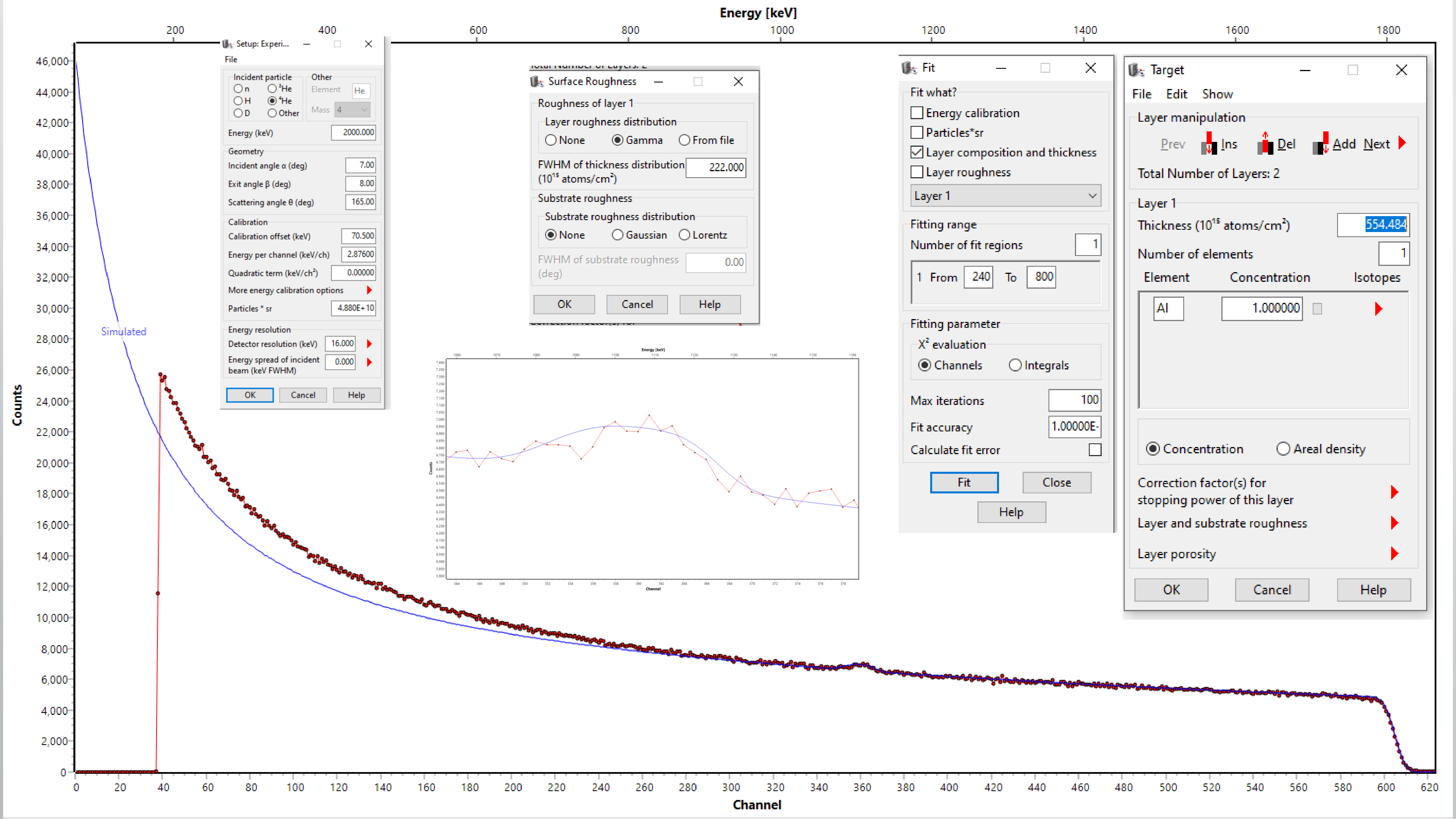




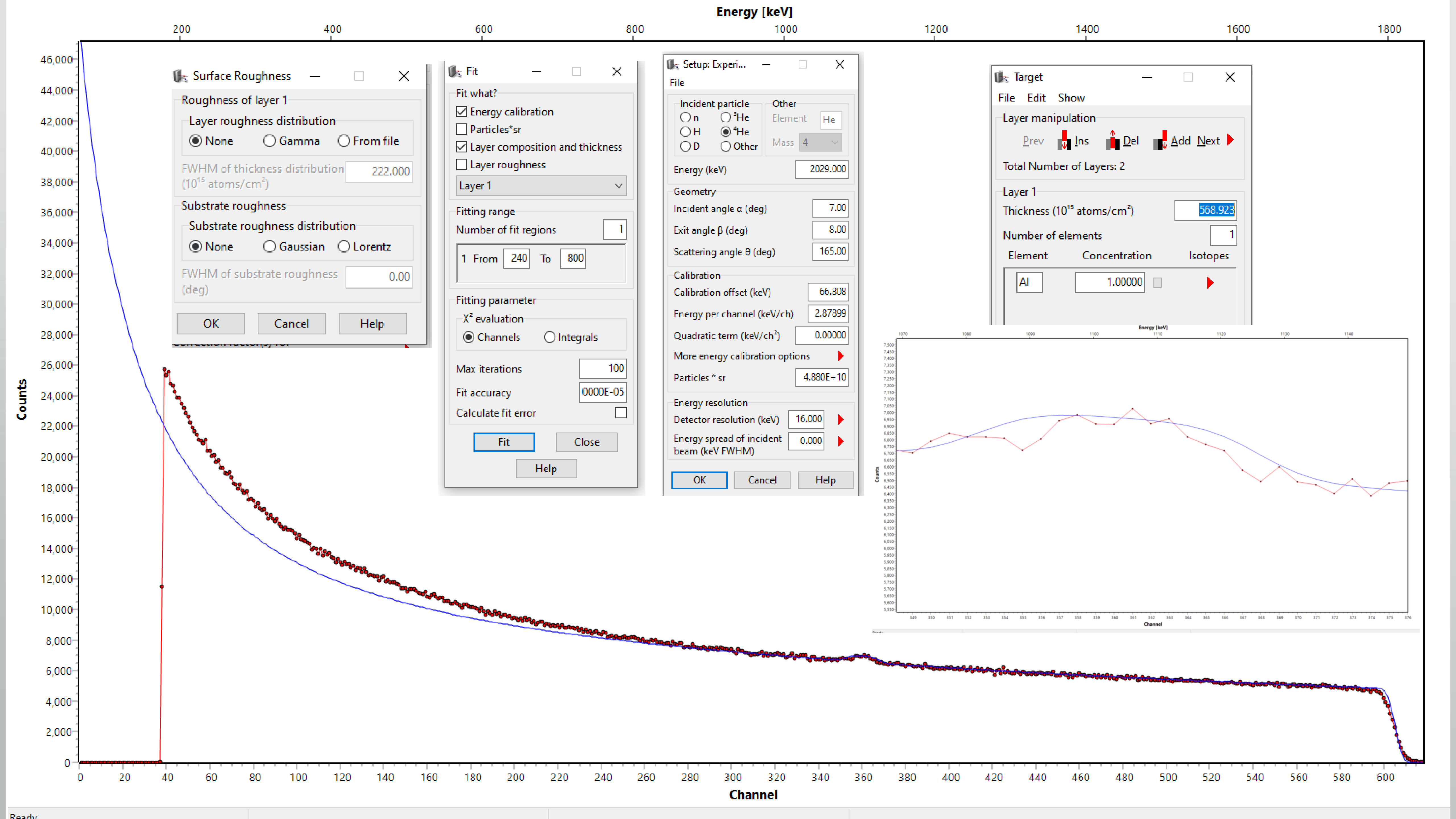
RBS
O
Si
Fe
C
Au
Counts
Channel
Setup: Experi...
File
Incident particle
n
H
D
^{3}He
^{4}He
Other
Other
Element He
Mass 4
Energy (keV) 2029.000
Geometry
Incident angle α (deg) 7.00
Exit angle β (deg) 8.00
Scattering angle θ (deg) 165.00
Calibration
Calibration offset (keV) 70.500
Energy per channel (keV/ch) 2.87600
Quadratic term (keV/ch^2) 0.00000
More energy calibration options
Particles * sr 4.432E+10
Energy resolution
Detector resolution (keV) 16.000
Energy spread of incident beam (keV FWHM) 0.000
OK
Cancel
Help



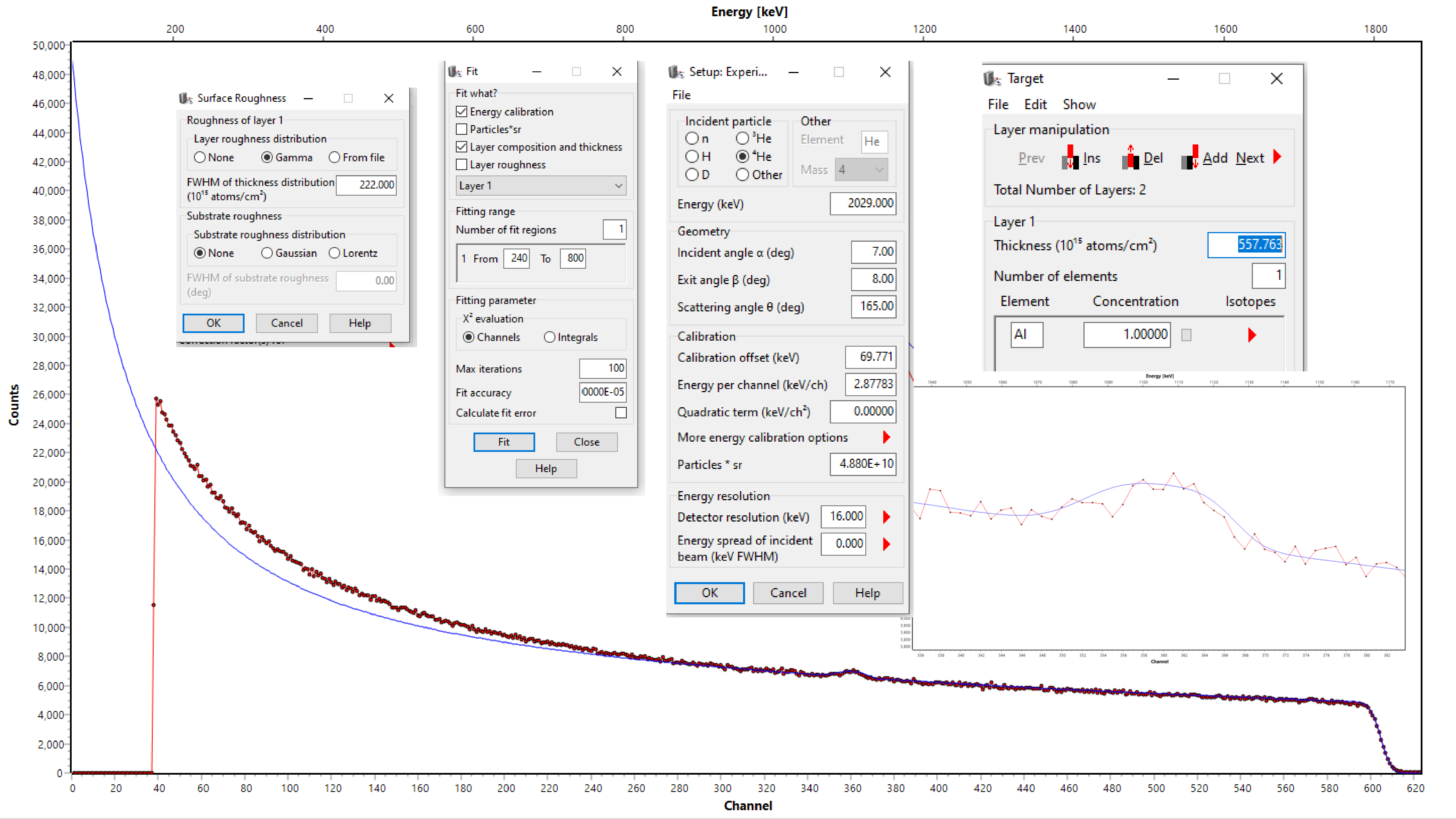
Energy [keV]
Channel
Counts
Setup: Experi...
File
Incident particle
n
H
D
³He
⁴He
Other
Element
He
Mass
4
Energy (keV)
2000.000
Geometry
Incident angle α (deg)
7.00
Exit angle β (deg)
8.00
Scattering angle θ (deg)
165.00
Calibration
Calibration offset (keV)
70.500
Energy per channel (keV/ch)
2.87600
Quadratic term (keV/ch²)
0.00000
More energy calibration options
Particles * sr
4.880E+10
Energy resolution
Detector resolution (keV)
16.000
Energy spread of incident beam (keV FWHM)
0.000
OK
Cancel
Help
Surface Roughness
Roughness of layer 1
Layer roughness distribution
None
Gamma
From file
FWHM of thickness distribution (10¹⁵ atoms/cm²)
222.000
Substrate roughness
Substrate roughness distribution
None
Gaussian
Lorentz
FWHM of substrate roughness (deg)
0.00
OK
Cancel
Help
Fit
Fit what?
Energy calibration
Particles*sr
Layer composition and thickness
Layer roughness
Layer 1
Fitting range
Number of fit regions
1
1 From 240 To 800
Fitting parameter
X² evaluation
Channels
Integrals
Max iterations
100
Fit accuracy
1.00000E-
Calculate fit error
Fit
Close
Help
Target
File Edit Show
Layer manipulation
Prev
Ins
Del
Add
Next
Total Number of Layers: 2
Layer 1
Thickness (10¹⁵ atoms/cm²)
547.417
Number of elements
1
Element
Concentration
Isotopes
Al
1.00000
Concentration
Areal density
Correction factor(s) for stopping power of this layer
Layer and substrate roughness
Layer porosity
OK
Cancel
Help



