$^{212}_{82}\mathrm{Pb}_{130}$

1 Decay Scheme

Pb-212 disintegrates by beta minus emission to excited and ground states of Bi-212.
Le plomb 212 se désintègre par émission bêta moins vers des niveaux excités et fondamental du bismuth 212.

2 Nuclear Data

$T_{1/2}(^{212}\mathrm{Pb})$	:	10,64	(1)	h
$T_{1/2}(^{212}\mathrm{Bi})$	:	60,54	(6)	min
$Q^-(^{212}\mathrm{Pb})$	:	569,9	(19)	keV

2.1 β^- Transitions

	Energy keV	Probability × 100	Nature	lg ft
$\beta^-_{0,3}$	154,6 (19)	4,99 (21)	1st forbidden	5,35
$\beta^-_{0,2}$	331,3 (19)	81,7 (11)	1st forbidden	5,18
$\beta^-_{0,0}$	569,9 (19)	13,3 (11)	1st forbidden	6,74

2.2 Gamma Transitions and Internal Conversion Coefficients

	Energy keV	$P_{\gamma+ce}$ × 100	Multipolarity	α_K	α_L	α_M	α_T
$\gamma_{1,0}$(Bi)	115,183 (5)	4,87 (19)	[M1]	5,53 (8)	0,972 (14)	0,229 (4)	6,8 (1)
$\gamma_{2,1}$(Bi)	123,449 (5)	0,198 (19)	[E2]	0,421 (6)	1,766 (25)	0,468 (7)	2,80 (4)
$\gamma_{3,2}$(Bi)	176,640 (11)	0,157 (15)	[M1]	1,646 (23)	0,287 (4)	0,0675 (10)	2,02 (3)
$\gamma_{2,0}$(Bi)	238,632 (2)	81,6 (11)	[M1]	0,71 (1)	0,1232 (18)	0,0290 (4)	0,872 (13)
$\gamma_{3,1}$(Bi)	300,089 (12)	4,66 (21)	[M1]	0,378 (6)	0,0653 (10)	0,01534 (22)	0,464 (7)
$\gamma_{3,0}$(Bi)	415,272 (11)	0,17 (3)	[M1]	0,1571 (22)	0,0269 (4)	0,00632 (9)	0,192 (3)

3 Atomic Data

3.1 Bi

ω_K : 0,964 (4)
$\bar{\omega}_L$: 0,391 (16)
n_{KL} : 0,809 (5)

3.1.1 X Radiations

		Energy keV		Relative probability
X_K				
	$K\alpha_2$	74,8157		59,6
	$K\alpha_1$	77,1088		100
	$K\beta_3$	86,835	}	
	$K\beta_1$	87,344	}	
	$K\beta_5''$	87,862	}	34,1
	$K\beta_2$	89,732	}	
	$K\beta_4$	90,074	}	10,5
	$KO_{2,3}$	90,421	}	
X_L				
	$L\ell$	9,42		
	$L\alpha$	10,731 – 10,839		
	$L\eta$	11,712		
	$L\beta$	12,48 – 13,393		
	$L\gamma$	15,248 – 15,709		

3.1.2 Auger Electrons

	Energy keV	Relative probability
Auger K		
KLL	57,49 – 63,42	100
KLX	70,03 – 77,11	55,7
KXY	82,53 – 90,52	7,8
Auger L	5,35 – 10,66	2710

4 Electron Emissions

		Energy keV	Electrons per 100 disint.
e_{AL}	(Bi)	5,35 - 10,66	21,4 (7)
e_{AK}	(Bi)		1,29 (15)
	KLL	57,49 - 63,42	}
	KLX	70,03 - 77,11	}
	KXY	82,53 - 90,52	}
$ec_{1,0\ K}$	(Bi)	24,657 (5)	3,45 (16)
$ec_{1,0\ L}$	(Bi)	98,80 - 101,76	0,61 (3)
$ec_{1,0\ M+}$	(Bi)	111,18 - 115,18	0,19 (1)
$ec_{2,0\ K}$	(Bi)	148,106 (2)	30,9 (10)
$ec_{3,1\ K}$	(Bi)	209,563 (12)	1,21 (20)
$ec_{2,0\ L}$	(Bi)	222,24 - 225,21	5,37 (17)
$ec_{2,0\ M+}$	(Bi)	234,63 - 238,63	1,73 (5)
$ec_{3,1\ L}$	(Bi)	283,70 - 286,67	0,21 (4)
$ec_{3,1\ M+}$	(Bi)	296,090 - 300,086	0,066 (11)
$\beta^-_{0,3}$	max:	154,6 (19)	4,99 (21)
$\beta^-_{0,3}$	avg:	41,1 (5)	
$\beta^-_{0,2}$	max:	331,3 (19)	81,7 (11)
$\beta^-_{0,2}$	avg:	93,5 (6)	
$\beta^-_{0,0}$	max:	569,9 (19)	13,3 (11)
$\beta^-_{0,0}$	avg:	171,7 (7)	

