Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jun Chen and Balraj Singh	NDS 177, 1 (2021)	3-Sep-2021

Q(β^-)=−2730 *22*; S(n)=7532 *15*; S(p)=3164 *21*; Q(α)=3471 *14* 2021Wa16
S(2n)=17210 *30*, S(2p)=8743 *21*, Q(ε)=5246 *14* (2021Wa16).
Hyperfine structure and isotope shift measurement: 2013Ba41, 1992Me07, 1990Di09, 1987Bo44, 1986BoZZ.
Mass measurement: 2014Bo26, 2013St25, 2000Ra23, 1999Sc46.
Additional information 1.
Theoretical references: consult the NSR database (www.nndc.bnl.gov/nsr/) for 33 primary references dealing with decay modes and structure calculations.
Level scheme of high-spin states of normal bands is from 2014Ma55 in (^{18}O,5nγ), which is extended with respect to that of 2012Pa16 in Re(^{13}C,4nγ). Level scheme of super-deformed (SD) bands is from 1991Az03 in (^{18}O,5nγ). Level scheme of low-spin states is from ^{194}Pb ε decay (10.7 m) (1987El09).

^{194}Tl Levels

Configurations are discussed in detail by 2014Ma55. Nomenclature for orbitals in cranked shell-model (CSM) calculations is as follows:
A: 1/2[660],α=+1/2, $\nu i_{13/2}$ orbital.
B: 1/2[660],α=−1/2, $\nu i_{13/2}$ orbital.
C: 3/2[651],α=+1/2, $\nu i_{13/2}$ orbital.
D: 3/2[651],α=−1/2, $\nu i_{13/2}$ orbital.
E: α=−1/2, νj, j=$p_{3/2}$, $f_{5/2}$, $p_{1/2}$.
F: α=+1/2, νj, j=$p_{3/2}$, $f_{5/2}$, $p_{1/2}$.
e: 9/2[550],α=−1/2, $\pi h_{9/2}$ orbital.
f: 9/2[550],α=+1/2, $\pi h_{9/2}$ orbital.
g: 1/2[550],α=−1/2, $\pi h_{11/2}$ orbital.

Cross Reference (XREF) Flags

A ^{194}Pb ε decay (10.7 min)
B ^{181}Ta(^{18}O,5nγ)
C ^{181}Ta(^{18}O,5nγ):SD
D ^{185}Re(^{13}C,4nγ),^{187}Re(^{13}C,6nγ)

E(level)[†]	J$^\pi$[‡]	$T_{1/2}$[b]	XREF	Comments
0.0	2$^-$	33.0 min *5*	A	%ε+%β^+=100; %α<1×10^{-7} (1963Ka17) μ=+0.139 *3* (1992Me07,2019StZV) Q=−0.282 *7* (1992Me07,2016St14) J$^\pi$: spin from atomic-beam method (1976Ek03); parity from shell-model assignment based on comparison of experimental and calculated μ. $T_{1/2}$: same value of 33.0 min *5* is measured by 2003Su30 (γ-decay curve) and 1960Ju01 (decay curve for internal conversion lines). Others: 34 min *2* (1976Ek03, decay curve for resonance in hyperfine structure measurements); 35.1 min *10* (1968Pe13, γ-decay curve). Weighted average of all the four values is: 33.3 min *5*. μ: from collinear fast beam laser spectroscopy (1992Me07). Others: 0.14 *1* from atomic beam magnetic resonance (1976Ek03). Q: from collinear fast beam laser spectroscopy (1992Me07). Evaluated rms charge radius <r^2>$^{1/2}$=5.4259 fm *46* (2013An02). Evaluated δ<r^2>(^{194}Tl, ^{205}Tl)=−0.5261 *5* (2013An02). Others: −0.531 fm^2 *63* (1992Me07), −0.5551 fm^2 *39*(stat)*50*(syst) (2013Ba41, re-analysis of isotope-shift data in 1992Me07 with the unified electronic parameters set).

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Adopted Levels, Gammas (continued)

^{194}Tl Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[b]	XREF	Comments
				Configuration=$\pi s_{1/2}\otimes\nu f_{5/2}+\pi s_{1/2}\otimes\nu p_{3/2}$ (1976Ek03,1984Be40).
192.07 *4*	$(0)^-$		A	Jπ: 192.0γ E2 to 2^- and ε feeding from 0^+ (log *ft*=6.6). Spin of 1^- is considered unlikely since in that case the transition may be M1+E2 type rather than pure E2.
203.83 *3*	1^-		A	Jπ: 203.8γ M1(+E2) to 2^- and ε feeding from 0^+ (log *ft*=6.5).
225.01 *4*	$(2)^-$		A	Jπ: 225.0γ M1(+E2) to 2^- and 1294.4γ (E1) from 1^+. Absence of ε feeding from 0^+ favors J=2. Also in ^{198}Tl, 2^- and 3^- levels at 259 and 275, respectively.
260 *14*	(7^+)	32.8 min *2*	B D	%ε+%β^+=100 μ=+0.538 *5* (1987Bo44,1992Me07,2019StZV) Q=+0.607 *16* (1992Me07,2016St14) Additional information 2. E(level): from mass difference of ^{194g}Tl and ^{194m}Tl masses, measured with ISOLTRAP (2013St25,2014Bo26). Other: ≈250 from extrapolation of energies of 7^+ isomers in ^{196}Tl at 394.2 *5* and ^{198}Tl at 543.6 *4* from their Adopted Levels. Jπ: from systematics of 7^+ isomers in ^{196}Tl to ^{204}Tl. $T_{1/2}$: from 1960Ju01, decay curves for conversion lines. μ: weighted average of +0.530 *8* from collinear fast beam laser spectroscopy (1992Me07) and 0.540 *5* from collinear fast beam laser spectroscopy (1987Bo44). Other measurements: 1990Di09, 1984Be40, 1975Ka17,1969Go21. Q: from collinear fast beam laser spectroscopy (1992Me07). Other: 0.62 *1* (1986BoZZ). Δ<r^2>(^{194}Tl, ^{205}Tl)=−0.525 fm^2 63 (1992Me07), −0.5481 fm^2 *5*(stat)*380*(syst) (2013Ba41, re-analysis of isotope-shift data in 1992Me07 with the unified electronic parameters set). No IT decay (1972Am03,1960Ju01). No Tl K x ray or L x ray observed (1972Am03).
270.51 *3*	$(3)^-$		A	Jπ: 270.5γ M1(+E2) to 2^-; no ε feeding from 0^+ favors J=3. But the choices J=1,2 are not ruled out. Comparison with 2^- and 3^- levels in ^{198}Tl at 259 and 275, respectively, suggests 2^- for 225 level and 3^- for 270 level.
367.77 *4*	1^-		A	Jπ: 163.9γ M1+E2 to 1^-, 367.8γ (M1(+E2)) to 2^-, 175.7γ M1 to $(0)^-$; ε feeding from 0^+ (log *ft*=6.7).
459.95 *4*	(2^-)		A	Jπ: 460.05γ (M1+E2) to 2^-, 189.4γ (M1(+E2)) to $(3)^-$; ε feeding from 0^+ log *ft*=6.7 (log $f^{1u}t$=7.8).
521.52 *3*	$1^{(-)}$		A	Jπ: 521.55γ (M1(+E2)) to 2^-, 317.70γ (M1(+E2)) to 1^-; ε feeding from 0^+ (log *ft*=6.4).
553.00[c] *10*	(8^-)		B D	Jπ: 293.0γ E1, ΔJ=1 to (7^+).
589.17 *4*	(2^-)		A	Jπ: 589.1γ (M1(+E2)) to 2^-, 318.69γ (M1(+E2)) to $(3)^-$; ε feeding from 0^+ log *ft*=7.1 (log $f^{1u}t$=8.2) from 0^+.
598.4[c] *4*	(9^-)		B D	Jπ: 45.4γ (M1), ΔJ=1 to (8^-); band assignment.
694.4[c] *4*	(10^-)		B D	Jπ: 96.1γ (M1), ΔJ=1 to (9^-); band assignment.
752.86 *5*	$(0^-,1^-)$		A	Jπ: 549.0γ (M1,E2) to 1^-; ε feeding from 0^+ (log *ft*=6.6).
785.72 *5*	(1^-)		A	Jπ: ε feeding from 0^+ (log *ft*=5.5); 581.8γ and 417.9γ (M1(+E2)) to 1^-.
833.35 *4*	(1^-)		A	Jπ: 311.84γ (M1+E2) to 1^-, 373.39γ (M1(+E2)) to $(2)^-$; ε feeding from 0^+ (log *ft*=6.7).
972.5[c] *4*	(11^-)		B D	Jπ: 373.9γ (E2), ΔJ=2 to (9^-), 278.3γ M1, ΔJ=1 to (10^-).
979.11 *7*	$(1^-,2^-)$		A	Jπ: 774.9γ (M1) to 1^-; possible 786.7γ to $(0)^-$.
998.55 *6*	$1^{(-)}$		A	Jπ: 998.47γ (M1(+E2)) to 2^-; ε feeding from 0^+ (log *ft*=6.1).
1010.52 *5*	(1^-)		A	Jπ: 818.0γ (M1) to $(0)^-$; ε feeding from 0^+ (log *ft*=6.1).
1152.01 *7*	(1^-)		A	Jπ: 926.97γ (M1(+E2)) to $(2)^-$; ε feeding from 0^+ (log *ft*=6.4).
1178.74 *12*	(1^-)		A	Jπ: (M1,E2) 811.49γ to 1^-; ε feeding from 0^+ (log *ft*=6.6).
1187.56 *7*	$(0^-,1^-)$		A	Jπ: 666.05γ (M1(+E2)) to 1^-; ε feeding from 0^+ (log *ft*=5.9).
1217.4[c] *4*	(12^-)		B D	Jπ: 244.9γ M1, ΔJ=1 to (11^-), 523.0γ E2, ΔJ=2 to (10^-).
1272.15 *7*	$(0^-,1^-,2^-)$		A	Jπ: 1068.47γ (M1) to 1^-; ε feeding from 0^+ (log *ft*=6.8).

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Adopted Levels, Gammas (continued)

