Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	F. G. Kondev	NDS 105,1 (2005)	1-Mar-2005

Q(β^-)=−975 *6*; S(n)=7852.2 *17*; S(p)=5705.0 *11*; Q(α)=907.5 *12* 2021Wa16

^{203}Tl Levels

Cross Reference (XREF) Flags

A	^{203}Hg β^- decay	F	^{204}Pb(t,α)	K	^{203}Tl(n,n′γ)
B	^{203}Pb ε decay	G	^{205}Tl(p,t)	L	^{203}Tl(γ,γ')
C	Coulomb excitation	H	^{206}Pb(p,α)	M	^{203}Tl(μ^-,γ)
D	^{203}Tl(d,d′)	I	^{9}Be(^{238}U,Xγ)	N	^{206}Pb(μ^-,3nγ)
E	^{204}Pb(d,^{3}He)	J	^{204}Hg(d,3nγ)	O	^{207}Pb(μ^-,4nγ)

E(level)†	J$^\pi$	T$_{1/2}$	XREF	Comments
0.0	1/2$^+$	stable	ABCDEFGHIJKLMNO	μ=+1.616 *2* J$^\pi$: Optical spectroscopy (1931Sc02,1932Ja02), NMR (1950Pr51) and hyperfine structure (2017Ba04); π from μ, L(d,^{3}He)=0 and L(p,t)=0. μ: Recommended in 2019StZV, based on 1950Pr51 and 1963Ba23 data. configuration: $\pi(s^{-1}_{1/2})$.
279.1954 *10*	3/2$^+$	283 ps *4*	ABCDEFGHIJKLMNO	μ=+0.16 *5* (1965Ka02,2014StZZ) XREF: D(280)E(280)H(280). J$^\pi$: 279.1952γ M1+E2 to 1/2$^+$; L(d,^{3}He)=2; L(p,t)=2. T$_{1/2}$: Weighted average of 290 ps *30* (1957Be57), 290 ps *20* (1960Ba16), 283 ps *17* (1960Go15), 281 ps *6* (1961Sc04), 275 ps *14* (1962De14), 283 ps *7* (1964Ro19) using delayed coincidence technique and 266 ps *45* (1956Me77) and 293 ps *14* (1961De32) using the resonance fluorescence technique. Others: 208 ps *60* (1955Az33), 220 ps *30* (1960Jo15), 241 ps *10* (1960Pe16), 194 ps *28* (1967Pa09), 210 ps *30* (1971Sh35); 271 ps *2* (centroid shift method, 1962De14) it is too precise and it was superseded by 275 ps *14* (slope method 1962De14); 298 ps *35* (1958Mc02) and 284 ps *83* (1956Me77) in Coulomb Excitation depend on δ. μ: +0.16 *5* (liquid source) and +0.03 *9* (metal source)) from g=+0.11 *3* and +0.02 *6*, respectively, in 1965Ka02 using T$_{1/2}$=0.277 ns *21* from 1962De14. Others: −0.2 *17* (1979Ha06) and +0.35 *26* (1962De04). configuration: Dominant $\pi(d^{-1}_{3/2})$. B(E2)↑=0.111 *8* (using δ=1.16 *7*, 1973Kr02), 0.124 *14* (using δ=1.50 *8*, 1958Mc02).
680.5162 *22*	5/2$^+$	0.88 ps *8*	BCDEFGHIJK O	μ=2.6 *11* (1979Ha06,2014StZZ) XREF: E(690)G(681)H(682). J$^\pi$: 401.320γ M1+E2 to 3/2$^+$; 680.515γ E2 to 1/2$^+$; L(d,^{3}He)=2; L(p,t)=2. T$_{1/2}$: From B(E2)↑(680γ)=0.211 *19* (1973Kr02) in Coulomb excitation.
1044.13 *7*	3/2$^+$		D FG JKL	XREF: D(1042)J(?). J$^\pi$: 765.06γ M1(+E2) to 3/2$^+$; 363.41γ (M1) to 5/2$^+$; 1044.17γ to 1/2$^+$; L(p,t)=2.
1065.42 *5*	(5/2)$^+$		G K	XREF: G(1068). J$^\pi$: 786.23γ (M1+E2) to 3/2$^+$; 384.9γ to 5/2$^+$; L(p,t)=2.
1072.37 *9*	(3/2)$^+$		d Fgh KL	XREF: d(1073)F(1075)g(1075)h(1079)L(1074.0).

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Adopted Levels, Gammas (continued)

^{203}Tl Levels (continued)