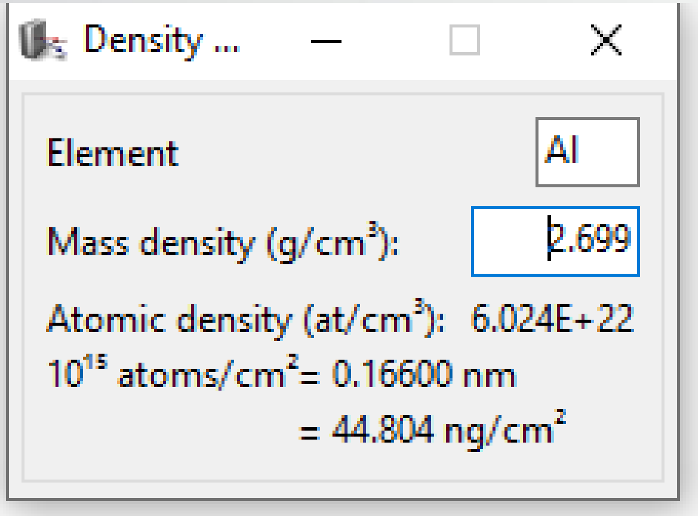
Energy [keV]
Counts
Channel
Simulated
Setup: Experi...
File
Incident particle
n
^{3}He
H
^{4}He
D
Other
Other
Element
He
Mass
4
Energy (keV)
2000.000
Geometry
Incident angle α (deg)
7.00
Exit angle β (deg)
8.00
Scattering angle θ (deg)
165.00
Calibration
Calibration offset (keV)
70.500
Energy per channel (keV/ch)
2.87600
Quadratic term (keV/ch²)
0.00000
More energy calibration options
Particles * sr
4.880E+10
Energy resolution
Detector resolution (keV)
16.000
Energy spread of incident beam (keV FWHM)
0.000
OK
Cancel
Help
Surface Roughness
Roughness of layer 1
Layer roughness distribution
None
Gamma
From file
FWHM of thickness distribution (10^{15} atoms/cm²)
222.000
Substrate roughness
Substrate roughness distribution
None
Gaussian
Lorentz
FWHM of substrate roughness (deg)
0.00
OK
Cancel
Help
Fit
Fit what?
Energy calibration
Particles*sr
Layer composition and thickness
Layer roughness
Layer 1
Fitting range
Number of fit regions
1
1 From 240 To 800
Fitting parameter
X^2 evaluation
Channels
Integrals
Max iterations
100
Fit accuracy
1.00000E-
Calculate fit error
Fit
Close
Help
Target
File Edit Show
Layer manipulation
Prev Ins Del Add Next
Total Number of Layers: 2
Layer 1
Thickness (10^{15} atoms/cm²)
554.484
Number of elements
1
Element
Concentration
Isotopes
Al
1.000000
Concentration
Areal density
Correction factor(s) for stopping power of this layer
Layer and substrate roughness
Layer porosity
OK
Cancel
Help



Energy [keV]
Counts
Channel
Surface Roughness
Roughness of layer 1
Layer roughness distribution
None
Gamma
From file
FWHM of thickness distribution (10^15 atoms/cm^2)
222.000
Substrate roughness
Substrate roughness distribution
None
Gaussian
Lorentz
FWHM of substrate roughness (deg)
0.00
OK
Cancel
Help
Fit
Fit what?
Energy calibration
Particles*sr
Layer composition and thickness
Layer roughness
Layer 1
Fitting range
Number of fit regions
1
1 From 240 To 800
Fitting parameter
X² evaluation
Channels
Integrals
Max iterations
100
Fit accuracy
0000E-05
Calculate fit error
Fit
Close
Help
Setup: Experi...
File
Incident particle
n
H
D
³He
⁴He
Other
Other
Element
He
Mass
4
Energy (keV)
2029.000
Geometry
Incident angle α (deg)
7.00
Exit angle β (deg)
8.00
Scattering angle θ (deg)
165.00
Calibration
Calibration offset (keV)
66.808
Energy per channel (keV/ch)
2.87899
Quadratic term (keV/ch²)
0.00000
More energy calibration options
Particles * sr
4.880E+10
Energy resolution
Detector resolution (keV)
16.000
Energy spread of incident beam (keV FWHM)
0.000
OK
Cancel
Help
Target
File
Edit
Show
Layer manipulation
Prev
Ins
Del
Add
Next
Total Number of Layers: 2
Layer 1
Thickness (10^15 atoms/cm^2)
568.923
Number of elements
1
Element
Concentration
Isotopes
Al
1.00000
Ready


Energy [keV]
Counts
Channel
Surface Roughness
Roughness of layer 1
Layer roughness distribution
None
Gamma
From file
FWHM of thickness distribution (10^15 atoms/cm^2)
222.000
Substrate roughness
Substrate roughness distribution
None
Gaussian
Lorentz
FWHM of substrate roughness (deg)
0.00
OK
Cancel
Help
Fit
Fit what?
Energy calibration
Particles*sr
Layer composition and thickness
Layer roughness
Layer 1
Fitting range
Number of fit regions
1
1 From 240 To 800
Fitting parameter
X² evaluation
Channels
Integrals
Max iterations
100
Fit accuracy
0000E-05
Calculate fit error
Fit
Close
Help
Setup: Experi...
File
Incident particle
n
H
D
³He
⁴He
Other
Other
Element
He
Mass
4
Energy (keV)
2029.000
Geometry
Incident angle α (deg)
7.00
Exit angle β (deg)
8.00
Scattering angle θ (deg)
165.00
Calibration
Calibration offset (keV)
69.771
Energy per channel (keV/ch)
2.87783
Quadratic term (keV/ch²)
0.00000
More energy calibration options
Particles * sr
4.880E+10
Energy resolution
Detector resolution (keV)
16.000
Energy spread of incident beam (keV FWHM)
0.000
OK
Cancel
Help
Target
File
Edit
Show
Layer manipulation
Prev
Ins
Del
Add
Next
Total Number of Layers: 2
Layer 1
Thickness (10^15 atoms/cm^2)
557.763
Number of elements
1
Element
Concentration
Isotopes
Al
1.00000

Result from weighting the sample



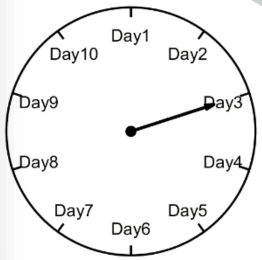
12 µg/cm^2

10^{15} atoms/cm^2 = 44.804 ng/cm^2

-> Thickness = 12000 / 44.804 = 267 × 10^{15} atoms/cm^2

Target preparation for AMS

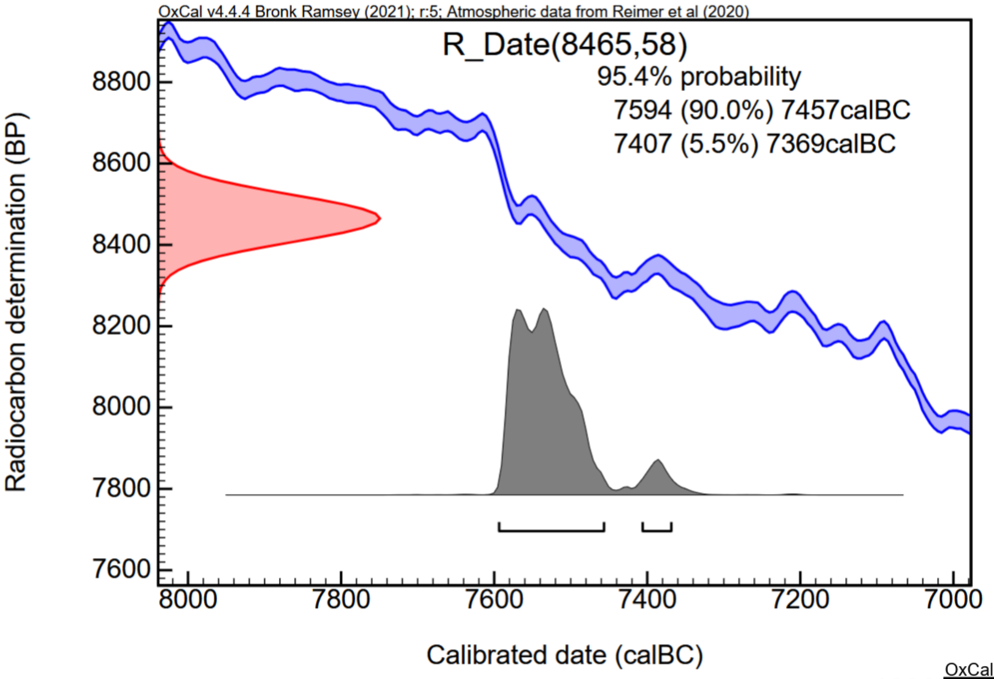
Milligrams of the samples where weighted carefully then pressed into cupper casings to be inserted in the AMS for 12C next day

