^{182}Tl ε decay (3.1 s) 1991Bo22

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

Parent: ^{182}Tl: E=0.0; J^π=(7$^+$); $T_{1/2}$=3.1 s *10*; Q(ε)=10270 *60*; %ε+%$β^+$ decay=97.5 *25*

^{182}Tl-J^π,$T_{1/2}$: From ^{182}Tl Adopted Levels.

^{182}Tl-Q(ε): From 2012Wa38.

^{182}Tl-%ε+%$β^+$ decay: %α≤5 (1997Ba21), <4 (1993BoZK), no α observed by 1997Ba21 following decay of ^{186}Bi α decay. 1986Ke03 report 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.

Additional information 1.

Measured γ, γγ. Source produced by mass separation of products from Th(p,X) E=600 MeV spallation reaction.

Other: $T_{1/2}$(^{182}Tl)=2.8 s *6* from timing of α, 2.0 s *3* from timing of β (1993BoZK).

The level scheme is incomplete, so normalization for absolute γ-ray intensities or ε feedings cannot be done. There may be a low-spin isomer of ^{182}Tl contributing to this activity and possibly feeding 2$^+$ and 4$^+$ levels in ^{182}Hg.

^{182}Hg Levels

E(level)†	J^π‡
0.0	0$^+$
351.4 *3*	2$^+$
612.8 *4*	4$^+$
946.1 *5*	6$^+$
1359.9 *6*	8$^+$

† From Eγ data, assuming 0.3 keV uncertainty for each Eγ.

‡ From Adopted Levels.

γ(^{182}Hg)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.†	α‡
261.4	60	612.8	4$^+$	351.4	2$^+$	E2	0.162
333.3	30	946.1	6$^+$	612.8	4$^+$	E2	0.0785
351.4	100	351.4	2$^+$	0.0	0$^+$	E2	0.0672
413.8	20	1359.9	8$^+$	946.1	6$^+$	E2	0.0433

† From Adopted Gammas.

‡ 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.

^{182}Tl ε decay (3.1 s) 1991Bo22

Decay Scheme

Intensities: Relative I_γ