^{198}Pt(α,2nγ) 1981He10,1977Gu05

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

1981He10: E(α)=26-28 MeV; Target: enriched to 96% in ^{198}Pt; Detectors: Ge(Li) and LEPS; Measured: γ, $\gamma\gamma$ coin., $\gamma(\theta)$.
1977Gu05: E(α)=28, 30.8 and 34.4 MeV; Target: ^{198}Pt; Detectors: Ge(Li), iron-free orange-type β spectrometer; Measured: γ, $\gamma\gamma$ coin., ce.
Others: 1972Cu07, 1974Ya03.

^{200}Hg Levels

E(level)†	Jπ‡	$T_{1/2}$	E(level)†	Jπ‡	E(level)†	Jπ‡
0.0#	0^+	stable	2135.5& *4*	8^-	2597.2 *4*	
368.00# *20*	2^+		2143.9@ *4*	9^-	2641.7@ *5*	11^-
947.3# *3*	4^+		2284.4 *4*		2679.7# *5*	(8^+)
1706.8# *4*	6^+		2298.5 *4*		3120.9 *5*	(10^-)
1851.5@ *4*	5^-		2377.2 *4*		3123.0& *5*	12^-
1962.7@ *4*	7^-		2408.9 *6*		3215.2 *5*	12^+
2049.1& *4*	6^-		2522.7& *4*	10^-	3611.8 *6*	14^+

† From a least squares fit to Eγ.
‡ From 1981He10, based on deduced γ ray multipolarity using $\gamma(\theta)$ (1981He10) and α(K)exp (1977Gu05), and the apparent band structures.
# Oblate-deformed g.s. band.
@ Negative-parity band (σ=1).
& Negative-parity band (σ=0).

$\gamma(^{200}Hg)$

Eγ†	Iγ†	Ei(level)	J_i^π	E_f	J_f^π	Mult.‡	α#	Comments
86.5 *3*	0.2 *1*	2135.5	8^-	2049.1	6^-			
111.2 *2*	1.1 *2*	1962.7	7^-	1851.5	5^-	E2		Mult.: A_2/A_0=0.16 *8*; A_4/A_0=0.08 *12* (1981He10).
172.8 *2*	4.7 *4*	2135.5	8^-	1962.7	7^-	M1		Mult.: α(K)exp=1.8 *4* (1977Gu05); A_2/A_0=−0.11 *3*; A_4/A_0=0.01 *4* (1981He10).
181.2 *2*	17.0 *15*	2143.9	9^-	1962.7	7^-	E2		Mult.: A_2/A_0=0.30 *1*; A_4/A_0=−0.06 *2* (1981He10).
198.0 *4*	0.7 *2*	2049.1	6^-	1851.5	5^-			
241.8 *3*	0.4 *2*	2377.2		2135.5	8^-			
255.8 *2*	48 *4*	1962.7	7^-	1706.8	6^+	E1		Mult.: A_2/A_0=−0.22 *1*; A_4/A_0=0.02 *2* (1981He10).
321.8 *3*	0.5 *2*	2284.4		1962.7	7^-			
328.3 *3*	0.6 *2*	2377.2		2049.1	6^-			
335.9 *3*	1.7 *2*	2298.5		1962.7	7^-			Mult.: A_2/A_0=0.47 *8*; A_4/A_0=0.08 *11* (1981He10).
342.2 *2*	6.0 *6*	2049.1	6^-	1706.8	6^+	E1		Mult.: α(K)exp<0.02 (1977Gu05); A_2/A_0=0.22 *2*; A_4/A_0=−0.06 *4* (1981He10), consistent with J to J E1 assignment.
368.0 *2*	100	368.00	2^+	0.0	0^+	E2		Mult.: A_2/A_0=0.23 *1*; A_4/A_0=−0.03 *2* (1981He10).
378.9 *3*	1.3 *2*	2522.7	10^-	2143.9	9^-	M1+E2		Mult.: A_2/A_0=0.43 *15*; A_4/A_0=−0.10 *22* (1981He10).
387.2 *2*	7.0 *6*	2522.7	10^-	2135.5	8^-	E2		Mult.: α(K)exp=0.045 *7* (1977Gu05); A_2/A_0=0.31 *1*; A_4/A_0=−0.05 *2* (1981He10).
396.6 *2*	4.6 *4*	3611.8	14^+	3215.2	12^+	E2	0.046 *7*	Mult.: α(K)exp=0.046 *7* (1977Gu05); A_2/A_0=0.33 *3*; A_4/A_0=−0.07 *4* (1981He10). Eγ: The ordering of 573.5γ and 396.6γ is reversed compared to 1977Gu05.
x406.9								Eγ: From 1977Gu05.

Continued on next page (footnotes at end of table)

^{198}Pt(α,2nγ) 1981He10,1977Gu05 (continued)

