^{192}Pt(α,4nγ), ^{194}Pt(α,6nγ) 1975Li16,1983Gu05

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 113, 1871 (2012)	15-Jun-2012

Others: 1974Be11, 1978Me11.

1975Li16: ^{194}Pt(α,6nγ). E(α)=80, 84 MeV; platinum targets enriched to 57.2% in ^{194}Pt; measured Eγ, Iγ (Ge(Li)), $\gamma\gamma$ coin, $\gamma\gamma$(t), $\gamma(\theta)$ (θ=90° to 165°, 15° steps).

1983Gu05: ^{192}Pt(α,4nγ). E(α)=50 MeV, electron transport; platinum targets enriched to 57% in ^{192}Pt; measured E(ce), Ice (Si(Li)), (ce)(ce) coin, Ce(t).

The level scheme and all data are from 1975Li16, except where noted. Evaluator modified the π=+ cascade to reflect the subsequently found 28.4-keV 12$^+$ to 10$^+$ transition (1983Gu05) (so the 416.3-keV 12$^+$ to 10$^+$ transition of 1975Li16 became the 14$^+$ to 12$^+$ transition, etc.). See ^{192}Hg Adopted Levels for band structure.

^{192}Hg Levels

E(level)[†]	J$^\pi$[‡]	T$_{1/2}$	Comments
0.0	0$^+$	4.85 h *20*	T$_{1/2}$: from Adopted Levels.
422.8 *3*	2$^+$		
1057.6 *5*	4$^+$		
1803.0 *5*	6$^+$		
1843.9 *5*	5$^-$		
1976.8 *6*	7$^-$	1.04 ns *6*	T$_{1/2}$: from (α)(ce)(t) (1978Me11); other value: 2.5 ns *10* (1975Li16).
2216.1 *6*	8$^{(-)}$	0.92 ns *5*	T$_{1/2}$: from (α)(ce)(t) (1978Me11).
2223.8 *6*	9$^-$		
2446.9 *6*	8$^+$		
2507.0 *6*	10$^+$	3.6 ns *5*	T$_{1/2}$: from Ce(t), $\gamma\gamma$(t) (unpublished data quoted in 1983Gu05). Other values: 16 ns *3* (1975Li16), 15.9 ns *10* (1978Me11) (superposition of T$_{1/2}$ for 2507 and 2535 levels).
2535.4 *7*	12$^+$	11.1 ns *5*	T$_{1/2}$: from Ce(t), $\gamma\gamma$(t) (unpublished data quoted in 1983Gu05).
2632.5 *6*	10$^{(-)}$		
2756.5 *7*	11$^-$		
2951.7 *8*	14$^+$		
3265.5 *7*	12$^{(-)}$		
3449.5 *7*	13$^-$		
3608.4 *8*	16$^+$		
3894.7 *8*	14$^{(-)}$		
4010.2 *8*	15$^-$		
4089.6 *8*	16$^{(-)}$	0.39 ns *4*	T$_{1/2}$: from (α)(ce)(t) (1978Me11).
4216.7 *9*	17$^-$		
4387.0 *9*	18$^{(-)}$		
4389.2 *9*	18$^+$		
5130.6 *9*	20$^+$		

† From least-squares fit to Eγ, allowing ΔE=1 keV for the 28γ and omitting the 60γ.

‡ From 1975Li16, based on γ-ray multipolarities, coincidence data, and band structure. See ^{192}Hg Adopted Levels for evaluator′s assignments.

γ(^{192}Hg)

E$_\gamma$[†]	E$_i$(level)	J$^\pi_i$	E$_f$	J$^\pi_f$	Mult.[‡]	α[a]	I$_{(\gamma+ce)}$[#]	Comments
28.4[@]	2535.4	12$^+$	2507.0	10$^+$	(E2)[&]	2.20×10^3		(L1+L2)/L3=1.0 *5* (1983Gu05); rules out magnetic multipoles and favors E2.
60.1[@]	2507.0	10$^+$	2446.9	8$^+$	E2[&]	55.7	≤33	I$_{(\gamma+ce)}$: Ti(upper limit)=29 *4* (I(γ+ce) balance at 8$^+$ 2447 level).

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^{192}Pt(α,4nγ), ^{194}Pt(α,6nγ) 1975Li16,1983Gu05 (continued)

γ(^{192}Hg) (continued)