^{194}Tl Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[b]	XREF	Comments
1434.8[f] 5	(11⁻)		B	Jπ: 740.5γ to (10⁻), 836.3γ to (9⁻); band assignment.
1519.37 6	1⁺		A	Jπ: strong allowed ε feeding from 0⁺ (log *ft*=5.1); 1519.5γ to 2⁻.
1553.11 13	(0,1)		A	Jπ: ε feeding from 0⁺ (log *ft*=6.2).
1602.81 20	(0⁻,1,2⁻)		A	Jπ: ε feeding from 0⁺ (log *ft*=6.9) and γ to 2⁻.
1620.9[c] 4	(13⁻)		B D	Jπ: 403.5γ M1, ΔJ=1 to (12⁻), 648.3γ E2, ΔJ=2 to (11⁻).
1638.91 9	(1⁻)		A	Jπ: ε feeding from 0⁺ (log *ft*=6.1); 852.9γ (E2(+M1)) to (1⁻), 1639.29γ to 2⁻.
1707.62 9	(1⁻)		A	Jπ: 1118.44γ (M1,E2) to (2)⁻, 1515γ to (0)⁻; ε feeding from 0⁺ (log *ft*=6.1).
1722.97 17	(0⁻,1)		A	Jπ: ε feeding from 0⁺ (log *ft*=6.5); 1723.2γ to 2⁻.
1741.0[f] 5	(12⁻)		B	Jπ: 768.5γ D, ΔJ=1 to (11⁻); band assignment.
1753.13 15	(0,1)		A	Jπ: ε feeding from 0⁺ (log *ft*=5.9).
1795.1 5	(11⁺)		B	Jπ: 822.4γ E1 to (11⁻), 1100.7γ E1 to (10⁻).
1810.43 12	(1)		A	Jπ: ε feeding from 0⁺ (log *ft*=5.8); 1618.5γ to (0)⁻.
1843.2 5	(12⁻)		B	Jπ: proposed by 2014Ma55 in (^{18}O,5nγ) based on 625.8γ to (12⁻), 870.7γ to (11⁻).
1858.96 15	(0,1,2⁻)		A	Jπ: ε feeding from 0⁺ (log *ft*=6.8).
1904.1[c] 4	(14⁻)		B D	Jπ: 283.2γ M1, ΔJ=1 to (13⁻), 686.7γ E2, ΔJ=2 to (12⁻).
1938.5 5	(12⁺)		B	Jπ: 966.0γ E1, ΔJ=1 to (11⁻), 143.4γ (M1), ΔJ=1 to (11⁺).
1998.2[f] 4	(13⁻)		B	Jπ: 563.4γ Q, ΔJ=2 to (11⁻), 780.8γ M1, ΔJ=1 to (12⁻).
2031.1[d] 5	(12⁺)		B	Jπ: 1058.6γ E1, ΔJ=1 to (11⁻); band assignment.
2056.4[d] 5	(13⁺)		B	Jπ: 117.9γ (M1), ΔJ=1 to (12⁺); band assignment.
2114.9 5	(13⁻)		B	Jπ: 897.4γ D, ΔJ=1 to (12⁻).
2133.3[d] 6	(14⁺)		B	Jπ: 76.9γ (M1), ΔJ=1 to (13⁺); band assignment.
2192.36 18	(1,2⁻)		A	Jπ: 2000.6γ to (0)⁻; ε feeding from 0⁺ (log *ft*=6.4).
2214.0[g] 7	(14⁺)		B	Jπ: 157.6γ (M1), ΔJ=1 to (13⁺); band assignment.
2238.0[d] 7	(15⁺)		B	Jπ: 104.7γ (M1), ΔJ=1 to (14⁺); band assignment.
2261.0[f] 4	(14⁻)		B	Jπ: 262.8γ M1, ΔJ=1 to (13⁻); band assignment.
2343.4 5	(0⁻,1)		A	Jπ: ε feeding from 0⁺ (log *ft*=5.9); 2343.4γ to 2⁻.
2372.6[c] 4	(15⁻)		B D	Jπ: 468.4γ M1, ΔJ=1 to (14⁻), 751.8γ E2, ΔJ=2 to (13⁻).
2392.7[d] 7	(16⁺)		B	Jπ: 154.7γ (M1+E2), ΔJ=1 to (15⁺); band assignment.
2401.5[g] 9	(15⁺)		B	Jπ: 187.5γ (M1), ΔJ=1 to (14⁺); band assignment.
2476.3 5	(14⁻)		B	Jπ: 855.5γ D, ΔJ=1 to (13⁻); 238.7γ from (15⁻).
2568.2[d] 7	(17⁺)		B	Jπ: 330.2γ (E2), ΔJ=2 to (15⁺), 175.4γ (M1), ΔJ=1 to (16⁺).
2604.3[f] 5	(15⁻)		B	Jπ: 343.3γ M1, ΔJ=1 to (14⁻); band assignment.
2628.8[g] 9	(16⁺)		B	Jπ: 227.3γ (M1), ΔJ=1 to (15⁺); band assignment.
2663.7[c] 4	(16⁻)		B D	Jπ: 759.5γ E2, ΔJ=2 to (14⁻), 291.6γ (M1), ΔJ=1 to (15⁻).
2715.0 5	(15⁻)		B	Jπ: 1094.1γ (Q), ΔJ=2 to (13⁻), 810.9γ D, ΔJ=1 to (14⁻).
2780.5[e] 4	(16⁻)		B D	Jπ: 876.4γ E2, ΔJ=2 to (14⁻), 176.4γ (M1), ΔJ=1 to (15⁻).
2857.6[d] 7	(18⁺)		B	Jπ: 289.4γ M1, ΔJ=1 to (17⁺), 465.0γ Q, ΔJ=2 to (16⁺).
2859.3[e] 5	(17⁻)		B D	Jπ: 78.8γ (M1), ΔJ=1 to (16⁻); band assignment.
2881.6[g] 9	(17⁺)		B	Jπ: 252.9γ (M1), ΔJ=1 to (16⁺); band assignment.
2942.4[f] 5	(16⁻)		B	Jπ: 681.4γ Q, ΔJ=2 to (14⁻), 338.2γ (M1), ΔJ=1 to (15⁻).
3021.8[e] 5	(18⁻)		B D	Jπ: 241.0γ (E2), ΔJ=2 to (16⁻), 162.5γ (M1), ΔJ=1 to (17⁻).
3141.9[c] 4	(17⁻)		B D	Jπ: 769.2γ E2, ΔJ=2 to (15⁻), 478.5γ M1+E2 to (16⁻).
3161.2[d] 7	(19⁺)		B	Jπ: 303.7γ M1, ΔJ=1 to (18⁺), 593.0γ Q, ΔJ=2 to (17⁺).
3204.6[g] 10	(18⁺)		B	Jπ: 575.8γ Q, ΔJ=2 to (16⁺), 323.0γ (M1), ΔJ=1 to (17⁺).
3262.6[f] 6	(17⁻)		B	Jπ: 658.4γ Q, ΔJ=2 to (15⁻), 320.2γ (M1), ΔJ=1 to (16⁻).
3301.0[e] 5	(19⁻)	0.74 ps +25−17	B D	Jπ: 279.3γ M1, ΔJ=1 to (18⁻); band assignment.
3389.5[c] 5	(18⁻)		B D	Jπ: 248.1γ M1, ΔJ=1 to (17⁻), 725.9γ Q, ΔJ=2 to (16⁻).
3424.9 4	(18⁻)		B D	Jπ: 761.1γ E2, ΔJ=2 to (16⁻), 282.9γ M1, ΔJ=1 to (17⁻).

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Adopted Levels, Gammas (continued)

^{194}Tl Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[b]	XREF	Comments
3508.1[e] 5	(20⁻)	0.73 ps +55−24	B D	Jπ: 486.1γ E2, ΔJ=2 to (18⁻), 207.1γ M1, ΔJ=1 to (19⁻).
3517.3[f] 5	(18⁻)		B	Jπ: 254.8γ (M1), ΔJ=1 to (17⁻); band assignment.
3521.5[d] 7	(20⁺)		B	Jπ: 360.4γ M1 to (19⁺), 663.9γ Q to (18⁺).
3530.9[g] 10	(19⁺)		B	Jπ: 326.4γ (M1), ΔJ=1 to (18⁺); band assignment.
3640.5[c] 5	(19⁻)		B D	Jπ: 215.5γ (M1), ΔJ=1 to (18⁻); band assignment.
3687.1[f] 6	(19⁻)	>1.18 ps	B	Jπ: 170.0γ (M1) to (18⁻); band assignment.
3777.5[c] 5	(20⁻)		B D	Jπ: 137.0γ (M1), ΔJ=1 to (19⁻); band assignment.
3884.3[d] 8	(21⁺)		B	Jπ: 723.1γ E2, ΔJ=2 to (19⁺), 362.7γ M1, ΔJ=1 to (20⁺).
3884.9[e] 5	(21⁻)	0.44 ps +18−12	B D	Jπ: 583.2γ E2, ΔJ=2 to (19⁻), 376.9γ M1, ΔJ=1 to (20⁻).
3887.1[f] 6	(20⁻)	>0.83 ps	B	Jπ: 200.1γ (M1), ΔJ=1 to (19⁻); band assignment.
3896.6[g] 10	(20⁺)		B	Jπ: 365.7γ to (19⁺); band assignment.
4099.7[c] 5	(21⁻)	0.82 ps +14−10	B D	Jπ: 322.2γ (M1), ΔJ=1 to (20⁻); band assignment.
4136.1[f] 6	(21⁻)	0.57 ps +12−9	B	Jπ: 249.1γ (M1), ΔJ=1 to (20⁻); band assignment.
4212.6[e] 6	(22⁻)	0.49 ps +17−10	B D	Jπ: 704.1γ E2, ΔJ=2 to (20⁻), 327.7γ M1, ΔJ=1 to (21⁻).
4238.3[d] 8	(22⁺)		B	Jπ: 716.8γ Q, ΔJ=2 to (20⁺), 354.1γ (M1), ΔJ=1 to (21⁺).
4340.1[c] 6	(22⁻)	0.83 ps +28−14	B D	Jπ: 240.3γ (M1), ΔJ=1 to (21⁻); band assignment.
4440.1[f] 7	(22⁻)	0.62 ps +14−10	B	Jπ: 303.9γ (M1), ΔJ=1 to (21⁻); band assignment.
4572.6[d] 8	(23⁺)		B	Jπ: 688.2γ Q, ΔJ=2 to (21⁺), 334.3γ (M1), ΔJ=1 to (22⁺).
4642.5[e] 6	(23⁻)	0.20 ps +5−3	B	Jπ: 757.5γ E2, ΔJ=2 to (21⁺), 430.0γ (M1), ΔJ=1 to (22⁻).
4721.3[c] 6	(23⁻)	1.25 ps +31−21	B D	Jπ: 381.3γ (M1), ΔJ=1 to (22⁻); band assignment.
4819.2[f] 7	(23⁻)	>1.04 ps	B	Jπ: 379.1γ (M1), ΔJ=1 to (22⁻); band assignment.
4895.0[d] 8	(24⁺)	0.87 ps +45−24	B	Jπ: 656.7γ E2, ΔJ=2 to (22⁺), 322.4γ M1, ΔJ=1 to (23⁺).
5038.3[e] 7	(24⁻)	0.29 ps +8−6	B	Jπ: 825.7γ E2, ΔJ=2 to (22⁻), 395.9γ to (23⁻).
5082.4[c] 6	(24⁻)	0.97 ps +49−21	B	Jπ: 742.0γ E2, ΔJ=2 to (22⁻), 361.7γ to (23⁻).
5257.5[d] 9	(25⁺)	0.35 ps +14−8	B	Jπ: 685.0γ E2, ΔJ=2 to (23⁺), 362.4γ M1 to (24⁺).
5492.5[e] 7	(25⁻)		B	Jπ: 454.1γ to (24⁻); band assignment.
5656.1[d] 9	(26⁺)	0.33 ps +17−8	B	Jπ: 761.0γ E2, ΔJ=2 to (24⁺), 398.6γ (M1) to (25⁺).
6104.1[d] 9	(27⁺)	0.33 ps +10 −6	B	Jπ: 448.0γ (M1), ΔJ=1 to (26⁺); band assignment.
6587.2[d] 10	(28⁺)	0.31 ps +8−6	B	Jπ: 483.1γ to (27⁺); band assignment.
x[h]	J≈(12)		C	
268.0+x[h] 3	J+2		C	
575.0+x[h] 5	J+4		C	
920.1+x[h] 6	J+6		C	
1304.3+x[h] 6	J+8		C	
1725.3+x[h] 7	J+10		C	
2182.3+x[h] 8	J+12		C	
2677.2+x[h] 8	J+14		C	
3208.1+x[h] 9	J+16		C	
3775.1+x[h] 9	J+18		C	
4376.3+x[h] 10	J+20		C	
5011.2+x[h] 10	J+22		C	
5681.0+x[h] 11	J+24		C	
6384.6+x[h] 11	J+26		C	
y[i]	J1≈(9)		C	
209.3+y[i] 3	J1+2		C	
457.7+y[i] 5	J1+4		C	
745.2+y[i] 6	J1+6		C	

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Adopted Levels, Gammas (continued)

^{194}Tl Levels (continued)

E(level)†	Jπ‡	XREF	E(level)†	Jπ‡	XREF
1071.2+y[i] 6	J1+8	C	2857.6+u[k] 9	J3+16	C
1435.6+y[i] 7	J1+10	C	3385.4+u[k] 9	J3+18	C
1837.3+y[i] 8	J1+12	C	3949.4+u[k] 10	J3+20	C
2276.6+y[i] 8	J1+14	C	4549.1+u?[k] 10	J3+22	C
2752.5+y[i] 9	J1+16	C	5182.8+u?[k] 11	J3+24	C
3264.5+y[i] 9	J1+18	C	5852.0+u?[k] 11	J3+26	C
3812.5+y[i] 10	J1+20	C	6555.4+u?[k] 12	J3+28	C
4396.0+y[i] 10	J1+22	C	v[l]	J4≈(8)&	C
5013.5+y[i] 11	J1+24	C	187.9+v[l] 3	J4+2	C
5665.5+y[i] 11	J1+26	C	414.2+v[l] 5	J4+4	C
6351.4+y[i] 12	J1+28	C	678.2+v[l] 6	J4+6	C
z[j]	J2≈(10)#	C	980.2+v[l] 6	J4+8	C
240.5+z[j] 3	J2+2	C	1319.4+v[l] 7	J4+10	C
520.5+z[j] 5	J2+4	C	1696.0+v[l] 8	J4+12	C
839.3+z[j] 6	J2+6	C	2109.7+v[l] 8	J4+14	C
1197.4+z[j] 6	J2+8	C	2559.7+v[l] 9	J4+16	C
1594.6+z[j] 7	J2+10	C	3045.8+v[l] 9	J4+18	C
2029.9+z[j] 8	J2+12	C	3567.6+v[l] 10	J4+20	C
2502.9+z[j] 8	J2+14	C	4126.0+v[l] 10	J4+22	C
3013.8+z[j] 9	J2+16	C	4719.7+v[l] 11	J4+24	C
3560.4+z[j] 9	J2+18	C	5347.4+v?[l] 11	J4+26	C
4142.6+z[j] 10	J2+20	C	w[m]	J5≈(9)[a]	C
4760.0+z[j] 10	J2+22	C	207.0+w[m] 3	J5+2	C
5412.0+z[j] 11	J2+24	C	452.4+w[m] 5	J5+4	C
6097.5+z[j] 11	J2+26	C	736.1+w[m] 6	J5+6	C
6815.0+z?[j] 12	J2+28	C	1057.9+w[m] 6	J5+8	C
u[k]	J3≈(9)@	C	1416.1+w[m] 7	J5+10	C
220.3+u[k] 3	J3+2	C	1812.3+w[m] 8	J5+12	C
479.7+u[k] 5	J3+4	C	2244.8+w[m] 8	J5+14	C
779.4+u[k] 6	J3+6	C	2714.9+w[m] 9	J5+16	C
1118.1+u[k] 6	J3+8	C	3221.1+w[m] 9	J5+18	C
1496.4+u[k] 7	J3+10	C	3764.8+w[m] 10	J5+20	C
1911.9+u[k] 8	J3+12	C	4343.9+w[m] 10	J5+22	C
2366.1+u[k] 8	J3+14	C	4956.9+w[m] 11	J5+24	C