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

E_γ [†]	I_γ [†]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [‡]	Comments
414.4 *3*	1.0 *2*	2377.2		1962.7	7^-		
432.8 *3*	0.6 *1*	2284.4		1851.5	5^-		
446.2 *4*	1.2 *4*	2408.9		1962.7	7^-		
447.0 *4*	0.8 *3*	2298.5		1851.5	5^-		
461.7 *2*	3.1 *3*	2597.2		2135.5	8^-		Mult.: A_2/A_0=−0.05 *5*; A_4/A_0=−0.01 *8* (1981He10).
497.8 *2*	13.6 *12*	2641.7	11^-	2143.9	9^-	E2	Mult.: A_2/A_0=0.35 *2*; A_4/A_0=−0.06 *2* (1981He10).
523.7 *3*	1.3 *2*	3120.9	(10^-)	2597.2			
573.5 *2*	6.9 *6*	3215.2	12^+	2641.7	11^-	E1	Mult.: α(K)exp=0.008 *3* (1977Gu05); A_2/A_0=−0.24 *1*; A_4/A_0=0.05 *2* (1981He10). E_γ: The ordering of 573.5γ and 396.6γ is reversed compared to 1977Gu05.
579.3 *2*	88 *8*	947.3	4^+	368.00	2^+	E2	Mult.: A_2/A_0=0.23 *1*; A_4/A_0=−0.05 *2* (1981He10).
600.3 *2*	3.4 *4*	3123.0	12^-	2522.7	10^-	E2	Mult.: A_2/A_0=0.26 *6*; A_4/A_0=0.08 *8* (1981He10).
[x]678.0 *3*	1.0 *2*						
759.5 *2*	60 *5*	1706.8	6^+	947.3	4^+	E2	Mult.: A_2/A_0=0.23 *1*; A_4/A_0=−0.07 *1* (1981He10).
904.2 *2*	12.2 *11*	1851.5	5^-	947.3	4^+	E1	Mult.: A_2/A_0=−0.20 *2*; A_4/A_0=0.06 *4* (1981He10).
972.9 *3*	1.5 *3*	2679.7	(8^+)	1706.8	6^+		
977.0 *3*	3.1 *4*	3120.9	(10^-)	2143.9	9^-	M1+E2	Mult.: A_2/A_0=−1.1 *3*; A_4/A_0=0.0 *3* (1981He10).

[†] From 1981He10, unless otherwise stated.
[‡] Based on $\gamma(\theta)$ in 1981He10.
[#] 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.
[x] γ ray not placed in level scheme.

^{198}Pt(α,2nγ) 1981He10,1977Gu05

Level Scheme

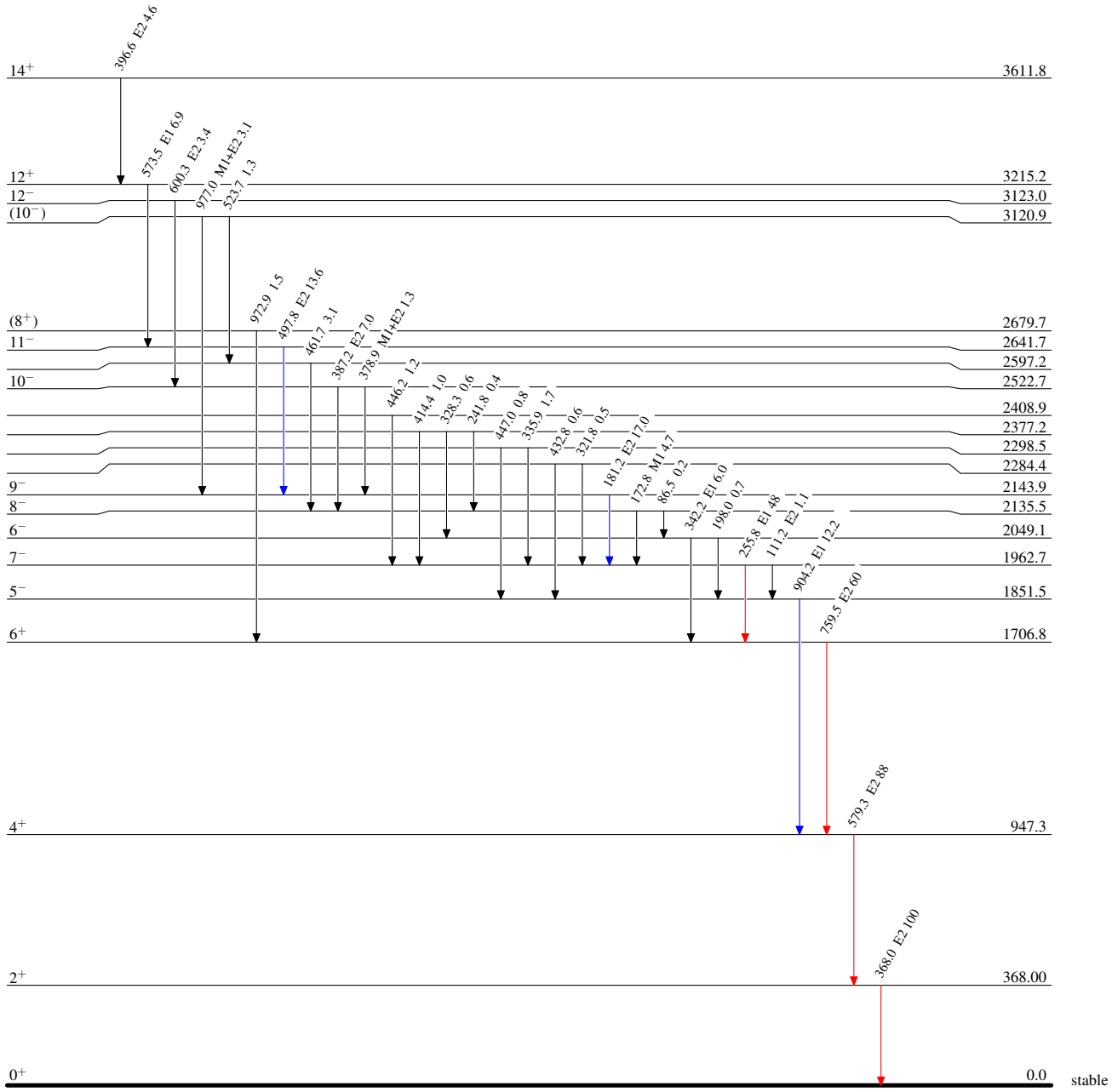
Intensities: Relative I_γ

Legend

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

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

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



$^{200}_{80}Hg_{120}$