E_γ[†]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[‡]	δ	α[a]	$I_{(\gamma+ce)}$[#]	Comments
									(L1+L2)/L3=1.1 *2* (1983Gu05); rules out magnetic multipoles and E1.
133.0 *3*	1976.8	7^-	1843.9	5^-	E2		1.75 *3*	43 *7*	Mult.: from K/L. K/L=0.44 *2* (1983Gu05). A_2=+0.27 *2*, A_4=−0.05 *3* (1975Li16).
173.8 *3*	1976.8	7^-	1803.0	6^+	D			30 *4*	K/L=5 *2* (1983Gu05); rules out E2. Authors favor mult=E1. A_2=−0.19 *2*, A_4=+0.01 *3* (1975Li16).
194.9 *3*	4089.6	$16^{(-)}$	3894.7	$14^{(-)}$	Q			13 *3*	A_2=+0.37 *3*, A_4=−0.06 *5* (1975Li16).
206.5 *3*	4216.7	17^-	4010.2	15^-	Q			4 *2*	A_2=+0.42 *6*, A_4=−0.02 *9* (1975Li16).
239.3 *3*	2216.1	$8^{(-)}$	1976.8	7^-	M1+E2	0.58 *16*	0.56 *5*	15 *4*	A_2=−0.90 *3*, A_4=+0.08 *5* (1975Li16) implies mult=D+Q. δ: weighted average of 0.94 *+19−16* (from K/L, 1983Gu05) and 0.50 *8* (from angular distribution, 1975Li16). K/L=4.0 *4* (1983Gu05); inconsistent with mult=E1+M2.
246.9 *3*	2223.8	9^-	1976.8	7^-	E2		0.194	42 *7*	Mult.: from K/L. K/L=1.5 *1* (1983Gu05). A_2=+0.29 *2*, A_4=−0.03 *3* (1975Li16).
283.2 *3*	2507.0	10^+	2223.8	9^-	(E1)		0.0318	20 *4*	A_2=−0.16 *3*, A_4=0.00 *5* (1975Li16). Mult.: from K/L and the ratio Ice(K)(10^+ to 9^-)/Ice(K)(9^- to 7^-) in coincidence spectra using a 28.4γ(12^+ to 10^+) gate (1983Gu05). K/L=5.8 *10* (1983Gu05); implies mult=E1,M1.
297.4 *3*	4387.0	$18^{(-)}$	4089.6	$16^{(-)}$	(Q)			9 *3*	A_2=+0.28 *4*, A_4=−0.03 *7* (1975Li16).
408.7 *3*	2632.5	$10^{(-)}$	2223.8	9^-				4 *2*	Angular distribution measurement not possible (peak contaminated) (1975Li16).
416.3 *3*	2951.7	14^+	2535.4	12^+	(Q)			38 *8*	$I_{(\gamma+ce)}$: γγ coincidence data used to resolve Ti(416.3γ+416.5γ). A_2=+0.38 *2*, A_4=−0.06 *3* (1975Li16) for multiplet dominated by this transition.
416.5 *3*	2632.5	$10^{(-)}$	2216.1	$8^{(-)}$				13 *4*	$I_{(\gamma+ce)}$: see comment with 416.3γ. A_2=+0.38 *2*, A_4=−0.06 *3* (1975Li16) for multiplet.
422.8 *3*	422.8	2^+	0.0	0^+	Q			100 *8*	A_2=+0.24 *2*, A_4=−0.03 *3* (1975Li16).
532.7 *3*	2756.5	11^-	2223.8	9^-	Q			13 *3*	A_2=+0.39 *3*, A_4=−0.13 *5* (1975Li16).
560.7 *3*	4010.2	15^-	3449.5	13^-	Q			7 *2*	A_2=+0.33 *4*, A_4=−0.05 *6* (1975Li16).
629.2 *3*	3894.7	$14^{(-)}$	3265.5	$12^{(-)}$	(Q)			13 *5*	1986Hu02 (in ^{170}Er(Mg,xnγ)...) reversed the order of 629.2γ and 633.0γ. $I_{(\gamma+ce)}$: includes contribution from 628.7γ in ^{191}Hg (1975Li16). A_2=+0.32 *7*, A_4=−0.05 *10* (1975Li16) for impure line.
633.0 *3*	3265.5	$12^{(-)}$	2632.5	$10^{(-)}$	Q			14 *6*	See comment with 629.2γ. A_2=+0.30 *6*, A_4=−0.05 *9* (1975Li16). $I_{(\gamma+ce)}$: includes contributions from 633.1γ in ^{193}Hg and 634.8γ in ^{192}Hg.
634.8 *3*	1057.6	4^+	422.8	2^+	Q			97 *8*	A_2=+0.25 *2*, A_4=−0.03 *3* (1975Li16).
643.8 *3*	2446.9	8^+	1803.0	6^+	Q			29 *4*	A_2=+0.26 *2*, A_4=−0.03 *3* (1975Li16).
656.7 *3*	3608.4	16^+	2951.7	14^+	Q			15 *3*	A_2=+0.27 *3*, A_4=−0.09 *5* (1975Li16).
693.0 *3*	3449.5	13^-	2756.5	11^-	(Q)			14 *3*	A_2=+0.23 *3*, A_4=−0.03 *5* (1975Li16).
741.4 *3*	5130.6	20^+	4389.2	18^+	(Q)			4 *2*	A_2=+0.44 *12*, A_4=−0.08 *18* (1975Li16).

