Adopted Levels, Gammas

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

Q(β^-)=−6480 *60*; S(n)=8580 *60*; S(p)=−60 *60*; Q(α)=6593 *15* 2012Wa38
S(2n)=20190 *80*, S(2p)=2290 *60*, Q(εp)=7270 *60* (2012Wa38).
^{182}Tl first identified by 1991Bo22 from mass separation of products from Th(p,X) spallation reaction at E(p)=600 MeV at the CERN/ISOLDE facility. Others: 1993BoZK, 1986Ke03 (6406α group reported may or may not belong to the decay of ^{182}Tl).
Additional information 1.

^{182}Tl Levels

Cross Reference (XREF) Flags

A ^{186}Bi α decay (14.8 ms)
B ^{186}Bi α decay (9.8 ms)

E(level)	J$^\pi$	$T_{1/2}$	XREF	Comments
0.0	(7$^+$)	3.1 s *10*		%ε+%β^+=97.5 *25*; %α<5 (1997Ba21,1991Bo22) %α: ≤5 (1997Ba21), <4 (1993BoZK), <5 (1991Bo22); no α observed by 1997Ba21 following decay of ^{186}Bi α decay. 1986Ke03 reported Eα=6406 *10*, in disagreement with Eα=6050 from 1993BoZK. In a recent communication (e-mail reply of July 16, 2015, from C. Van Beveren, KU, Leuven, Belgium), the evaluator learned that a paper on the α decay of ^{182},^{184}Tl is forthcoming from the experiments by the Leuven group at ISOLDE-CERN facility. $T_{1/2}$: from decay curve for γ rays (1991Bo22). Others: 2.8 s *6* from decay curve for 6050α and 2.0 s *3* from decay curve for β radiation (1993BoZK). Theoretical values of β-decay half-life of 3.88 s and α-decay half-life of 26.9 s (1997Mo25) suggest %α≈13%. J$^\pi$: possible β feeding of 8$^+$ state in ^{182}Hg; syst of neighboring thallium nuclides. 2003An27 also do not have much evidence for α decay from ^{182}Tl and do not confirm 6406α from 1986Ke03 and 6050α from 1993BoZK.
0+x			A	E(level): this level may correspond to the ground state of ^{182}Tl.
0+y			B	
108.5+y			B	
444+x			A	
520+x			A	

$\gamma(^{182}Tl)$

E$_i$(level)	E$_\gamma$	E$_f$	Mult.	$\alpha^\dagger$	Comments
108.5+y	108.5 *5*	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.
444+x	444 *1*	0+x			
520+x	520 *1*	0+x			

† 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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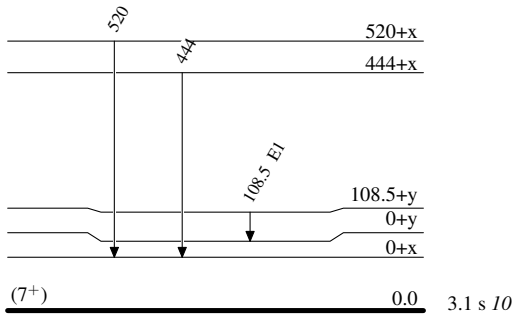
Level Scheme



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