^{186}Bi α decay (14.8 ms)　　2003An27,1997Ba21

	Type	Author	History Citation	Literature Cutoff Date
	Full Evaluation	Balraj Singh	NDS 130, 21 (2015)	15-Jul-2015

Parent: ^{186}Bi: E=0; J$^{\pi}$=(3^{+}); T$_{1/2}$=14.8 ms 8; Q(α)=7757 12; %α decay≈96.0

^{186}Bi-T$_{1/2}$: From 2003An27. Others: 15.0 ms 17 (1997Ba21), 10 ms 4 (1984ScZQ).

^{186}Bi-E: Assignment of the longer-lived activity of ^{186}Bi to g.s. is proposed by 1997Ba21 based on systematics, but 2003An27 do not assign energies to the two activities. Here the association of 14.8-ms activity to g.s. is considered as arbitrary.

^{186}Bi-J$^{\pi}$: Association of longer half-life activity with 3^{+} state is proposed by 1997Ba21. Systematics of even-even Bi isotopes predict 10^{-} and 3^{+} for the two activities. According to a detailed discussion by 2003An27 it is difficult to assign spins uniquely to the two activities, thus these authors preferred to leave the spins unassigned.

^{186}Bi-Q(α): from 2012Wa38.

^{186}Bi-%α decay: %α≈96. 2013La02 measured %β^{+}F≈7.6 for both the activities ^{186}Bi, assumed equal contribution from each activity.

2003An27: ^{186}Bi produced in ^{93}Nb(^{95}Mo,2n) E=419 MeV followed mass separation at GSI-SHIP facility. Measured Eα, Iα, $\alpha\gamma$ coin, isotopic half-life.

1997Ba21: ^{186}Bi produced in ^{97}Mo(^{92}Mo,p2n) E=420 MeV at ATLAS-ANL facility. Measured Eα, isotopic half-life.

Other: 1984ScZQ, measured Eα, T$_{1/2}$.

All data are from 2003An27, unless otherwise stated.

^{182}Tl Levels

E(level)
0+x
444+x
520+x

α radiations

Eα	E(level)	Iα[†]	HF	Comments
7150 80				Eα: complex structure including the four discrete α groups listed here. This structure may have different α groups and/or α-electron summing effects. Some of the peaks may be also contributed by other isomer of ^{186}Bi.
				In coin with following γ rays: 87, 98, 133, 215, 238, 276, 281, 371, 380, 444 and 520.
7120 15				Coin with 133γ.
7226 15				Coin with 238γ.
7080 15	520+x	28 14	1.7 9	
7152 15	444+x	100	1	Eα: others: 7158 20 (1997Ba21), 7191 25 (1984ScZQ).

[†] For absolute intensity per 100 decays, multiply by ≈0.96.

γ(^{182}Tl)

Eγ	E$_i$(level)	Eγ	E$_i$(level)	Eγ	E$_i$(level)	Eγ	E$_i$(level)	E$_f$
^{x}87		^{x}215		^{x}281		444 1	444+x	0+x
^{x}98		^{x}238 1		^{x}371		520 1	520+x	0+x
^{x}133 1		^{x}276		^{x}380				

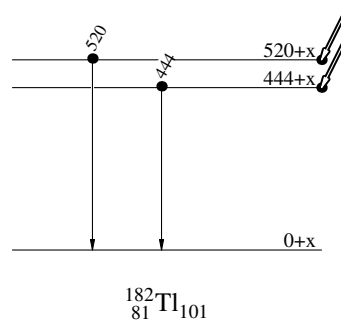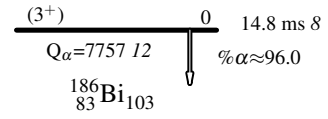^{x} γ ray not placed in level scheme.

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Legend   <u>Decay Scheme</u>

●   Coincidence

(3^+) 0   14.8 ms 8

Q_α=7757 12 %α≈96.0

$^{186}_{83}Bi_{103}$

$\underline{E\alpha}$	$\underline{I\alpha}$	$\underline{HF}$
7080	≈27	1.7
7152	96.0	1

520

444

520+x

444+x

0+x

$^{182}_{81}Tl_{101}$