† From a least-squares fit to γ-ray energies, keeping the energy of the 260-keV level fixed for high-spin (J>6) levels and assuming ΔEγ=0.3 keV for values quoted to tenth keV and 1 keV for those quoted to keV if not given. Quoted uncertainties for high-spin levels are relative. Absolute uncertainty for each such energy level is 14 keV, the same as for the 260-keV, (7^+) level.

‡ For high-spin (J>6) levels, the assignments are from multipolarity assignments, and band structures, with the assumption that spins are in ascending order as the excitation energy rises in heavy-ion fusion reactions. For superdeformed bands, values are from least-squares fits of Eγ data to a 2-parameter formula for rotational spectra (1992Wu01). These assignments are consistent with a three-parameter (Harris) expansion of second moment of inertia and rotational frequency as explained by 1990Be01. The γγ(θ) data (1991Az03) for strong transitions in some of the bands are consistent with E2 cascades.

(11) is also possible.

@ (10) is also possible.

& (9) is also possible.

a (10) is also possible.

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{194}Tl Levels (continued)

[b] From DSAM in 2016Ma13, unless otherwise noted.
[c] Band(A): Band 1 based on 8^-. Configuration=e/f⊗A, e/f⊗ABC above the crossing near $\hbar\omega$=0.31 MeV. This band is a possible chiral partner of band 4 (2014Ma55).
[d] Band(B): Band 2 based on 12^+. Configuration=e/f⊗ABF, e/f⊗ABCDF above the crossing near $\hbar\omega$=0.33 MeV (2014Ma55).
[e] Band(C): Band 3 based on 16^-. Configuration=e/f⊗ABC (2014Ma55).
[f] Band(D): Band 4 based on 11^-. Configuration=e/f⊗ABC. This band is a possible chiral partner of band 1 (2014Ma55).
[g] Band(E): Band 5 based on $14^{(+)}$. Configuration=e/f⊗ABE (2014Ma55).
[h] Band(F): SD-1 band. Population intensity=1.5% of total ^{194}Tl yield (1991Az03).
[i] Band(f): SD-2 band. Population intensity=1.0% of total ^{194}Tl yield (1991Az03). SD-1 and SD-2 bands are signature partners.
[j] Band(G): SD-3 band. Population intensity=0.9% of total ^{194}Tl yield (1991Az03).
[k] Band(g): SD-4 band. Population intensity=0.6% of total ^{194}Tl yield (1991Az03). SD-3 and SD-4 bands are signature partners.
[l] Band(H): SD-5 band. Population intensity=0.6% of total ^{194}Tl yield (1991Az03).
[m] Band(h): SD-6 band. Population intensity=0.8% of total ^{194}Tl yield (1991Az03). SD-5 and SD-6 bands are signature partners.

Adopted Levels, Gammas (continued)

$\gamma(^{194}Tl)$

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[#]	δ[@]	α[&]	Comments
192.07	$(0)^-$	192.02 *5*	100	0.0	2^-	E2		0.471	α(K)=0.186 *3*; α(L)=0.213 *3*; α(M)=0.0554 *8* α(N)=0.01388 *20*; α(O)=0.00242 *4*; $\alpha(P)=9.85\times10^{-5}$ *14*
203.83	1^-	203.80 *6*	100	0.0	2^-	M1(+E2)	<0.3	1.11 *4*	α(K)=0.90 *4*; α(L)=0.1591 *23*; α(M)=0.0373 *6* α(N)=0.00942 *15*; α(O)=0.00182 *3*; $\alpha(P)=0.000168$ *5*
225.01	$(2)^-$	225.00 *8*	100	0.0	2^-	M1(+E2)	<0.3	0.84 *3*	α(K)=0.69 *3*; α(L)=0.1199 *18*; α(M)=0.0281 *4* α(N)=0.00710 *10*; α(O)=0.001373 *20*; $\alpha(P)=0.000127$ *4*
270.51	$(3)^-$	45.5 *10*	≈1.45	225.01	$(2)^-$	[M1]		15.7 *11*	α(L)=12.1 *9*; α(M)=2.82 *20* α(N)=0.71 *5*; α(O)=0.138 *10*; $\alpha(P)=0.0131$ *9*
		66.7 *10*	≈0.88	203.83	1^-	[E2]		37 *3*	α(L)=27.3 *21*; α(M)=7.2 *6* α(N)=1.79 *14*; α(O)=0.307 *24*; $\alpha(P)=0.0088$ *7*
		270.52 *4*	100 *6*	0.0	2^-	M1(+E2)	<0.25	0.510 *13*	α(K)=0.416 *12*; α(L)=0.0716 *12*; α(M)=0.0167 *3* α(N)=0.00423 *7*; α(O)=0.000819 *14*; $\alpha(P)=7.67\times10^{-5}$ *18*
367.77	1^-	142.94 *10*	3.4 *4*	225.01	$(2)^-$	[M1,E2]		2.2 *9*	α(K)=1.4 *11*; α(L)=0.60 *18*; α(M)=0.15 *5* α(N)=0.038 *13*; α(O)=0.0069 *20*; $\alpha(P)=0.00039$ *8*
		163.90 *10*	5.14 *12*	203.83	1^-	M1+E2	≈1	≈1.468	α(K)≈0.994; α(L)≈0.358; α(M)≈0.0895 α(N)≈0.0225; α(O)≈0.00408; $\alpha(P)\approx0.000249$
		175.68 *12*	4.24 *20*	192.07	$(0)^-$	M1		1.731	α(K)=1.416 *20*; α(L)=0.241 *4*; α(M)=0.0564 *8* α(N)=0.01423 *21*; α(O)=0.00276 *4*; $\alpha(P)=0.000261$ *4*
		367.80 *10*	100 *8*	0.0	2^-	(M1(+E2))	<0.1	0.225	α(K)=0.184 *3*; α(L)=0.0310 *5*; α(M)=0.00724 *11* α(N)=0.00183 *3*; α(O)=0.000355 *5*; $\alpha(P)=3.36\times10^{-5}$ *5*
459.95	(2^-)	92.2 *2*	2.35 *22*	367.77	1^-	[M1,E2]		9.6 *13*	α(K)=5 *5*; α(L)=3.7 *22*; α(M)=0.9 *6* α(N)=0.24 *15*; α(O)=0.042 *25*; $\alpha(P)=0.00184$ *19*
		189.44 *5*	50 *7*	270.51	$(3)^-$	(M1(+E2))	<0.1	1.396	α(K)=1.141 *17*; α(L)=0.195 *3*; α(M)=0.0456 *7* α(N)=0.01152 *17*; α(O)=0.00224 *4*; $\alpha(P)=0.000211$ *3*
		267.92[c] *10*	4.87 *16*	192.07	$(0)^-$	[E2]		0.1564	α(K)=0.0839 *12*; α(L)=0.0544 *8*; α(M)=0.01396 *20* α(N)=0.00350 *5*; α(O)=0.000620 *9*; $\alpha(P)=3.01\times10^{-5}$ *5*
		460.05 *10*	100.0 *16*	0.0	2^-	(M1+E2)	0.9 *2*	0.084 *11*	α(K)=0.067 *10*; α(L)=0.0129 *11*; α(M)=0.00306 *25* α(N)=0.00077 *7*; α(O)=0.000148 *13*; $\alpha(P)=1.28\times10^{-5}$ *15*
521.52	$1^{(-)}$	153.8 *2*	6.0 *6*	367.77	1^-	(M1)		2.52	α(K)=2.06 *3*; α(L)=0.352 *5*; α(M)=0.0822 *12* α(N)=0.0208 *3*; α(O)=0.00403 *6*; $\alpha(P)=0.000381$ *6*
		296.40 *6*	11.94 *28*	225.01	$(2)^-$	(M1)		0.405	α(K)=0.332 *5*; α(L)=0.0561 *8*; α(M)=0.01308 *19* α(N)=0.00330 *5*; α(O)=0.000642 *9*; $\alpha(P)=6.07\times10^{-5}$ *9*
		317.70 *5*	14.21 *28*	203.83	1^-	(M1(+E2))	<0.5	0.311 *25*	α(K)=0.253 *23*; α(L)=0.0446 *19*; α(M)=0.0105 *4* α(N)=0.00264 *10*; α(O)=0.000510 *22*; $\alpha(P)=4.7\times10^{-5}$ *4*
		329.48 *5*	3.9 *4*	192.07	$(0)^-$	(M1)		0.304	α(K)=0.249 *4*; α(L)=0.0420 *6*; α(M)=0.00979 *14* α(N)=0.00247 *4*; α(O)=0.000480 *7*; $\alpha(P)=4.54\times10^{-5}$ *7*
		521.55 *5*	100.0 *24*	0.0	2^-	(M1(+E2))	<0.3	0.086 *3*	Mult.: ce data give δ<0.5; however, 1^- to $(0)^-$ requires M1. α(K)=0.0709 *25*; α(L)=0.0119 *4*; α(M)=0.00277 *8* α(N)=0.000699 *19*; α(O)=0.000136 *4*; $\alpha(P)=1.28\times10^{-5}$ *5*
553.00	(8^-)	293.0 *1*	100	260	(7^+)	E1		0.0303	α(K)=0.0248 *4*; α(L)=0.00416 *6*; α(M)=0.000968 *14* α(N)=0.000242 *4*; $\alpha(O)=4.58\times10^{-5}$ *7*; $\alpha(P)=3.74\times10^{-6}$ *6*

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Adopted Levels, Gammas (continued)

