^{204}Hg(t,2nγ) 1982Ma05,1984Be14

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	F. G. Kondev	NDS 166, 1 (2020)	20-Apr-2020

Target: liquid ^{204}Hg, enriched to >98%; beam: E(t)=16 MeV (1982Ma05) and 14.2 MeV (1984Be14), pulsed 1 ns on/12.8 μs off; detectors:Ge(Li). measured: $\gamma\gamma$ coin, $\gamma(\theta)$, $\gamma(\theta$,H), Eγ, Iγ, $T_{1/2}$, g-factor.

^{205}Tl Levels

E(level)[†]	J$^\pi$[‡]	$T_{1/2}$	Comments
0.0	1/2$^+$		J$^\pi$: From Adopted Levels. configuration=$\pi(s^{-1}_{1/2})$.
203.67 *5*	3/2$^+$		configuration=$\pi(d^{-1}_{3/2})$.
619.3 *6*	5/2$^+$		Probably a mixture of configuration=$\pi(d^{-1}_{5/2})$ and configuration=$\pi(s^{-1}_{1/2})\otimes 2^+$.
923.76 *7*	7/2$^+$		
1429.51 *13*	9/2$^+$		
1483.89 *13*	11/2$^-$		configuration=$\pi(h^{-1}_{11/2})$.
2054.44 *16*	15/2$^-$		configuration: $\pi(h^{-1}_{11/2})\otimes\nu(p^{-1}_{1/2},f^{-1}_{5/2})_{2^+}$.
2394.04 *17*	17/2$^-$		A mixture of $\pi(d^{-1}_{3/2})\otimes\nu(p^{-1}_{1/2},i^{-1}_{13/2})_{7^-}$ and $\pi(s^{-1}_{1/2})\otimes\nu(f^{-1}_{5/2},i^{-1}_{13/2})_{8^-}$ configurations.
2551.40 *18*	19/2$^-$		A mixture of $\pi(s^{-1}_{1/2})\otimes\nu(f^{-1}_{5/2},i^{-1}_{13/2})_{9^-}$ and $\pi(d^{-1}_{5/2})\otimes\nu(p^{-1}_{1/2},i^{-1}_{13/2})_{7^-}$ configurations.
3290.56 *21*	25/2$^+$	2.6 μs *2*	$T_{1/2}$: From γ(t) in 1982Ma05 and 1984Be14. μ=+6.80 *10* using g=0.544 *8* (1982Ma05). configuration: $\pi(h^{-1}_{11/2})\otimes\nu(p^{-1}_{1/2},i^{-1}_{13/2})_{7^-}$.

[†] From a least-squares fit to Eγ.
[‡] From $\gamma(\theta)$ and multiple decay branches in 1984Be14, unless otherwise specified.

$\gamma(^{205}$Tl)

E$_\gamma$[†]	I$_\gamma$[†]	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.[†]	δ[†]	α[‡]	Comments
54.38 *3*		1483.89	11/2$^-$	1429.51	9/2$^+$	E1		0.460	α(L)=0.352 *5*; α(M)=0.0834 *12* α(N)=0.0205 *3*; α(O)=0.00361 *5*; α(P)=0.000208 *3* Mult.: A$_2$=−0.20 *1*, A$_4$=−0.01 *1* (1984Be14).
157.38 *10*	24	2551.40	19/2$^-$	2394.04	17/2$^-$	M1+E2	−0.03 *1*	2.36	α(K)=1.93 *3*; α(L)=0.330 *5*; α(M)=0.0770 *11* α(N)=0.0195 *3*; α(O)=0.00378 *6*; α(P)=0.000357 *5* Mult.: A$_2$=−0.25 *1*, A$_4$=−0.01 *1* (1984Be14).
203.67 *5*	80 *8*	203.67	3/2$^+$	0.0	1/2$^+$	M1+E2	2 *1*	0.54 *23*	α(K)=0.32 *24*; α(L)=0.165 *4*; α(M)=0.0419 *19* α(N)=0.0105 *5*; α(O)=0.00188 *4*; α(P)=0.00010 *3* Mult.: A$_2$=+0.34 *1*, A$_4$=0.00 *1* (1984Be14).
339.61 *5*	53	2394.04	17/2$^-$	2054.44	15/2$^-$	M1+E2	−0.12 *2*	0.277	α(K)=0.227 *4*; α(L)=0.0384 *6*; α(M)=0.00896 *13* α(N)=0.00226 *4*; α(O)=0.000439 *7*; α(P)=4.14×10^{-5} *6* Mult.: A$_2$=−0.36 *1*, A$_4$=+0.01 *1* (1984Be14).
415.71 *5*		619.3	5/2$^+$	203.67	3/2$^+$	M1+E2	−0.069 *11*	0.1619	α(K)=0.1329 *19*; α(L)=0.0223 *4*; α(M)=0.00519 *8*

Continued on next page (footnotes at end of table)

^{204}Hg(t,2nγ) 1982Ma05,1984Be14 (continued)

$\gamma(^{205}Tl)$ (continued)

