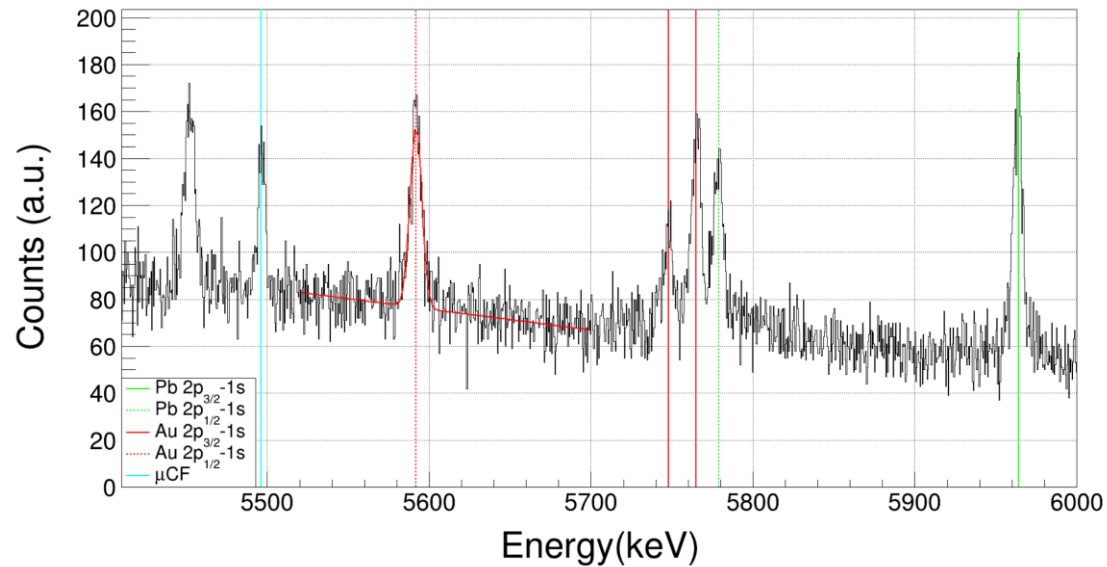


# Update muX meeting 30/06

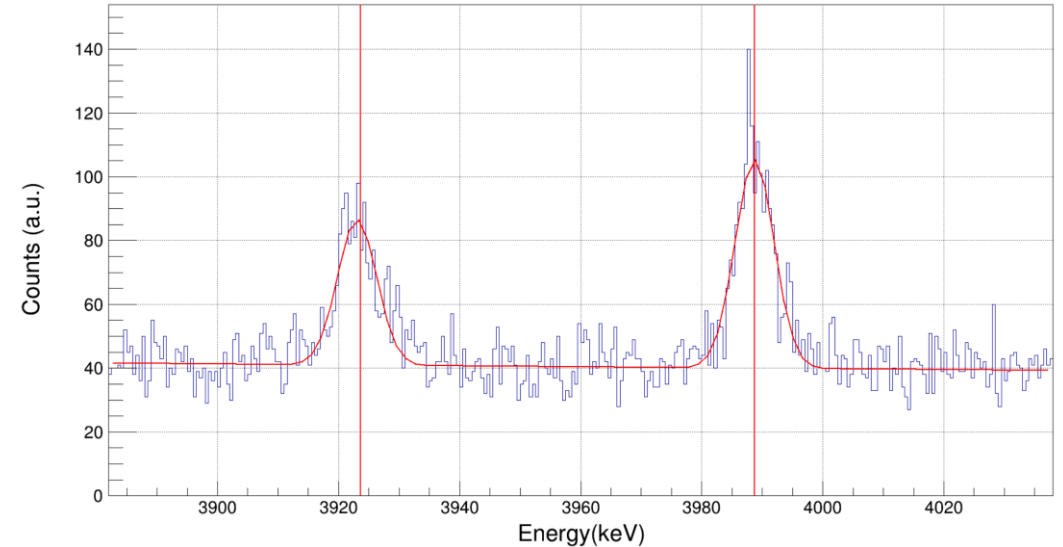
Michael Heines

