^{205}Tl(α,5nγ),^{203}Tl(α,3nγ) 1981Lo09

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	C. J. Chiara and F. G. Kondev	NDS 111,141 (2010)	1-Oct-2009

1981Lo09: ^{205}Tl(α,5nγ) at E(α)=59 MeV, ^{203}Tl(α,3nγ) at E(α)=42 MeV. ^{203}Tl and ^{205}Tl targets enriched to 95%, thicknesses 0.6 mg/cm^2 and 15 mg/cm^2 for conversion-electron and γ-ray measurements, respectively; several Ge(Li) and LEPS detectors and TARM electron spectrometer; measured γ-ray singles, $\gamma(\theta)$, $\gamma\gamma$(t), ce.

Others: 1980Kl06: ^{203}Tl(α,3nγ) at E(α)=40.4 MeV; measured $\gamma(\theta$,H,t); deduced g-factor; 1991Sc14, 1990Ha30.

^{204}Bi Levels

E(level)[†]	J$^\pi$[‡]	$T_{1/2}$[#]	Comments
0	6^+		Configuration=$((\pi\ h_{9/2})^{+1}(\nu\ f_{5/2})^{-1})$.
53.40 *20*	7^+		Configuration=$((\pi\ h_{9/2})^{+1}(\nu\ f_{5/2})^{-1})$.
805.5 *3*	10^-	13.0 ms	Q: 0.063 *12* in 1990Ha30, 1991Sc14 using the LEMS technique. The value of 0.0630 *12*, quoted in Table II in 1991Sc14, seems to be a typo. g=0.236 *23* (1980Kl06) using in-beam TDPAD technique. The value was corrected for Knight and diamagnetic shifts. Configuration=$((\pi\ h_{9/2})^{+1}(\nu\ i_{13/2})^{-1})$.
816.0 *3*	8^+		
876.3 *3*	(9^-)		
941.5 *3*	(9^+)		
1413.6 *4*	11^-		Configuration=$((\pi\ h_{9/2})^{+1}(\nu\ i_{13/2})^{-1})$.
1454.6 *11*	12^-		
1639.7 *4*	12		
1774.7 *5*			
1789.4 *5*			
1821.6 *11*	13^-		
1915.3 *11*	14^-		
1968.2 *11*			
2223.4 *11*	14^-		
2483.4 *11*	14^-		
2651.7 *11*	15^-		
2684.5 *12*	15^-		
2705.3 *11*	14^-		
2819.9 *11*	$(12,13,14)^-$		
2833.4 *11*	17^+	1 ms	Configuration=$((\pi\ h_{9/2})^{+1}(\nu\ i_{13/2})^{-2}(\nu\ f_{5/2})^{-1})$.
2835.2 *12*	15^-		
3387.5 *12*	18^+		Configuration=$((\pi\ h_{9/2})^{+1}(\nu\ i_{13/2})^{-2}(\nu\ f_{5/2})^{-1})$.
3516.0 *12*	16^-		
3809.0 *12*	19^+		Configuration=$((\pi\ h_{9/2})^{+1}(\nu\ i_{13/2})^{-2}(\nu\ f_{5/2})^{-1})$.

[†] From a least-squares fit to Eγ.
[‡] Based on deduced transition multipolarities in 1981Lo09, unless otherwise specified.
[#] From 1981Lo09.

γ(^{204}Bi)

E$_\gamma$[†]	I$_\gamma$[†]	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.[‡]	Comments
21 *1*		2705.3	14^-	2684.5	15^-	M1	Mult.: From intensity balance considerations.
41 *1*		1454.6	12^-	1413.6	11^-	M1	Mult.: From intensity balance considerations.
53.4 *2*	33.3	53.40	7^+	0	6^+	M1	Mult.: A_2=−0.26 *5*; intensity balance considerations.
93.7 *2*	3.8	1915.3	14^-	1821.6	13^-	M1+E2	Mult.: From adopted gammas.
135.0 *2*	0.9	1774.7		1639.7	12		