γ(^{194}Tl) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[#]	δ[@]	α[&]	Comments
									E_γ: weighted average of 292.8 *2* from (^{18}O,5nγ) and 293.1 *1* from (^{13}C,4nγ).
									Mult.: ΔJ=1 from γγ(DCO) in (^{13}C,4nγ).
589.17	(2$^-$)	318.69 *5*	100.0 *20*	270.51	(3)$^-$	(M1(+E2))	<0.4	0.316 *18*	α(K)=0.258 *16*; α(L)=0.0447 *14*; α(M)=0.0105 *3* α(N)=0.00264 *8*; α(O)=0.000512 *16*; α(P)=4.75×10^{-5} *24*
		385.33 *3*	43 *5*	203.83	1$^-$				
		589.1 *2*	59.1 *18*	0.0	2$^-$	(M1(+E2))	<0.3	0.0628 *21*	α(K)=0.0515 *18*; α(L)=0.00860 *25*; α(M)=0.00200 *6* α(N)=0.000505 *14*; α(O)=9.8×10^{-5} *3*; α(P)=9.3×10^{-6} *3*
598.4	(9$^-$)	45.4 *3*	100	553.00	(8$^-$)	(M1)		15.8 *4*	α(L)=12.1 *3*; α(M)=2.84 *7* α(N)=0.717 *18*; α(O)=0.139 *4*; α(P)=0.0131 *4*
									E_γ: other: 41 *1* from (^{13}C,4nγ).
									Mult.: ΔJ=1 from γγ(ADO) in (^{18}O,5nγ).
694.4	(10$^-$)	96.1 *1*	100	598.4	(9$^-$)	(M1)		9.62	α(K)=7.85 *12*; α(L)=1.357 *20*; α(M)=0.317 *5* α(N)=0.0801 *12*; α(O)=0.01556 *23*; α(P)=0.001469 *21*
									E_γ: weighted average of 96.2 *3* from (^{18}O,5nγ) and 96.1 *1* from (^{13}C,4nγ).
752.86	(0$^-$,1$^-$)	292.98[ac] *6*	<60[a]	459.95	(2$^-$)	[M1,E2]		0.27 *15*	α(K)=0.21 *14*; α(L)=0.048 *10*; α(M)=0.0117 *19* α(N)=0.0029 *5*; α(O)=0.00055 *12*; α(P)=4.3×10^{-5} *21*
		527.7 *2*	5.1 *8*	225.01	(2)$^-$	[M1,E2]		0.06 *3*	α(K)=0.04 *3*; α(L)=0.008 *4*; α(M)=0.0020 *8* α(N)=0.00051 *19*; α(O)=0.00010 *4*; α(P)=8.E−6 *5*
		549.0 *1*	52.8 *8*	203.83	1$^-$	(M1,E2)		0.05 *3*	α(K)=0.040 *24*; α(L)=0.008 *3*; α(M)=0.0018 *7* α(N)=0.00045 *18*; α(O)=9.E−5 *4*; α(P)=8.E−6 *4*
		752.8 *2*	100 *4*	0.0	2$^-$	[M1,E2]		0.023 *12*	
785.72	(1$^-$)	417.92 *6*	12.07 *17*	367.77	1$^-$	(M1(+E2))	<0.3	0.155 *6*	α(K)=0.127 *5*; α(L)=0.0215 *6*; α(M)=0.00503 *13* α(N)=0.00127 *4*; α(O)=0.000246 *7*; α(P)=2.32×10^{-5} *8*
		560.69 *10*	7.19 *15*	225.01	(2)$^-$	[M1,E2]		0.05 *3*	α(K)=0.038 *23*; α(L)=0.007 *3*; α(M)=0.0017 *7* α(N)=0.00043 *17*; α(O)=8.E−5 *4*; α(P)=7.E−6 *4*
		581.82 *10*	100.0 *35*	203.83	1$^-$	(M1(+E2))	<0.4	0.064 *4*	α(K)=0.052 *3*; α(L)=0.0087 *4*; α(M)=0.00204 *9* α(N)=0.000514 *22*; α(O)=0.000100 *5*; α(P)=9.4×10^{-6} *5*
		785.54[b] *10*	2.1[b] *12*	0.0	2$^-$	[M1,E2]		0.020 *11*	
833.35	(1$^-$)	311.84 *5*	37.1 *26*	521.52	1$^{(-)}$	(M1+E2)	1.0 *3*	0.23 *5*	α(K)=0.17 *4*; α(L)=0.040 *4*; α(M)=0.0096 *7* α(N)=0.00241 *17*; α(O)=0.00045 *4*; α(P)=3.6×10^{-5} *6*
		373.39 *4*	42.6 *24*	459.95	(2$^-$)	(M1(+E2))	<0.5	0.201 *16*	α(K)=0.164 *15*; α(L)=0.0284 *15*; α(M)=0.0067 *4* α(N)=0.00168 *8*; α(O)=0.000325 *17*; α(P)=3.01×10^{-5} *23*
		465.8 *2*	20.8 *21*	367.77	1$^-$	(M1)		0.1200	α(K)=0.0986 *14*; α(L)=0.01645 *24*; α(M)=0.00383 *6* α(N)=0.000967 *14*; α(O)=0.000188 *3*; α(P)=1.78×10^{-5} *3*
		629.9 *3*	100 *11*	203.83	1$^-$	(M1)		0.0543	α(K)=0.0446 *7*; α(L)=0.00738 *11*; α(M)=0.001717 *25* α(N)=0.000433 *6*; α(O)=8.43×10^{-5} *12*; α(P)=8.00×10^{-6} *12*
		640.55[‡] *20*	89 *13*	192.07	(0)$^-$	[M1]		0.0519	α(K)=0.0427 *6*; α(L)=0.00706 *10*; α(M)=0.001643 *23* α(N)=0.000415 *6*; α(O)=8.06×10^{-5} *12*; α(P)=7.66×10^{-6} *11*
		833.4 *3*	24 *8*	0.0	2$^-$	[M1,E2]		0.018 *9*	
972.5	(11$^-$)	278.3 *2*	100.0 *14*	694.4	(10$^-$)	M1		0.482	α(K)=0.395 *6*; α(L)=0.0667 *10*; α(M)=0.01557 *22*

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Adopted Levels, Gammas (continued)

γ(^{194}Tl) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[#]	δ[@]	α[&]	Comments
									α(N)=0.00393 *6*; α(O)=0.000764 *11*; α(P)=7.22×10^{-5} *11*
									E_γ: weighted average of 278.0 *2* from (^{18}O,5nγ) and 278.4 *1* from (^{13}C,4nγ).
									I_γ: from (^{13}C,4nγ). Other: 100 *6* from (^{18}O,5nγ).
972.5	(11$^-$)	373.9 *2*	5.0 *22*	598.4	(9$^-$)	(E2)		0.0592	α(K)=0.0383 *6*; α(L)=0.01576 *23*; α(M)=0.00397 *6*
									α(N)=0.000997 *14*; α(O)=0.000180 *3*; α(P)=1.051×10^{-5} *15*
									E_γ: weighted average of 374.2 *5* from (^{18}O,5nγ) and 373.8 *2* from (^{13}C,4nγ).
									I_γ: unweighted average of 7.2 *6* from (^{18}O,5nγ) and 2.79 *10* from (^{13}C,4nγ).
979.11	(1$^-$,2$^-$)	457.5 *2*	59 *15*	521.52	1$^{(-)}$				
		611.0 *3*	39 *4*	367.77	1$^-$				
		754.4 *2*	100 *11*	225.01	(2)$^-$				
		774.9 *3*	25.6 *11*	203.83	1$^-$	(M1)		0.0317	α(K)=0.0261 *4*; α(L)=0.00429 *6*; α(M)=0.000997 *14*
									α(N)=0.000252 *4*; α(O)=4.89×10^{-5} *7*; α(P)=4.65×10^{-6} *7*
		786.7[c] *2*	22 *11*	192.07	(0)$^-$				
998.55	1$^{(-)}$	244.93[‡] *20*	9.8 *7*	752.86	(0$^-$,1$^-$)	[M1,E2]		0.45 *24*	α(K)=0.33 *23*; α(L)=0.086 *9*; α(M)=0.0211 *12*
									α(N)=0.0053 *3*; α(O)=0.00099 *11*; α(P)=7.E−5 *4*
		630.8 *3*	≈9.6	367.77	1$^-$	[M1,E2]		0.035 *19*	α(K)=0.028 *16*; α(L)=0.0052 *22*; α(M)=0.0012 *5*
									α(N)=0.00031 *13*; α(O)=5.9×10^{-5} *25*; α(P)=5.E−6 *3*
		773.46 *20*	20.2 *7*	225.01	(2)$^-$	(M1(+E2))	<0.7	0.028 *4*	α(K)=0.023 *3*; α(L)=0.0039 *5*; α(M)=0.00091 *10*
									α(N)=0.000229 *24*; α(O)=4.4×10^{-5} *5*; α(P)=4.2×10^{-6} *5*
		794.85 *7*	54 *6*	203.83	1$^-$	(M1,E2)		0.020 *10*	
		998.47 *10*	100 *8*	0.0	2$^-$	(M1(+E2))	<0.7	0.0149 *17*	
1010.52	(1$^-$)	257.95 *10*	22.6 *19*	752.86	(0$^-$,1$^-$)	[M1,E2]		0.38 *21*	α(K)=0.29 *20*; α(L)=0.073 *10*; α(M)=0.0177 *15*
									α(N)=0.0045 *4*; α(O)=0.00083 *12*; α(P)=6.E−5 *3*
		489.0 *2*	25.4 *11*	521.52	1$^{(-)}$	[M1,E2]		0.07 *4*	α(K)=0.05 *4*; α(L)=0.010 *4*; α(M)=0.0025 *9*
									α(N)=0.00063 *23*; α(O)=0.00012 *5*; α(P)=1.0×10^{-5} *6*
		550.6 *3*	18.2 *9*	459.95	(2$^-$)	[M1,E2]		0.05 *3*	α(K)=0.040 *24*; α(L)=0.008 *3*; α(M)=0.0018 *7*
									α(N)=0.00045 *17*; α(O)=9.E−5 *4*; α(P)=8.E−6 *4*
		642.79 *8*	80 *9*	367.77	1$^-$	(M1)		0.0515	α(K)=0.0423 *6*; α(L)=0.00700 *10*; α(M)=0.001628 *23*
									α(N)=0.000411 *6*; α(O)=7.99×10^{-5} *12*; α(P)=7.59×10^{-6} *11*
		785.54[b] *10*	29[b] *19*	225.01	(2)$^-$				
		806.52 *7*	90.8 *29*	203.83	1$^-$	[M1,E2]		0.019 *10*	
		818.0 *2*	76.8 *34*	192.07	(0)$^-$	(M1)		0.0276	α(K)=0.0227 *4*; α(L)=0.00372 *6*; α(M)=0.000866 *13*
									α(N)=0.000219 *3*; α(O)=4.25×10^{-5} *6*; α(P)=4.04×10^{-6} *6*
		1010.54 *10*	100 *5*	0.0	2$^-$				
1152.01	(1$^-$)	784.2 *4*	25 *12*	367.77	1$^-$	[M1,E2]		0.021 *11*	α(K)=0.017 *9*; α(L)=0.0029 *13*; α(M)=0.0007 *3*
									α(N)=0.00017 *7*; α(O)=3.4×10^{-5} *14*; α(P)=3.0×10^{-6} *15*
		926.97 *9*	100.0 *21*	225.01	(2)$^-$	(M1(+E2))	<0.7	0.0179 *21*	
		1152.04 *9*	37.8 *12*	0.0	2$^-$	[M1,E2]		0.008 *4*	

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Adopted Levels, Gammas (continued)

$\gamma(^{194}Tl)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[#]	δ[@]	α[&]	Comments
1178.74	(1$^-$)	392.63[‡] *20*	27 *4*	785.72	(1$^-$)	(E2(+M1))	>3	0.059 *7*	α(K)=0.040 *6*; α(L)=0.0139 *7*; α(M)=0.00348 *15* α(N)=0.00087 *4*; α(O)=0.000159 *8*; α(P)=1.01×10^{-5} *10*
		811.49[‡] *20*	71.7 *33*	367.77	1$^-$	(M1,E2)		0.019 *10*	
		1178.6 *2*	100 *4*	0.0	2$^-$	[M1+E2]		0.008 *4*	
1187.56	(0$^-$,1$^-$)	189.0 *4*	≈5.1	998.55	1$^{(-)}$	[M1,E2]		1.0 *5*	α(K)=0.7 *5*; α(L)=0.212 *17*; α(M)=0.053 *7* α(N)=0.0132 *17*; α(O)=0.00242 *18*; α(P)=0.00016 *6*
		666.05 *8*	73.8 *20*	521.52	1$^{(-)}$	(M1(+E2))	<0.4	0.0447 *24*	α(K)=0.0367 *20*; α(L)=0.0061 *3*; α(M)=0.00142 *7* α(N)=0.000360 *16*; α(O)=7.0×10^{-5} *3*; α(P)=6.6×10^{-6} *4*
		819.50 *20*	100.0 *22*	367.77	1$^-$	[M1,E2]		0.018 *9*	
		962.64 *12*	48.6 *12*	225.01	(2)$^-$	(E2)		0.00683	
1217.4	(12$^-$)	244.9 *1*	100.0 *27*	972.5	(11$^-$)	M1		0.685	α(K)=0.561 *8*; α(L)=0.0950 *14*; α(M)=0.0222 *4* α(N)=0.00560 *8*; α(O)=0.001088 *16*; α(P)=0.0001029 *15* E_γ: weighted average of 244.8 *2* from (^{18}O,5nγ) and 244.9 *1* from (^{13}C,4nγ). I_γ: from (^{13}C,4nγ). Other: 100 *4* from (^{18}O,5nγ).
		523.0 *1*	66 *14*	694.4	(10$^-$)	E2		0.0253	E_γ: weighted average of 522.8 *2* from (^{18}O,5nγ) and 523.1 *1* from (^{13}C,4nγ). I_γ: unweighted average of 52.3 *29* from (^{18}O,5nγ) and 79.7 *12* from (^{13}C,4nγ).
1272.15	(0$^-$,1$^-$,2$^-$)	292.98[ac] *6*	212[a] *12*	979.11	(1$^-$,2$^-$)	[M1,E2]		0.27 *15*	α(K)=0.21 *14*; α(L)=0.048 *10*; α(M)=0.0117 *19* α(N)=0.0029 *5*; α(O)=0.00055 *12*; α(P)=4.3×10^{-5} *21*
		438.83 *10*	54.3 *25*	833.35	(1$^-$)	[M1,E2]		0.09 *5*	α(K)=0.07 *5*; α(L)=0.014 *5*; α(M)=0.0034 *11* α(N)=0.0009 *3*; α(O)=0.00016 *6*; α(P)=1.4×10^{-5} *8*
		1068.47 *10*	100 *9*	203.83	1$^-$	(M1)		0.01390	
1434.8	(11$^-$)	740.5 *5*	100 *45*	694.4	(10$^-$)				
		836.3 *5*	78 *33*	598.4	(9$^-$)				
1519.37	1$^+$	540.5 *2*	2.61 *8*	979.11	(1$^-$,2$^-$)	[E1]		0.00785	
		685.93 *10*	3.80 *7*	833.35	(1$^-$)				
		1059.38 *10*	23.6 *4*	459.95	(2$^-$)	(E1)		0.00216	
		1294.4 *2*	11.6 *4*	225.01	(2)$^-$	(E1)		1.57×10^{-3}	
		1315.6 *2*	3.4 *4*	203.83	1$^-$				
		1519.45 *13*	100 *8*	0.0	2$^-$				
1553.11	(0,1)	1185.35 *15*	92 *5*	367.77	1$^-$				
		1349.25 *20*	100 *4*	203.83	1$^-$				
1602.81	(0$^-$,1,2$^-$)	1602.8 *2*	100	0.0	2$^-$				
1620.9	(13$^-$)	403.5 *1*	100.0 *15*	1217.4	(12$^-$)	M1		0.1760	α(K)=0.1444 *21*; α(L)=0.0242 *4*; α(M)=0.00564 *8* α(N)=0.001424 *20*; α(O)=0.000277 *4*; α(P)=2.62×10^{-5} *4* E_γ: weighted average of 403.3 *2* from (^{18}O,5nγ)