# Fitting integrals

- Gold: fit  $2p_{3/2}-1s$



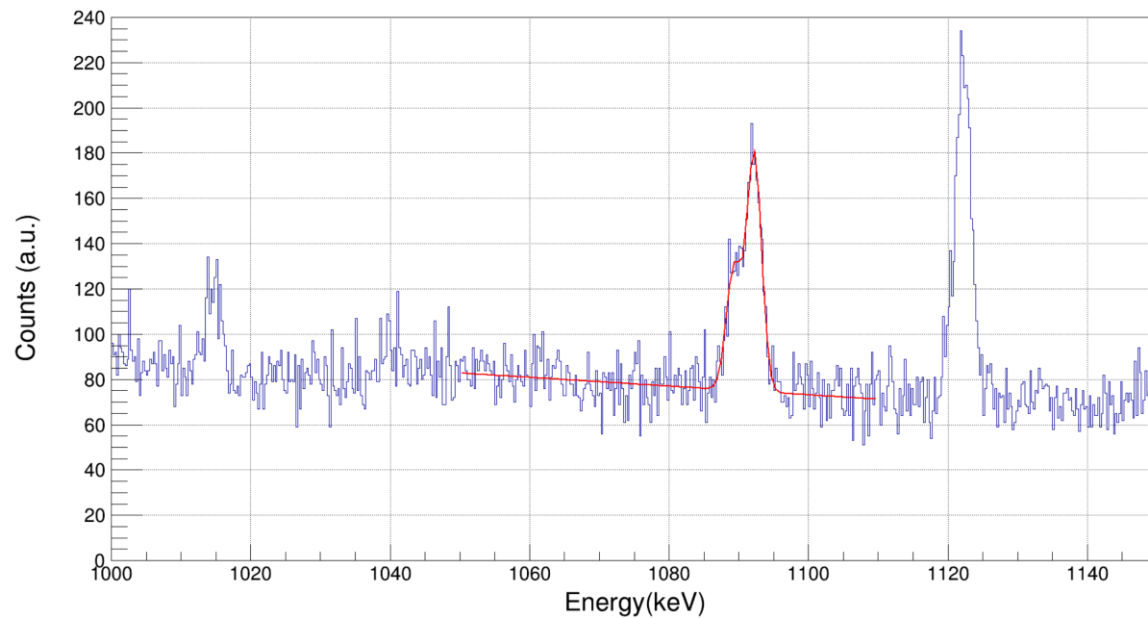
- Barium MP: fit  $2p_{3/2}-1s$  and  $2p_{1/2}-1s$



