^{202}Hg(α,4nγ),^{200}Hg(α,2nγ) 1986Ja13,1987Fa15

	History		
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	F. G. Kondev	NDS 196,342 (2024)	1-Sep-2023

1986Ja13: E=35 MeV for (α,2n), 55 MeV for (α,4n); Target: metallic, enriched, 240 mg/cm^2 , placed between 2 mica foils; Detectors: 2 Ge(Li); Measured: γ(t), γγ coin, γ(θ), γ(θ,H). Deduced: level scheme, $T_{1/2}$, g factors.

1987Fa15: E(α)=53 MeV. Target: enriched metallic, 150-200 mg/cm^2, placed between 2 mica foils. Detectors: Si(Li), Ge and Ge(Li). Measured: γγ coin, γγ(t), γ(t), γ(θ), γ(θ,H) and ce; Deduced: level scheme, J^π, $T_{1/2}$, g factors.

Others: 1971BeXA, 1973WyZZ, 1974Lu03.

^{202}Pb Levels

E(level)[†]	J^π[‡]	$T_{1/2}$	Comments
0	0^+		
960.7 *5*	2^+[#]		
1382.8 *7*	4^+[#]		
2040.1 *9*	5^-[#]		
2169.6 *9*	9^-[#]	3.54 h *2*	$T_{1/2}$: From Adopted Levels. configuration: $\nu(f_{5/2}^{-1},i_{13/2}^{-1})$.
2208.2 *10*	7^-[#]	65.5 ns *5*	$T_{1/2}$: Weighted average of 65.0 ns *5* [168.1γ(t)], 65.0 ns *3* [422.1γ(t)], 66.7 ns *3* [657.3γ(t)], and 65.0 ns *3* [960.7γ(t)] in 1986Ja13. Other: 42 ns *4* in 1974Lu03. configuration: $\nu(p_{1/2}^{-1},i_{13/2}^{-1})$.
3057.7 *10*	11^-		
3191.1 *10*	10^+		
3237.5 *11*	12^+	24.2 ns *4*	$T_{1/2}$: Weighted average of 24.6 ns *5* [179.7γ(t)], 23.4 ns *3* [888.1γ(t)] and 24.5 ns *2* [1021.5γ(t)] in 1986Ja13. configuration: $\nu(i_{13/2}^{-2})$.
3328.8 *11*	12		
3955.4 *11*	13^+		
4022.7 *12*	(12,13)		
4068.1 *12*	13		
4090.8 *12*	14^+		
4090.8+x	16^+	108.6 ns *20*	Additional information 1. g=−0.042 *10* (corrected for Knight shift and diamagnetic shielding in 1986Ja13). $T_{1/2}$: Weighted average of 120 ns *6* [179.7γ(t)], 108.5 ns *20* [853.3γ(t)], 105.5 ns *30* [888.1γ(t)] and 112 ns *9* [1021.5γ(t)] in 1986Ja13. configuration: Dominant $\nu(f_{5/2}^{-2},i_{13/2}^{-2})$.
4170.4 *11*	14^+		configuration: Dominant $\nu(p_{1/2}^{-1},f_{5/2}^{-1},i_{13/2}^{-2})$.
4322.5+x *4*	15		
4445.1+x *4*	16^+		configuration: Dominant $\nu(p_{3/2}^{-1},f_{5/2}^{-1},i_{13/2}^{-2})$.
4452.2+x *6*	16		
5241.7+x *4*	17^-		
5250.7+x *5*	18^+		
5250.7+y	19^-	107 ns *3*	Additional information 2. g=−0.099 *3* (corrected for Knight shift and diamagnetic shielding in 1987Fa15,1987Ja08). $T_{1/2}$: Weighted average of 107 ns *3* [1151.0γ(t)] and 109 ns *8* [796.6γ(t)] in 1987Fa15. configuration: Dominant $\nu(f_{5/2}^{-1},i_{13/2}^{-3})$.
5453.2+y *5*	(18^-)		
5939.9+y *5*	(20^-)		
6091.2+y *5*	21^-		

† From a least-squares fit to Eγ by assuming ΔEγ=0.5 keV.
‡ From 1987Fa15, unless otherwise stated.
# From Adopted Levels.