$^{194}_{81}Tl_{113}$-10

Adopted Levels, Gammas (continued)

γ(^{194}Tl) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[#]	δ[@]	α[&]	Comments
									and 403.5 *1* from (^{13}C,4nγ).
									I_γ: from (^{13}C,4nγ). Other: 100 *7* from (^{18}O,5nγ).
1620.9	(13$^-$)	648.3 *1*	39 *4*	972.5	(11$^-$)	E2		0.01548	E_γ: weighted average of 648.4 *2* from (^{18}O,5nγ) and 648.3 *1* from (^{13}C,4nγ).
									I_γ: unweighted average of 35.3 *19* from (^{18}O,5nγ) and 42.8 *6* from (^{13}C,4nγ).
1638.91	(1$^-$)	628.1[c] *3*	21 *4*	1010.52	(1$^-$)				
		852.94 *10*	58.9 *24*	785.72	(1$^-$)	(E2(+M1))	>2	0.0103 *17*	
		1271.98 *25*	100.0 *22*	367.77	1$^-$				
		1414.3 *5*	30 *7*	225.01	(2)$^-$				
		1639.29 *20*	67.8 *22*	0.0	2$^-$				
1707.62	(1$^-$)	1118.44 *10*	100 *13*	589.17	(2$^-$)	(M1,E2)		0.009 *4*	
		1339.6 *2*	54 *18*	367.77	1$^-$				
		1482.9 *2*	62 *5*	225.01	(2)$^-$				
		1515 *1*	≈12.8	192.07	(0)$^-$				
1722.97	(0$^-$,1)	1200.9 *3*	31 *4*	521.52	1$^{(-)}$				
		1723.2 *2*	100 *20*	0.0	2$^-$				
1741.0	(12$^-$)	306.2 *5*	95 *21*	1434.8	(11$^-$)				
		768.5 *5*	100 *37*	972.5	(11$^-$)	D			
		1046.5 *5*	21 *11*	694.4	(10$^-$)				
1753.13	(0,1)	1231.5 *2*	53.1 *25*	521.52	1$^{(-)}$				
		1549.4 *2*	100 *4*	203.83	1$^-$				
1795.1	(11$^+$)	822.4 *5*	70 *17*	972.5	(11$^-$)	E1		0.00344	
		1100.7 *5*	100 *7*	694.4	(10$^-$)	E1		0.00202	
1810.43	(1)	1585.3 *2*	25.7 *11*	225.01	(2)$^-$				
		1618.5 *2*	34.8 *12*	192.07	(0)$^-$				
		1810.4 *2*	100.0 *16*	0.0	2$^-$				
1843.2	(12$^-$)	625.8 *5*	58 *17*	1217.4	(12$^-$)				
		870.7 *5*	100 *17*	972.5	(11$^-$)				
1858.96	(0,1,2$^-$)	220.05[c] *12*	160 *16*	1638.91	(1$^-$)				
		1655 *1*	100 *20*	203.83	1$^-$				
1904.1	(14$^-$)	283.2 *1*	64 *9*	1620.9	(13$^-$)	M1		0.459	α(K)=0.376 *6*; α(L)=0.0636 *9*; α(M)=0.01483 *21*
									α(N)=0.00375 *6*; α(O)=0.000728 *11*; α(P)=6.88×10^{-5} *10*
									E_γ: weighted average of 283.3 *2* from (^{18}O,5nγ) and 283.2 *1* from (^{13}C,4nγ).
									I_γ: unweighted average of 54.8 *24* from (^{18}O,5nγ) and 73.4 *11* from (^{13}C,4nγ).
		686.7 *1*	100.0 *15*	1217.4	(12$^-$)	E2		0.01367	E_γ: from (^{13}C,4nγ). Other: 686.7 *2* from (^{18}O,5nγ).
									I_γ: from (^{13}C,4nγ). Other: 100 *10* from (^{18}O,5nγ).
1938.5	(12$^+$)	143.4 *3*	100 *14*	1795.1	(11$^+$)	(M1)		3.07	α(K)=2.51 *4*; α(L)=0.430 *7*; α(M)=0.1004 *16*
									α(N)=0.0253 *4*; α(O)=0.00492 *8*; α(P)=0.000465 *7*
		966.0 *5*	41 *9*	972.5	(11$^-$)	E1		0.00256	

$^{194}_{81}Tl_{113}$-11

Adopted Levels, Gammas (continued)

γ(^{194}Tl) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult. #	α &	Comments
1998.2	(13$^-$)	155.0 *5*	20 *4*	1843.2	(12$^-$)			
		257.2 *5*	43 *9*	1741.0	(12$^-$)	(M1)	0.598	α(K)=0.490 *8*; α(L)=0.0830 *13*; α(M)=0.0194 *3* α(N)=0.00489 *8*; α(O)=0.000950 *15*; α(P)=8.98×10^{-5} *14*
		563.4 *5*	33 *13*	1434.8	(11$^-$)	Q		
		780.8 *5*	100 *19*	1217.4	(12$^-$)	M1	0.0311	α(K)=0.0256 *4*; α(L)=0.00420 *6*; α(M)=0.000978 *14* α(N)=0.000247 *4*; α(O)=4.80×10^{-5} *7*; α(P)=4.56×10^{-6} *7*
2031.1	(12$^+$)	1058.6 *3*	100	972.5	(11$^-$)	E1	0.00217	
2056.4	(13$^+$)	(25.3 *3*)		2031.1	(12$^+$)			
		117.9 *5*	100 *15*	1938.5	(12$^+$)	(M1)	5.37 *10*	α(K)=4.38 *9*; α(L)=0.753 *14*; α(M)=0.176 *4* α(N)=0.0444 *9*; α(O)=0.00862 *16*; α(P)=0.000814 *16*
		839.0 *5*	23 *12*	1217.4	(12$^-$)			
2114.9	(13$^-$)	897.4 *5*	100	1217.4	(12$^-$)	D		
2133.3	(14$^+$)	76.9 *3*	100	2056.4	(13$^+$)	(M1)	3.38 *7*	α(L)=2.59 *5*; α(M)=0.606 *11* α(N)=0.153 *3*; α(O)=0.0297 *6*; α(P)=0.00281 *5*
2192.36	(1,2$^-$)	553.3[c] *2*	172 *10*	1638.91	(1$^-$)			
		1671 *1*	42 *22*	521.52	1$^{(-)}$			
		2000.6 *3*	100 *7*	192.07	(0)$^-$			
2214.0	(14$^+$)	157.6 *5*	100	2056.4	(13$^+$)	(M1)	2.35	α(K)=1.92 *4*; α(L)=0.328 *6*; α(M)=0.0767 *13* α(N)=0.0194 *4*; α(O)=0.00376 *7*; α(P)=0.000355 *6*
2238.0	(15$^+$)	104.7 *3*	100	2133.3	(14$^+$)	(M1)	7.54 *13*	α(K)=6.15 *10*; α(L)=1.059 *18*; α(M)=0.248 *4* α(N)=0.0625 *11*; α(O)=0.01214 *20*; α(P)=0.001146 *19*
2261.0	(14$^-$)	262.8 *3*	100 *8*	1998.2	(13$^-$)	M1	0.564	α(K)=0.462 *7*; α(L)=0.0782 *12*; α(M)=0.0182 *3* α(N)=0.00461 *7*; α(O)=0.000895 *13*; α(P)=8.46×10^{-5} *13*
		520.0[c] *5*	6.5 *19*	1741.0	(12$^-$)			
		640.3 *5*	12.0 *19*	1620.9	(13$^-$)			
		1043.6 *5*	23.6 *10*	1217.4	(12$^-$)			
2343.4	(0$^-$,1)	2343.4 *5*	100	0.0	2$^-$			
2372.6	(15$^-$)	468.4 *1*	100.0 *17*	1904.1	(14$^-$)	M1	0.1183	α(K)=0.0971 *14*; α(L)=0.01620 *23*; α(M)=0.00378 *6* α(N)=0.000953 *14*; α(O)=0.000185 *3*; α(P)=1.755×10^{-5} *25* E_γ: from (^{13}C,4nγ). Other: 468.4 *3* from (^{18}O,5nγ). I_γ: from (^{13}C,4nγ). Other: 100 *14* from (^{18}O,5nγ).
		751.8 *2*	78 *14*	1620.9	(13$^-$)	E2	0.01128	E_γ: weighted average of 751.5 *5* from (^{18}O,5nγ) and 751.8 *2* from (^{13}C,4nγ). I_γ: unweighted average of 64 *13* from (^{18}O,5nγ) and 92.0 *15* from (^{13}C,4nγ).
2392.7	(16$^+$)	154.7 *2*	100	2238.0	(15$^+$)	(M1+E2)	1.8 *8*	α(K)=1.2 *9*; α(L)=0.45 *10*; α(M)=0.11 *3* α(N)=0.028 *8*; α(O)=0.0051 *12*; α(P)=0.00030 *8*
2401.5	(15$^+$)	187.5 *5*	100	2214.0	(14$^+$)	(M1)	1.441 *23*	α(K)=1.179 *19*; α(L)=0.201 *4*; α(M)=0.0469 *8* α(N)=0.01184 *19*; α(O)=0.00230 *4*; α(P)=0.000217 *4*
2476.3	(14$^-$)	361.3 *5*	71 *32*	2114.9	(13$^-$)			
		855.5 *5*	100 *32*	1620.9	(13$^-$)	D		
2568.2	(17$^+$)	175.4 *2*	100 *19*	2392.7	(16$^+$)	(M1)	1.738	α(K)=1.422 *21*; α(L)=0.242 *4*; α(M)=0.0566 *9* α(N)=0.01430 *21*; α(O)=0.00278 *4*; α(P)=0.000262 *4*
		330.2 *5*	11.2 *12*	2238.0	(15$^+$)	(E2)	0.0838	α(K)=0.0511 *8*; α(L)=0.0246 *4*; α(M)=0.00624 *10* α(N)=0.001567 *24*; α(O)=0.000281 *5*; α(P)=1.531×10^{-5} *23*

$^{194}_{81}Tl_{113}$-12

Adopted Levels, Gammas (continued)