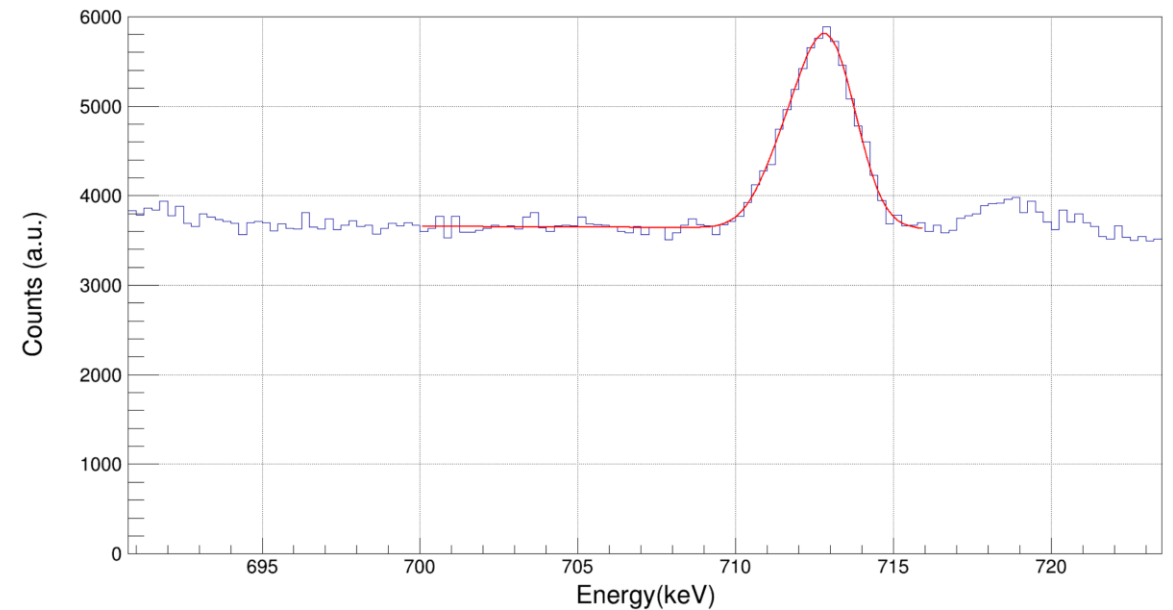
0.5 keV/bin

# Fitting integrals

- Chromium: fit 2p-1s doublet



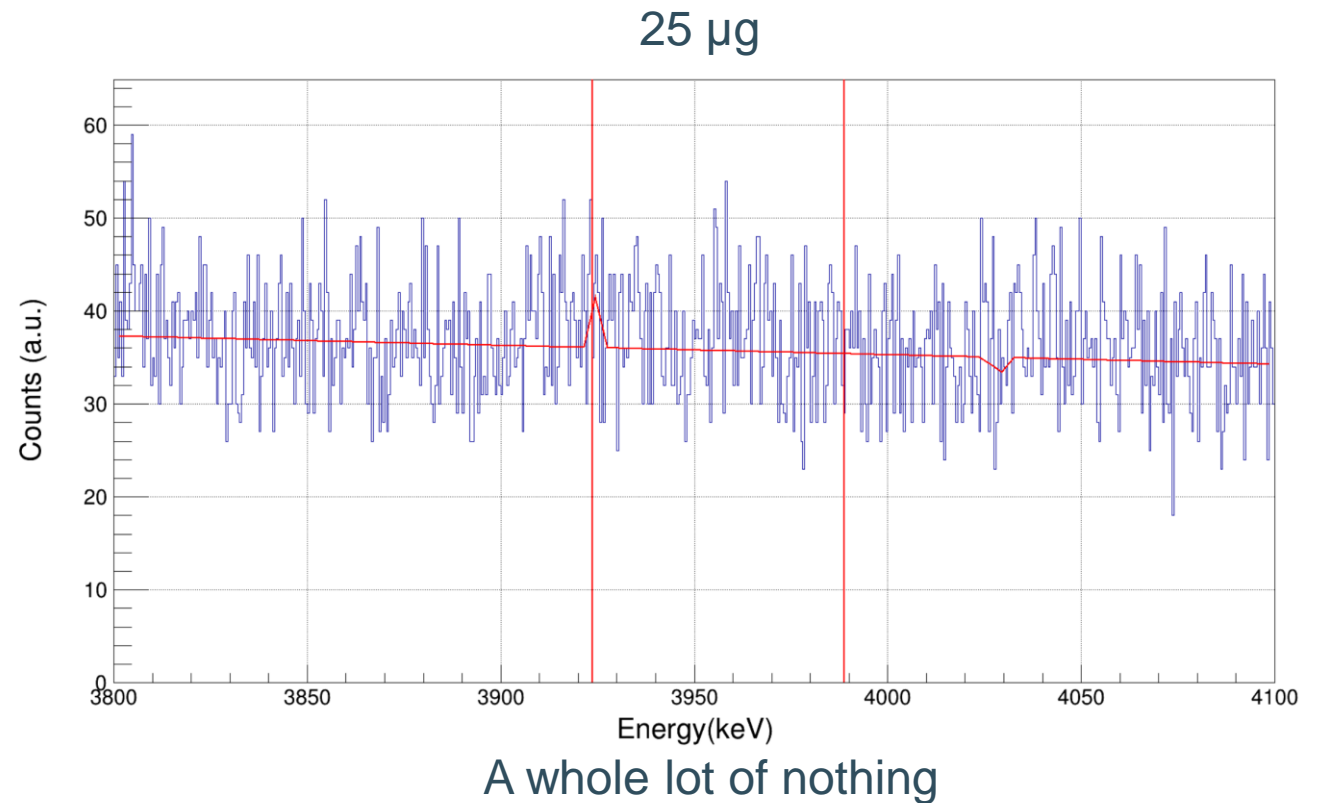
- Potassium: fit 2p-1s doublet



0.25 keV/bin

# Barium - DoD

- Attempt linear + two gaussian fit
- Estimate background at peaks (position and width from MP fits)
- 95% confidence:



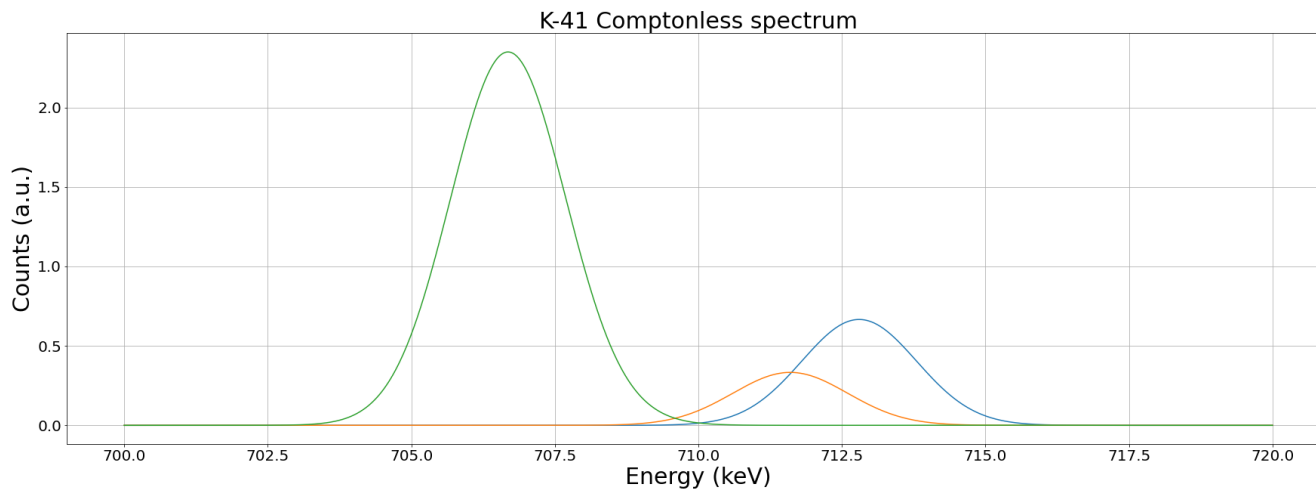
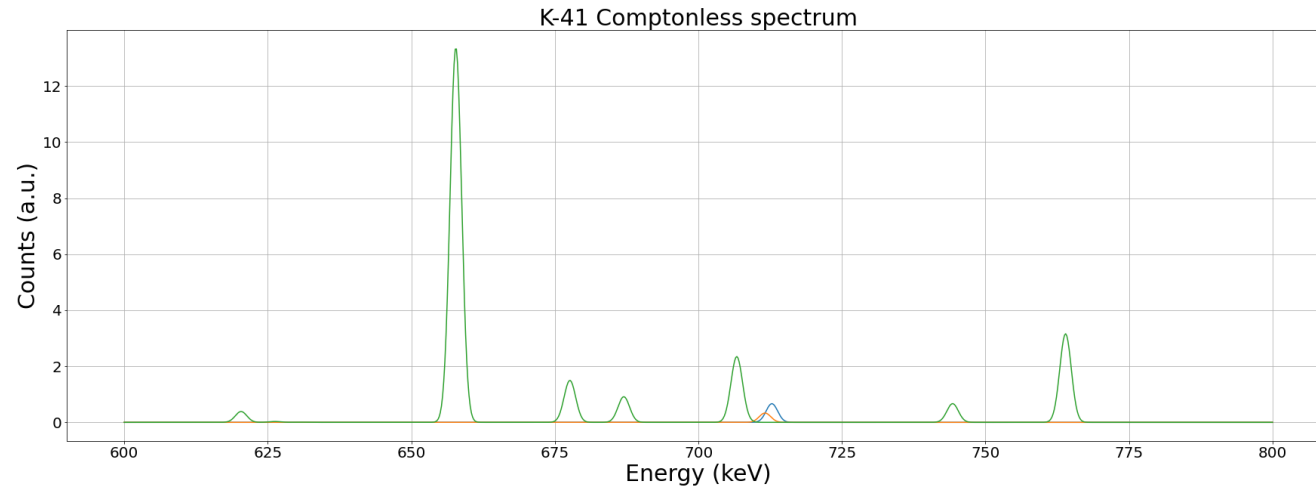
# Calibration for this year