^{202}Hg(α,4nγ),^{200}Hg(α,2nγ) 1986Ja13,1987Fa15 (continued)

γ(^{202}Pb)

E_γ†	I_γ†	E_i(level)	J^π_i	E_f	J^π_f	Mult.†	α@	Comments
(46.4)	0.051 3	3237.5	12+	3191.1	10+	[E2]	233.3 33	α(L)=174.0 24; α(M)=45.7 6 α(N)=11.50 16; α(O)=2.035 28; α(P)=0.0696 10 E_γ: Calculated from level energy differences. I_γ: From intensity ratio of the delayed component of 888.1γ and 1021.5γ, I(γ+ce)(179.7γ)/I(γ+ce)(46.3γ)=7.6 4 (1986Ja13).
122.5		4445.1+x	16+	4322.5+x	15			
129.7	0.6	4452.2+x	16	4322.5+x	15	D		Mult.: A_2=−0.38 17, A_4=0.01 28 (1987Fa15).
168.1‡	7.3	2208.2	7−	2040.1	5−	E2#	0.797 11	α(K)=0.2485 35; α(L)=0.409 6; α(M)=0.1074 15 α(N)=0.0271 4; α(O)=0.00488 7; α(P)=0.0002272 32 A_2=−0.05 7, A_4=0.18 9 (1987Fa15).
179.7	82	3237.5	12+	3057.7	11−	E1	0.1015 14	α(K)=0.0823 12; α(L)=0.01477 21; α(M)=0.00347 5 α(N)=0.000870 12; α(O)=0.0001668 23; α(P)=1.435×10^{-5} 20 Mult.: From α(exp) from intensity balance and A_2=−0.20 7, A_4=0.06 9 in 1986Ja13.
202.5	1.8	5453.2+y	(18−)	5250.7+y	19−	D		Mult.: A_2=−0.48 10, A_4=−0.05 15 (1987Fa15).
215.0	1.0	4170.4	14+	3955.4	13+	(M1)	1.070 15	α(K)=0.874 12; α(L)=0.1501 21; α(M)=0.0352 5 α(N)=0.00894 13; α(O)=0.001782 25; α(P)=0.0001905 27 Mult.: A_2=−0.6 4, A_4=0.29 55 (1987Fa15).
231.8	<4	4322.5+x	15	4090.8+x	16+	D		Mult.: A_2=−0.24 3, A_4=0.05 5 (1987Fa15).
271.1	4.6	3328.8	12	3057.7	11−	D		Mult.: A_2=−0.44 5, A_4=0.08 7 (1987Fa15).
354.4	40	4445.1+x	16+	4090.8+x	16+	(M1)	0.271 4	α(K)=0.2218 31; α(L)=0.0377 5; α(M)=0.00883 12 α(N)=0.002243 31; α(O)=0.000447 6; α(P)=4.79×10^{-5} 7 Mult.: A_2=0.17 6, A_4=0.08 8 (1987Fa15).
422.1‡	67	1382.8	4+	960.7	2+	E2#	0.0448 6	α(K)=0.0299 4; α(L)=0.01119 16; α(M)=0.00281 4 α(N)=0.000712 10; α(O)=0.0001333 19; α(P)=9.65×10^{-6} 14
626.7&	0.6	3955.4	13+	3328.8	12			
657.3‡	33	2040.1	5−	1382.8	4+	E1#	0.00550 8	α(K)=0.00457 6; α(L)=0.000717 10; α(M)=0.0001660 23 α(N)=4.20×10^{-5} 6; α(O)=8.27×10^{-6} 12; α(P)=8.31×10^{-7} 12 A_2=−0.04 3, A_4=−0.10 5 (1987Fa15).
689.2	3.9	5939.9+y	(20−)	5250.7+y	19−	D		Mult.: A_2=−0.76 20, A_4=0.12 27 (1987Fa15).
717.9	11	3955.4	13+	3237.5	12+	M1(+E2)	0.027 14	α(K)=0.022 12; α(L)=0.0040 17; α(M)=9.E−4 4 α(N)=2.4×10^{-4} 10; α(O)=4.8×10^{-5} 20; α(P)=4.9×10^{-6} 24 Mult.: α(K)exp=0.039 4 (1986Ja13);

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^{202}Hg(α,4nγ),^{200}Hg(α,2nγ) 1986Ja13,1987Fa15 (continued)

γ(^{202}Pb) (continued)