5 Photon Emissions

5.1 X-Ray Emissions

		Energy keV	Photons per 100 disint.	
XL	(Bi)	9,42 — 15,709	13,8 (6)	
$XK\alpha_2$	(Bi)	74,8157	10,07 (18)	} Kα
$XK\alpha_1$	(Bi)	77,1088	16,9 (3)	}
$XK\beta_3$	(Bi)	86,835	}	
$XK\beta_1$	(Bi)	87,344	} 5,77 (13)	$K'\beta_1$
$XK\beta''_5$	(Bi)	87,862	}	
$XK\beta_2$	(Bi)	89,732	}	
$XK\beta_4$	(Bi)	90,074	} 1,77 (5)	$K'\beta_2$
$XKO_{2,3}$	(Bi)	90,421	}	

5.2 Gamma Emissions

	Energy keV	Photons per 100 disint.
$\gamma_{1,0}$(Bi)	115,183 (5)	0,624 (23)
$\gamma_{2,1}$(Bi)	123,449 (5)	0,052 (5)
$\gamma_{3,2}$(Bi)	176,640 (11)	0,052 (5)
$\gamma_{2,0}$(Bi)	238,632 (2)	43,6 (5)
$\gamma_{3,1}$(Bi)	300,089 (12)	3,18 (14)
$\gamma_{3,0}$(Bi)	415,272 (11)	0,144 (22)

6 Main Production Modes

$\mathrm{Po-210(t,p)Pb-212}$
$\mathrm{Po-216}(\alpha)\mathrm{Pb-212}$

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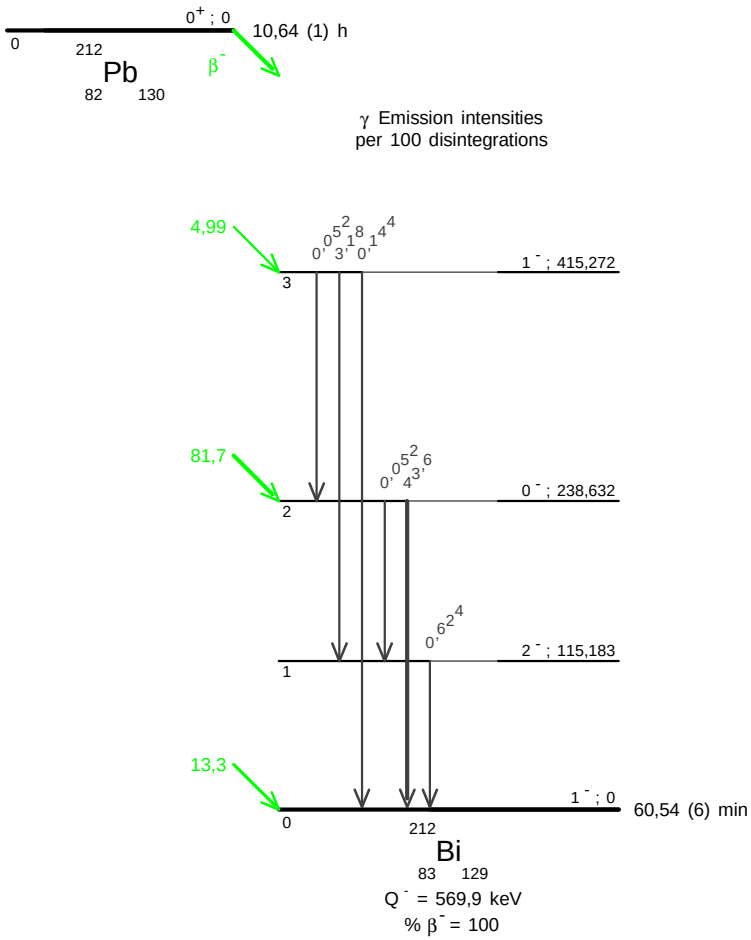
0+ ; 0
10,64 (1) h
0
212
Pb
82 130
β-
γ Emission intensities
per 100 disintegrations
4,99
0,0 5,2 1,8 1,4 4
3
1 - ; 415,272
81,7
0,0 5,2 4,3 6
2
0 - ; 238,632
0,6 2,4
1
2 - ; 115,183
13,3
0
1 - ; 0
60,54 (6) min
212
Bi
83 129
Q - = 569,9 keV
% β- = 100