E(level)[†]	Jπ	XREF	Comments
			Jπ: 793.16γ M1(+E2) to 3/2+; vector analyzing power in ^{204}Pb(t,α).
1073.95 *5*	7/2+	d ghIJK NO	XREF: d(1073)g(1075)h(1079). Jπ: 794.73γ E2 to 3/2+.
1113.80 *10*	(1/2+,3/2+)	G KL	Jπ: 794.73γ to 3/2+; 1113.89γ to 1/2+; L(p,t)=(0+2); 5305.2γ (E1) from Jπ=(1/2−).
1184.28 *6*	7/2+	D GHIJK O	XREF: D(1181)G(1188)H(1190). Jπ: 905.17γ E2 to 3/2+; 503.45γ to 5/2+; L(p,t)=4.
1215.59 *6*	(5/2+)	d K	XREF: d(1210). Jπ: 535.09γ to 5/2+, 936.36γ to 3/2+, 1215.85γ to 1/2+; Iγ(936)/Iγ(1216)=6.7 *14* favors Jπ=5/2+ compared to 3/2+.
1217.64 *7*	9/2+	d GHIJK O	XREF: d(1210)G(1227)H(1223). Jπ: 143.6γ M1(+E2) to 7/2+; 537.2γ E2 to 5/2+; L(p,t)=4.
1232.36 *11*	3/2+	DEF KL	XREF: D(1228)E(1240). Jπ: 551.64γ to 5/2+; 953.33γ to 3/2+; 1232.8γ to 1/2+; L(d,^{3}He)=2; vector analyzing power in ^{204}Pb(t,α).
1273[‡] *5*	7/2+,9/2+	D GH	XREF: D(1262). Jπ: L(p,t)=4.
1293.9 *5*	(1/2,3/2)	L	Jπ: 1293.9γ to 1/2+; population in ^{203}Tl(γ,γ′) (Jπ(^{203}Tl)=1/2+).
1305.78 *18*	(3/2+,5/2+)	K	Jπ: 232.01γ to (7/2+); 1026.6γ to 3/2+; 1305.77γ to 1/2+.
1320.14 *11*	(3/2)+	Fg KL O	XREF: F(1318)g(1325)L(1321.6)O(1322.0). Jπ: 639.58γ to 5/2+; 1040.94γ to 3/2+; 1321.3γ to 1/2+; L(p,t)=(2); vector analyzing power in ^{204}Pb(t,α).
1334.9 *3*	(1/2+,3/2)	g KL	XREF: g(1325)L(1337.3). Jπ: 654.3γ to 5/2+; 1056.1γ to 3/2+; 5081.8γ from Jπ=(1/2−).
1400[‡] *5*	7/2+,9/2+	D GH	XREF: D(1386)H(1401). Jπ: L(p,t)=4.
1407.79 *24*	(1/2+)	F KL	XREF: F(1414). Jπ: 1127.1γ to 3/2+; 1408.1γ to 1/2+; vector analyzing power in ^{204}Pb(t,α).
1432.4? *4*		J	
1448.04 *8*	3/2+,5/2+	D G KL	XREF: D(1446)G(1454). Jπ: 1168.84γ to 3/2+; 1447.5γ to 1/2+; L(p,t)=2.
1449.64 *9*	11/2−	EF HIJK O	XREF: E(1470)F(1458). Jπ: 232.01γ E1+M2 to 9/2+; L(d,^{3}He)=5; vector analyzing power in ^{204}Pb(t,α). configuration: Dominant π($h^{-1}_{11/2}$).
1483.8 *4*	(9/2−)	K	Jπ: Based on excitation function data in ^{203}Tl(n,n′γ) (2020Fo05) and systematics of similar states in neighboring nuclei; 409.8γ to 7/2+. configuration: Proposed intruder π($h^{+1}_{9/2}$) state. The assignment is tentative.
1488.27 *11*	(7/2,9/2)+	D GH JK	XREF: D(1481)G(1492)H(1491)J(?). Jπ: 303.96γ to 7/2+; L(p,t)=4.
1568.87 *12*	5/2+	FGH K	XREF: F(1580)G(1574)H(1571). Jπ: 888.4γ to 5/2+; 1289.8γ to 3/2+; L(p,t)=2; vector analyzing power in ^{204}Pb(t,α).
1611.05 *11*	(3/2+)	F K	XREF: F(1618). Jπ: 497.24γ to (1/2+,3/2+); 537.11γ to (7/2+); 930.4γ to 5/2+; vector analyzing power in ^{204}Pb(t,α).
1639.0 *5*	(3/2+)	KL	Jπ: 563.8γ to (7/2+); 1637.81γ to 1/2+; 4779.2γ from Jπ=(1/2−).
1657[@] *5*	(5/2+)	FGH	XREF: H(1649). Jπ: From vector analyzing power in ^{204}Pb(t,α); L(p,t)=(0+2);
1669.24 *15*	(1/2,3/2)	KL	XREF: L(1670.4). Jπ: 1389.2γ to 3/2+; 1669.30γ to 1/2+; 4749.3γ from Jπ=(1/2−).
1683.72 *9*	3/2+,5/2+	EFGH K	XREF: E(1690)F(1695)G(1688)H(1690). Jπ: 1404.55γ to 3/2+; L(p,t)=2 and L(d,^{3}He)=2.
1698 *5*	(7/2+,9/2+)	G	Jπ: From L(p,t)=(4).

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Adopted Levels, Gammas (continued)

^{203}Tl Levels (continued)

E(level)†	Jπ	XREF	Comments
1715.84 *21*	(1/2+,3/2)	KL	Jπ: 1035.7γ to 5/2+; 1715.4 to 1/2+; 4702.4γ from Jπ=(1/2−).
1743& *3*	(5/2,7/2+)	H	Jπ: From comparison of σ(θ) with DWBA calculations in ^{206}Pb(p,α) (1985Fi05).
1753.0 *10*	(3/2+)	G L	Jπ: From L(p,t)=2; 4665.8γ from Jπ=(1/2−).
1760@ *5*	(11/2−)	F	Jπ: From vector analyzing power in ^{204}Pb(t,α).
1818& *3*	5/2+	FGH	XREF: F(1830)G(1820). Jπ: From L(p,t)=(2); comparison of σ(θ) with DWBA calculations in ^{206}Pb(p,α) (1985Fi05); vector analyzing power in ^{204}Pb(t,α).
1836.50 *12*	(7/2−)	K	Jπ: 386.89γ to 11/2−, 1156.1γ to 5/2+; 473.78γ from (5/2)+.
1839.84 *14*	(1/2,3/2)	f H KL	XREF: f(1850)H(1844). Jπ: 1839.76γ to 1/2+; 4579.4γ from Jπ=(1/2−).
1856‡ *5*	3/2+,5/2+	D fG	XREF: D(1861)f(1850). Jπ: From L(p,t)=2.
1887.8 *4*	(1/2,3/2)	KL	Jπ: 1609.4γ to 3/2+; 4532.9γ from Jπ=(1/2−).
1901.6 *5*	(1/2,3/2)	KL	Jπ: 1624.0γ to 3/2+, 1901.5γ to 1/2+; 4517.7γ from Jπ=(1/2−).
1920@ *10*	1/2+	FGH	XREF: G(1924)H(1925). Jπ: From vector analyzing power in ^{204}Pb(t,α).
1935.3 *5*	(1/2,3/2,5/2−)	L	Jπ: 4483.5γ from Jπ=(1/2−).
1964‡ *5*	7/2+,9/2+	G	Jπ: From L(p,t)=4.
1988.95 *15*	(1/2+,3/2,5/2+)	G K	XREF: G(1987). Jπ: 377.9γ to (3/2+), 924.0γ to (5/2)+; 1988.88γ to 1/2+.
1992.1 *5*	(1/2,3/2)	H L	XREF: H(1993). Jπ: 1713.3γ to 3/2+; 4426.8γ from Jπ=(1/2−).
2010@ *10*	3/2+	F	Jπ: From vector analyzing power in ^{204}Pb(t,α).
2037.94 *14*	(13/2)	G IJ	XREF: G(2040). Jπ: 588.3γ D+Q to 11/2−.
2076.07? *12*	(5/2+)	GH K	XREF: H(2067). Jπ: 858.1γ to 9/2+, 2075.9γ to 1/2+.
2100@ *10*	3/2+	EF	Jπ: From vector analyzing power in ^{204}Pb(t,α).
2140@ *10*	5/2+	FGH	XREF: G(2149)H(2134). Jπ: From vector analyzing power in ^{204}Pb(t,α).
2170@ *10*	11/2−	F H	XREF: H(2177). Jπ: From vector analyzing power in ^{204}Pb(t,α).
2178‡ *8*	3/2+,5/2+	G	Jπ: From L(p,t)=2.
2232.2 *4*	(3/2)+	GH KL	XREF: G(2232)H(2242)L(2233.4). Jπ: 1952.9γ to 3/2+; 2231.4γ to 1/2+; L(p,t)=2; 4185.7γ from Jπ=(1/2−).
2284& *5*	(9/2−,11/2−)	FGH	XREF: F(2290)G(2270). Jπ: From L(p,t)=(5).
2310.22 *14*	(5/2)+	EFG K	XREF: E(2300). Jπ: 2310.1γ to 1/2+, 473.78γ to (7/2−,9/2+); L(d,^{3}He)=2; vector analyzing power in ^{204}Pb(t,α).
2314& *5*	(13/2,15/2−)	H	Jπ: From comparison of σ(θ) with DWBA calculations in ^{206}Pb(p,α);
2330@ *10*		F	
2342.2 *3*	(1/2,3/2)	KL	Jπ: 2062.7γ to 3/2+, 2342.0γ to 1/2+; 4075.9γ from Jπ=(1/2−).
2349& *5*	(7/2)+	GH	XREF: G(2345). Jπ: From comparison of σ(θ) with DWBA calculations in ^{206}Pb(p,α); L(p,t)=(4).
2370@ *10*	11/2−	FG	XREF: G(2367). Jπ: From vector analyzing power in ^{204}Pb(t,α).
2406‡ *10*	(9/2−,11/2−)	GH	XREF: H(2415). Jπ: From L(p,t)=(5).