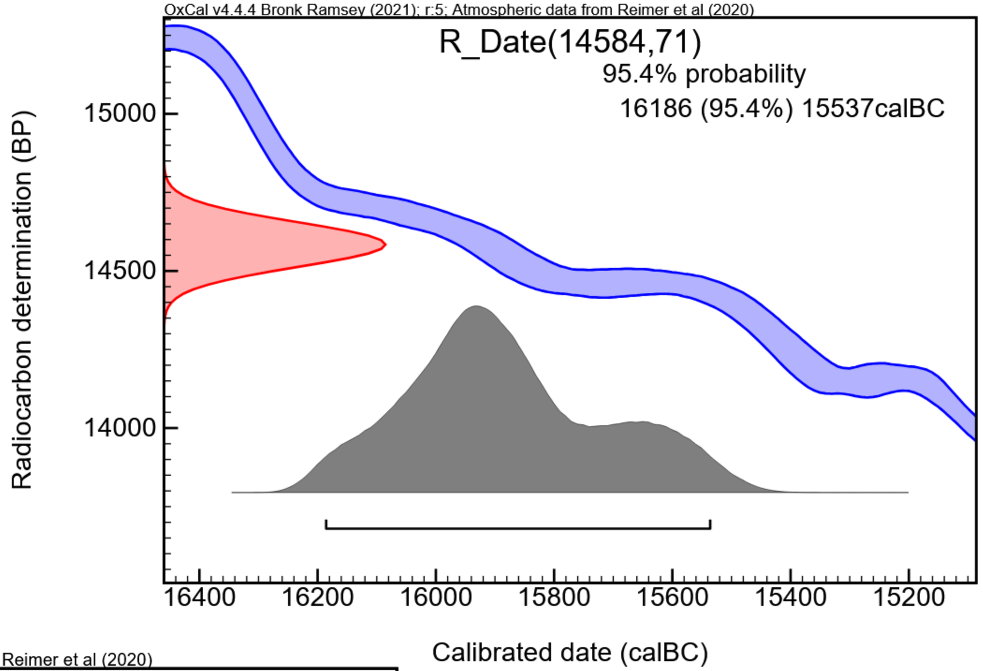


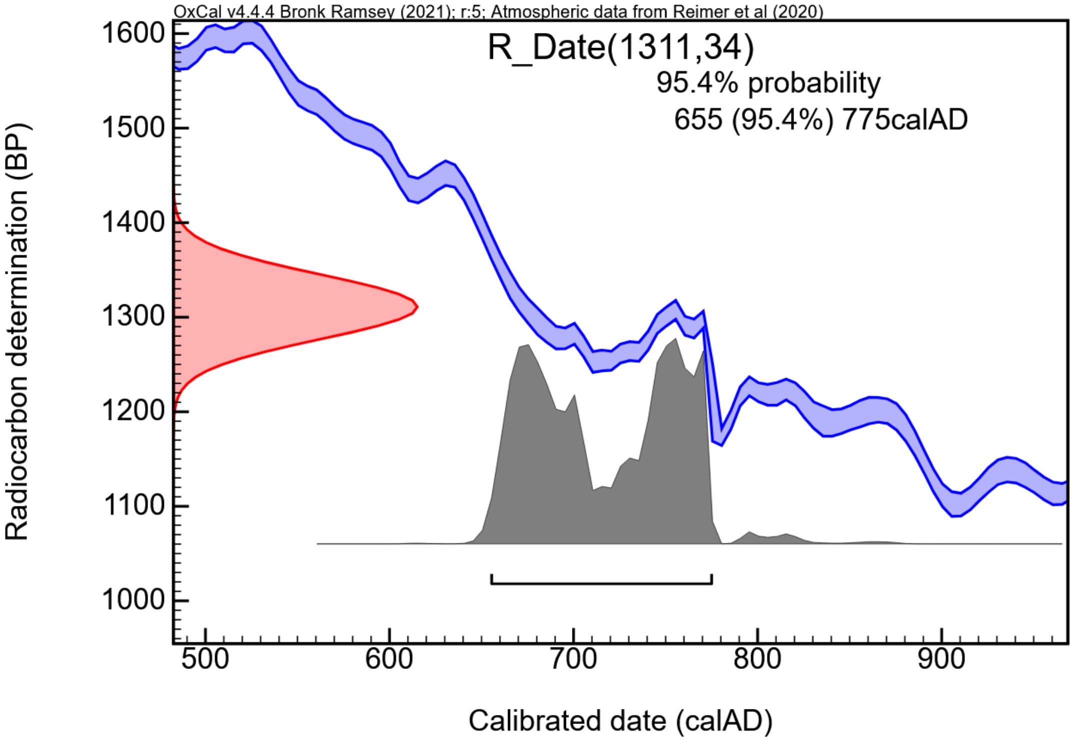
AMS operation and Data taking

14C dating

AMS nr.	sample pos	sample comment	^{14}C coun	^{12}C (µA	$^{14}C/^{12}C$ (10^{-1}	+- (%)	$^{13}C/^{12}C$ (%)	sigma (%)	$F^{14}C$	+- (%)	sig (%)	age (y)	+-(y)	$\delta^{13}C$ (‰)	el.abs.δ ^{13}C	type
G8160		D:/IFIN/AMS/Masur	59,651	10.0	1.2321	0.41	1.0189	0.31	1.3574	0.51	0.38	-2,454	41	-33.0	0.62	oxa2
G8161		D:/IFIN/AMS/Masur	80,637	11.6	1.2286	0.35	1.0113	0.46	1.3465	0.46	0.84	-2,390	37	-20.1	0.60	oxa2
G8162		D:/IFIN/AMS/Masur	83,332	12.1	1.2171	0.35	1.0079	0.32	1.3452	0.46	0.38	-2,382	37	-25.1	0.58	oxa2
G8163		D:/IFIN/AMS/Masur	93,004	13.3	1.2373	0.33	1.0145	0.24	1.3366	0.44	0.53	-2,331	35	-9.2	0.59	oxa2
G8164		D:/IFIN/AMS/Masur	98,140	12.4	1.2314	0.32	1.0115	0.36	1.3433	0.43	0.57	-2,371	35	-14.9	0.57	oxa2
G8165		D:/IFIN/AMS/Masur	80,731	13.6	1.2249	0.35	1.0108	0.40	1.3311	0.46	0.78	-2,297	37	-11.9	0.63	oxa2
G8166		D:/IFIN/AMS/Masur	84,545	14.2	1.2336	0.34	1.0132	0.33	1.3362	0.45	0.35	-2,328	36	-11.1	0.61	oxa2
G8171		D:/IFIN/AMS/Masur	54	11.6	0.0058	14.13	1.0026	0.15	0.0066	13.61	12.34	40,392	1,093	-43.6	1.37	bl
G8172		D:/IFIN/AMS/Masur	554	13.1	0.0065	4.35	0.9856	0.73	0.0074	4.25	7.46	39,361	342	-29.8	0.57	bl
G8173		D:/IFIN/AMS/Masur	800	14.6	0.0057	3.64	0.9950	0.46	0.0062	3.54	8.05	40,847	285	-5.5	0.49	bl
G8182		D:/IFIN/AMS/Masur	637	14.9	0.0053	4.10	0.9928	0.57	0.0058	3.97	8.72	41,307	319	-8.9	0.52	bl
G8183		D:/IFIN/AMS/Masur	800	16.7	0.0050	3.64	0.9984	0.59	0.0053	3.54	7.17	42,083	285	14.7	0.49	bl
G8184		D:/IFIN/AMS/Masur	743	13.5	0.0057	3.78	1.0031	0.42	0.0063	3.67	5.17	40,757	295	-11.1	0.48	bl
G8199		D:/IFIN/AMS/Masur	31,845	10.1	0.3568	0.56	1.0008	0.29	0.4022	0.65	0.71	7,316	52	-49.1	0.47	4025.199
G8200		D:/IFIN/AMS/Masur	24,977	8.6	0.3006	0.63	0.9910	0.46	0.3486	0.72	0.82	8,465	58	-69.2	0.44	4027.199
G8201		D:/IFIN/AMS/Masur	59,531	16.0	0.3555	0.41	0.9928	0.51	0.3855	0.52	0.61	7,657	42	-0.7	0.47	4029.199
G8202		D:/IFIN/AMS/Masur	45,732	12.5	0.3505	0.47	0.9982	0.33	0.3869	0.57	0.65	7,629	46	-24.8	0.46	4030.199
G8203		D:/IFIN/AMS/Masur	53,511	16.1	0.3180	0.43	0.9909	0.99	0.3428	0.54	1.01	8,599	44	6.3	0.48	4031.199
G8204		D:/IFIN/AMS/Masur	70,623	15.7	0.4293	0.38	0.9886	0.70	0.4707	0.49	0.65	6,053	39	-4.0	0.47	4024.199
G8205		D:/IFIN/AMS/Masur	37,779	12.5	0.2885	0.51	1.0003	0.44	0.3149	0.62	0.97	9,283	50	-19.1	0.47	4023.199
G8206		D:/IFIN/AMS/Masur	17,686	11.0	0.1541	0.75	1.0155	0.37	0.1627	0.88	1.28	14,584	71	-20.6	0.47	4021.199
G8209		D:/IFIN/AMS/Masur	616	14.0	0.0055	4.17	0.9957	0.64	0.0061	4.03	7.99	40,997	324	-17.7	0.51	bl
G8210		D:/IFIN/AMS/Masur	109,455	13.8	0.7592	0.30	0.9947	0.55	0.8318	0.43	0.86	1,480	34	-3.8	0.49	4050.66
G8211		D:/IFIN/AMS/Masur	115,566	14.4	0.7668	0.29	0.9905	0.54	0.8495	0.42	0.79	1,311	34	-11.5	0.47	4057.66
G8212		D:/IFIN/AMS/Masur	84,946	11.5	0.7080	0.34	0.9979	0.41	0.7884	0.46	0.93	1,910	37	-25.2	0.48	4058.66


OxCal v4.4.4 Bronk Ramsey (2021); r:5; Atmospheric data from Reimer et al (2020)
R_Date(8465,58)
95.4% probability
7594 (90.0%) 7457calBC
7407 (5.5%) 7369calBC
Radiocarbon determination (BP)
8800
8600
8400
8200
8000
7800
7600
8000
7800
7600
7400
7200
7000
Calibrated date (calBC)


OxCal v4.4.4 Bronk Ramsey (2021); r:5; Atmospheric data from Reimer et al (2020)
R_Date(14584,71)
95.4% probability
16186 (95.4%) 15537calBC
Radiocarbon determination (BP)
15000
14500
14000
16400
16200
16000
15800
15600
15400
15200
Calibrated date (calBC)


