^{195}Pb ε decay (≈15 min) 1982Hi04,1977CoZM

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Huang Xiaolong and Kang Mengxiao	NDS 121, 395 (2014)	1-Mar-2014

Parent: ^{195}Pb: E=0.0; $J^\pi=3/2^-$; $T_{1/2}$≈15 min; Q(ε)=4442 *26*; %ε+%$β^+$ decay=100.0
Sources produced by ^{197}Au(^{6}Li,8n) (1982Hi04), ^{203}Tl(p,9n) (1957An53), and ^{181}Ta(^{19}F,5n) (1974Ne16).
ms sources of ^{195}Pb are mixed: isomer + g.s.
1982Hi04: measured Eγ, Iγ, γγ-coin, and $T_{1/2}$ with Ge(Li). Analyzed with Nilsson configurations.
1977CoZM: measured Eγ, relative γ-ray intensities, and partial decay scheme.
Decay schemes of 1982Hi04 and 1977CoZM are different. One of 1982Hi04 adopted by evaluators.

^{195}Tl Levels

All data are from γ's and scheme (1982Hi04), using least-squares fit to data.

E(level)	J^π †	Comments
0.0	$1/2^+$	
383.66 *12*	$3/2^+$	
777.55 *17*	$(5/2^+)$	J^π: follows E(level) trend of ^{197}Tl-^{201}Tl. See 1977Sc03.
811.1 *6*		
1079.7 *8*		
1267.0 *3*	$(1/2^+,3/2^+,5/2^+)$	
1285.3 *4*		
1378.0?		
1434.7 *7*		
1612.7 *9*	$(3/2^+,5/2^+,7/2^+)$	
1648.7 *6*		
1687.9 *7*		
1843.7 *10*		
1844.8 *5*		

† From Adopted Levels.

ε,$β^+$ radiations

E(decay)	E(level)
$(2.60\times10^3$ *3*)	1844.8
$(2.60\times10^3$ *3*)	1843.7
$(2.75\times10^3$ *3*)	1687.9
$(2.79\times10^3$ *3*)	1648.7
$(3.06\times10^3$ *3*)	1378.0?
$(3.16\times10^3$ *3*)	1285.3
$(3.18\times10^3$ *3*)	1267.0
$(3.36\times10^3$ *3*)	1079.7
$(3.63\times10^3$ *3*)	811.1

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γ(^{195}Tl)

Iγ normalization: Can not be given because a g.s. ε+β$^+$ expected feeding is unknown.
All data are from 1982Hi04, except as noted.

E_γ[#]	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	δ	α[@]	Comments
196.1 *5*	0.80 *15*	1844.8		1648.7					E_γ: authors report Eγ=196.6 in their Eγ, Iγ table; but 196.1 in their decay scheme, in γγ spectrum, and in their γγ table.
253.2 *5*	0.5 *1*	1687.9		1434.7					
346.0[&] *5*	0.3 *2*	1612.7	(3/2$^+$,5/2$^+$,7/2$^+$)	1267.0	(1/2$^+$,3/2$^+$,5/2$^+$)				E_γ,I_γ: 346γ is shown in E(level)=1648 in authors′ decay scheme and γγ table. But this transition does not fit between the 1648 and 1267 levels. The transition probably deexcites the 1612.7 level instead.
383.64 *12*		383.66	3/2$^+$	0.0	1/2$^+$	M1+E2	1.8 *+4−3*	0.090 *11*	α(K)=0.067 *10*; α(L)=0.0176 *10*; α(M)=0.00430 *22*; α(N+..)=0.00130 *7* I_γ: no value given by 1982Hi04. δ: from exp K/L (1963Di10) ^{195}Tl IT decay.
393.7 *3*	4.5 *4*	777.55	(5/2$^+$)	383.66	3/2$^+$				E_γ: from 1977LiZG.
427.4 *5*	0.9 *2*	811.1		383.66	3/2$^+$				
507.8 *3*	0.7 *2*	1285.3		777.55	(5/2$^+$)				
578.0 *5*	0.4 *2*	1844.8		1267.0	(1/2$^+$,3/2$^+$,5/2$^+$)				
696.0 *8*	3.3 *4*	1079.7		383.66	3/2$^+$				
777.6 *2*	3.2 *4*	777.55	(5/2$^+$)	0.0	1/2$^+$				
835.2 *8*	1.70 *25*	1612.7	(3/2$^+$,5/2$^+$,7/2$^+$)	777.55	(5/2$^+$)	M1		0.0261	α(K)exp=0.031 *9* (1977CoZM) α(K)=0.0215 *3*; α(L)=0.00353 *5*; α(M)=0.000820 *12*; α(N+..)=0.000251 *4*
871.0 *8*	3.8 *5*	1648.7		777.55	(5/2$^+$)				
883.1 *3*	10.6 *9*	1267.0	(1/2$^+$,3/2$^+$,5/2$^+$)	383.66	3/2$^+$	(E2)		0.00811	α(K)exp=0.009 *6* (1977CoZM) α(K)=0.00641 *9*; α(L)=0.001293 *19*; α(M)=0.000308 *5*; α(N+..)=9.35×10^{-5} *14*
994.3[&] *8*	1.1 *2*	1378.0?		383.66	3/2$^+$				E_γ: E(level)=1327.9 given by authors; however, Eγ=994.3 to 383.66 level defining a level at 1378.0.
1051.0 *8*	0.9 *2*	1434.7		383.66	3/2$^+$				
1067.0 *8*	1.1 *2*	1844.8		777.55	(5/2$^+$)				
1304.2 *8*	1.70 *25*	1687.9		383.66	3/2$^+$				
1460.1 *8*	1.40 *25*	1843.7		383.66	3/2$^+$				

[†] Relative photon intensities normalized to Iγ(394.6γ in ^{195}Pb ε decay (15 min))=100.
[‡] Deduced from α(K)exp=ce(K)/Iγ normalized to α(K)(708γ,E2)=0.0099 (1977CoZM).
[#] From 1977CoZM.

$^{195}_{81}Tl_{114}$-2

^{195}Pb ε decay (≈15 min) 1982Hi04,1977CoZM (continued)

$\gamma(^{195}Tl)$ (continued)

[@] 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.
[&] Placement of transition in the level scheme is uncertain.

$^{195}_{81}Tl_{114}$-3

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Decay Scheme

Intensities: Relative $I_{(\gamma+ce)}$

Legend

- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$
- γ Decay (Uncertain)
- Coincidence