^{198}Hg(α,2nγ) 1973Dj01,1978Mc03

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	F. G. Kondev	NDS 192,1 (2023)	1-Aug-2023

1973Dj01: Beam: E(α)=40 MeV from the Princeton Cyclotron Laboratory; Target: enriched to 95% in ^{198}Hg; Detectors: Ge(Li) and NaI(Tl); Measured: γ, $\gamma\gamma$(t), $\gamma\gamma(\theta)$, Iγ, Eγ; Deduced: $T_{1/2}$, level scheme.

1978Mc03: Beam: E(α)=30 MeV from the Crocker Nuclear Laboratory; Target ^{198}HgO enriched to 93% in ^{198}Hg; Detectors: solenoidal magnet, one Si(Li) detector; Measured: ce, γ, Iγ, Eγ, $T_{1/2}$.

Others: 1974Lu03, 1979Ma37, 1985St16.

^{200}Pb Levels

E(level)[†]	J$^\pi$[‡]	$T_{1/2}$	Comments
0	0$^+$		
1026.3 *5*	2$^+$		
1488.3 *7*	4$^+$		
1907.9 *8*	5$^-$		
2152.9 *9*	7$^-$	43 ns *3*	$T_{1/2}$: From γ(t) in 1974Lu03. Others: 40 ns *7* (1978Mc03) and 42 ns *4* (1985St16). g=−0.030 *15* (1985St16) and Q=0.32 eb *2* (1979MaYQ) using the time-differential perturbed angular distribution technique.
2182.4 *14*	9$^-$	480 ns *20*	$T_{1/2}$: From γ(t) in 1974Lu03; Others: ≈0.5 μs (1973Dj01), 480 ns *60* (1978Mc03) and 445 ns *15* (1985St16). configuration: Pure $\nu(f_{5/2}^{-1},i_{13/2}^{-1})$, from comparison between g(exp)=−0.0285 *11* and g(th)=−0.025 *8* in 1974Lu03. g=−0.0285 *11* (1974Lu03) and −0.028 *4* (1985St16); Q=0.40 eb *2* (1979MaYQ); the time differential perturbed angular distribution technique.
2958.6 *16*	10$^+$		
3004.0 *16*	12$^+$	194 ns *6*	$T_{1/2}$: from γ(t) in 1979Ma37. Other: 180 ns *30* (1978Mc03). Q=0.79 eb *3* from 1979Ma37 normalized to Q=0.51 eb *2* in ^{206}Pb using the time-differential perturbed angular distribution technique.

[†] From a least squares fit to Eγ.

[‡] From 1978Mc03, based on the deduced γ-ray transition multipolarities.

$\gamma(^{200}Pb)$

E$_\gamma$[†]	I$_\gamma$[†]	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.[‡]	α[#]	Comments
29.5 *10*		2182.4	9$^-$	2152.9	7$^-$			E$_\gamma$: From adopted gammas.
45.4 *4*		3004.0	12$^+$	2958.6	10$^+$			E$_\gamma$: From adopted gammas; ≤ 50 keV in 1978Mc03.
[x]184.5 *3*	13.6							
245.0 *4*	72.5	2152.9	7$^-$	1907.9	5$^-$	E2	0.2166 *32*	α(K)=0.1047 *15*; α(L)=0.0837 *13*; α(M)=0.02170 *34* α(N)=0.00548 *9*; α(O)=0.000999 *15*; α(P)=5.52×10^{-5} *8* Mult.: α(K)exp=0.107 *14*, α(L)exp=0.084 *11* and α(M)exp=0.021 *4*.
[x]300.7 *5*								
[x]324.9 *10*	7.7							
419.6 *4*		1907.9	5$^-$	1488.3	4$^+$	E1	0.01389 *20*	α(K)=0.01145 *16*; α(L)=0.001871 *27*; α(M)=0.000435 *6* α(N)=0.0001099 *16*; α(O)=2.150×10^{-5} *30*; α(P)=2.072×10^{-6} *29* Mult.: α(K)exp=0.0126 *18* and α(L)exp=0.0018 *5*.
462.0 *4*	81.5	1488.3	4$^+$	1026.3	2$^+$	E2	0.0356 *5*	α(K)=0.02458 *35*; α(L)=0.00833 *12*; α(M)=0.002081 *30*

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^{198}Hg(α,2nγ) 1973Dj01,1978Mc03 (continued)

$\gamma(^{200}Pb)$ (continued)

E_γ [†]	I_γ [†]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [‡]	α [#]	Comments
								α(N)=0.000527 *8*; α(O)=9.91×10^{-5} *14*; α(P)=7.48×10^{-6} *11* Mult.: α(K)exp=0.025 *3*, α(L)exp=0.0084 *12* and α(M)exp=0.0022 *3*.
[x]490.1 *6*								
776.2 *8*	37	2958.6	10$^+$	2182.4	9$^-$	E1	0.00399 *6*	α(K)=0.00332 *5*; α(L)=0.000515 *7*; α(M)=0.0001191 *17* α(N)=3.01×10^{-5} *4*; α(O)=5.95×10^{-6} *8*; α(P)=6.05×10^{-7} *9* E_γ: Placement from 1978Mc03. Seen also in singles in 1973Dj01. Mult.: α(K)exp=0.0038 *14*.
[x]978.6 *7*								
1026.3 *5*	100	1026.3	2$^+$	0	0$^+$	E2	0.00633 *9*	α(K)=0.00506 *7*; α(L)=0.000973 *14*; α(M)=0.0002314 *32* α(N)=5.86×10^{-5} *8*; α(O)=1.147×10^{-5} *16*; α(P)=1.111×10^{-6} *16* Mult.: α(K)exp=0.0043 *9* and α(L)exp=0.0008 *3*.

[†] From 40-MeV data in 1973Dj01, unless otherwise stated.
[‡] From α(K)exp, α(L)exp and α(M)exp, determined by the evaluator from the measured γ and ce intensities in 1978Mc03.
[#] Additional information 1.
[x] γ ray not placed in level scheme.

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Level Scheme

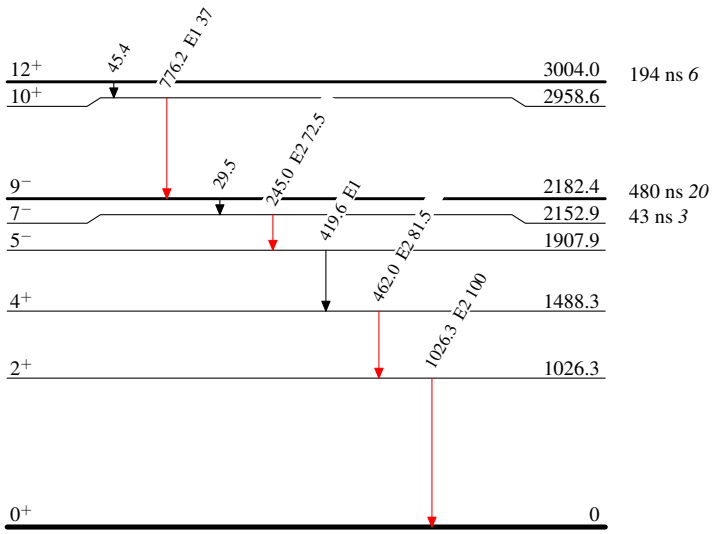
Intensities: Relative I_γ

Legend

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

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

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



$^{200}_{82}Pb_{118}$