¹⁸²Tl ε decay (3.1 s) 1991Bo22

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

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

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

¹⁸²Tl-%ε+%β⁺ decay: %α≤5 (1997Ba21), <4 (1993BoZK), no α observed by 1997Ba21 following decay of ¹⁸⁶Bi 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, ¹⁸⁴Tl is forthcoming from the experiments by the Leuven group at ISOLDE-CERN facility.

Additional information 1.

Measured γ , $\gamma\gamma$. Source produced by mass separation of products from Th(p,X) E=600 MeV spallation reaction. Other: T_{1/2}(¹⁸²Tl)=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.

¹⁸²Hg Levels

E(level) [†]	$J^{\pi \ddagger}$
0.0	0+
351.4 <i>3</i>	2+
612.8 <i>4</i>	4+
946.1 5	6^{+}
1359.9 6	8+

[†] From Ey data, assuming 0.3 keV uncertainty for each Ey.

$$\gamma(^{182}\text{Hg})$$

E_{γ}	I_{γ}	$E_i(level)$	\mathbf{J}_i^{π}	$\mathbf{E}_f \mathbf{J}_f^{\pi}$	Mult. [†]	α^{\ddagger}
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.

 $^{^{182}}$ Tl-Q(ε): From 2012Wa38.

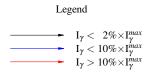
[‡] From Adopted Levels.

 $^{^{\}ddagger}$ 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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Decay Scheme

Intensities: Relative I_{γ}



$$\%\varepsilon + \%\beta^{+} = 97.5 / \frac{(7^{+}) \qquad 0.0}{Q_{\varepsilon} = 10270 \ 60} \qquad 3.1 \ s \ 10$$

$$\frac{182}{81} \text{Tl}_{101}$$