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Adopted Levels, Gammas (continued)

^{203}Tl Levels (continued)

E(level)[†]	Jπ	XREF	Comments
2427.6 *10*	(1/2,3/2,5/2$^-$)	D L	XREF: D(2430). Jπ: 3991.2γ from J^π=(1/2$^-$).
2430[@] *10*	11/2$^-$	F	Jπ: From vector analyzing power in ^{204}Pb(t,α).
2445[&] *5*	(7/2$^+$,9/2$^+$)	GH	Jπ: From comparison of σ(θ) with DWBA calculations in ^{206}Pb(p,α); L(p,t)=(4).
2460.7 *11*	(5/2$^-$)	F L	XREF: F(2470). Jπ: From vector analyzing power in ^{204}Pb(t,α); 3958.1γ from J^π=(1/2$^-$).
2489.2 *11*	(5/2$^-$)	D G L	XREF: D(2483)G(2494). Jπ: From L(p,t)=(3); 3929.6γ from J^π=(1/2$^-$).
2507.6 *9*	(5/2)	H L	XREF: H(2512). Jπ: 1464γ to 3/2$^+$; comparison of σ(θ) with DWBA calculations in ^{206}Pb(p,α); 3911.4γ from J^π=(1/2$^-$).
2541[‡] *10*	(5/2$^-$,7/2$^-$)	D G	XREF: D(2539). Jπ: From L(p,t)=(3).
2571.34 *17*	(15/2)	IJ	Jπ: From 533.4γ M1(+E2) to (13/2).
2597[&] *5*	(11/2$^+$,13/2$^+$)	GH	XREF: G(2598). Jπ: From comparison of σ(θ) with DWBA calculations in ^{206}Pb(p,α); L(p,t)=(6).
2635[&] *5*	(1/2$^+$,3/2$^+$)	GH	XREF: G(2629). Jπ: From comparison of σ(θ) with DWBA calculations in ^{206}Pb(p,α).
2662.2? *10*	(1/2,3/2,5/2$^-$)	L	Jπ: 3756.6γ from J^π=(1/2$^-$).
2686[&] *5*		D H	XREF: D(2683).
2720?[&] *5*		H	
2742.5 *10*	(1/2,3/2,5/2$^-$)	L	XREF: L(?). Jπ: 3676.3γ from J^π=(1/2$^-$).
2760?[&] *5*		H	
2810?[&] *5*		D H	XREF: D(2828).
2840[&] *5*	(11/2$^+$)	H	Jπ: Comparison of σ(θ) with DWBA calculations in ^{206}Pb(p,α).
2893[#]		D	
2899.44 *20*	(17/2)	IJ	Jπ: 328.1γ D to (15/2).
2910[&] *5*	(5/2,7/2$^+$)	H	Jπ: Comparison of σ(θ) with DWBA calculations in ^{206}Pb(p,α).
2955.5 *10*	(1/2,3/2,5/2$^-$)	D H L	XREF: D(2954)H(2957)L(?). Jπ: 3463.3γ from J^π=(1/2$^-$).
2966.1 *10*	(1/2,3/2,5/2$^-$)	L	Jπ: 3452.7γ from J^π=(1/2$^-$).
2987.5 *11*	(1/2,3/2,5/2$^-$)	L	Jπ: 3431.3γ from J^π=(1/2$^-$).
2995[&] *5*	(11/2,13/2,15/2)$^-$	H	Jπ: Comparison of σ(θ) with DWBA calculations in ^{206}Pb(p,α).
3012.6 *10*	(3/2$^+$)	E L	XREF: E(3000)L(?). Jπ: L(d,^{3}He)=2; 3406.2γ from J^π=(1/2$^-$).
3049[&] *5*	(9/2$^+$)	H	Jπ: From comparison of σ(θ) with DWBA calculations in ^{206}Pb(p,α).
3081[a]		D	
3104[&] *8*		D H	XREF: D(3110).
3203[&] *8*	(5/2)	H	Jπ: From comparison of σ(θ) with DWBA calculations in ^{206}Pb(p,α).
3249.6 *4*	(17/2$^-$,19/2$^-$)	HIJ	XREF: H(3239). Jπ: From comparison of σ(θ) with DWBA calculations in ^{206}Pb(p,α); 350.2γ to (17/2).
3284[&] *8*	(9/2)	H	Jπ: From comparison of σ(θ) with DWBA calculations in ^{206}Pb(p,α).
3320.9 *10*	(1/2,3/2,5/2$^-$)	H L	XREF: H(3329). Jπ: 3098.0γ from J^π=(1/2$^-$).
3397[&] *8*	(9/2)	H	Jπ: (9/2,21/2$^+$) from comparison of σ(θ) with DWBA calculations in ^{206}Pb(p,α), but non population in the decay of the (25/2$^+$) isomer would

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Adopted Levels, Gammas (continued)

^{203}Tl Levels (continued)

