$$^{211}_{83}\mathrm{Bi}_{128}$$

1 Decay Scheme

Bi-211 decays mainly (99.724 (4) %) by alpha-particle emission to the ground state (83.56 (23) %), and (16.16 (23) %) to the 351-keV state in Tl-207. Bi-211 also has a weak beta minus decay branch (0.276 (4) %) that populates the ground state in Po-211.
Le bismuth 211 se désintègre par émission alpha vers l'état fondamental (83,56 (23) %), et l'état excité de 351-keV (16,16 (23) %) du thalium 207. Le bismuth 211 a aussi une faible branche de désintegration bêta moins (0,276 (4) %) vers l'état fondamental du polonium 211.

2 Nuclear Data

$T_{1/2}(^{211}\mathrm{Bi})$	:	2,15	(2)	min
$T_{1/2}(^{211}\mathrm{Po})$	:	0,516	(3)	s
$T_{1/2}(^{207}\mathrm{Tl})$	:	4,774	(12)	min
$Q^{\alpha}(^{211}\mathrm{Bi})$	:	6750,33	(46)	keV
$Q^{-}(^{211}\mathrm{Bi})$	:	574	(5)	keV

2.1 α Transitions

	Energy keV	Probability × 100	F
$\alpha_{0,1}$	6399,8 (9)	16,16 (23)	43
$\alpha_{0,0}$	6750,4 (6)	83,56 (23)	187

2.2 β^- Transitions

	Energy keV	Probability × 100	Nature	lg ft
$\beta^-_{0,0}$	574 (5)	0,276 (4)	1st Forbidden	5,99

2.3 Gamma Transitions and Internal Conversion Coefficients

	Energy keV	$P_{\gamma+ce}$ × 100	Multipolarity	α_K	α_L	α_M	α_T
$\gamma_{1,0}$(Tl)	351,03 (4)	16,16 (24)	M1+E2	0,199 (3)	0,0342 (5)	0,00801 (12)	0,243 (4)

3 Atomic Data

3.1 Tl

ω_K : 0,963 (4)
$\bar{\omega}_L$: 0,367 (15)
n_{KL} : 0,812 (5)

3.1.1 X Radiations

		Energy keV		Relative probability
X_K				
	$K\alpha_2$	70,8325		59,24
	$K\alpha_1$	72,8725		100
	$K\beta_3$	82,118	}	
	$K\beta_1$	82,577	}	
	$K\beta''_5$	83,115	}	34
	$K\beta_2$	84,838	}	
	$K\beta_4$	85,134	}	10,1
	$KO_{2,3}$	85,444	}	
X_L				
	$L\ell$	8,9531		
	$L\alpha$	10,1718 – 10,2679		
	$L\eta$	10,9942		
	$L\beta$	11,8117 – 12,9566		
	$L\gamma$	13,8528 – 14,7362		

3.1.2 Auger Electrons

	Energy keV	Relative probability
Auger K		
KLL	54,587 – 59,954	100
KLX	66,37 – 72,86	55,4
KXY	78,12 – 85,50	7,67
Auger L	5,18 – 15,31	

4 α Emissions

	Energy keV	Probability × 100
$\alpha_{0,1}$	6278,5 (9)	16,16 (23)
$\alpha_{0,0}$	6622,4 (6)	83,56 (23)

5 Electron Emissions

		Energy keV	Electrons per 100 disint.
e_{AL}	(Tl)	5,18 - 15,31	1,617 (21)
e_{AK}	(Tl)		0,096 (11)
	KLL	54,587 - 59,954 }	
	KLX	66,37 - 72,86 }	
	KXY	78,12 - 85,50 }	
$ec_{1,0\ K}$	(Tl)	265,50 (4)	2,59 (5)
$ec_{1,0\ L}$	(Tl)	335,68 - 338,37	0,446 (9)
$ec_{1,0\ M}$	(Tl)	347,33 - 348,64	0,1044 (22)
$\beta^-_{0,0}$	max:	574 (5)	0,276 (4)
$\beta^-_{0,0}$	avg:	172,9 (18)	