- $^{110m}\text{Ag}$ :  $\tau_{1/2} \approx 250$  days
- Emilio will do a short neutron irradiation of  $^{\text{nat}}\text{Ag}$  and send a HPGe spectrum
- $^{60}\text{Co}$ ,  $^{22}\text{Na}$ ,  $^{137}\text{Cs}$ ,  $^{133}\text{Ba}$ : 8 lines can be used, 1 within 100 keV
- $^{110m}\text{Ag}$ : 11-13 lines can be used, 8 within 100 keV!
- $E(K)_{2p-1s} = 713$  keV
- Compton edge at 713 keV  $\rightarrow$  Full peak at 913 keV

$\gamma_{18,6}(\text{Cd})$	544,55 (5)	0,018 (3)	M1+E2	0,0464 (19)	0,057 (2)	0,0054 (2)
$\gamma_{19,7}(\text{Cd})$	572,8 (2)	0,0173 (13)				
$\gamma_{5,2}(\text{Cd})$	603,08 (10)	0,011 (8)	E1	0,0121 (4)	0,014 (10)	0,00139 (40)
$\gamma_{6,3}(\text{Cd})$	620,3572 (17)	2,73 (8)	M1+E2	0,0342 (10)	0,041 (1)	0,00397 (12)
$\gamma_{21,8}(\text{Cd})$	626,26 (1)	0,215 (17)	E2	0,0309 (9)	0,039 (1)	0,00361 (11)
$\gamma_{19,6}(\text{Cd})$	630,62 (6)	0,033 (5)				
$\gamma_{1,0}(\text{Cd})$	657,7600 (11)	94,68 (8)	E2	0,0272 (8)	0,034 (1)	0,00318 (9)
$\gamma_{7,3}(\text{Cd})$	677,6239 (12)	10,59 (6)	M1+E2	0,0280 (8)	0,033 (1)	0,00324 (10)
$\gamma_{6,2}(\text{Cd})$	687,0114 (18)	6,47 (3)	M1+E2	0,0251 (8)	0,031 (1)	0,00292 (9)
$\gamma_{22,7}(\text{Cd})$	706,6780 (15)	16,53 (8)	M1+E2	0,0237 (7)	0,029 (1)	0,00275 (8)
$\gamma_{8,3}(\text{Cd})$	708,13 (2)	0,23 (5)	M1+E2	0,0255 (8)	0,030 (1)	0,00295 (9)
$\gamma_{19,5}(\text{Cd})$	714,9 (1)	0,0092 (24)				
$\gamma_{7,2}(\text{Cd})$	744,2782 (18)	4,72 (3)	E2(+M3)	0,0199 (6)	0,025 (1)	0,00232 (7)
$\gamma_{22,6}(\text{Cd})$	763,9452 (17)	22,36 (9)	E2+M3	0,0198 (10)	0,024 (2)	0,00230 (9)
$\gamma_{8,2}(\text{Cd})$	774,7 (1)	0,006 (3)	(E2)	0,0180 (5)	0,022 (1)	0,00210 (6)
$\gamma_{2,1}(\text{Cd})$	818,0277 (18)	7,34 (4)	M1+E2	0,0167 (5)	0,020 (1)	0,00194 (6)
$\gamma_{3,1}(\text{Cd})$	884,6819 (13)	74,1 (12)	E2	0,0131 (4)	0,016 (1)	0,00152 (5)
$\gamma_{12,3}(\text{Cd})$	937,485 (3)	34,56 (27)	E2(+M3)	0,0115 (3)	0,014 (1)	0,00133 (4)
$\gamma_{11,2}(\text{Cd})$	957,35 (10)	0,0093 (19)	M1+E2	0,0120 (9)	0,014 (1)	0,00139 (10)
$\gamma_{13,3}(\text{Cd})$	997,248 (15)	0,128 (4)	E1(+M2)			0,0007 (9)
$\gamma_{14,3}(\text{Cd})$	1018,96 (8)	0,0141 (7)	M1+E2			
$\gamma_{14,2}(\text{Cd})$	1085,453 (14)	0,072 (4)	E2	0,0083 (3)	0,010 (1)	0,00096 (3)
$\gamma_{15,3}(\text{Cd})$	1117,47 (3)	0,0488 (9)	E1(+M2)	0,0034 (1)		0,00040 (1)

# Spectrum with $^{110m}\text{Ag}$

Green: Silver  
Blue:  $2p_{3/2} - 1s$   
Orange:  $2p_{1/2} - 1s$



Estimated with 10 kBq source and same signal/efficiency + 25% worse resolution

# Spectrum with $^{110\text{m}}\text{Ag}$