E(level)[†]	Jπ	$T_{1/2}$	XREF	Comments
				argue against $J^{\pi}=21/2^{+}$.
3454[&] *8*			H	
3514.6 *4*			IJ	XREF: J(?).
3514.6+x	$(25/2^{+})$	7.7 μs *5*	I	Additional information 1. Jπ: In analogy with a similar isomer in ^{205}Tl. $T_{1/2}$: From γ(t) for 232γ, 280γ, 328γ, 589γ and 795γ in ^{9}Be(^{238}U,Xγ) (1998Pf02). configuration: $\pi(h^{-1}_{11/2}\otimes\nu(p_{1/2})^{-1},i^{-1}_{13/2})$.
3596[&] *8*			H	
3643[&] *8*			H	
3722[&] *8*			H	
3859[&] *8*			H	
3948[&] *8*			H	
5076.6 *4*		1.02 eV *15*	L	$T_{1/2}$: Value corresponds to $g\Gamma^2/\Gamma$ with g=(2J+1)/2 (2016Be31).
5102.4 *4*		0.86 eV *11*	L	$T_{1/2}$: Value corresponds to $g\Gamma^2/\Gamma$ with g=(2J+1)/2 (2016Be31).
6418.88 *14*	$(1/2^{-})$	32×10^{-5} keV *6*	L	Jπ: From multiple decay branches; 6419.1γ (E1) to $1/2^{+}$; The absence of population of $J^{\pi}=7/2^{-}$ levels would argue against $J^{\pi}=3/2^{-}$. $T_{1/2}$: From 1970Mo16 in ^{203}Tl(γ,γ′). Γ(0)/Γ(γ)=0.26 in 1970Mo16.

[†] From a least-squares fit to Eγ, unless otherwise stated.
[‡] From ^{205}Tl(p,t).
[#] From ^{203}Tl(d,d′).
[@] From ^{204}Pb(t,α).
[&] From ^{206}Pb(p,α).
[a] From ^{204}Pb(d,^{3}He).

Adopted Levels, Gammas (continued)

$\gamma(^{203}Tl)$

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.	δ	α[@]	Comments
279.1954	3/2$^+$	279.1952 *10*	100	0.0	1/2$^+$	M1+E2	+1.686 *6*	0.2261 *9*	α(K)=0.1580; α(L)=0.0515; α(M)=0.01279 α(N)=0.00321; α(O)=0.000587; α(P)=3.80×10^{-5} B(M1)(W.u.)=7.59×10^{-4} *11*; B(E2)(W.u.)=10.04 *15* E_γ: Recommended in 2000He14. δ: From α(T)exp=0.2261 *9*, weighted average of 0.2271 *12* (recommended in 1985HaZA, based on all published conversion electron data until 1985) and 0.2250 *12* (2000Sc05). Other: +1.51 *5* using the briccmixing program and the following data: δ=+1.50 *8* (1958Mc02), +1.15 *10* (1973Kr02), +1.10 *8* (1979Ha06), 1.7 *4* (1977Da06), αKexp=−0.1640 *10* and αT=0.2271 (recommended in 1985HaZA, based on all published conversion electron data until 1985) and 0.2250 *12* (2000Sc05); K/L=3.39 *6* and 3.34 *10* (1958Ni28), 3.36 *5* (1974Ha18), L/MNO=3.28 *10* and 3.40 *15*(1958Ni28), K/L1=6.64 *7*, K/L2=10.05 *15*, K/L3=21.2 *6* and K/M=13.74 *24* (1964He19). α: 0.2261 *9*, weighted average of 0.2271 *12* (recommended in 1985HaZA, based on all published conversion electron data until 1985) and 0.2250 *12* (2000Sc05).
680.5162	5/2$^+$	401.320 *3*	100.0 *19*	279.1954	3/2$^+$	M1+E2	−0.030 *8*	0.1784	α(K)=0.1464 *21*; α(L)=0.0245 *4*; α(M)=0.00572 *8* α(N)=0.001444 *21*; α(O)=0.000281 *4*; α(P)=2.66×10^{-5} *4* B(M1)(W.u.)=0.275 *+27−23*; B(E2)(W.u.)=0.56 *+34−26* E_γ: Recommended in 2000He14. I_γ: From ^{203}Pb ε decay (1989Ne05). Mult.,δ: Using the briccmixing program and the following data: δ=0.030 *2* (1965Ka02), <0.05 (1958Mc02), −0.079 *29* (1973Kr02), 0.04 *14* (1977Da06), 0.025 *6* (1961Ge03), 0.043 *10* (1960De04), −0.04 *5* (1979Ha06); K/L1=6.4 *5*, K/L2=67 *10*, K/L3=794 *99* (1964He19). Sign of δ is from 1973Kr02 and 1979Ha06.
		680.515 *3*	22.5 *5*	0.0	1/2$^+$	E2		0.01393	B(E2)(W.u.)=9.9 *+10−9* α(K)=0.01065 *15*; α(L)=0.00250 *4*; α(M)=0.000605 *9* α(N)=0.0001521 *22*; α(O)=2.84×10^{-5} *4*; α(P)=2.17×10^{-6} *3* E_γ: Recommended in 2000He14. I_γ: From ^{203}Pb ε decay (1989Ne05).Others: 22.0 *24* in ^{203}Tl(n,n′γ) (1981He14) and 28 *3* in Coulomb excitation (1973Kr02). Mult.: From α(K)exp=0.011 *4* in ^{203}Pb ε decay (1960De04); $\gamma(\theta)$ in ^{203}Tl(n,n′γ) (1977Da06) and Coulomb excitation (1973Kr02).
1044.13	3/2$^+$	363.41 *15*	65 *6*	680.5162	5/2$^+$	(M1)		0.233	α(K)=0.191 *3*; α(L)=0.0321 *5*; α(M)=0.00749 *11*

$^{203}_{81}Tl_{122}$-6

Adopted Levels, Gammas (continued)