E_γ †	I_γ †	E_i(level)	J_i^π	E_f	J_f^π	Mult. †	α @	Comments
								A_2=−0.85 *6*, A_4=0.15 *8* (1986Ja13,1987Fa15).
785.2	19	4022.7	(12,13)	3237.5	12^+	(D)		Mult.: A_2=0.13 *3*, A_4=−0.01 *5* (1987Fa15).
786.8‡	23	2169.6	9^-	1382.8	4^+	E5#	0.1626 *23*	α(K)=0.0817 *11*; α(L)=0.0600 *8*; α(M)=0.01598 *22* α(N)=0.00409 *6*; α(O)=0.000765 *11*; α(P)=5.80×10^{-5} *8*
796.6	9.9	5241.7+x	17^-	4445.1+x	16^+	D		Mult.: A_2=−0.22 *4*, A_4=0.09 *6* (1987Fa15).
830.6	6.1	4068.1	13	3237.5	12^+	D		Mult.: A_2=−0.31 *5*, A_4=0.24 *7* (1987Fa15).
840.5	7.3	6091.2+y	21^-	5250.7+y	19^-	E2	0.00940 *13*	α(K)=0.00736 *10*; α(L)=0.001556 *22*; α(M)=0.000374 *5* α(N)=9.47×10^{-5} *13*; α(O)=1.839×10^{-5} *26*; α(P)=1.707×10^{-6} *24* Mult.: A_2=0.29 *3*, A_4=−0.03 *4* (1987Fa15).
853.3	60	4090.8	14^+	3237.5	12^+	E2	0.00912 *13*	α(K)=0.00715 *10*; α(L)=0.001500 *21*; α(M)=0.000360 *5* α(N)=9.12×10^{-5} *13*; α(O)=1.772×10^{-5} *25*; α(P)=1.651×10^{-6} *23* Mult.: α(K)exp=0.0074 *6* (1986Ja13); A_2=0.03 *6*, A_4=0.05 *8* (1986Ja13,1987Fa15).
888.1	100	3057.7	11^-	2169.6	9^-	E2	0.00842 *12*	α(K)=0.00663 *9*; α(L)=0.001362 *19*; α(M)=0.000326 *5* α(N)=8.27×10^{-5} *12*; α(O)=1.609×10^{-5} *23*; α(P)=1.513×10^{-6} *21* Mult.: α(K)exp=0.00673 (1986Ja13); A_2=0.04 *6*, A_4=0.06 *8* (1987Fa15).
932.9	4.6	4170.4	14^+	3237.5	12^+	(E2)	0.00763 *11*	α(K)=0.00604 *8*; α(L)=0.001213 *17*; α(M)=0.000290 *4* α(N)=7.34×10^{-5} *10*; α(O)=1.431×10^{-5} *20*; α(P)=1.360×10^{-6} *19* Mult.: A_2=0.21 *6*, A_4=0.09 *8* (1987Fa15).
960.7‡	72	960.7	2^+	0	0^+	E2#	0.00720 *10*	α(K)=0.00572 *8*; α(L)=0.001132 *16*; α(M)=0.000270 *4* α(N)=6.84×10^{-5} *10*; α(O)=1.336×10^{-5} *19*; α(P)=1.278×10^{-6} *18*
1021.5	17	3191.1	10^+	2169.6	9^-	(E1)	2.41×10^{-3} *3*	α(K)=0.002010 *28*; α(L)=0.000306 *4*; α(M)=7.06×10^{-5} *10* α(N)=1.785×10^{-5} *25*; α(O)=3.54×10^{-6} *5*; α(P)=3.66×10^{-7} *5* A_2=−0.22 *4*, A_4=0.06 *6* (1986Ja13,1987Fa15).
1151.0	20	5241.7+x	17^-	4090.8+x	16^+	D		Mult.: A_2=−0.16 *4*, A_4=0.04 *6* (1987Fa15).
1160.0	4.8	5250.7+x	18^+	4090.8+x	16^+	(E2)	0.00501 *7*	α(K)=0.00403 *6*; α(L)=0.000741 *10*; α(M)=0.0001753 *25* α(N)=4.44×10^{-5} *6*; α(O)=8.73×10^{-6}

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^{202}Hg(α,4nγ),^{200}Hg(α,2nγ) 1986Ja13,1987Fa15 (continued)

γ(^{202}Pb) (continued)