Continued on next page (footnotes at end of table)

^{205}Tl(α,5nγ),^{203}Tl(α,3nγ) 1981Lo09 (continued)

γ(^{204}Bi) (continued)

E_γ[†]	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	Comments
146.6 *2*	1.4	1968.2		1821.6	13^-		Mult.: A_2=+0.33 *10*.
149.7 *2*	1.1	1789.4		1639.7	12		Mult.: $A_2\approx0$.
181.8 *2*	4.0	2833.4	17^+	2651.7	15^-	M2	Mult.: α(L)exp=1.8 *4*. Other: A_2=−0.10 *10*.
201.1 *2*	3.2	2684.5	15^-	2483.4	14^-	(M1)	Mult.: A_2=−0.18 *7*.
226.1 *2*	1.3	1639.7	12	1413.6	11^-	D	Mult.: A_2=−0.23 *2*.
351.8 *2*	0.8	2835.2	15^-	2483.4	14^-	M1	Mult.: A_2=−0.19 *3*; α(K)exp=0.25 *4*.
367.0 *2*	42.5	1821.6	13^-	1454.6	12^-	M1	Mult.: A_2=−0.19 *2*; α(K)exp<0.25 *2*.
401.8 *2*	4.6	2223.4	14^-	1821.6	13^-	M1(+E2)	Mult.: A_2=−0.46 *3*; α(K)exp=0.14 *4*.
421.5 *2*	6.3	3809.0	19^+	3387.5	18^+	M1+E2	Mult.: A_2=−0.52 *8*; α(K)exp=0.13 *3*.
554.1 *2*	19.3	3387.5	18^+	2833.4	17^+	M1+E2	Mult.: A_2=−0.55 *2*; α(K)exp=0.058 *7*.
608.1 *2*	60.8	1413.6	11^-	805.5	10^-	M1	Mult.: A_2=−0.30 *3*; α(K)exp<0.055 *2*.
661.8 *2*	13.1	2483.4	14^-	1821.6	13^-	M1+E2	Mult.: A_2=−0.16 *7*; α(K)exp=0.027 *4*.
736.4 *2*	33.2	2651.7	15^-	1915.3	14^-	M1+E2	Mult.: A_2=−0.05 *4*; α(K)exp=0.020 *4*.
752.1 *2*	100	805.5	10^-	53.40	7^+	E3	Mult.: From adopted gammas. This transition was used as a normalization of the measured α(K)exp.
762.6 *2*	5.2	816.0	8^+	53.40	7^+	M1+E2	Mult.: A_2=−0.19 *4*; α(K)exp=0.015 *10*.
810.7 *2*	11.9	3516.0	16^-	2705.3	14^-	E2	Mult.: A_2=+0.43 *2*; α(K)exp=0.0071 *12*.
822.9 *2*	1.9	876.3	(9^-)	53.40	7^+	(M2)	Mult.: A_2=+0.49 *3*; α(K)exp<0.11 *4*.
883.7 *2*	7.1	2705.3	14^-	1821.6	13^-	M1+E2	Mult.: A_2=−0.51 *2*; α(K)exp<0.04 *2*.
888.1 *2*	6.8	941.5	(9^+)	53.40	7^+	(E2)	Mult.: A_2=+0.99 *3*; α(K)exp≤0.0068.
918.1 *2*	7.2	2833.4	17^+	1915.3	14^-	E3	Mult.: α(K)exp≈0.011 *5*. Other: $A_2\approx0$.
998.3 *2*	2.2	2819.9	$(12,13,14)^-$	1821.6	13^-	M1+E2	Mult.: A_2=+0.04 *5*; α(K)exp<0.023 *10*.

[†] From 1981Lo09. $\Delta E\gamma$=0.1-0.2 keV stated in 1981Lo09, but evaluators assigned $\Delta E\gamma$=0.2 keV to all transitions.
[‡] From $\gamma(\theta)$ and α(K)exp in 1981Lo09, unless otherwise specified.