E_γ[†]	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	δ[†]	α[‡]	Comments
									α(N)=0.001311 *19*; α(O)=0.000255 *4*; α(P)=2.41×10^{-5} *4*
496.94 *10*	13	2551.40	19/2$^-$	2054.44	15/2$^-$	[E2]		0.0285	E$_\gamma$,Mult.,δ: From adopted gammas. α(K)=0.0204 *3*; α(L)=0.00617 *9*; α(M)=0.001526 *22* α(N)=0.000384 *6*; α(O)=7.04×10^{-5} *10*; α(P)=4.75×10^{-6} *7*
505.75 *10*	62 *6*	1429.51	9/2$^+$	923.76	7/2$^+$	M1+E2	−0.10 *2*	0.0958	α(K)=0.0787 *12*; α(L)=0.01313 *19*; α(M)=0.00306 *5* α(N)=0.000772 *11*; α(O)=0.0001500 *22*; α(P)=1.421×10^{-5} *21* Mult.: A$_2$=−0.32 *1*, A$_4$=−0.01 *1* (1984Be14).
570.55 *10*	100 *10*	2054.44	15/2$^-$	1483.89	11/2$^-$	E2		0.0206	α(K)=0.01523 *22*; α(L)=0.00408 *6*; α(M)=0.001000 *14* α(N)=0.000251 *4*; α(O)=4.65×10^{-5} *7*; α(P)=3.33×10^{-6} *5* Mult.: A$_2$=+0.29 *1*, A$_4$=−0.06 *1* (1984Be14).
619.35 *7*		619.3	5/2$^+$	0.0	1/2$^+$	E2		0.01713	α(K)=0.01287 *18*; α(L)=0.00323 *5*; α(M)=0.000787 *11* α(N)=0.000198 *3*; α(O)=3.68×10^{-5} *6*; α(P)=2.72×10^{-6} *4* E$_\gamma$,Mult.: From adopted gammas.
720.09 *5*	83 *8*	923.76	7/2$^+$	203.67	3/2$^+$	E2		0.01235	α(K)=0.00952 *14*; α(L)=0.00215 *3*; α(M)=0.000519 *8* α(N)=0.0001306 *19*; α(O)=2.45×10^{-5} *4*; α(P)=1.91×10^{-6} *3* Mult.: A$_2$=+0.28 *1*, A$_4$=−0.05 *1* (1984Be14).
739.16 *10*	100 *10*	3290.56	25/2$^+$	2551.40	19/2$^-$	E3		0.0305	α(K)=0.0208 *3*; α(L)=0.00735 *11*; α(M)=0.00184 *3* α(N)=0.000465 *7*; α(O)=8.57×10^{-5} *12*; α(P)=6.06×10^{-6} *9* Mult.: A$_2$=+0.50 *1*, A$_4$=+0.05 *1* (1984Be14).
810.13 *5*	13 *2*	1429.51	9/2$^+$	619.3	5/2$^+$	[E2]		0.00966	α(K)=0.00757 *11*; α(L)=0.001595 *23*; α(M)=0.000382 *6* α(N)=9.62×10^{-5} *14*; α(O)=1.81×10^{-5} *3*; α(P)=1.464×10^{-6} *21* E$_\gamma$,I$_\gamma$: From adopted gammas.

[†] From 1984Be14.
[‡] Additional information 1.

^{204}Hg(t,2nγ) 1982Ma05,1984Be14

Level Scheme

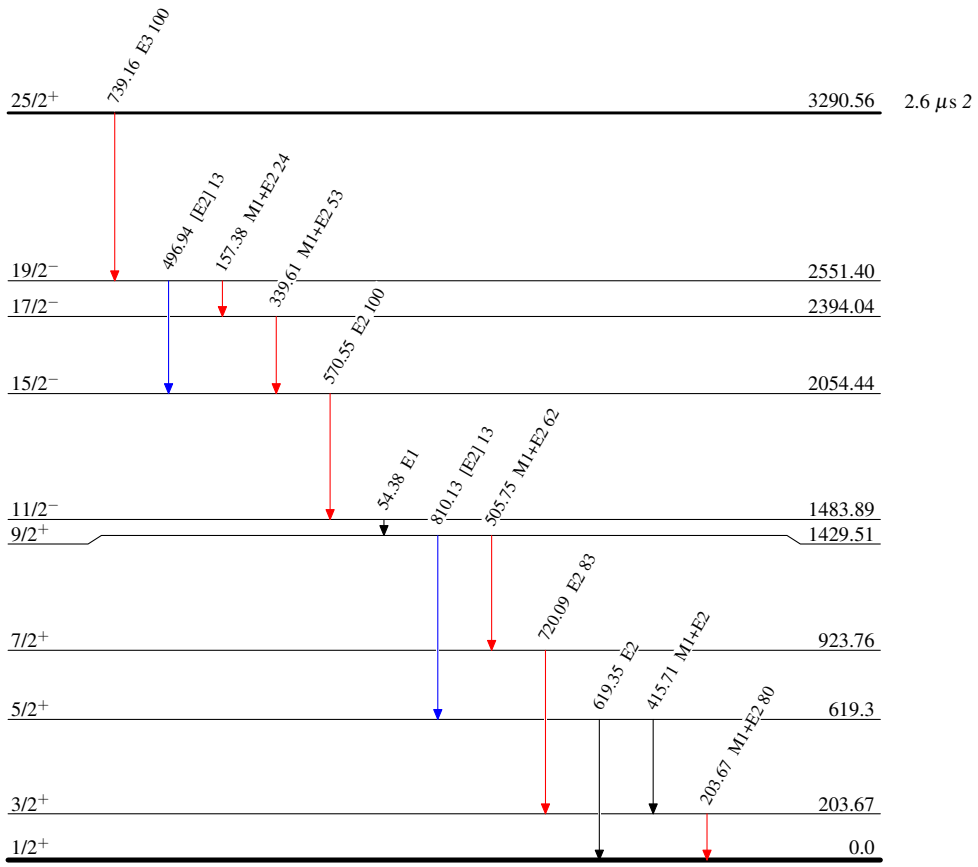
Intensities: Relative I_γ

Legend

$I_\gamma < 2\% \times I_\gamma^{max}$

$I_\gamma < 10\% \times I_\gamma^{max}$

$I_\gamma > 10\% \times I_\gamma^{max}$



$^{205}_{81}Tl_{124}$