OxCal v4.4.4 Bronk Ramsey (2021); r:5; Atmospheric data from Reimer et al (2020)
R_Date(1311,34)
95.4% probability
655 (95.4%) 775calAD
Radiocarbon determination (BP)
1600
1500
1400
1300
1200
1100
1000
500
600
700
800
900
Calibrated date (calAD)

10Be

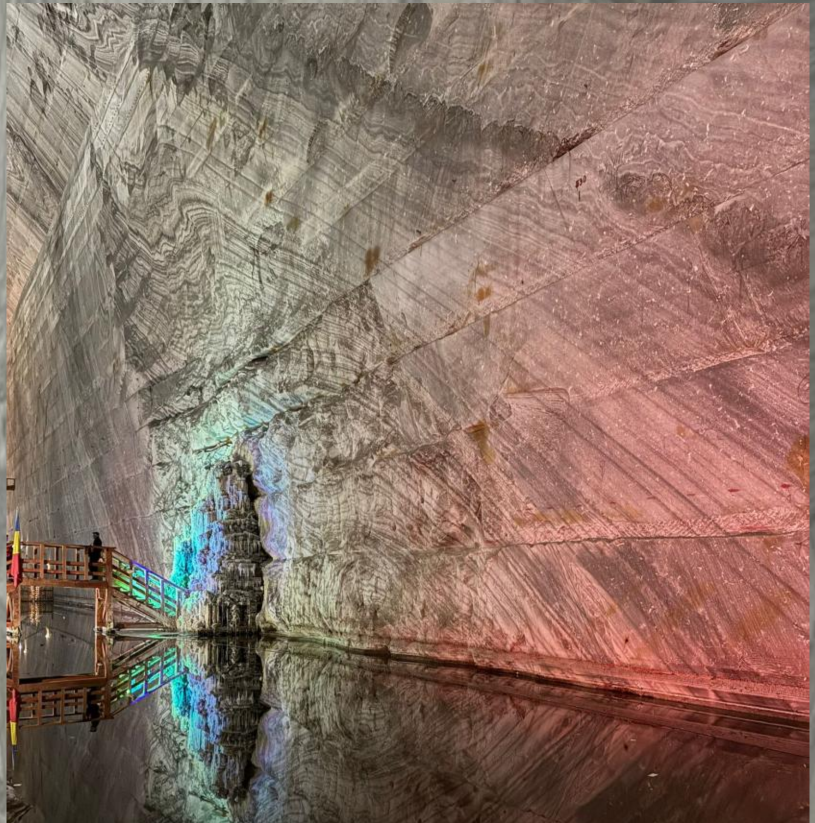
Exposure age results:

Sample name	Nuclide	St			Lm			LSDn			Ag		
		Age (yr)	Interr (yr)	Exterr (yr)	Age (yr)	Interr (yr)	Exterr (yr)	Age (yr)	Interr (yr)	Exterr (yr)	Age (yr)	Interr (yr)	Exterr (yr)
VD5B	Be-10 (qtz)	17092	1145	1805	16660	1115	1705	16508	1104	1494	–	–	–
CARW1	Be-10 (qtz)	10963	742	1155	11049	748	1130	10814	732	980	–	–	–
VD4A	Be-10 (qtz)	17384	1071	1779	16939	1043	1677	16893	1040	1464	–	–	–
FUNDCAPB	Be-10 (qtz)	11286	808	1218	11346	812	1190	11162	798	1044	–	–	–
POD2	Be-10 (qtz)	17789	650	1594	17311	632	1484	16922	617	1202	–	–	–
PODPRINCE	Be-10 (qtz)	15721	961	1601	15368	938	1514	15048	918	1296	–	–	–
FUNDCAPA	Be-10 (qtz)	11515	2580	2742	11552	2588	2735	11377	2548	2639	–	–	–

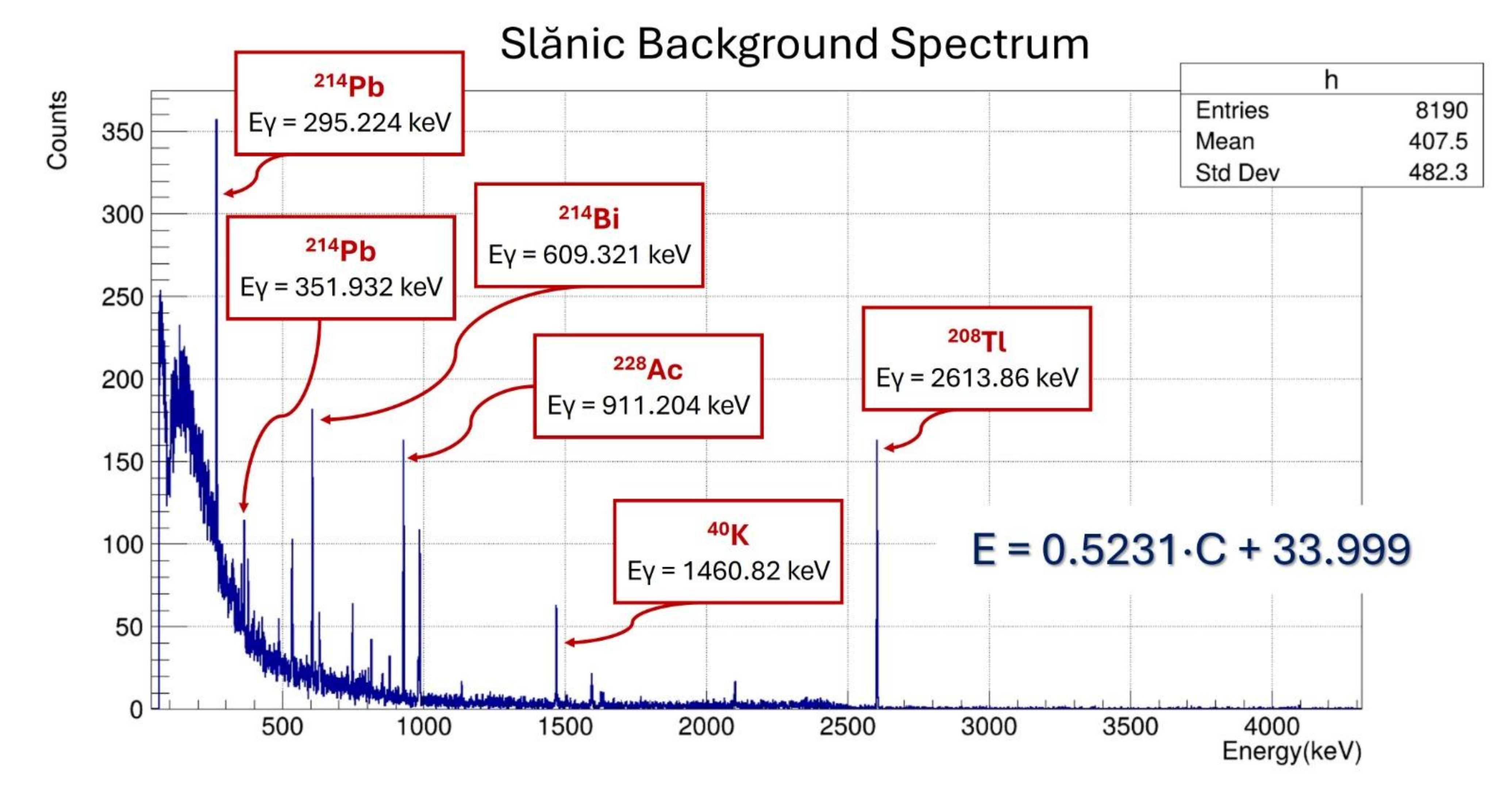
Scaling scheme abbreviation	References	Time dependency (constant or variable production rate)	Description
St (Lal/Stone)	Lal (1991); Stone (2000)	Time-independent (constant production rate)	Altitude, latitude taken into account. Does not take into account magnetic field variations.
Lm ('Lal modified')	Lal (1991); Nishiizumi et al., (1989); Stone (2000)	Time-dependent (variable production rate)	Time-dependent version of St, based on time-variation in the dipole magnetic field intensity. Production rates vary with time according to magnetic field changes.
De (Desilets)	Desilets et al. (2006)	Time-dependent	Based on neutron monitor measurements and incorporating dipole and non-dipole magnetic field measurements. Production rates vary with time according to magnetic field changes.
Du (Dunai)	Dunai (2001)	Time-dependent	Based on neutron monitor measurements and incorporating dipole and non-dipole magnetic field measurements. Production rates vary with time according to magnetic field changes
Li (Lifton)	Lifton et al. (2005)	Time-dependent	Based on neutron monitor assessments and incorporates dipole and non-dipole magnetic field fluctuations and solar modulation. Production rates vary with time according to magnetic field changes and changes in solar output.
LSDn (Sf, Sa) (Lifton-Sato-Dunai)	Lifton et al. (2014)	Time-dependent	Based on equations from nuclear physics model. Incorporates dipole and non-dipole magnetic field fluctuations and solar modulation.

SLANIC SALT MINE

Where Physics meats Geology



Gamma spectrum peaks identifications from Slanic Salt mine background



iħ ∂ψ/∂t = Ĥψ
H = Σn En |n⟩⟨n|
∇·E = ρ/ε0
∫0∞ e^(−x²) dx = √π/2
∇×B = μ0J + μ0ε0 ∂E/∂t
e⁻ e⁺ e⁺ e⁺
Σi=1N (xi − x̄)²
⟨ψ|ψ⟩=1
CAUTION: MAY CONTAIN ERRORS
d/dx (Motivation) = 0 (today)
ZZZZ...
...RESTING THEOREM: d(REST)/dt = 0
SCIENCE RULE #1: IF YOU'RE NOT TIRED, YOU'RE NOT DOING IT RIGHT.
DON'T FORGET:
• EAT
• SLEEP
• (MAYBE) SHOWER
WELL DONE, HUMAN.
QUANTUM MECHANICS
NUCLEAR PHYSICS
STATISTICS
1.21 GIGAWATTS OF COFFEE
E = mc² BUT COFFEE > 0
TOO MANY CALCULATIONS
MORE DATA
PLOT AGAIN?
I SURVIVED ANOTHER DERIVATION
DATA > SLEEP
SAVE AND SLEEP
REST MO ACTIVAT
TODAY'S ACHIEVEMENT: NOTHING EXPLODED
Day1
Day2
Day3
Day4
Day5
Day6
Day7
Day8
Day9
Day10