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Level Scheme

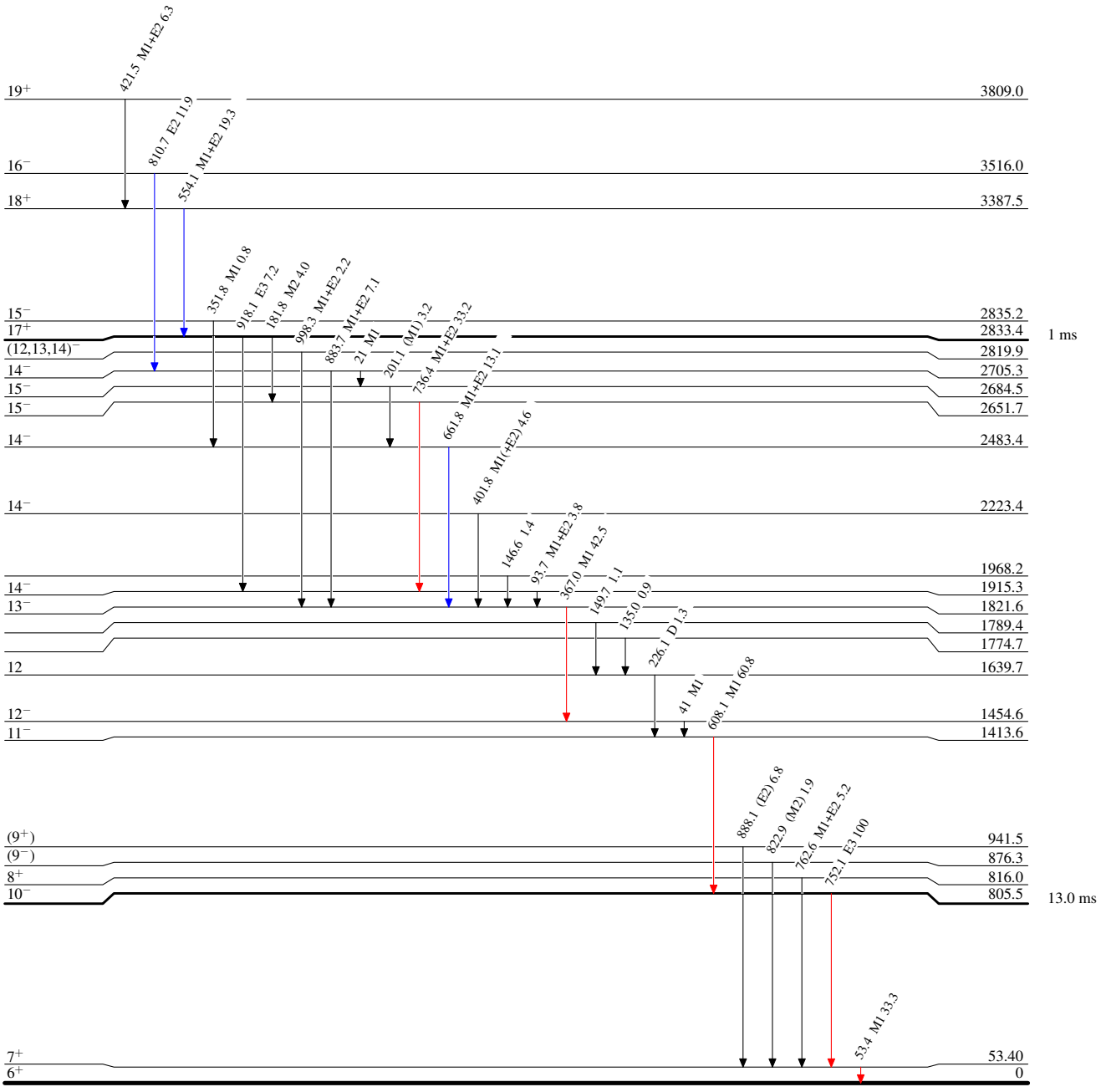
Intensities: Type not specified

Legend

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

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

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



$^{204}_{83}Bi_{121}$