^{204}Hg(^{13}C,α3nγ) 2008Dr03

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	M. Shamsuzzoha Basunia	NDS 121, 561 (2014)	31-Mar-2014

Target: Enriched ^{204}Hg oxide, Projectile: ^{13}C, E=88 MeV; Measured Eγ, Iγ, $\gamma\gamma$-t coin from two sets of experiments, first: using six Compton suppressed HPGe at ±97°, ±148°, and ±48° and one LEPS in the vertical plane, and second: with additional three HPGe and one LEPS detectors in the horizontal plane. Measured Lifetime using a pulsed beam. Studied only transitions feeding the 16^+ isomeric state.

^{210}Po Levels

E(level)[†]	J$^\pi$[‡]	T$_{1/2}$	Comments
0.0	0^+		E(level),J$^\pi$: From Adopted Levels.
4371.96 *4*	13^-		Additional information 1. E(level),J$^\pi$: From Adopted Levels.
4777.26 *25*	14^-		
5057.56 *25*	16^+	263 ns *5*	T$_{1/2}$: From Adopted Levels.
5614.6 *4*	17^+		
6070.2 *4*	17^+		
6085.2 *4*	$18^{(+)}$		
6342.7 *4*	(19^-)		
6384.5 *4*	$18^{(-)}$		
6422.0 *4*	18		
6713.4 *4*	$19^{(+)}$		
6983.8 *5*	$20^{(-)}$		
6995.0 *5*	$20^{(-)}$		
7719.6 *6*	$21^{(-)}$		
7989.3 *5*	(21)		
8074.2 *5*	(23^+)	9.0 ns *14*	T$_{1/2}$: from $\gamma\gamma$(t) (2008Dr03). Possible configuration=$\pi(h_{9/2}i_{13/2})\otimes\nu[(p^{-2}_{1/2}g_{9/2}j_{15/2})$ or $(i^{-1}_{13/2}j_{15/2})]$.
8831.1 *6*	(24^+)		
8893.5 *6*	(23)		
9199.1 *6*	(25)		
9420.8 *6*	(25)		
9464.8 *6*	(25)		
9535.1 *6*	(26)		
9567.2 *7*	(26)		
9581.8 *6*	(26)		
9590.1 *6*	(26)		
10084.1 *7*	(27)		

[†] From least-squares fit to Eγ assuming ΔE=0.3 keV.
[‡] Assigned in 2008Dr03 from shell model calculations, γ-ray feeding and multipolarities.

$\gamma(^{210}$Po)

E$_\gamma$	I$_\gamma$	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.[†]	I$_{(\gamma+ce)}$	Comments
(42.0)		6384.5	$18^{(-)}$	6342.7	(19^-)		48 *5*	
257.6	21 *3*	6342.7	(19^-)	6085.2	$18^{(+)}$			
270.4	32 *3*	6983.8	$20^{(-)}$	6713.4	$19^{(+)}$	D		A$_2$=−0.36 *18*
280.3		5057.56	16^+	4777.26	14^-			
281.6	40 *5*	6995.0	$20^{(-)}$	6713.4	$19^{(+)}$	D		A$_2$=−0.33 *19*
291.3	30 *3*	6713.4	$19^{(+)}$	6422.0	18			A$_2$=−0.32 *31*

Continued on next page (footnotes at end of table)

^{204}Hg(^{13}C,α3nγ) 2008Dr03 (continued)