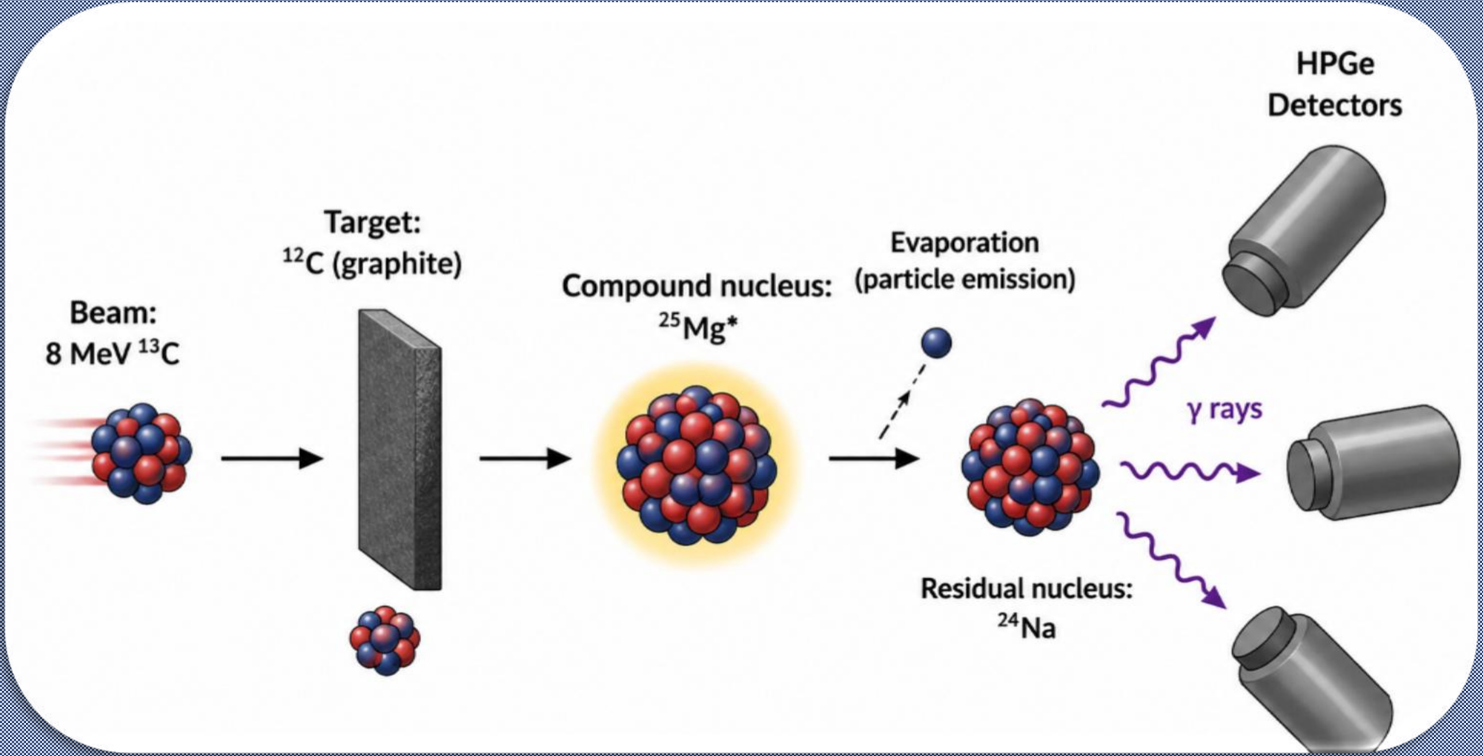
Visit to ELI

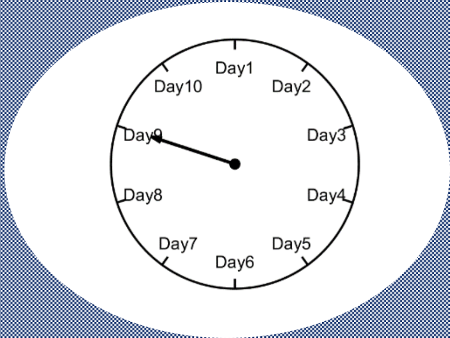

2x 10PW LASER SYSTEM
eli
Nuclear Physics
eli
nuclear physics
IFIN-HH
Dr. LASER
Day1
Day2
Day3
Day4
Day5
Day6
Day7
Day8
Day9
Day10

DUROCERN exhibition and AMS lecture

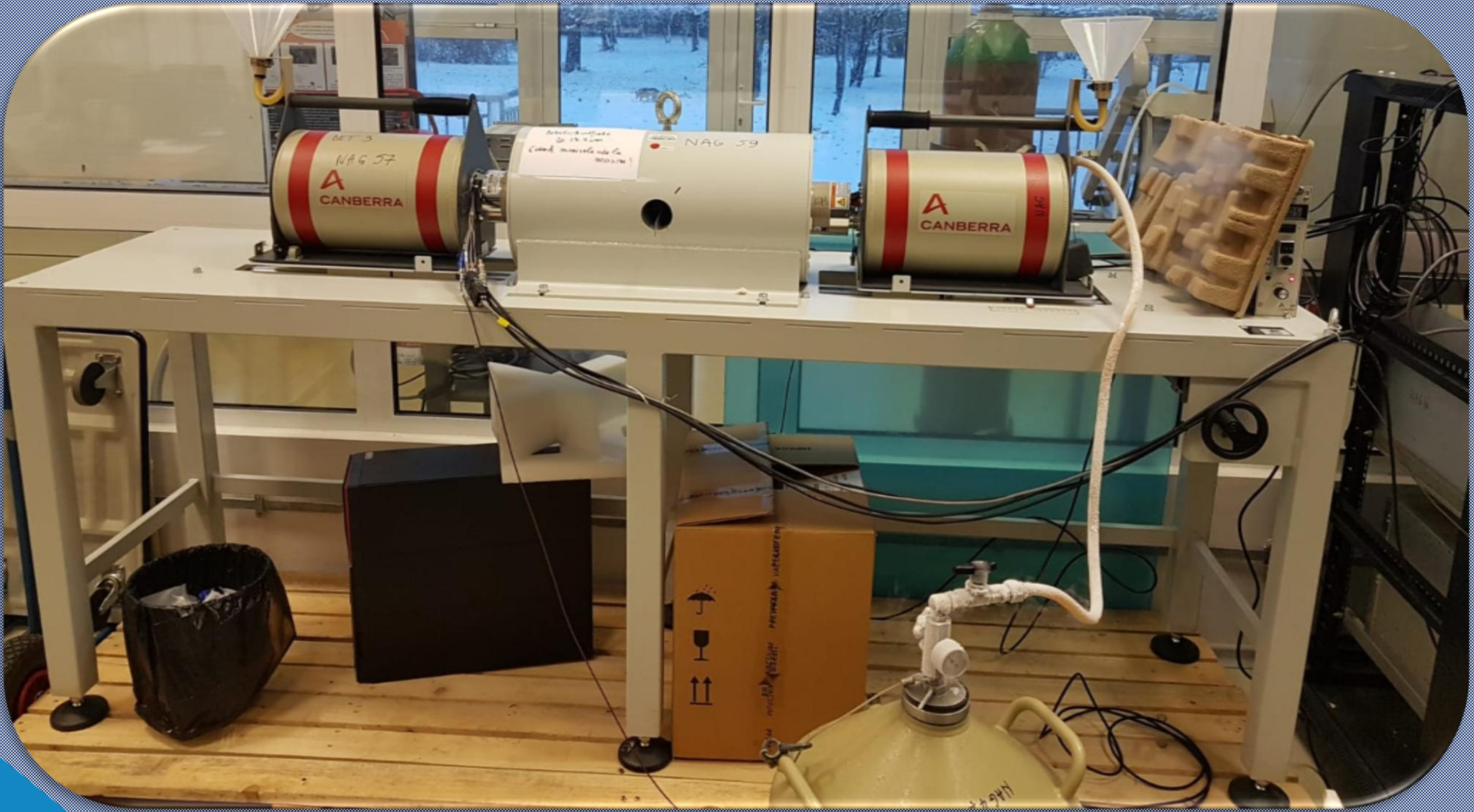
DAQ and Data Analysis The Activation technique

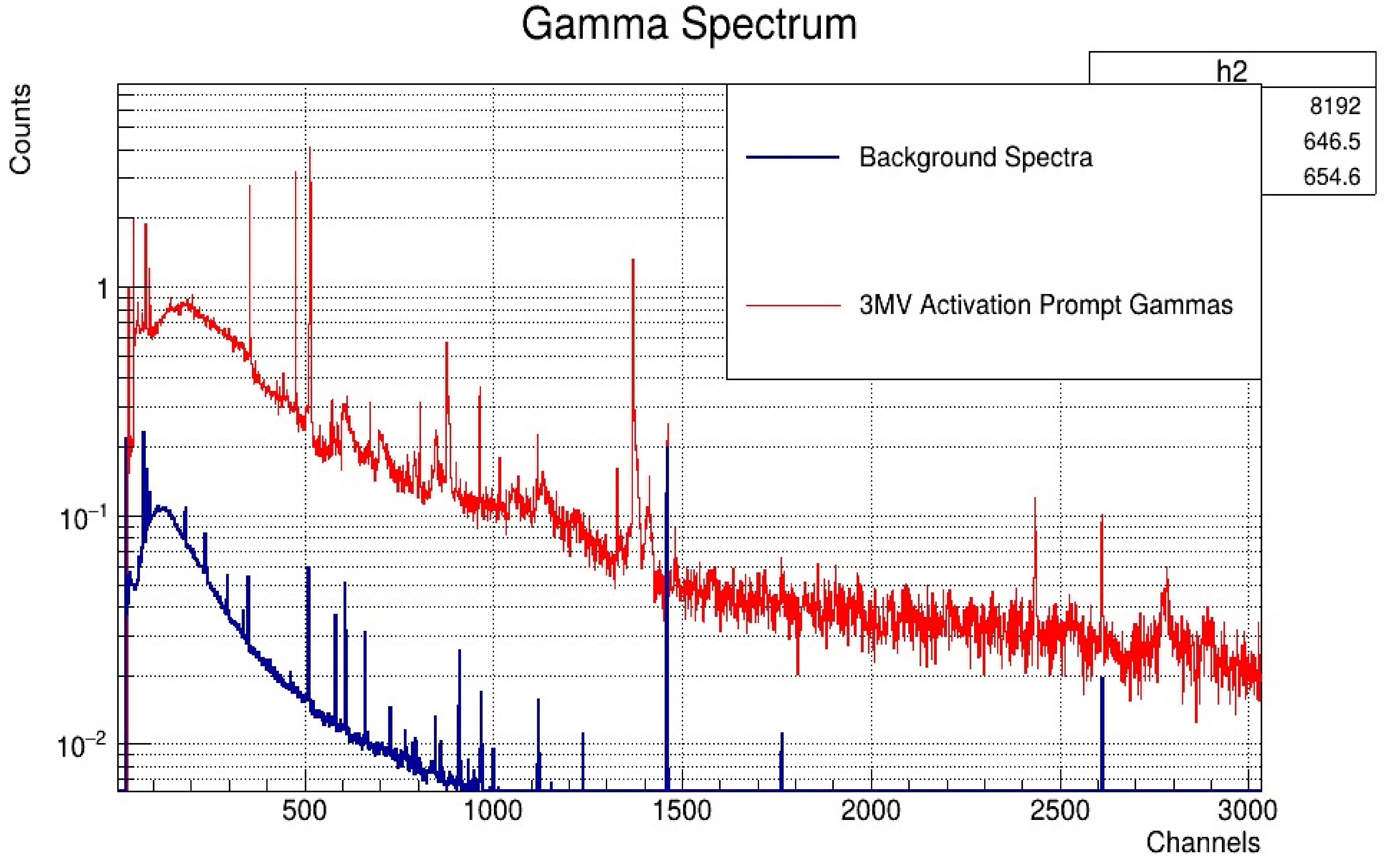
- A beam of 8Mev ^{13}C impinges on a target of graphite ^{12}C producing the compound nucleus of ^{25}Mg that evaporates into ^{24}Na.
- HPGe detectors are used to detect the Gammas in beam and after the activation