6 Photon Emissions

6.1 X-Ray Emissions

		Energy keV		Photons per 100 disint.	
XL	(Tl)	8,9531 — 14,7362		0,929 (19)	
XKα_2	(Tl)	70,8325		0,726 (16)	} Kα
XKα_1	(Tl)	72,8725		1,225 (27)	}
XKβ_3	(Tl)	82,118	}		
XKβ_1	(Tl)	82,577	}	0,417 (11)	K$'\beta_1$
XKβ''_5	(Tl)	83,115	}		
XKβ_2	(Tl)	84,838	}		
XKβ_4	(Tl)	85,134	}	0,124 (4)	K$'\beta_2$
XKO$_{2,3}$	(Tl)	85,444	}		

6.2 Gamma Emissions

	Energy keV	Photons per 100 disint.
$\gamma_{1,0}$(Tl)	351,03 (4)	13,00 (19)

7 Main Production Modes

$\mathrm{Pb-211}(\beta^-)\mathrm{Bi-211}$

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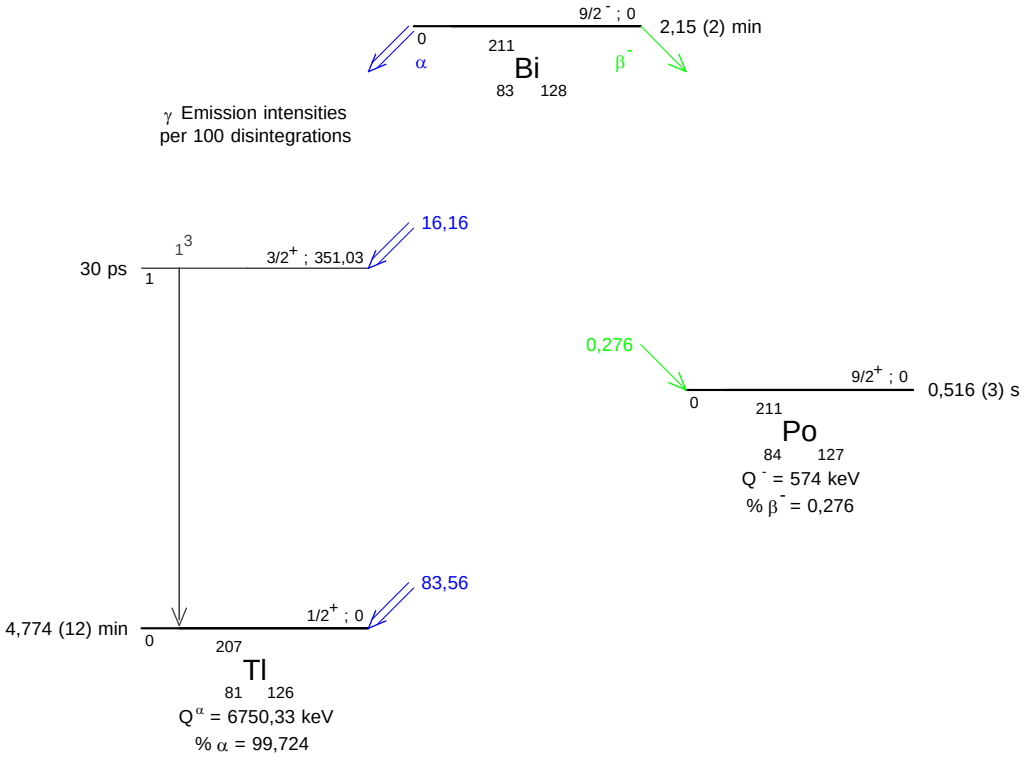
9/2 - ; 0
2,15 (2) min
0
211
α
Bi
β -
83 128
γ Emission intensities
per 100 disintegrations
16,16
1 3
30 ps
3/2+ ; 351,03
1
0,276
9/2+ ; 0
0,516 (3) s
0
211
Po
84 127
Q - = 574 keV
% β - = 0,276
83,56
1/2+ ; 0
4,774 (12) min
0
207
Tl
81 126
Q α = 6750,33 keV
% α = 99,724