γ(^{194}Tl) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult.#	α&	Comments
2604.3	(15$^-$)	343.3 *5*	100 *6*	2261.0	(14$^-$)	M1	0.272	α(K)=0.223 *4*; α(L)=0.0375 *6*; α(M)=0.00875 *13* α(N)=0.00221 *4*; α(O)=0.000429 *7*; α(P)=4.06×10^{-5} *6*
		606.3 *5*	29 *8*	1998.2	(13$^-$)			
2628.8	(16$^+$)	227.3 *2*	100	2401.5	(15$^+$)	(M1)	0.842	α(K)=0.689 *10*; α(L)=0.1170 *17*; α(M)=0.0273 *4* α(N)=0.00690 *10*; α(O)=0.001340 *19*; α(P)=0.0001266 *18*
2663.7	(16$^-$)	291.6 *4*	28.2 *7*	2372.6	(15$^-$)	(M1)	0.424	α(K)=0.347 *5*; α(L)=0.0586 *9*; α(M)=0.01369 *20* α(N)=0.00346 *5*; α(O)=0.000671 *10*; α(P)=6.35×10^{-5} *10* E_γ: unweighted average of 291.2 *3* from (^{18}O,5nγ) and 291.9 *2* from (^{13}C,4nγ). I_γ: weighted average of 30 *9* from (^{18}O,5nγ) and 28.2 *7* from (^{13}C,4nγ).
		759.5 *2*	100.0 *22*	1904.1	(14$^-$)	E2	0.01104	E_γ: weighted average of 759.6 *5* from (^{18}O,5nγ) and 759.5 *2* from (^{13}C,4nγ). I_γ: from (^{13}C,4nγ). Other: 100 *18* from (^{18}O,5nγ).
2715.0	(15$^-$)	238.7 *5*	64 *27*	2476.3	(14$^-$)			
		600.3 *5*	82 *46*	2114.9	(13$^-$)			
		810.9 *5*	100 *23*	1904.1	(14$^-$)	D		
		1094.1 *5*	68 *23*	1620.9	(13$^-$)	(Q)		
2780.5	(16$^-$)	176.4 *5*	19.1 *30*	2604.3	(15$^-$)	(M1)	1.71 *3*	α(K)=1.400 *23*; α(L)=0.238 *4*; α(M)=0.0557 *9* α(N)=0.01407 *23*; α(O)=0.00273 *5*; α(P)=0.000258 *5*
		408.2 *5*	19.6 *30*	2372.6	(15$^-$)	(M1)	0.1706	α(K)=0.1400 *21*; α(L)=0.0234 *4*; α(M)=0.00547 *8* α(N)=0.001380 *20*; α(O)=0.000268 *4*; α(P)=2.54×10^{-5} *4*
		519.6 *5*	6.5 *10*	2261.0	(14$^-$)	Q		
		876.4 *1*	100 *10*	1904.1	(14$^-$)	E2	0.00823	E_γ: from (^{13}C,4nγ). Other: 876.4 *3* from (^{18}O,5nγ).
2857.6	(18$^+$)	289.4 *2*	100 *6*	2568.2	(17$^+$)	M1	0.433	α(K)=0.355 *5*; α(L)=0.0599 *9*; α(M)=0.01397 *20* α(N)=0.00353 *5*; α(O)=0.000685 *10*; α(P)=6.48×10^{-5} *10*
		465.0 *5*	11.3 *14*	2392.7	(16$^+$)	Q		
2859.3	(17$^-$)	78.8 *3*	100	2780.5	(16$^-$)	(M1)	3.15 *6*	α(L)=2.41 *5*; α(M)=0.564 *11* α(N)=0.143 *3*; α(O)=0.0277 *5*; α(P)=0.00261 *5* E_γ: weighted average of 78.8 *3* from (^{18}O,5nγ) and 79 *1* from (^{13}C,4nγ).
2881.6	(17$^+$)	252.9 *5*	100 *26*	2628.8	(16$^+$)	(M1)	0.627	α(K)=0.513 *8*; α(L)=0.0869 *13*; α(M)=0.0203 *3* α(N)=0.00512 *8*; α(O)=0.000995 *15*; α(P)=9.41×10^{-5} *15*
		479.9 *5*	43 *9*	2401.5	(15$^+$)			
2942.4	(16$^-$)	338.2 *5*	100 *14*	2604.3	(15$^-$)	(M1)	0.283	α(K)=0.232 *4*; α(L)=0.0391 *6*; α(M)=0.00911 *14* α(N)=0.00230 *4*; α(O)=0.000447 *7*; α(P)=4.23×10^{-5} *7*
		681.4 *5*	69 *10*	2261.0	(14$^-$)	Q		
3021.8	(18$^-$)	162.5 *1*	100 *11*	2859.3	(17$^-$)	(M1)	2.16	α(K)=1.764 *25*; α(L)=0.301 *5*; α(M)=0.0703 *10* α(N)=0.0178 *3*; α(O)=0.00345 *5*; α(P)=0.000326 *5* This γ was placed from a 2939 level in (^{13}C,4nγ). E_γ: weighted average of 162.4 *3* from (^{18}O,5nγ) and 162.5 *1* from (^{13}C,4nγ).
		241.0 *5*	22 *4*	2780.5	(16$^-$)	(E2)	0.219 *4*	α(K)=0.1082 *16*; α(L)=0.0829 *14*; α(M)=0.0214 *4* α(N)=0.00536 *9*; α(O)=0.000944 *16*; α(P)=4.33×10^{-5} *7*
3141.9	(17$^-$)	478.3 *2*	43.9 *8*	2663.7	(16$^-$)	M1+E2	0.07 *4*	α(K)=0.06 *4*; α(L)=0.011 *5*; α(M)=0.0026 *10* α(N)=0.00067 *24*; α(O)=0.00013 *5*; α(P)=1.1×10^{-5} *6* E_γ: weighted average of 478.5 *5* from (^{18}O,5nγ) and 478.3 *2* from (^{13}C,4nγ). I_γ: from (^{13}C,4nγ). Other: 179 *30* from (^{18}O,5nγ) is discrepant.

$^{194}_{81}Tl_{113}$-13

Adopted Levels, Gammas (continued)

γ(^{194}Tl) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[#]	α[&]	Comments
3141.9	(17$^-$)	769.2 *2*	100.0 *16*	2372.6	(15$^-$)	E2	0.01075	E_γ: weighted average of 769.6 *5* from (^{18}O,5nγ) and 769.1 *2* from (^{13}C,4nγ). I_γ: from (^{13}C,4nγ). Other: 100 *21* from (^{18}O,5nγ).
3161.2	(19$^+$)	303.7 *3*	100 *14*	2857.6	(18$^+$)	M1	0.379	α(K)=0.311 *5*; α(L)=0.0524 *8*; α(M)=0.01224 *18* α(N)=0.00309 *5*; α(O)=0.000600 *9*; α(P)=5.68×10^{-5} *8*
		593.0 *3*	50 *11*	2568.2	(17$^+$)	Q		
3204.6	(18$^+$)	323.0 *5*	100 *35*	2881.6	(17$^+$)	(M1)	0.321	α(K)=0.263 *4*; α(L)=0.0443 *7*; α(M)=0.01033 *16* α(N)=0.00261 *4*; α(O)=0.000507 *8*; α(P)=4.80×10^{-5} *7*
		575.8 *5*	46 *12*	2628.8	(16$^+$)	Q		
3262.6	(17$^-$)	320.2 *5*	100 *25*	2942.4	(16$^-$)	(M1)	0.328	α(K)=0.269 *4*; α(L)=0.0454 *7*; α(M)=0.01058 *16* α(N)=0.00267 *4*; α(O)=0.000519 *8*; α(P)=4.91×10^{-5} *8*
		658.4 *5*	67 *8*	2604.3	(15$^-$)	Q		
3301.0	(19$^-$)	279.3 *2*	100 *13*	3021.8	(18$^-$)	M1	0.477	α(K)=0.391 *6*; α(L)=0.0660 *10*; α(M)=0.01541 *22* α(N)=0.00389 *6*; α(O)=0.000756 *11*; α(P)=7.15×10^{-5} *11* B(M1)(W.u.)=0.91 *25* E_γ: weighted average of 279.3 *2* from (^{18}O,5nγ) and 279 *1* from (^{13}C,4nγ).
		442[c] *5*	<7.1	2859.3	(17$^-$)	[E2]	0.0381 *13*	α(K)=0.0263 *8*; α(L)=0.0090 *4*; α(M)=0.00223 *10* α(N)=0.000561 *23*; α(O)=0.000102 *5*; α(P)=6.51×10^{-6} *23*
3389.5	(18$^-$)	248.1 *6*	41.1 *14*	3141.9	(17$^-$)	M1	0.661 *11*	α(K)=0.541 *9*; α(L)=0.0917 *15*; α(M)=0.0214 *4* α(N)=0.00540 *9*; α(O)=0.001050 *17*; α(P)=9.92×10^{-5} *16* E_γ: unweighted average of 247.5 *5* from (^{18}O,5nγ) and 248.6 *3* from (^{13}C,4nγ). I_γ: weighted average of 35 *4* from (^{18}O,5nγ) and 41.4 *9* from (^{13}C,4nγ).
		725.9 *3*	100 *3*	2663.7	(16$^-$)	Q		E_γ: weighted average of 726.0 *3* from (^{18}O,5nγ) and 725.8 *3* from (^{13}C,4nγ). I_γ: from (^{13}C,4nγ). Other: 100 *27* from (^{18}O,5nγ).
3424.9	(18$^-$)	282.9 *5*	28 *7*	3141.9	(17$^-$)	M1	0.460	α(K)=0.377 *6*; α(L)=0.0638 *10*; α(M)=0.01488 *22* α(N)=0.00376 *6*; α(O)=0.000730 *11*; α(P)=6.90×10^{-5} *11*
		761.1 *2*	100 *22*	2663.7	(16$^-$)	E2	0.01099	E_γ: weighted average of 761.4 *5* from (^{18}O,5nγ) and 761.1 *2* from (^{13}C,4nγ).
3508.1	(20$^-$)	207.1 *1*	100 *18*	3301.0	(19$^-$)	M1	1.091	α(K)=0.893 *13*; α(L)=0.1518 *22*; α(M)=0.0354 *5* α(N)=0.00895 *13*; α(O)=0.001739 *25*; α(P)=0.0001643 *24* B(M1)(W.u.)=1.4 *6* This γ was placed from a 3146 level in (^{13}C,4nγ). E_γ: weighted average of 206.7 *3* from (^{18}O,5nγ) and 207.1 *1* from (^{13}C,4nγ).
		486.1 *5*	38 *8*	3021.8	(18$^-$)	E2	0.0301	α(K)=0.0214 *3*; α(L)=0.00661 *10*; α(M)=0.001637 *24* α(N)=0.000411 *6*; α(O)=7.54×10^{-5} *11*; α(P)=5.03×10^{-6} *8* B(E2)(W.u.)=66 *+37−30*
3517.3	(18$^-$)	254.8 *5*	100 *17*	3262.6	(17$^-$)	(M1)	0.614	α(K)=0.503 *8*; α(L)=0.0851 *13*; α(M)=0.0199 *3* α(N)=0.00502 *8*; α(O)=0.000975 *15*; α(P)=9.22×10^{-5} *14*
		495.5 *5*	46 *13*	3021.8	(18$^-$)	Q		
		575.0 *5*	46 *21*	2942.4	(16$^-$)			
3521.5	(20$^+$)	360.4 *5*	100 *13*	3161.2	(19$^+$)	M1	0.238	α(K)=0.196 *3*; α(L)=0.0329 *5*; α(M)=0.00766 *12* α(N)=0.00193 *3*; α(O)=0.000376 *6*; α(P)=3.56×10^{-5} *6*
		663.9 *3*	48 *8*	2857.6	(18$^+$)	Q		

$^{194}_{81}Tl_{113}$-14

Adopted Levels, Gammas (continued)

