^{186}Bi α decay (9.8 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+x; $J^{\pi}=(10^-)$; $T_{1/2}$=9.8 ms *4*; Q(α)=7757 *12*; %α decay≈96.0

^{186}Bi-$T_{1/2}$: From 2003An27. Other: 9.8 ms *13* (1997Ba21).

^{186}Bi-E: Assignment of the shorter-lived activity of ^{186}Bi to isomer is proposed by 1997Ba21 based on systematics, but 2003An27 do not assign energies to the two activities. Here the association of 9.8-ms activity to an isomer is considered as arbitrary. From systematics, 2012Au07 propose 170 *100* as the energy of this isomer.

^{186}Bi-J^{π}: Association of shorter half-life activity with 10^- state is proposed by 1997Ba21. Systematics of even-A 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 prefer 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 facility. Measured Eα, isotopic half-life.

All data are from 2003An27, unless otherwise stated.

^{182}Tl Levels

E(level)
0+y
108.5+y

α radiations

Eα	E(level)	Iα[†]	HF	Comments
7263 *5*	108.5+y	100	1	Eα: other: 7261 *20* (1997Ba21).
7369[‡] *10*	0+y	<2	>110	

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

[‡] Existence of this branch is questionable.

$\gamma(^{182}Tl)$

Eγ	E$_i$(level)	E$_f$	Mult.	α[†]	Comments
108.5 *5*	108.5+y	0+y	E1	0.351 *7*	α(K)=0.280 *5*; α(L)=0.0542 *11*; α(M)=0.01273 *24* α(N)=0.00316 *6*; α(O)=0.000578 *11*; α(P)=3.99×10^{-5} *8* Mult.: from 2003An27, deduced from summed α+electron spectra and simulated comparisons.

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

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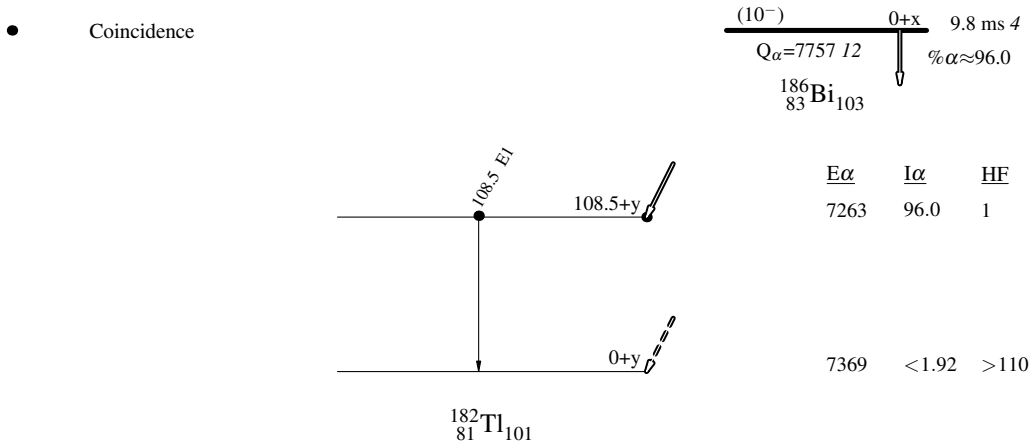
Legend

● Coincidence

Decay Scheme



Eα	Iα	HF
7263	96.0	1
7369	<1.92	>110