γ(^{203}Tl) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.	δ	α[@]	Comments
									α(N)=0.00189 *3*; α(O)=0.000367 *6*; α(P)=3.48×10^{-5} *5* Mult.: A_2=−0.30 *4*, A_4=−0.01 *6* in ^{204}Hg(d,3nγ) (1977Sl01).
1044.13	3/2$^+$	765.06 *9*	100 *9*	279.1954	3/2$^+$	M1(+E2)	+0.8 *8*	0.024 *9*	α(K)=0.020 *8*; α(L)=0.0034 *11*; α(M)=0.00080 *23* α(N)=0.00020 *6*; α(O)=3.9×10^{-5} *12*; α(P)=3.6×10^{-6} *13* Mult.,δ: From γ(θ) in ^{203}Tl(n,n′γ) (1977Da06).
		1044.17 *20*	52 *7*	0.0	1/2$^+$				
1065.42	(5/2)$^+$	384.9 *3*	14 *3*	680.5162	5/2$^+$				
		786.23 *5*	100 *3*	279.1954	3/2$^+$	M1+E2	+2.7 *10*	0.013 *3*	α(K)=0.0101 *24*; α(L)=0.0020 *4*; α(M)=0.00048 *8* α(N)=0.000121 *19*; α(O)=2.3×10^{-5} *4*; α(P)=1.9×10^{-6} *4* Mult.,δ: From γ(θ) in ^{203}Tl(n,n′γ) (1977Da06).
1072.37	(3/2)$^+$	793.16 *9*	100	279.1954	3/2$^+$	M1(+E2)	−0.5 *5*	0.026 *6*	α(K)=0.021 *5*; α(L)=0.0036 *7*; α(M)=0.00083 *16* α(N)=0.00021 *4*; α(O)=4.1×10^{-5} *9*; α(P)=3.8×10^{-6} *9* Mult.,δ: From γ(θ) in ^{203}Tl(n,n′γ) (1977Da06).
1073.95	7/2$^+$	794.73 *5*	100	279.1954	3/2$^+$	E2		0.01005	α(K)=0.00785 *11*; α(L)=0.001673 *24*; α(M)=0.000401 *6* α(N)=0.0001010 *15*; α(O)=1.90×10^{-5} *3*; α(P)=1.527×10^{-6} *22* Mult.: From γ(θ) in ^{203}Tl(n,n′γ) (1977Da06) and A_2=0.140 *7*, A_4=−0.010 *10* in ^{204}Hg(d,3nγ) (1977Sl01).
1113.80	(1/2$^+$,3/2$^+$)	834.55 *15*	100 *13*	279.1954	3/2$^+$				
		1113.89 *16*	67 *7*	0.0	1/2$^+$				
1184.28	7/2$^+$	503.45 *11*	13.6 *23*	680.5162	5/2$^+$				
		905.17 *6*	100.0 *23*	279.1954	3/2$^+$	E2		0.00772	α(K)=0.00612 *9*; α(L)=0.001220 *17*; α(M)=0.000290 *4* α(N)=7.31×10^{-5} *11*; α(O)=1.385×10^{-5} *20*; α(P)=1.150×10^{-6} *17* Mult.: From γ(θ) in ^{203}Tl(n,n′γ) (1977Da06) and A_2=0.165 *10*, A_4=−0.011 *16* in ^{204}Hg(d,3nγ) (1977Sl01).
1215.59	(5/2$^+$)	535.09 *13*	47 *5*	680.5162	5/2$^+$				
		936.36 *6*	100 *6*	279.1954	3/2$^+$				
		1215.85 *17*	15 *3*	0.0	1/2$^+$				
1217.64	9/2$^+$	33.4[‡&] *1*	5.8[‡] *8*	1184.28	7/2$^+$				
		143.6[‡] *1*	100[‡] *4*	1073.95	7/2$^+$	M1(+E2)	0.05 *−5+6*	3.06	α(K)=2.50 *4*; α(L)=0.429 *7*; α(M)=0.1002 *17* α(N)=0.0253 *5*; α(O)=0.00491 *8*; α(P)=0.000463 *7* Mult.,δ: A_2=−0.104 *18*, A_4=−0.02 *3*, and α(exp)=1.6 *4* in ^{204}Hg(d,3nγ) (1977Sl01).
		537.2[‡] *1*	84[‡] *7*	680.5162	5/2$^+$	E2		0.0237	α(K)=0.01727 *25*; α(L)=0.00487 *7*; α(M)=0.001198 *17* α(N)=0.000301 *5*; α(O)=5.55×10^{-5} *8*; α(P)=3.88×10^{-6}

$^{203}_{81}Tl_{122}$-7

Adopted Levels, Gammas (continued)

γ(^{203}Tl) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.	δ	α[@]	Comments
									6 Mult.: A_2=0.195 *29*, A_4=−0.05 *4* in ^{204}Hg(d,3nγ) (1977Sl01).
1232.36	3/2$^+$	551.64 *16*	28 *4*	680.5162	5/2$^+$				
		953.32 *15*	100 *7*	279.1954	3/2$^+$				
		1232.8 *7*	13 *6*	0.0	1/2$^+$				
1293.9	(1/2,3/2)	1293.9[#] *5*	100[#]	0.0	1/2$^+$				
1305.78	(3/2$^+$,5/2$^+$)	232.01[&] *6*		1073.95	7/2$^+$				
		1026.6 *4*		279.1954	3/2$^+$				
		1305.77 *20*		0.0	1/2$^+$				
1320.14	(3/2)$^+$	276.1 *3*	81 *10*	1044.13	3/2$^+$				
		639.58 *13*	55 *7*	680.5162	5/2$^+$				
		1040.94 *20*	100 *12*	279.1954	3/2$^+$				
		1321.3 *8*	4.5 *24*	0.0	1/2$^+$				
1334.9	(1/2$^+$,3/2)	654.3 *3*	100 *19*	680.5162	5/2$^+$				
		1056.1[&] *7*	47 *19*	279.1954	3/2$^+$				
1407.79	(1/2$^+$)	1127.1[#] *8*	8[#]	279.1954	3/2$^+$				
		1408.1[#] *3*	100[#]	0.0	1/2$^+$				
1432.4?		386.9[‡&] *3*	100[‡]	1044.13	3/2$^+$				
1448.04	3/2$^+$,5/2$^+$	404.1 *3*	26 *6*	1044.13	3/2$^+$				
		1168.84 *8*	100 *7*	279.1954	3/2$^+$				
		1447.5 *5*	17 *6*	0.0	1/2$^+$				
1449.64	11/2$^-$	232.01 *6*	100	1217.64	9/2$^+$	E1+M2	0.050 *−15+17*	0.061 *7*	α(K)=0.050 *5*; α(L)=0.0091 *14*; α(M)=0.0021 *4* α(N)=0.00054 *9*; α(O)=0.000102 *17*; α(P)=8.2×10^{-6} *15* Mult.,δ: A_2=−0.104 *5*, A_4=0.003 *9*, and α(exp)=0.29 *6* in ^{204}Hg(d,3nγ) (1977Sl01).
1483.8	(9/2$^-$)	409.8 *4*	100	1073.95	7/2$^+$				
1488.27	(7/2,9/2)$^+$	303.96 *9*	100	1184.28	7/2$^+$				
1568.87	5/2$^+$	336.6 *34*	85 *17*	1232.36	3/2$^+$				
		503.45 *11*		1065.42	(5/2)$^+$				
		888.4 *21*	100 *20*	680.5162	5/2$^+$				
		1289.8[&] *3*	33 *22*	279.1954	3/2$^+$				
1611.05	(3/2$^+$)	497.24 *15*	100 *8*	1113.80	(1/2$^+$,3/2$^+$)				
		537.11 *14*		1073.95	7/2$^+$				
		930.4 *5*	21 *8*	680.5162	5/2$^+$				
1639.0	(3/2$^+$)	563.8 *7*	100 *8*	1073.95	7/2$^+$				
		1637.8[&] *5*	19 *8*	0.0	1/2$^+$				
1669.24	(1/2,3/2)	1389.2 *5*	72 *16*	279.1954	3/2$^+$				