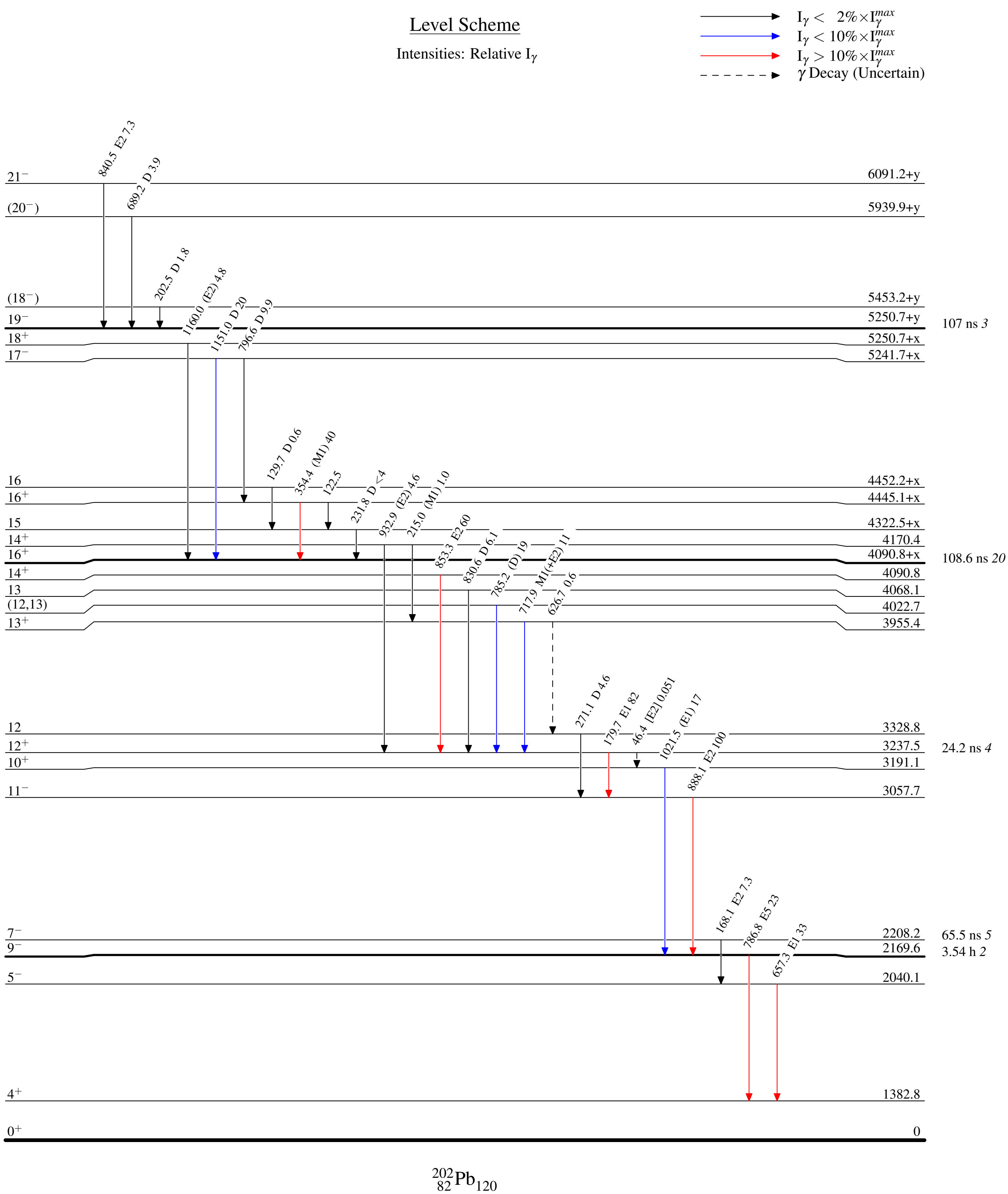
E_{γ}[†]	E_i(level)	Comments
		12; α(P)=8.63×10^{-7} *12*; α(IPF)=1.376×10^{-6} *19* Mult.: A_2=0.25 *6*, A_4=0.05 *8* (1987Fa15).

† From 1987Fa15 (Eα=53 MeV), unless otherwise stated.
‡ From 1986Ja13 (Eα=35 MeV).
# From adopted gammas.
@ Additional information 3.
& Placement of transition in the level scheme is uncertain.

^{202}Hg(α,4nγ),^{200}Hg(α,2nγ) 1986Ja13,1987Fa15

Level Scheme

Intensities: Relative I_γ

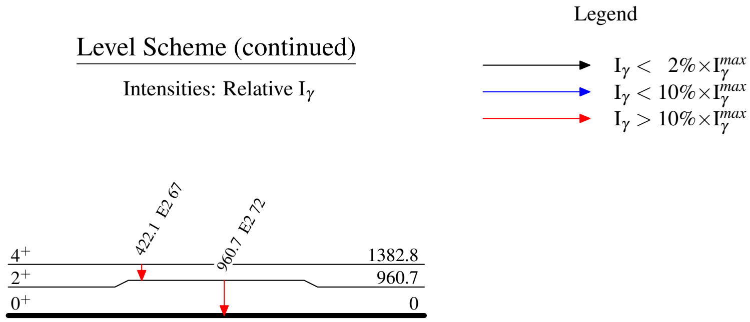


$^{202}_{82}Pb_{120}$

^{202}Hg(α,4nγ),^{200}Hg(α,2nγ) 1986Ja13,1987Fa15

Level Scheme (continued)

Intensities: Relative I_γ



$^{202}_{82}Pb_{120}$