γ(^{194}Tl) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[#]	α[&]	Comments
3530.9	(19$^+$)	326.4 *5*	100 *39*	3204.6	(18$^+$)	(M1)	0.312	α(K)=0.256 *4*; α(L)=0.0430 *7*; α(M)=0.01004 *15* α(N)=0.00254 *4*; α(O)=0.000493 *8*; α(P)=4.66×10^{-5} *7*
		649.2 *5*	78 *22*	2881.6	(17$^+$)			
3640.5	(19$^-$)	215.5 *2*	100 *5*	3424.9	(18$^-$)	(M1)	0.977	α(K)=0.800 *12*; α(L)=0.1358 *20*; α(M)=0.0317 *5* α(N)=0.00801 *12*; α(O)=0.001555 *23*; α(P)=0.0001470 *21* This γ was placed from a 3958 level in (^{13}C,4nγ). E_γ: weighted average of 215.6 *5* from (^{18}O,5nγ) and 215.5 *2* from (^{13}C,4nγ).
		251.2 *5*	67 *17*	3389.5	(18$^-$)	(M1)	0.639	α(K)=0.523 *8*; α(L)=0.0886 *14*; α(M)=0.0207 *4* α(N)=0.00522 *8*; α(O)=0.001014 *16*; α(P)=9.59×10^{-5} *15*
3687.1	(19$^-$)	170.0 *5*	100 *19*	3517.3	(18$^-$)	(M1)	1.90	α(K)=1.55 *3*; α(L)=0.265 *5*; α(M)=0.0619 *10* α(N)=0.0156 *3*; α(O)=0.00303 *5*; α(P)=0.000287 *5*
		297.6 *5*	52 *29*	3389.5	(18$^-$)			
3777.5	(20$^-$)	137.0 *2*	100 *24*	3640.5	(19$^-$)	(M1)	3.50	α(K)=2.86 *5*; α(L)=0.489 *8*; α(M)=0.1143 *17* α(N)=0.0289 *5*; α(O)=0.00561 *9*; α(P)=0.000530 *8* E_γ: weighted average of 137.3 *5* from (^{18}O,5nγ) and 136.9 *2* from (^{13}C,4nγ). This γ is placed from the 694 level in (^{13}C,4nγ) by 2012Pa16 and re-placed from the 3778 level by 2014Ma55 in (^{18}O,5nγ).
		388.6 *5*	79 *15*	3389.5	(18$^-$)			
3884.3	(21$^+$)	362.7 *5*	100 *20*	3521.5	(20$^+$)	M1	0.234	α(K)=0.192 *3*; α(L)=0.0323 *5*; α(M)=0.00753 *11* α(N)=0.00190 *3*; α(O)=0.000369 *6*; α(P)=3.50×10^{-5} *5*
		723.1 *3*	93 *20*	3161.2	(19$^+$)	E2	0.01224	
3884.9	(21$^-$)	376.9 *1*	100 *12*	3508.1	(20$^-$)	M1	0.211	α(K)=0.1734 *25*; α(L)=0.0291 *4*; α(M)=0.00678 *10* α(N)=0.001713 *24*; α(O)=0.000333 *5*; α(P)=3.15×10^{-5} *5* B(M1)(W.u.)=0.70 *+26−21* This γ was placed from a 3850 level in (^{13}C,4nγ). E_γ: weighted average of 376.6 *3* from (^{18}O,5nγ) and 376.9 *1* from (^{13}C,4nγ).
		583.2 *5*	12 *4*	3301.0	(19$^-$)	E2	0.0196	B(E2)(W.u.)=26 *+13−11*
3887.1	(20$^-$)	200.1 *5*	100	3687.1	(19$^-$)	(M1)	1.201 *19*	α(K)=0.983 *16*; α(L)=0.167 *3*; α(M)=0.0390 *7* α(N)=0.00986 *16*; α(O)=0.00192 *3*; α(P)=0.000181 *3*
3896.6	(20$^+$)	365.7 *5*	100 *33*	3530.9	(19$^+$)			
		692.0 *5*	83 *33*	3204.6	(18$^+$)			
4099.7	(21$^-$)	322.2 *1*	100 *15*	3777.5	(20$^-$)	(M1)	0.323	α(K)=0.265 *4*; α(L)=0.0446 *7*; α(M)=0.01040 *15* α(N)=0.00263 *4*; α(O)=0.000510 *8*; α(P)=4.83×10^{-5} *7* B(M1)(W.u.)=0.55 *8* This γ was placed from a 3743 level in (^{13}C,4nγ). E_γ: weighted average of 322.3 *3* from (^{18}O,5nγ) and 322.2 *1* from (^{13}C,4nγ).
		458.7 *4*	14 *3*	3640.5	(19$^-$)	[E2]	0.0347	α(K)=0.0242 *4*; α(L)=0.00795 *12*; α(M)=0.00198 *3* α(N)=0.000496 *7*; α(O)=9.06×10^{-5} *13*; α(P)=5.88×10^{-6} *9* B(E2)(W.u.)=49 *14*
4136.1	(21$^-$)	249.1 *5*	92 *12*	3887.1	(20$^-$)	(M1)	0.653	α(K)=0.535 *8*; α(L)=0.0907 *14*; α(M)=0.0212 *4* α(N)=0.00534 *8*; α(O)=0.001038 *16*; α(P)=9.81×10^{-5} *15* B(M1)(W.u.)=0.91 *+21−19*

$^{194}_{81}Tl_{113}$-15

Adopted Levels, Gammas (continued)

γ(^{194}Tl) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[#]	α[&]	Comments
4136.1	(21$^-$)	358.5 *5*	100 *27*	3777.5	(20$^-$)			
4212.6	(22$^-$)	327.7 *2*	100 *12*	3884.9	(21$^-$)	M1	0.308	α(K)=0.253 *4*; α(L)=0.0426 *6*; α(M)=0.00993 *14* α(N)=0.00251 *4*; α(O)=0.000487 *7*; α(P)=4.61×10^{-5} *7* B(M1)(W.u.)=0.63 *17* This γ was placed from a 3474 level in (^{13}C,4nγ). E_γ: weighted average of 327.5 *5* from (^{18}O,5nγ) and 327.7 *2* from (^{13}C,4nγ).
		704.1 *5*	70 *14*	3508.1	(20$^-$)	E2	0.01295	B(E2)(W.u.)=34 *10*
4238.3	(22$^+$)	354.1 *3*	100 *12*	3884.3	(21$^+$)	(M1)	0.250	α(K)=0.205 *3*; α(L)=0.0345 *5*; α(M)=0.00804 *12* α(N)=0.00203 *3*; α(O)=0.000394 *6*; α(P)=3.73×10^{-5} *6*
		716.8 *3*	89 *22*	3521.5	(20$^+$)	Q		
4340.1	(22$^-$)	240.3 *5*	90 *14*	4099.7	(21$^-$)	(M1)	0.722	α(K)=0.591 *9*; α(L)=0.1002 *16*; α(M)=0.0234 *4* α(N)=0.00591 *9*; α(O)=0.001147 *18*; α(P)=0.0001085 *17* B(M1)(W.u.)=0.67 *+15−18* E_γ: weighted average of 240.4 *5* from (^{18}O,5nγ) and 240 *1* from (^{13}C,4nγ).
		562.8 *5*	100 *15*	3777.5	(20$^-$)	[E2]	0.0213	α(K)=0.01567 *23*; α(L)=0.00425 *6*; α(M)=0.001041 *15* α(N)=0.000262 *4*; α(O)=4.84×10^{-5} *7*; α(P)=3.45×10^{-6} *5* B(E2)(W.u.)=70 *+18−20*
4440.1	(22$^-$)	303.9 *5*	100 *39*	4136.1	(21$^-$)	(M1)	0.379	α(K)=0.310 *5*; α(L)=0.0524 *8*; α(M)=0.01221 *18* α(N)=0.00308 *5*; α(O)=0.000599 *9*; α(P)=5.67×10^{-5} *9* B(M1)(W.u.)=0.79 *+15−18*
		553.1 *5*	22 *6*	3887.1	(20$^-$)	[E2]	0.0221	α(K)=0.01625 *23*; α(L)=0.00447 *7*; α(M)=0.001097 *16* α(N)=0.000276 *4*; α(O)=5.09×10^{-5} *8*; α(P)=3.60×10^{-6} *6* B(E2)(W.u.)=36 *+21−13*
4572.6	(23$^+$)	334.3 *5*	100 *13*	4238.3	(22$^+$)	(M1)	0.292	α(K)=0.240 *4*; α(L)=0.0403 *6*; α(M)=0.00941 *14* α(N)=0.00237 *4*; α(O)=0.000461 *7*; α(P)=4.37×10^{-5} *7*
		688.2 *5*	58 *9*	3884.3	(21$^+$)	Q		
4642.5	(23$^-$)	430.0 *5*	73 *10*	4212.6	(22$^-$)	(M1)	0.1485	α(K)=0.1219 *18*; α(L)=0.0204 *3*; α(M)=0.00475 *7* α(N)=0.001199 *18*; α(O)=0.000233 *4*; α(P)=2.21×10^{-5} *4* B(M1)(W.u.)=0.54 *12* E_γ: unweighted average of 430.0 *3* in (^{18}O,5nγ) and 428.6 *2* in (^{13}C,4nγ). Note that this γ was placed from a 4279 level in (^{13}C,4nγ).
		757.5 *5*	100 *17*	3884.9	(21$^-$)	E2	0.01110	B(E2)(W.u.)=92 *+18−21*
4721.3	(23$^-$)	381.3 *2*	100 *38*	4340.1	(22$^-$)	(M1)	0.205	α(K)=0.1681 *24*; α(L)=0.0282 *4*; α(M)=0.00657 *10* α(N)=0.001660 *24*; α(O)=0.000323 *5*; α(P)=3.05×10^{-5} *5* B(M1)(W.u.)=0.229 *+46−52* This γ was placed from a 4340 level in (^{13}C,4nγ). E_γ: weighted average of 381.2 *5* from (^{18}O,5nγ) and 381.3 *2* from (^{13}C,4nγ).
		621.6 *5*	18 *4*	4099.7	(21$^-$)	[E2]	0.01699	B(E2)(W.u.)=9 *+6−3*
4819.2	(23$^-$)	379.1 *5*	100 *31*	4440.1	(22$^-$)	(M1)	0.208	α(K)=0.1707 *25*; α(L)=0.0286 *5*; α(M)=0.00668 *10* α(N)=0.001686 *25*; α(O)=0.000328 *5*; α(P)=3.10×10^{-5} *5*
		683.0 *5*	44 *19*	4136.1	(21$^-$)	[E2]	0.01383	
4895.0	(24$^+$)	322.4 *5*	100 *20*	4572.6	(23$^+$)	M1	0.322	α(K)=0.264 *4*; α(L)=0.0445 *7*; α(M)=0.01039 *16*

$^{194}_{81}Tl_{113}$-16

Adopted Levels, Gammas (continued)

γ(^{194}Tl) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[#]	α[&]	Comments
								α(N)=0.00262 *4*; α(O)=0.000509 *8*; α(P)=4.82×10^{-5} *7* B(M1)(W.u.)=0.44 *+17−15*
4895.0	(24$^+$)	656.7 *5*	40 *6*	4238.3	(22$^+$)	E2	0.01505	B(E2)(W.u.)=19 *8*
5038.3	(24$^-$)	395.9 *5*	52 *8*	4642.5	(23$^-$)	[M1]	0.185	α(K)=0.1520 *22*; α(L)=0.0255 *4*; α(M)=0.00594 *9* α(N)=0.001499 *22*; α(O)=0.000291 *5*; α(P)=2.76×10^{-5} *4* B(M1)(W.u.)=0.39 *+15−11*
		825.7 *5*	100 *32*	4212.6	(22$^-$)	E2	0.00929	B(E2)(W.u.)=47 *13*
5082.4	(24$^-$)	361.7 *5*	100 *36*	4721.3	(23$^-$)	[M1]	0.236	α(K)=0.194 *3*; α(L)=0.0325 *5*; α(M)=0.00759 *11* α(N)=0.00192 *3*; α(O)=0.000372 *6*; α(P)=3.52×10^{-5} *6* B(M1)(W.u.)=0.22 *9*
		742.0 *3*	91 *40*	4340.1	(22$^-$)	E2	0.01159	B(E2)(W.u.)=16 *8*
5257.5	(25$^+$)	362.4 *5*	100 *24*	4895.0	(24$^+$)	M1	0.235	α(K)=0.193 *3*; α(L)=0.0324 *5*; α(M)=0.00755 *11* α(N)=0.00191 *3*; α(O)=0.000370 *6*; α(P)=3.50×10^{-5} *5* B(M1)(W.u.)=0.78 *25*
		685.0 *5*	48 *18*	4572.6	(23$^+$)	E2	0.01374	B(E2)(W.u.)=46 *20*
5492.5	(25$^-$)	454.1 *5*	67 *33*	5038.3	(24$^-$)			
		850.0 *5*	100 *53*	4642.5	(23$^-$)			
5656.1	(26$^+$)	398.6 *5*	100 *14*	5257.5	(25$^+$)	(M1)	0.182	α(K)=0.1492 *22*; α(L)=0.0250 *4*; α(M)=0.00583 *9* α(N)=0.001472 *22*; α(O)=0.000286 *5*; α(P)=2.71×10^{-5} *4* B(M1)(W.u.)=0.62 *21*
		761.0 *5*	50 *14*	4895.0	(24$^+$)	E2	0.01099	B(E2)(W.u.)=30 *+11−13*
6104.1	(27$^+$)	448.0 *5*	100 *28*	5656.1	(26$^+$)	(M1)	0.1331	α(K)=0.1093 *16*; α(L)=0.0183 *3*; α(M)=0.00425 *6* α(N)=0.001074 *16*; α(O)=0.000209 *3*; α(P)=1.98×10^{-5} *3* B(M1)(W.u.)=0.37 *13*
		846.6 *5*	89 *45*	5257.5	(25$^+$)	[E2]	0.00883	B(E2)(W.u.)=25 *10*
6587.2	(28$^+$)	483.1 *5*	83 *42*	6104.1	(27$^+$)	[M1]	0.1090	α(K)=0.0895 *13*; α(L)=0.01492 *22*; α(M)=0.00348 *5* α(N)=0.000877 *13*; α(O)=0.0001705 *25*; α(P)=1.616×10^{-5} *23* B(M1)(W.u.)=0.27 *11*
		931.1 *5*	100 *42*	5656.1	(26$^+$)	[E2]	0.00730	B(E2)(W.u.)=20 *8*
268.0+x	J+2	268.0 *3*		x	J≈(12)			
575.0+x	J+4	307.0 *3*		268.0+x	J+2			
920.1+x	J+6	345.1 *3*		575.0+x	J+4			
1304.3+x	J+8	384.2 *3*		920.1+x	J+6			
1725.3+x	J+10	421.0 *3*		1304.3+x	J+8			
2182.3+x	J+12	457.0 *3*		1725.3+x	J+10			
2677.2+x	J+14	494.9 *3*		2182.3+x	J+12			
3208.1+x	J+16	530.9 *3*		2677.2+x	J+14			
3775.1+x	J+18	567.0 *3*		3208.1+x	J+16			
4376.3+x	J+20	601.2 *3*		3775.1+x	J+18			
5011.2+x	J+22	634.9 *3*		4376.3+x	J+20			
5681.0+x	J+24	669.8 *3*		5011.2+x	J+22			
6384.6+x	J+26	703.6 *3*		5681.0+x	J+24			
209.3+y	J1+2	209.3 *3*		y	J1≈(9)			