$^{203}_{81}Tl_{122}$-8

Adopted Levels, Gammas (continued)

γ(^{203}Tl) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.	δ	α[@]	Comments
1669.24	(1/2,3/2)	1669.30 *15*	100 *16*	0.0	$1/2^+$				
1683.72	$3/2^+$,$5/2^+$	1404.55 *9*	100	279.1954	$3/2^+$				
1715.84	($1/2^+$,3/2)	1035.7 *3*	75 *14*	680.5162	$5/2^+$				
		1715.4 *3*	100 *14*	0.0	$1/2^+$				
1836.50	($7/2^-$)	386.89 *10*	100 *6*	1449.64	$11/2^-$				
		1156.1[&] *6*	12 *6*	680.5162	$5/2^+$				
1839.84	(1/2,3/2)	1839.76 *20*	100	0.0	$1/2^+$				
1887.8	(1/2,3/2)	1609.4 *4*	100	279.1954	$3/2^+$				
1901.6	(1/2,3/2)	1624.0[#] *11*	50[#]	279.1954	$3/2^+$				
		1901.5[#] *11*	100[#]	0.0	$1/2^+$				
1988.95	($1/2^+$,3/2,$5/2^+$)	377.9 *3*	74 *13*	1611.05	$(3/2^+)$				
		924.0 *5*	38 *13*	1065.42	$(5/2)^+$				
		1988.88 *18*	100 *13*	0.0	$1/2^+$				
1992.1	(1/2,3/2)	1713.3[#] *11*	100[#]	279.1954	$3/2^+$				
2037.94	(13/2)	588.3[‡] *1*	100[‡]	1449.64	$11/2^-$	D+Q	−0.29 *−5+4*		Mult.,δ: A_2=0.137 *8*, A_4=−0.024 *11* in ^{204}Hg(d,3nγ) (1977Sl01).
2076.07?	($5/2^+$)	392.42 *15*	100 *19*	1683.72	$3/2^+$,$5/2^+$				
		587.1 *5*	37 *11*	1488.27	$(7/2,9/2)^+$				
		858.1 *3*	67 *30*	1217.64	$9/2^+$				
		1002.2 *3*	74 *15*	1073.95	$7/2^+$				
		1032.5 *4*	48 *15*	1044.13	$3/2^+$				
		2075.9 *4*	44 *11*	0.0	$1/2^+$				
2232.2	$(3/2)^+$	1952.9 *7*	100 *17*	279.1954	$3/2^+$				
		2231.4 *5*	41 *17*	0.0	$1/2^+$				
2310.22	$(5/2)^+$	470.35 *9*	100 *11*	1839.84	(1/2,3/2)				
		473.78 *13*	62 *11*	1836.50	$(7/2^-)$				
		862.8	33 *13*	1448.04	$3/2^+$,$5/2^+$				
		1244.5[&] *4*	11 *7*	1065.42	$(5/2)^+$				
		2310.1 *8*	16 *7*	0.0	$1/2^+$				
2342.2	(1/2,3/2)	2062.7 *3*	100 *22*	279.1954	$3/2^+$				
		2342.0[&] *5*	59 *22*	0.0	$1/2^+$				
2507.6	(5/2)	1464.0[#] *18*	100[#]	1044.13	$3/2^+$				
2571.34	(15/2)	533.4[‡] *1*	100[‡]	2037.94	(13/2)	M1(+E2)		0.0839	α(K)=0.0689 *10*; α(L)=0.01146 *16*; α(M)=0.00267 *4* α(N)=0.000673 *10*; α(O)=0.0001309 *19*; α(P)=1.242×10^{-5} *18* Mult.: A_2=−0.068 *19*, A_4=−0.05 *3* in ^{204}Hg(d,3nγ) (1977Sl01).
2899.44	(17/2)	328.1[‡] *1*	100[‡]	2571.34	(15/2)	D			Mult.: From γ(θ) in ^{204}Hg(d,3nγ).

$^{203}_{81}Tl_{122}$-9

Adopted Levels, Gammas (continued)

γ(^{203}Tl) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.	α[@]	Comments
3249.6	(17/2$^-$,19/2$^-$)	350.2[‡] *3*	100[‡]	2899.44	(17/2)			
3514.6		265.0[‡&] *2*	100[‡]	3249.6	(17/2$^-$,19/2$^-$)	D		Mult.: A_2=−0.187 *60*, A_4=−0.13 *9* in ^{204}Hg(d,3nγ) (1977Sl01).
5076.6		5076.5[#] *4*	100[#]	0.0	1/2$^+$			W(90°)/W(130°)=0.84 *21* in ^{203}Tl(γ,γ′).
5102.4		5102.3[#] *4*	100[#]	0.0	1/2$^+$			W(90°)/W(130°)=0.89 *21* in ^{203}Tl(γ,γ′).
6418.88	(1/2$^-$)	3098.0	2.2	3320.9	(1/2,3/2,5/2$^-$)			
		3406.2 *10*	1.4	3012.6	(3/2$^+$)			
		3431.3 *11*	1.1	2987.5	(1/2,3/2,5/2$^-$)			
		3452.7 *9*	1.1	2966.1	(1/2,3/2,5/2$^-$)			
		3463.3 *10*	0.7	2955.5	(1/2,3/2,5/2$^-$)			
		3676.3 *10*	1.4	2742.5	(1/2,3/2,5/2$^-$)			
		3756.6 *10*	1.1	2662.2?	(1/2,3/2,5/2$^-$)			
		3911.4 *9*	1.4	2507.6	(5/2)			
		3929.6 *11*	1.1	2489.2	(5/2$^-$)			
		3958.1 *11*	2.2	2460.7	(5/2$^-$)			
		3991.2 *10*	3.6	2427.6	(1/2,3/2,5/2$^-$)			
		4075.9 *5*	5.0	2342.2	(1/2,3/2)			
		4185.7 *5*	1.8	2232.2	(3/2)$^+$			
		4426.8 *5*	2.5	1992.1	(1/2,3/2)			
		4483.5 *4*	6.8	1935.3	(1/2,3/2,5/2$^-$)			
		4517.7 *6*	2.9	1901.6	(1/2,3/2)			
		4532.9 *6*	5.7	1887.8	(1/2,3/2)			
		4579.4 *5*	9.0	1839.84	(1/2,3/2)			
		4665.8 *9*	1.8	1753.0	(3/2$^+$)			
		4702.4 *11*	1.4	1715.84	(1/2$^+$,3/2)			
		4749.3 *8*	2.2	1669.24	(1/2,3/2)			
		4779.2 *5*	7.2	1639.0	(3/2$^+$)			
		4970.6 *4*	26.9	1448.04	3/2$^+$,5/2$^+$			
		5011.2 *4*	52.3	1407.79	(1/2$^+$)			
		5081.8 *16*	0.4	1334.9	(1/2$^+$,3/2)			
		5099.3 *13*	0.7	1320.14	(3/2)$^+$			
		5186.4 *4*	10.4	1232.36	3/2$^+$			
		5305.2 *4*	60.9	1113.80	(1/2$^+$,3/2$^+$)	(E1)	0.00223	α(K)=0.0001373 *20*; α(L)=1.96×10^{-5} *3*; α(M)=4.48×10^{-6} *7* α(N)=1.126×10^{-6} *16*; α(O)=2.20×10^{-7} *3*; α(P)=2.10×10^{-8} *3*; α(IPF)=0.00207 *3* Mult.: From γ(θ) in ^{203}Tl(γ,γ′).
		5346.0 *6*	1.4	1072.37	(3/2)$^+$			
		5375.2 *10*	1.1	1044.13	3/2$^+$			
		6139.6 *5*	44.1	279.1954	3/2$^+$			
		6419.1 *5*	100.0	0.0	1/2$^+$	(E1)		Mult.: From γ(θ) in ^{203}Tl(γ,γ′).

