^{197}Tl IT decay (0.54 s)

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Huang Xiaolong, Zhou Chunmei	NDS 104, 283 (2005)	1-Jan-2002

Parent: ^{197}Tl: E=608.22 *8*; $J^\pi=9/2^-$; $T_{1/2}$=0.54 s *1*; %IT decay=100.0
Sources produced by daughter of ^{197}Pb IT decay (1955An01,1957An54), ^{197}Au(α,4n) (1963Di10).

^{197}Tl Levels

E(level)†	Jπ‡	$T_{1/2}$	Comments
0.0	$1/2^+$	2.84 h *4*	$T_{1/2}$: from ce-decay curves (1961Ju05) chem, ms. Others: 1955An01, 1955Kn34, 1957An53, 1979Br12.
385.8 *3*	$3/2^+$		
608.2 *28*	$9/2^-$	0.54 s *1*	%IT=100 $T_{1/2}$: from 1953He57. Others: 0.55 s *10* (1957An54), 0.53 s *3* (1963Di10), 0.55 s *2* (1965Sc18). (222γ)(386γ)(θ): anisotropy=0.31 *5*, A_2(386γ)=0.19 *3* (1966Sc28).

† From decay scheme and γ's by using least-squares fit to data.
‡ From Adopted Levels.

γ(^{197}Tl)

Iγ normalization: For %IT=100 isomer decays with α(222γ,E3)=2.28.

E_γ	I_γ†#	E_i(level)	J_i^π	E_f	J_f^π	Mult.‡	δ	α@	Comments
222.45 *5*	30.5 *10*	608.2	$9/2^-$	385.8	$3/2^+$	E3		2.28	α(K)= 0.358; α(L)= 1.417; α(M)= 0.384; α(N+..)= 0.1250 E_γ: from 1957An54, ce. Others: 222.8 *1* (1977Ve02), 222.5 *2* (1978Li10). I_γ: Iγ/Iγ(3850)=0.33 from I(ce) data. α(K)exp=0.41 *5* (1965Sc18) K x ray/Iγ, scin; 0.38 *6* (1979CoZI) semi. L1:L2:L3=26 *3*:217 *12*:100 (1957An54); L1+L2/L3=2.5 (1957An53), 2.4 *4* (1979CoZI). K/L=0.242 *18* (1957An54), 0.28 *5* (1963Di10), 0.226 *41* (1979CoZI).
385.8 *3*	91.4 *11*	385.8	$3/2^+$	0.0	$1/2^+$	M1+E2	+1.7 *3*	0.094 *13*	α(K)= 0.070 *11*; α(L)= 0.0180 *12*; α(M)=0.00438 *25*; α(N+..)=0.00140 *8* E_γ: from (^{3}He,3nγ). Others: 385.6 *2* (α,4nγ), 385.85 *10* (^{197}Pb ε decay). I(ce(K) 386γ)/I(ce(L) 222γ)=0.136 (1957An53,1957An54), 0.146 (1963Di10). α(K)exp=0.09 *3* (1965Sc18), 0.103 *10* (1966Sc28), 0.068 *11* (1979CoZI). K/L=3.5 (1957An53), 3.4 *4* (1963Di10). δ: derived from I(γ+ce)(386γ,M1+E2)= I(γ+ce)(222γ,E3) required for level intensity balance; sign from $\gamma\gamma(\theta)$ (1966Sc28). Others: 1.0 *1* (α(K)exp=0.103 *10*), 1.8 *4* (α(K)exp=0.068 *11*), +0.82 *14* (A_2=0.19

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^{197}Tl IT decay (0.54 s) (continued)

$\gamma(^{197}Tl)$ (continued)

E_γ	E_i(level)	Comments
		3), 2.4 *8* (K/L=3.4 *4*). Analog: $\delta(384\gamma,^{195}Tl)$=1.8 *4*.

† Relative intensities calculated from I(γ+ce)=100 and α.
‡ From α(K)exp measurements.
# Absolute intensity per 100 decays.
@ 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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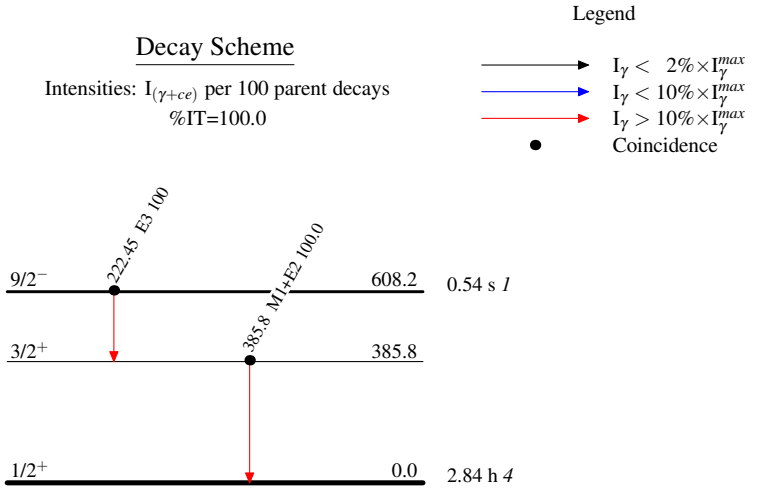
Decay Scheme

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
%IT=100.0



$^{197}_{81}Tl_{116}$