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^{192}Pt(α,4nγ), ^{194}Pt(α,6nγ) 1975Li16,1983Gu05 (continued)

γ(^{192}Hg) (continued)

E_γ [†]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [‡]	$I_{(\gamma+ce)}$ [#]	Comments
745.4 *3*	1803.0	6^+	1057.6	4^+	Q	65 *6*	A_2=+0.20 *2*, A_4=−0.03 *5* (1975Li16).
780.8 *3*	4389.2	18^+	3608.4	16^+		10 *4*	Angular distribution measurement not possible (peak contaminated) (1975Li16).
786.3 *3*	1843.9	5^-	1057.6	4^+	D	34 *5*	A_2=−0.19 *2*, A_4=0.00 *3* (1975Li16); authors assume mult=E1.

[†] From 1975Li16, except as noted.

[‡] From γ(θ) (1975Li16), except where noted. Stretched Q assignments are based on large positive A_2 and small negative A_4, and authors assign these as E2; E1 (or M1+E2) assignments in 1975Li16 were based on rotational-band structure and negative A_2 for γ(θ).

[#] Relative to Ti(422.8γ)=100 for ^{194}Pt(α,6nγ), E(α)=80 MeV.

[@] From 1983Gu05; uncertainties not reported, but measured Eγ deviates from adopted level energy difference by≤0.2 keV.

[&] From L subshell ratios (1983Gu05).

[a] 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.

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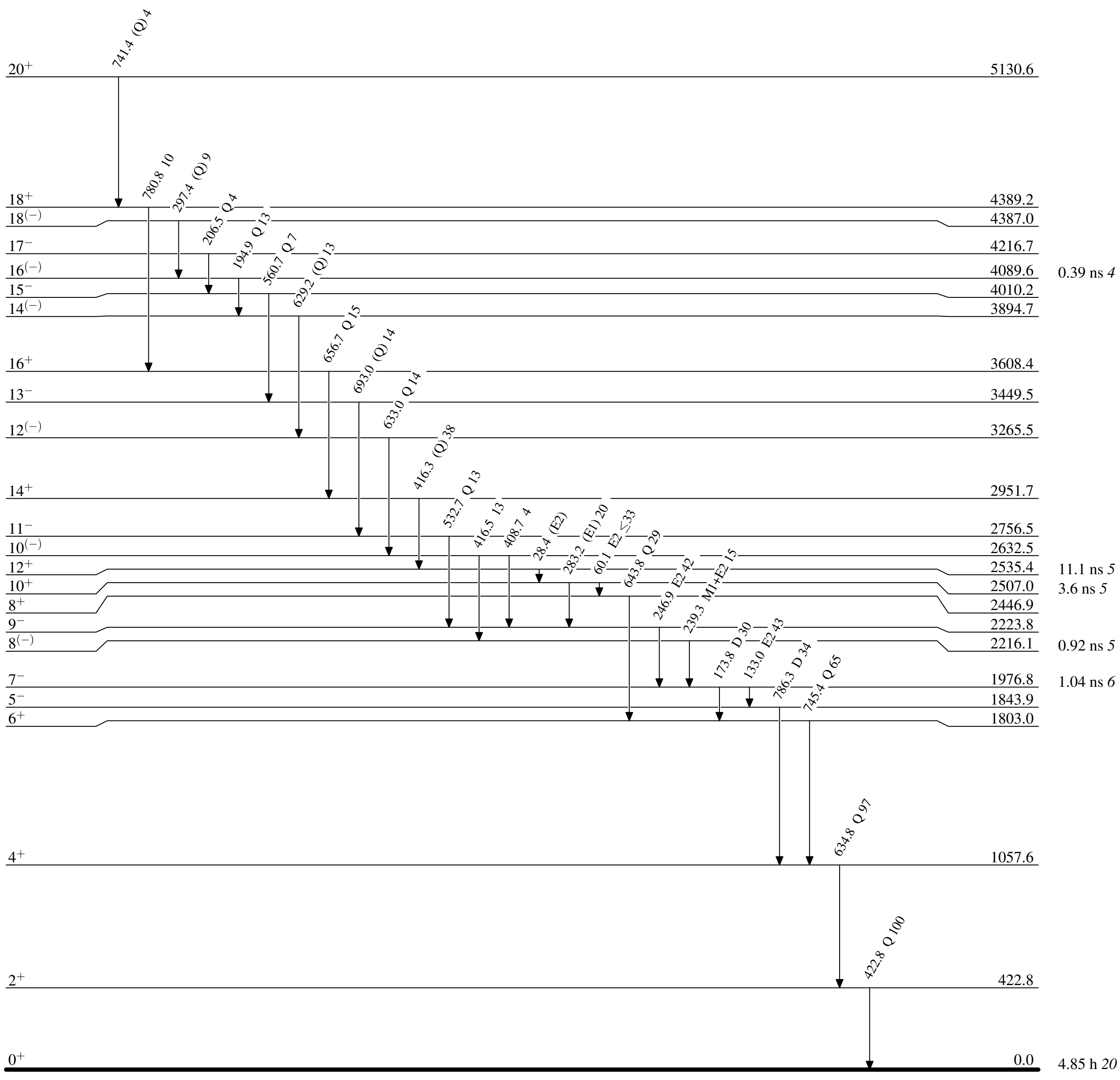
Level Scheme



$^{192}_{80}Hg_{112}$