$^{203}_{81}Tl_{122}$-10

Adopted Levels, Gammas (continued)

$\gamma(^{203}Tl)$ (continued)

† From $^{203}Tl(n,n'\gamma)$, unless otherwise stated.
‡ From $^{204}Hg(d,3n\gamma)$.
# From $^{203}Tl(\gamma,\gamma')$.
@ Additional information 2.
& Placement of transition in the level scheme is uncertain.

$^{203}_{81}Tl_{122}$-11

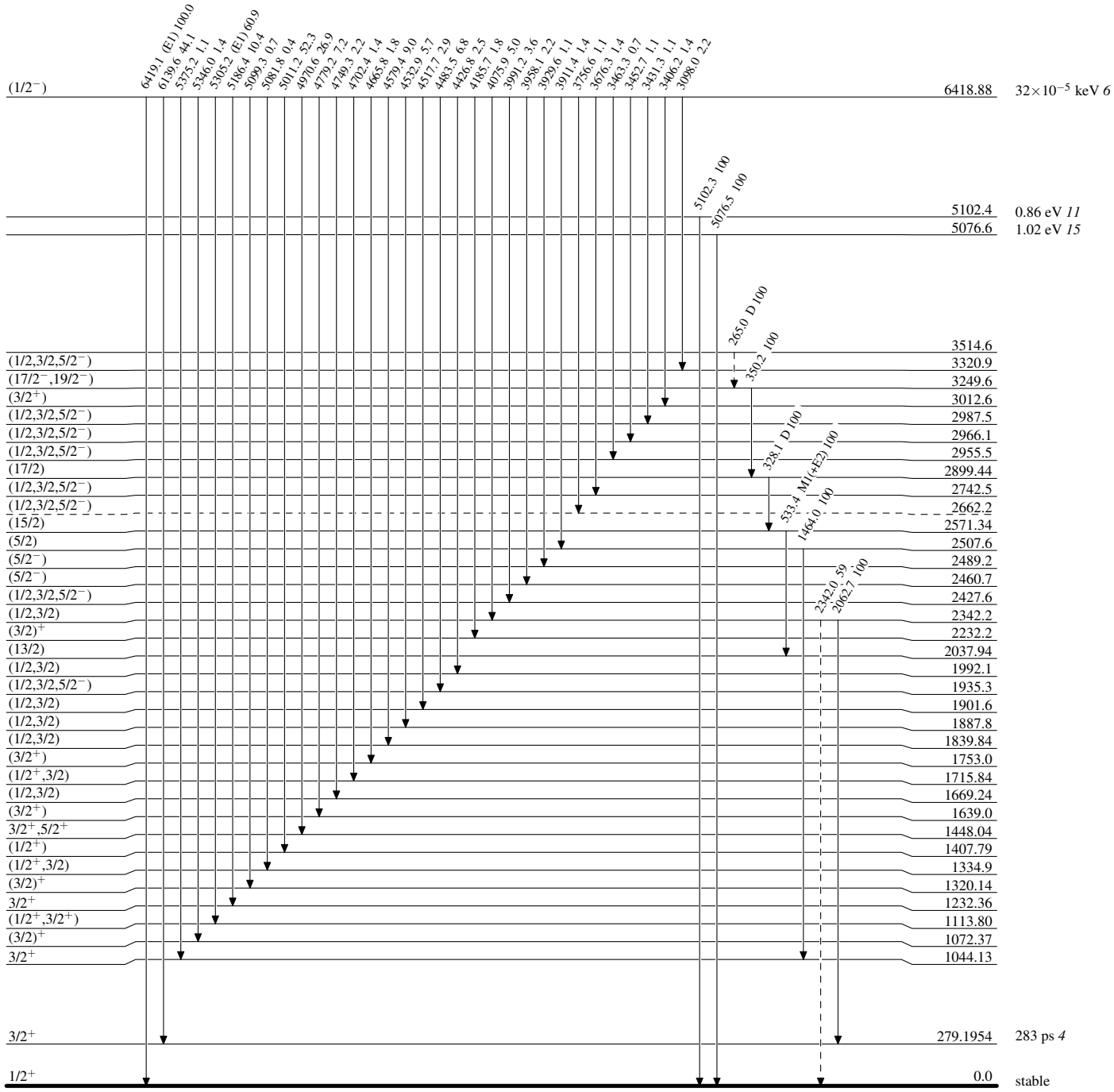
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