γ(^{210}Po) (continued)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	Comments
305.7[‡]	9 *2*	9199.1	(25)	8893.5	(23)		
328.9	56 *5*	6713.4	$19^{(+)}$	6384.5	$18^{(-)}$	D	A_2=−0.32 *17*
351.8	20 *3*	6422.0	18	6070.2	17^+		A_2=−0.10 *26*
368.0[‡]	3 *1*	9199.1	(25)	8831.1	(24^+)		I_γ: value is uncertain.
368.1[‡]	13 *3*	9567.2	(26)	9199.1	(25)		
405.3		4777.26	14^-	4371.96	13^-		
470.7	39 *4*	6085.2	$18^{(+)}$	5614.6	17^+		A_2=−0.52 *25*
502.3	7 *2*	10084.1	(27)	9581.8	(26)		
556.9	100	5614.6	17^+	5057.56	16^+	D+Q	A_2=−0.87 *16*
589.7	10 *3*	9420.8	(25)	8831.1	(24^+)		
628.2	43 *5*	6713.4	$19^{(+)}$	6085.2	$18^{(+)}$	D+Q	A_2=−0.80 *23*
633.7	≈8	9464.8	(25)	8831.1	(24^+)		
685.6		5057.56	16^+	4371.96	13^-		
704	10 *2*	9535.1	(26)	8831.1	(24^+)		
724.6	14 *2*	7719.6	$21^{(-)}$	6995.0	$20^{(-)}$		
750.7	9 *2*	9581.8	(26)	8831.1	(24^+)		
756.8	20 *3*	8831.1	(24^+)	8074.2	(23^+)	D+Q	A_2=−1.0 *3*
759	≈6	9590.1	(26)	8831.1	(24^+)		
769.8	53 *7*	6384.5	$18^{(-)}$	5614.6	17^+	D	A_2=−0.36 *23*
807.3	4 *2*	6422.0	18	5614.6	17^+		
904.3[‡]	12 *3*	8893.5	(23)	7989.3	(21)		
1005.5	24 *3*	7989.3	(21)	6983.8	$20^{(-)}$	(D)	A_2=−0.39 *34*
1012.6	21 *3*	6070.2	17^+	5057.56	16^+	D+Q	A_2=−0.9 *2*
1027.7	29 *4*	6085.2	$18^{(+)}$	5057.56	16^+	Q	A_2=+0.6 *3*
1079.3	41 *5*	8074.2	(23^+)	6995.0	$20^{(-)}$		A_2=+0.7 *4*
1090.3	7 *2*	8074.2	(23^+)	6983.8	$20^{(-)}$		
1285.3	16 *4*	6342.7	(19^-)	5057.56	16^+		

[†] From angular distribution coefficients A_2, deduced in 2008Dr03 from a three-point anisotropy assuming A_4=0.
[‡] Placement of transition in the level scheme is uncertain.

