

^{210}Bi α decay (5.012 d) [1962Ka27](#),[1959Wa05](#),[1969La18](#)

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	F. G. Kondev	NDS 201,346 (2025)	21-Jan-2025

Parent: ^{210}Bi : $E=0.0$; $J^\pi=1^-$; $T_{1/2}=5.012$ d 5; $Q(\alpha)=5036.5$ 8; $\% \alpha$ decay= 1.32×10^{-4} 10

^{210}Bi - $J^\pi, T_{1/2}$: From [2014Ba41](#).

^{210}Bi - $Q(\alpha)$: From [2021Wa16](#).

^{210}Bi -Dominant configuration= $\pi(h_{9/2}^{+1}) \otimes \nu(g_{7/2}^{+1})$.

^{210}Bi - $\% \alpha$ decay: From [1962Ka27](#). Others: 5×10^{-5} ([1947Br36](#)), 12.5×10^{-5} ([1959Wa05](#)), and 19×10^{-5} 4 ([1961Nu01](#)).

Data are primarily from [1959Wa05](#), [1962Ka27](#), and [1969La18](#). See also [1960Wa14](#) and [1961Nu01](#). Others: [1947Br36](#), [1953Lo09](#), [1956Ro18](#).

 ^{206}Tl Levels

$E(\text{level})^\dagger$	$J^\pi^\ddagger$	$T_{1/2}^\ddagger$	Comments
0	0^-	4.202 min 14	Dominant configuration= $\pi(s_{1/2}^{-1}) \otimes \nu(p_{1/2}^{-1})$.
265.832 5	2^-	2.29 ns 14	Dominant configuration= $\pi(d_{3/2}^{-1}) \otimes \nu(p_{1/2}^{-1})$.
304.896 6	1^-	4.2 ps 14	Dominant configuration= $\pi(s_{1/2}^{-1}) \otimes \nu(p_{1/2}^{-1})$.

† From a least-squares fit to E_γ .

‡ From Adopted Levels.

 α radiations

$E\alpha^\ddagger$	$E(\text{level})$	$I\alpha^\# @$	$\text{HF}^\dagger$	Comments
4650 4	304.896	≈ 60	≈ 58	$E\alpha$: From 1991Ri01 , based on 4649 keV (1959Wa05 , 1960Wa14) and 4660 keV (1969La18). Other: 4660 keV (1962Ka27).
4687 4	265.832	≈ 40	≈ 155	$E\alpha$: From 1991Ri01 , based on 4686 keV (1959Wa05 , 1960Wa14) and 4697 keV (1969La18). Other: 4700 keV (1962Ka27).

† $r_0(^{206}\text{Tl})=1.46$ 3, unweighted average of 1.449 21 (^{206}Hg), 1.408790 38 (^{206}Pb) and 1.52177 18 (^{208}Pb) ([2020Si16](#)).

‡ Placement of α branches is from $\alpha\gamma$ coincidences ([1969La18](#)).

$^\#$ From [1959Wa05](#) and [1969La18](#).

$@$ For absolute intensity per 100 decays, multiply by 13.2×10^{-7} 10.

 $\gamma(^{206}\text{Tl})$

$E_\gamma^\dagger$	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. ‡	$\alpha^\ddagger$	Comments
265.832 5	265.832	2^-	0	0^-	E2	0.1602	$\alpha(\text{K})=0.0855$ 12; $\alpha(\text{L})=0.0561$ 8; $\alpha(\text{M})=0.01440$ 21; $\alpha(\text{N}+..)=0.00428$ 6 $\alpha(\text{N})=0.00361$ 5; $\alpha(\text{O})=0.000639$ 9; $\alpha(\text{P})=3.09 \times 10^{-5}$ 5
304.896 6	304.896	1^-	0	0^-	M1	0.375	$\alpha(\text{K})=0.307$ 5; $\alpha(\text{L})=0.0519$ 8; $\alpha(\text{M})=0.01210$ 17; $\alpha(\text{N}+..)=0.00371$ 6 $\alpha(\text{N})=0.00306$ 5; $\alpha(\text{O})=0.000594$ 9; $\alpha(\text{P})=5.62 \times 10^{-5}$ 8

† From adopted gammas.

‡ Total theoretical internal conversion coefficients, calculated using the BrIcc code ([2008Ki07](#)) with “Frozen Orbitals” approximation based on γ -ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

^{210}Bi α decay (5.012 d) 1962Ka27,1959Wa05,1969La18

Decay Scheme