$^{203}_{81}Tl_{122}$

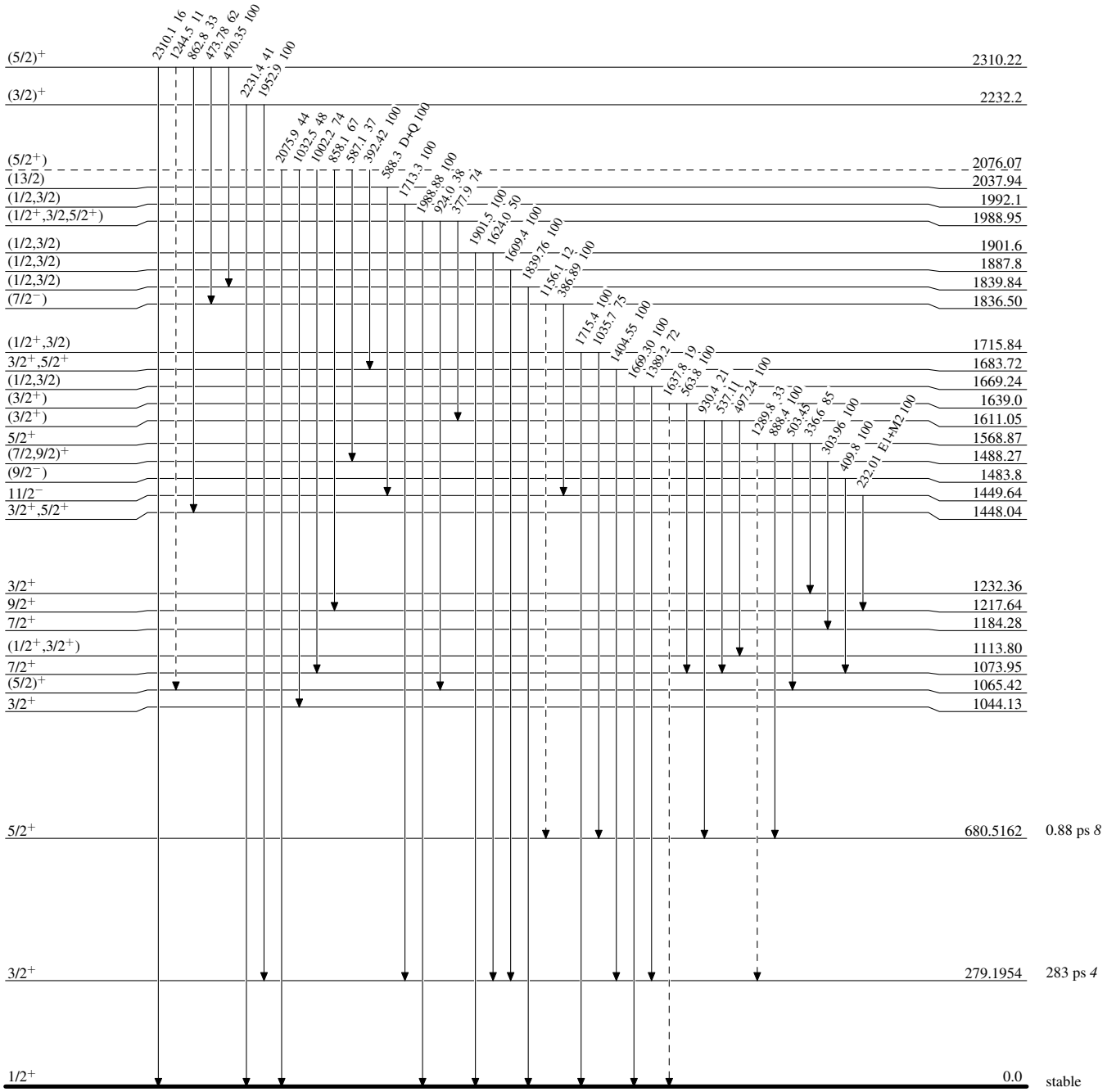
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



$^{203}_{81}Tl_{122}$

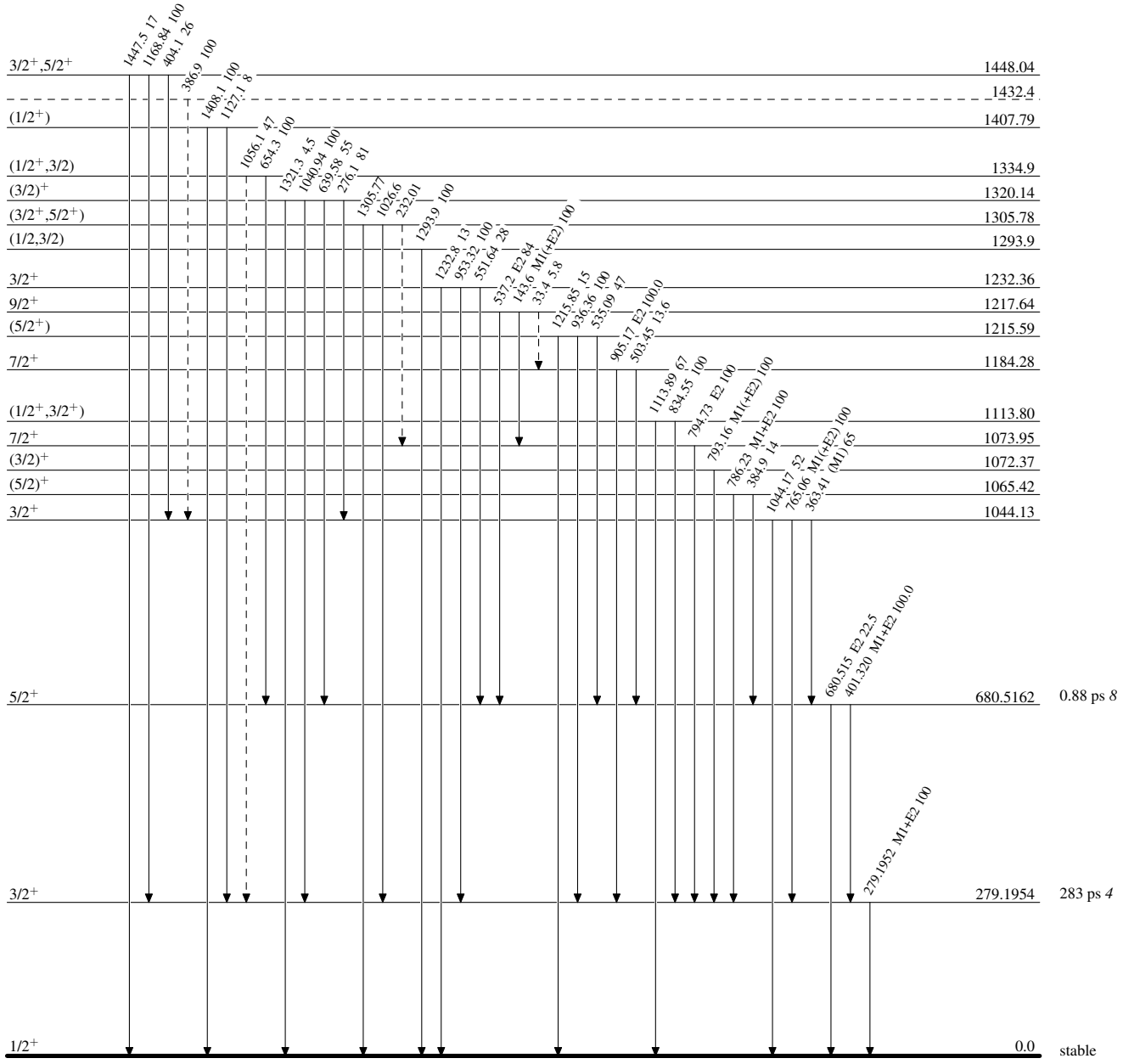
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



$^{203}_{81}Tl_{122}$