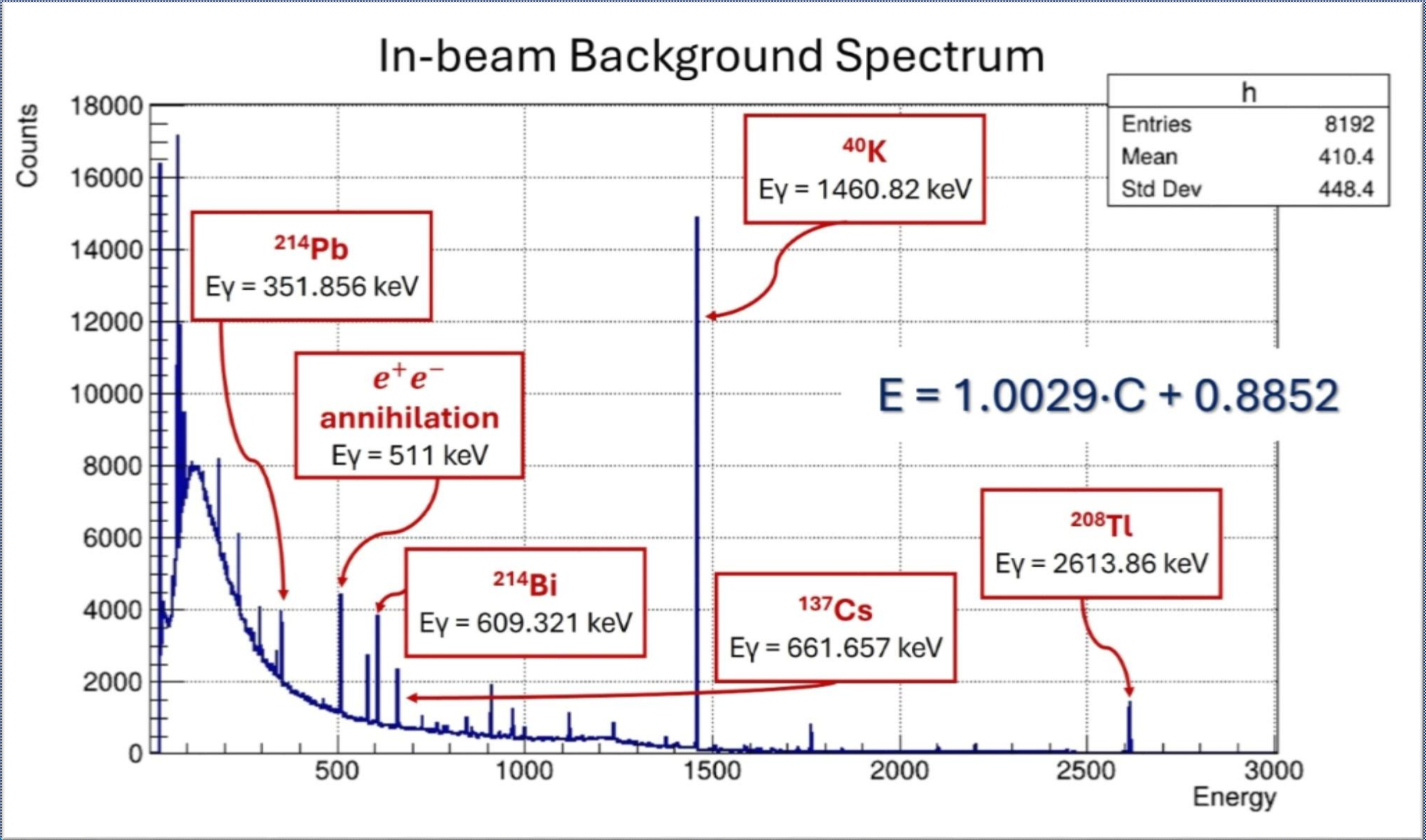


Measuring set up after activation

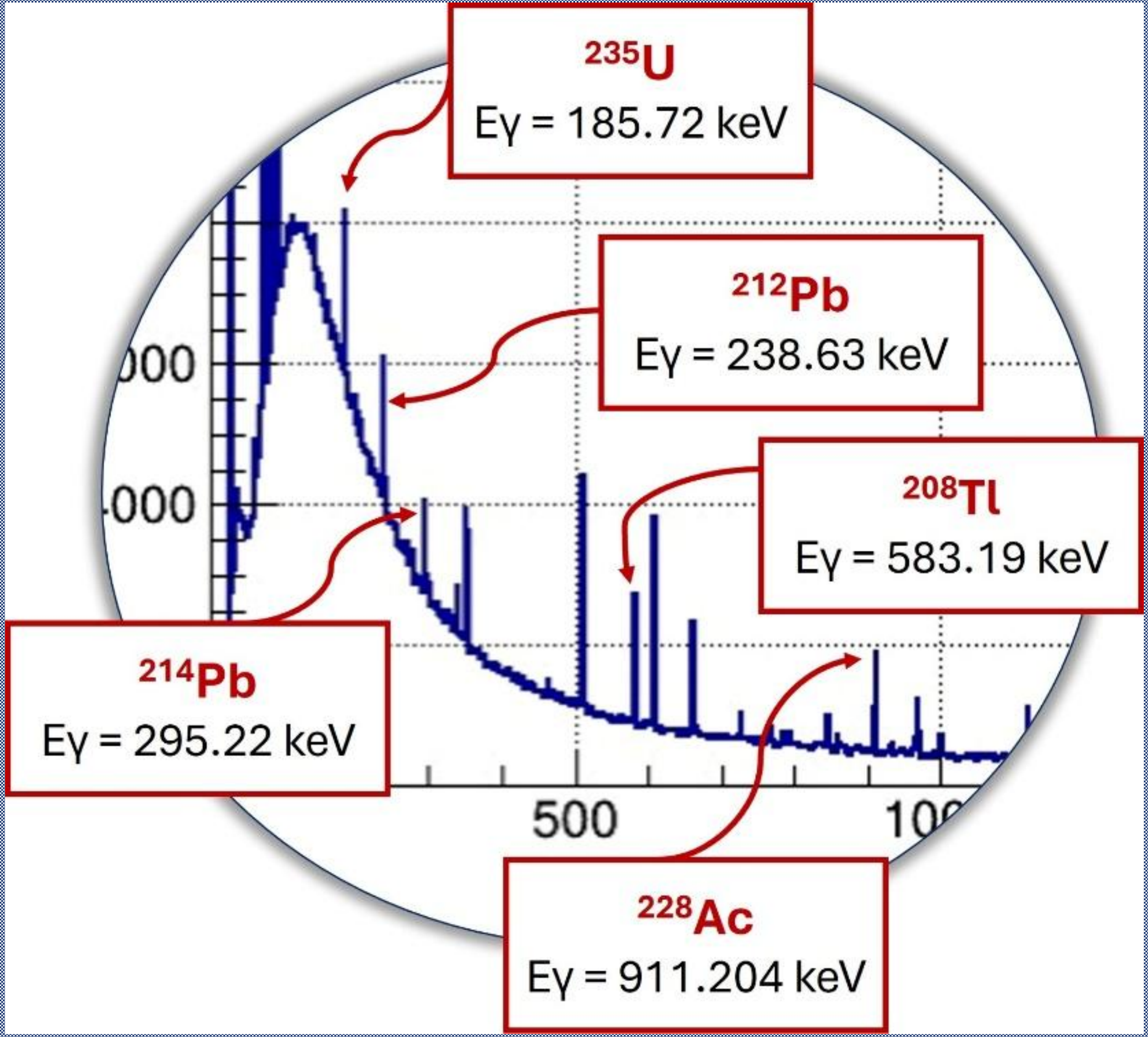



Gamma Spectrum
h2
8192
646.5
654.6
Background Spectra
3MV Activation Prompt Gammas
Counts
1
10^{-1}
10^{-2}
500
1000
1500
2000
2500
3000
Channels

Results

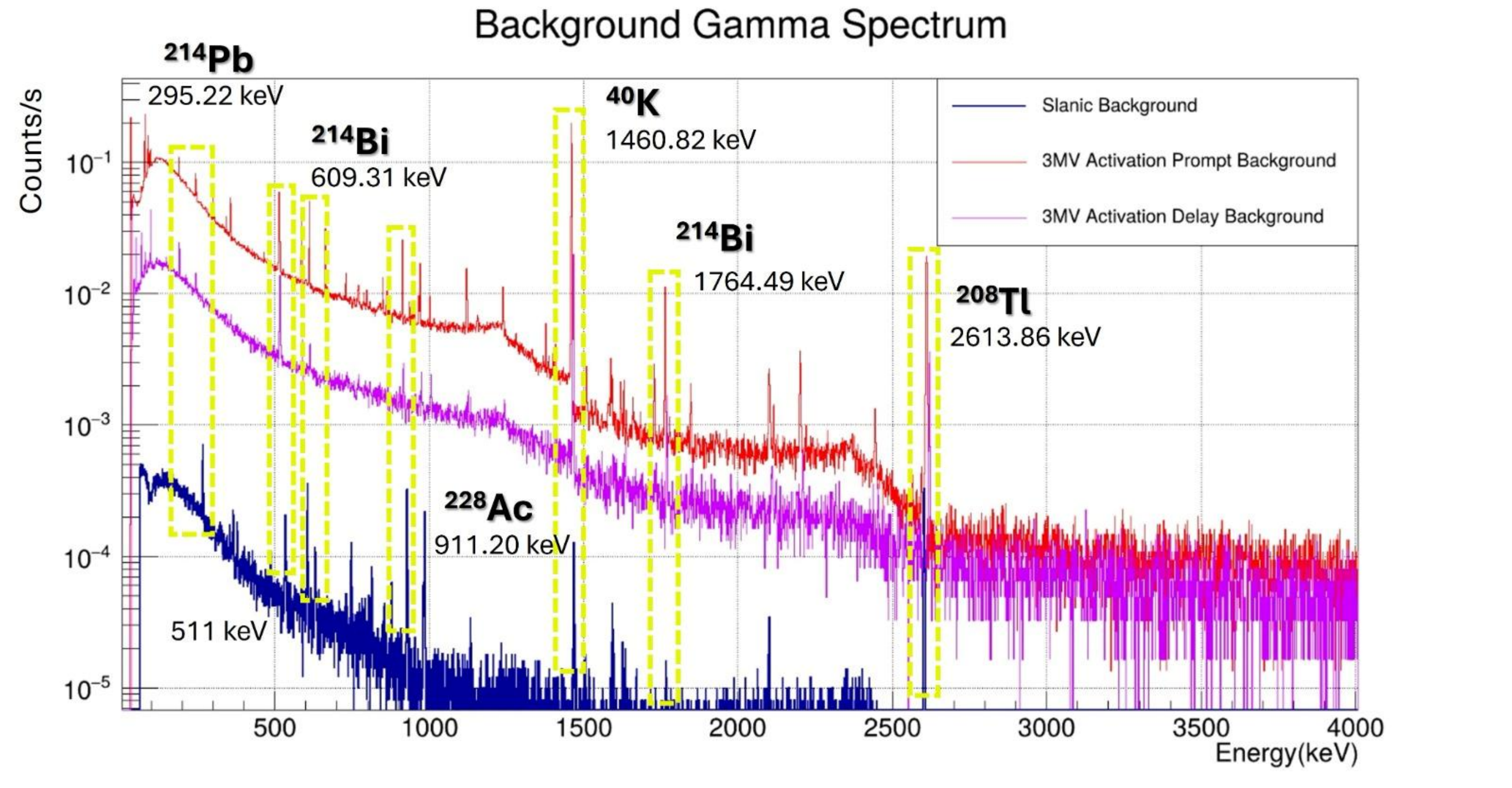

In-beam Background Spectrum
Counts
Energy
0
2000
4000
6000
8000
10000
12000
14000
16000
18000
500
1000
1500
2000
2500
3000
h
Entries 8192
Mean 410.4
Std Dev 448.4
214Pb
Eγ = 351.856 keV
e+e−
annihilation
Eγ = 511 keV
214Bi
Eγ = 609.321 keV
137Cs
Eγ = 661.657 keV
40K
Eγ = 1460.82 keV
208Tl
Eγ = 2613.86 keV
E = 1.0029·C + 0.8852