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Level Scheme

Intensities: Relative I_γ

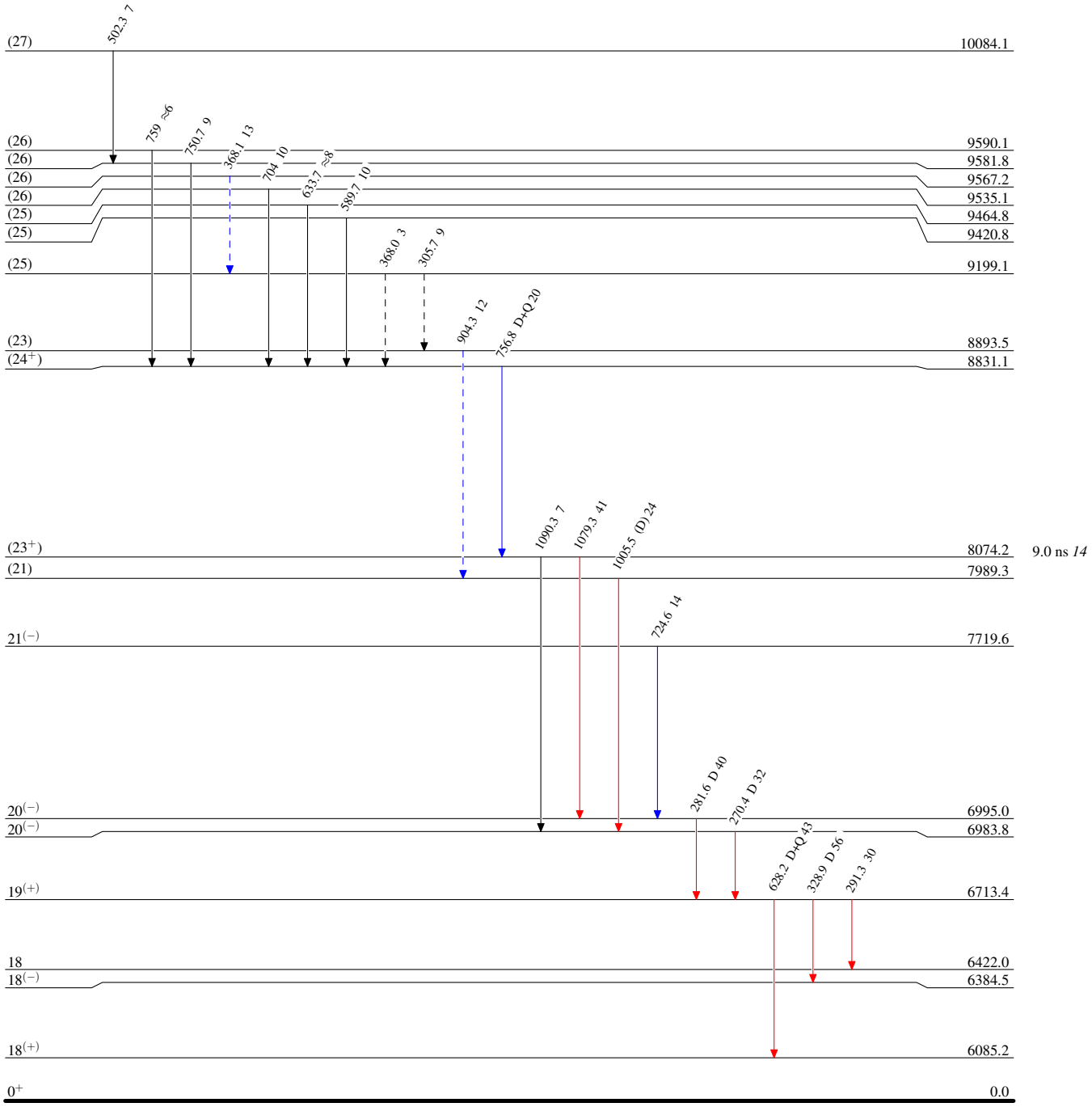
Legend

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

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

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

γ Decay (Uncertain)



$^{210}_{84}Po_{126}$

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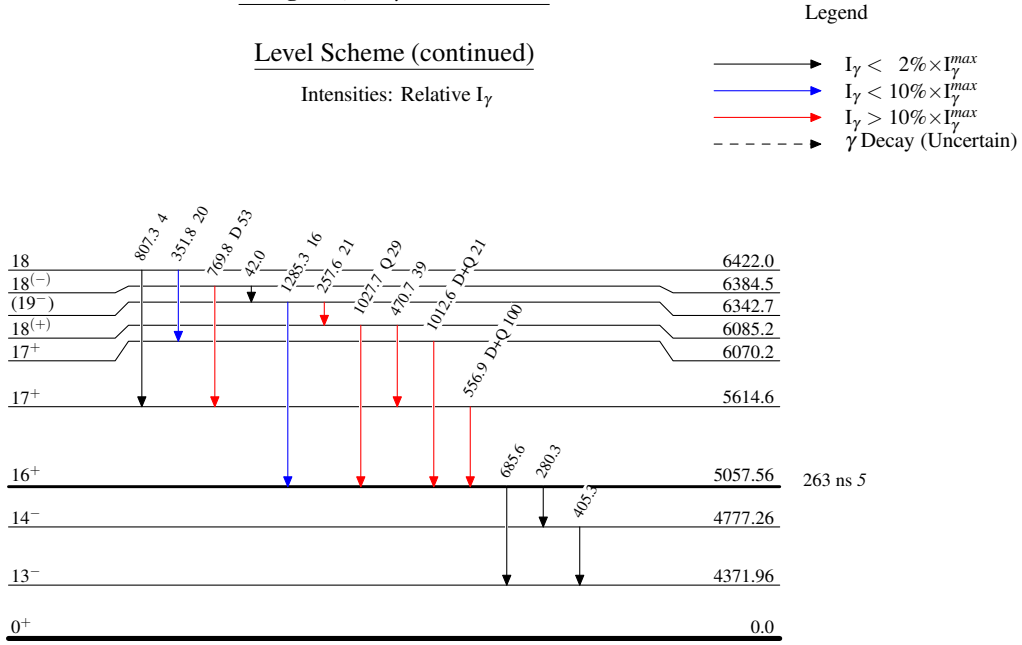
Level Scheme (continued)

Intensities: Relative I_γ



$^{210}_{84}Po_{126}$