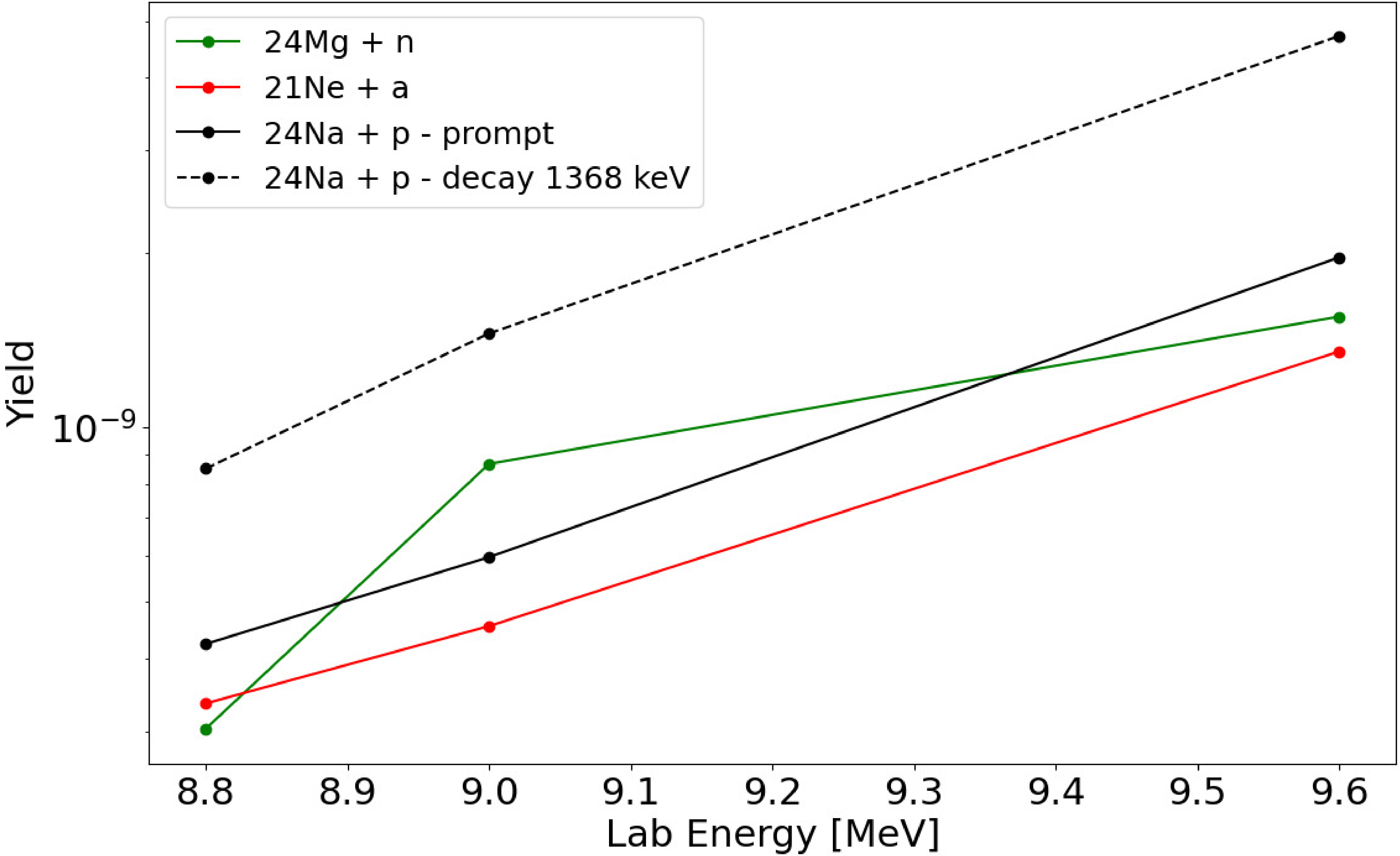
Zooming in:



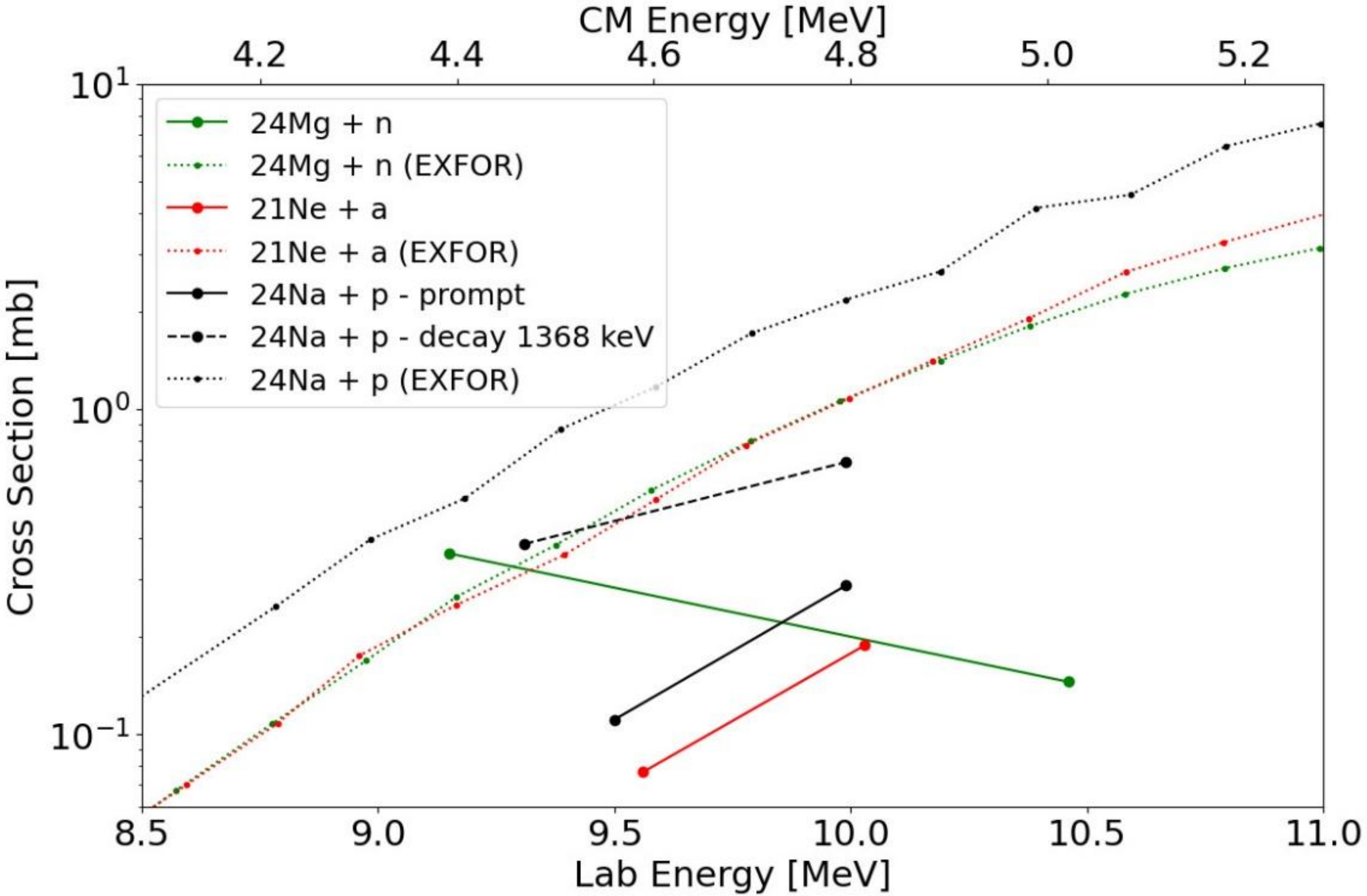
^{235}U
Eγ = 185.72 keV
^{212}Pb
Eγ = 238.63 keV
^{208}Tl
Eγ = 583.19 keV
^{214}Pb
Eγ = 295.22 keV
^{228}Ac
Eγ = 911.204 keV
500

Gamma background spectrum comparison and identification



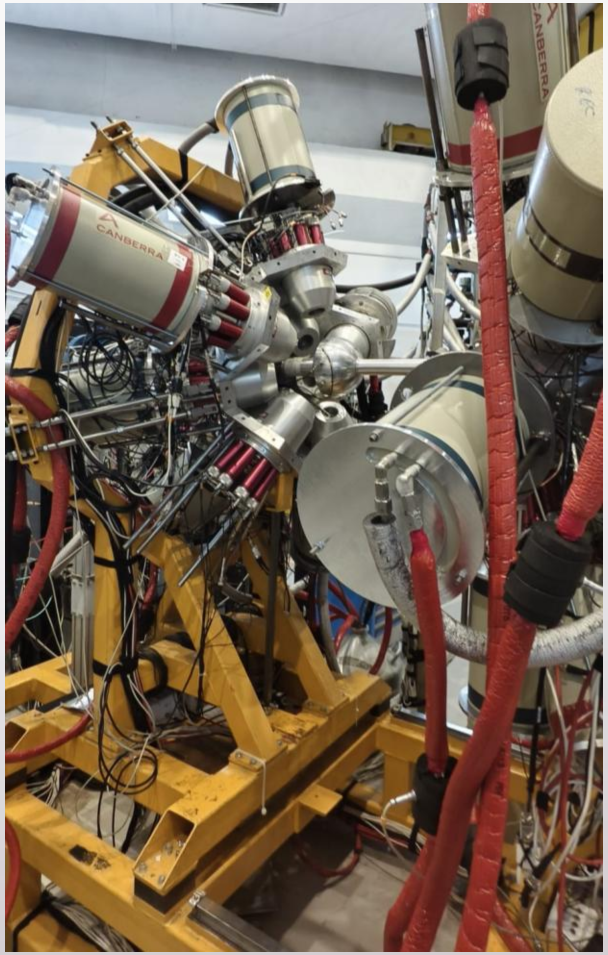


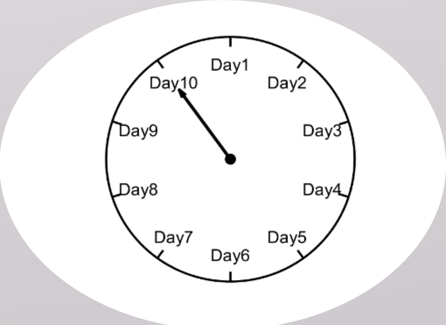
24Mg + n
21Ne + a
24Na + p - prompt
24Na + p - decay 1368 keV
Yield
10^{-9}
8.8
8.9
9.0
9.1
9.2
9.3
9.4
9.5
9.6
Lab Energy [MeV]



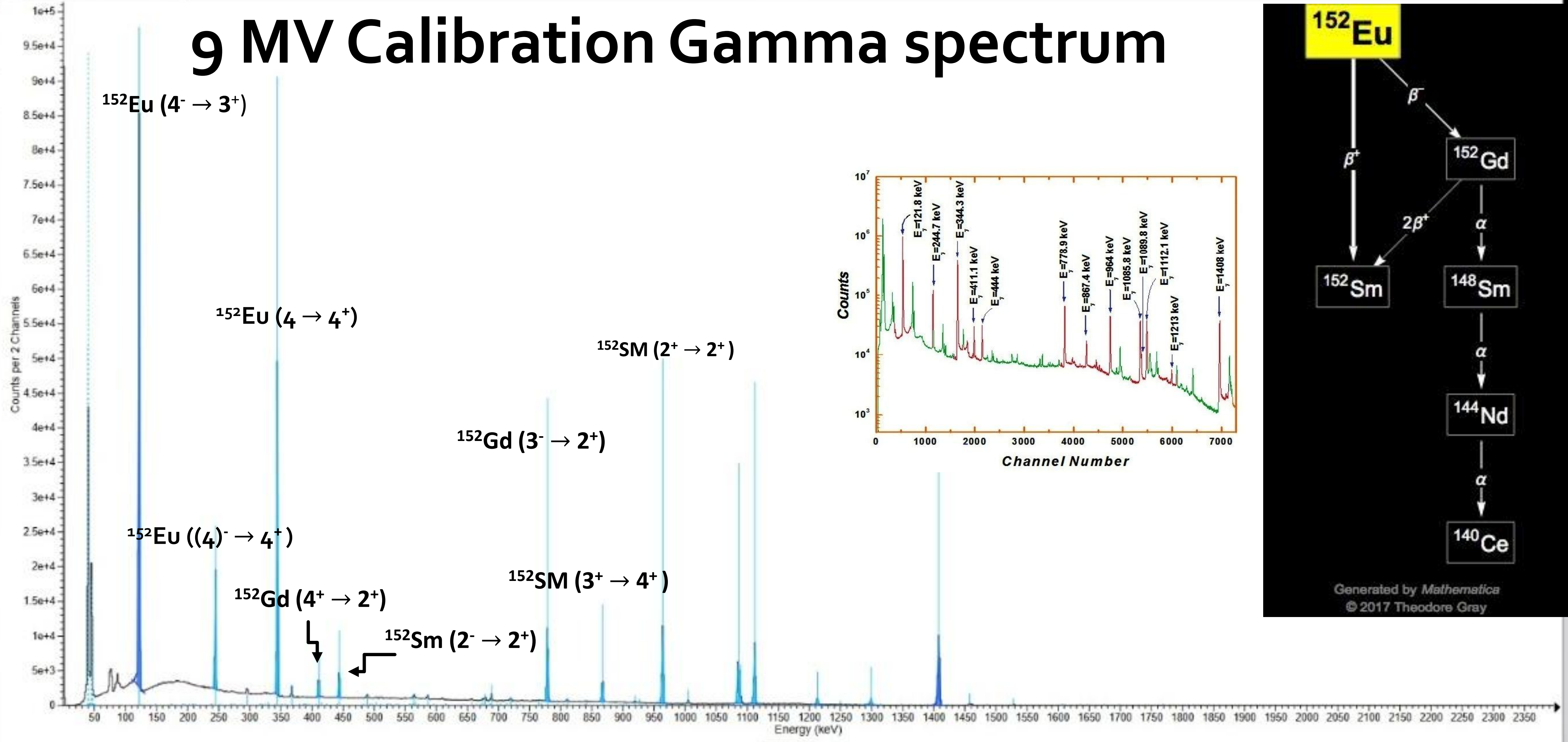
CM Energy [MeV]
4.2
4.4
4.6
4.8
5.0
5.2
10^1
10^0
10^{-1}
Cross Section [mb]
24Mg + n
24Mg + n (EXFOR)
21Ne + a
21Ne + a (EXFOR)
24Na + p - prompt
24Na + p - decay 1368 keV
24Na + p (EXFOR)
8.5
9.0
9.5
10.0
10.5
11.0
Lab Energy [MeV]

9 MV Data analysis





9 MV Calibration Gamma spectrum



Spectrum Files | Peak Manager | Reference Photopeaks | Energy Calibration | Nuclide Search

More Actions: Linearize... Truncate Energy... Combine Channels... To FRF...

Calibration Coefficients

Polynomial		Fit
Offset	0.0461885	☑
Linear	0.786926	☑
Quadratic	0	☐
Cubic	0	☐

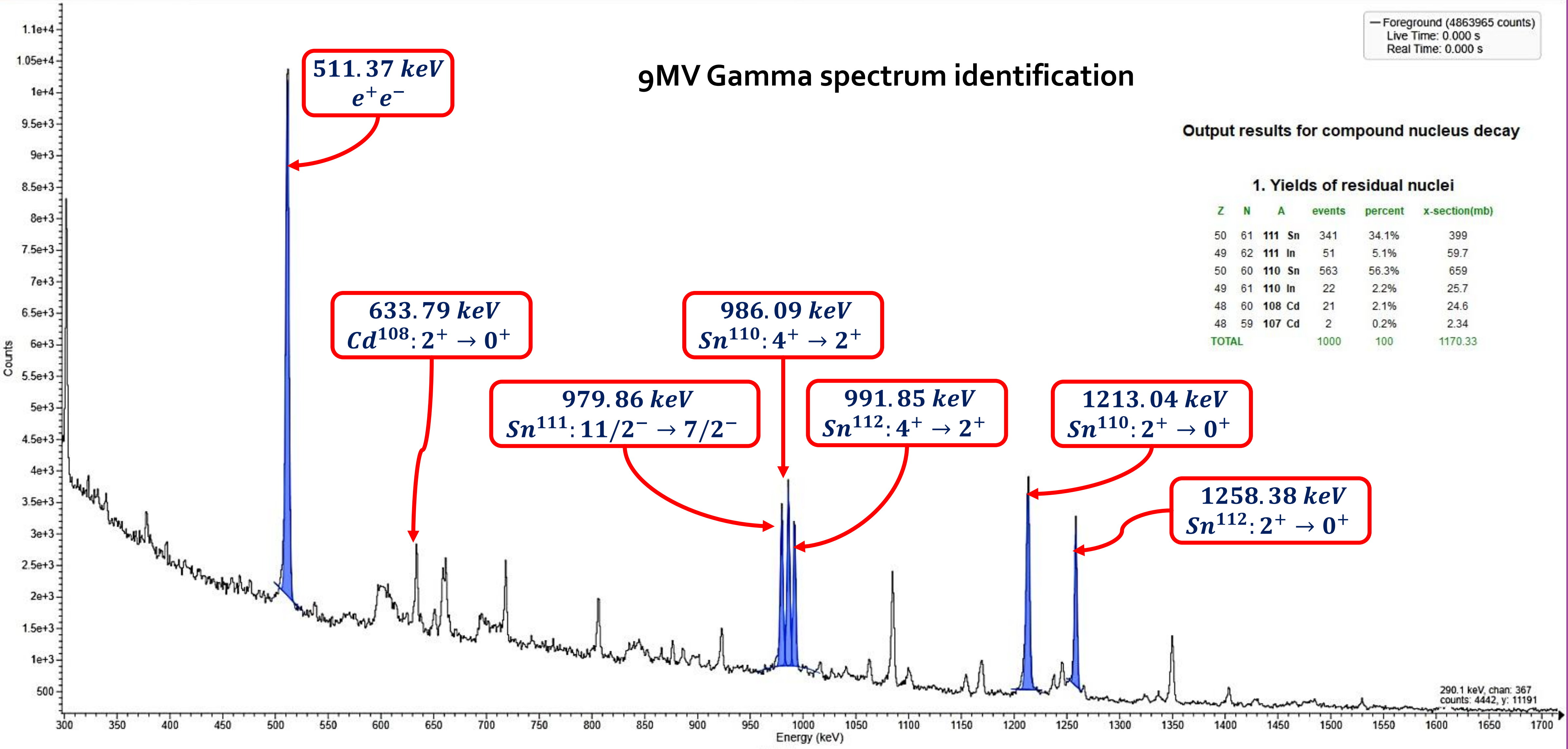
Deviation Pairs

Fit Coeffs

Calibration Peaks

Nuclide	Calib. Peak	Mean	Photopeak	Difference
Eu152	true	121.78	121.78 keV	0.00 keV
Eu152	true	244.55	244.70 keV	0.15 keV
Eu152	true	344.12	344.28 keV	0.15 keV
Eu152	true	410.79	411.12 keV	0.33 keV
Eu152	true	443.74	443.96 keV	0.23 keV
Eu152	true	778.82	778.90 keV	0.08 keV
Eu152	true	867.22	867.38 keV	0.16 keV
Eu152	true	963.99	964.08 keV	0.09 keV

9MV Gamma spectrum identification



Output results for compound nucleus decay

1. Yields of residual nuclei

Z	N	A		events	percent	x-section(mb)
50	61	**111**	**Sn**	341	34.1%	399
49	62	**111**	**In**	51	5.1%	59.7
50	60	**110**	**Sn**	563	56.3%	659
49	61	**110**	**In**	22	2.2%	25.7
48	60	**108**	**Cd**	21	2.1%	24.6
48	59	**107**	**Cd**	2	0.2%	2.34
TOTAL				1000	100	1170.33

Spectrum Files | Peak Manager | Reference Photopeaks | Energy Calibration | Nuclide Search

More Actions

Linearize...
Truncate Energy...
Combine Channels...
To FRF...

Calibration Coefficients

Polynomial		
Offset	0.155008	☑ Fit
Linear	0.790273	☑ Fit
Quadratic	0	☐ Fit
Cubic	0	☐ Fit

Deviation Pairs

Calibration Peaks

Nuclide	Calib. Peak	Mean	Photopeak	Difference
	☐ false	511.37		
	☐ false	979.86		
	☐ false	986.09		
	☐ false	991.85		
	☐ false	1213.04		
	☐ false	1258.38		

10 Days
6 Students
Different backgrounds
5 Countries
ONE Team
ONE mission

END OF EURO-LABS 2026
AND A START OF A NEW JOURNEY

Stay tuned !

Reset the clock,
the journey
now begins!