$^{194}_{81}Tl_{113}$-17

Adopted Levels, Gammas (continued)

γ(^{194}Tl) (continued)

E_i(level)	J_i^π	E_γ †	E_f	J_f^π	E_i(level)	J_i^π	E_γ †	E_f	J_f^π
457.7+y	J1+4	248.4 *3*	209.3+y	J1+2	2366.1+u	J3+14	454.2 *3*	1911.9+u	J3+12
745.2+y	J1+6	287.5 *3*	457.7+y	J1+4	2857.6+u	J3+16	491.5 *3*	2366.1+u	J3+14
1071.2+y	J1+8	326.0 *3*	745.2+y	J1+6	3385.4+u	J3+18	527.8 *3*	2857.6+u	J3+16
1435.6+y	J1+10	364.4 *3*	1071.2+y	J1+8	3949.4+u	J3+20	564.0 *3*	3385.4+u	J3+18
1837.3+y	J1+12	401.7 *3*	1435.6+y	J1+10	4549.1+u?	J3+22	599.7[c] *3*	3949.4+u	J3+20
2276.6+y	J1+14	439.3 *3*	1837.3+y	J1+12	5182.8+u?	J3+24	633.7[c] *3*	4549.1+u?	J3+22
2752.5+y	J1+16	475.9 *3*	2276.6+y	J1+14	5852.0+u?	J3+26	669.2[c] *3*	5182.8+u?	J3+24
3264.5+y	J1+18	512.0 *3*	2752.5+y	J1+16	6555.4+u?	J3+28	703.4[c] *3*	5852.0+u?	J3+26
3812.5+y	J1+20	548.0 *3*	3264.5+y	J1+18	187.9+v	J4+2	187.9 *3*	v	J4≈(8)
4396.0+y	J1+22	583.5 *3*	3812.5+y	J1+20	414.2+v	J4+4	226.3 *3*	187.9+v	J4+2
5013.5+y	J1+24	617.5 *3*	4396.0+y	J1+22	678.2+v	J4+6	264.0 *3*	414.2+v	J4+4
5665.5+y	J1+26	652.0 *3*	5013.5+y	J1+24	980.2+v	J4+8	302.0 *3*	678.2+v	J4+6
6351.4+y	J1+28	685.9 *3*	5665.5+y	J1+26	1319.4+v	J4+10	339.2 *3*	980.2+v	J4+8
240.5+z	J2+2	240.5 *3*	z	J2≈(10)	1696.0+v	J4+12	376.6 *3*	1319.4+v	J4+10
520.5+z	J2+4	280.0 *3*	240.5+z	J2+2	2109.7+v	J4+14	413.7 *3*	1696.0+v	J4+12
839.3+z	J2+6	318.8 *3*	520.5+z	J2+4	2559.7+v	J4+16	450.0 *3*	2109.7+v	J4+14
1197.4+z	J2+8	358.1 *3*	839.3+z	J2+6	3045.8+v	J4+18	486.1 *3*	2559.7+v	J4+16
1594.6+z	J2+10	397.2 *3*	1197.4+z	J2+8	3567.6+v	J4+20	521.8 *3*	3045.8+v	J4+18
2029.9+z	J2+12	435.3 *3*	1594.6+z	J2+10	4126.0+v	J4+22	558.4 *3*	3567.6+v	J4+20
2502.9+z	J2+14	473.0 *3*	2029.9+z	J2+12	4719.7+v	J4+24	593.7 *3*	4126.0+v	J4+22
3013.8+z	J2+16	510.9 *3*	2502.9+z	J2+14	5347.4+v?	J4+26	627.7[c] *3*	4719.7+v	J4+24
3560.4+z	J2+18	546.6 *3*	3013.8+z	J2+16	207.0+w	J5+2	207.0 *3*	w	J5≈(9)
4142.6+z	J2+20	582.2 *3*	3560.4+z	J2+18	452.4+w	J5+4	245.4 *3*	207.0+w	J5+2
4760.0+z	J2+22	617.4 *3*	4142.6+z	J2+20	736.1+w	J5+6	283.7 *3*	452.4+w	J5+4
5412.0+z	J2+24	652.0 *3*	4760.0+z	J2+22	1057.9+w	J5+8	321.8 *3*	736.1+w	J5+6
6097.5+z	J2+26	685.5 *3*	5412.0+z	J2+24	1416.1+w	J5+10	358.2 *3*	1057.9+w	J5+8
6815.0+z?	J2+28	717.5[c] *3*	6097.5+z	J2+26	1812.3+w	J5+12	396.2 *3*	1416.1+w	J5+10
220.3+u	J3+2	220.3 *3*	u	J3≈(9)	2244.8+w	J5+14	432.5 *3*	1812.3+w	J5+12
479.7+u	J3+4	259.4 *3*	220.3+u	J3+2	2714.9+w	J5+16	470.1 *3*	2244.8+w	J5+14
779.4+u	J3+6	299.7 *3*	479.7+u	J3+4	3221.1+w	J5+18	506.2 *3*	2714.9+w	J5+16
1118.1+u	J3+8	338.7 *3*	779.4+u	J3+6	3764.8+w	J5+20	543.7 *3*	3221.1+w	J5+18
1496.4+u	J3+10	378.3 *3*	1118.1+u	J3+8	4343.9+w	J5+22	579.1 *3*	3764.8+w	J5+20
1911.9+u	J3+12	415.5 *3*	1496.4+u	J3+10	4956.9+w	J5+24	613.0 *3*	4343.9+w	J5+22

† From ^{194}Pb ε decay for low-spin levels (J≤3) up to 2343 level and from (^{18}O,5nγ) for high-spin levels (J≥7), unless otherwise noted. For γ rays from the levels in SD bands, the data are from 1991Az03.

‡ Poor fit. Uncertainty has been increased to 0.2 keV in the fitting.

From ce data in ^{194}Pb ε decay for transitions from low-spin levels (J≤3) up to 2343 level and from γγ(DCO) and γ(pol) in (^{18}O,5nγ) and (^{13}C,4nγ) for transitions from high-spin levels (J≥7), unless otherwise noted.

@ From ce data in ^{194}Pb ε decay.

$^{194}_{81}Tl_{113}$-18

Adopted Levels, Gammas (continued)

$\gamma(^{194}Tl)$ (continued)

& 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.

[a] Multiply placed with undivided intensity.

[b] Multiply placed with intensity suitably divided.

[c] Placement of transition in the level scheme is uncertain.

$^{194}_{81}Tl_{113}$-19

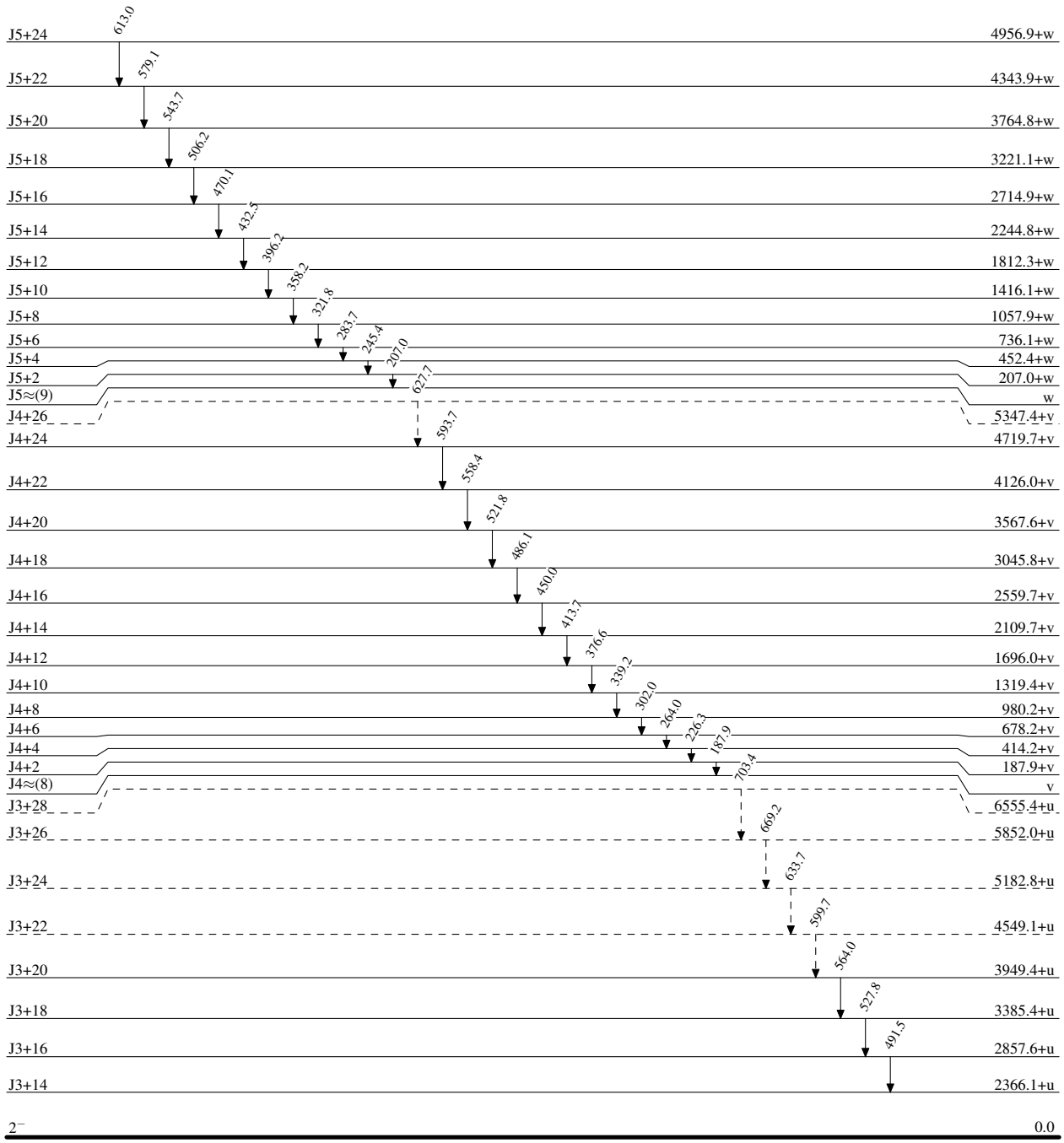
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



$^{194}_{81}Tl_{113}$

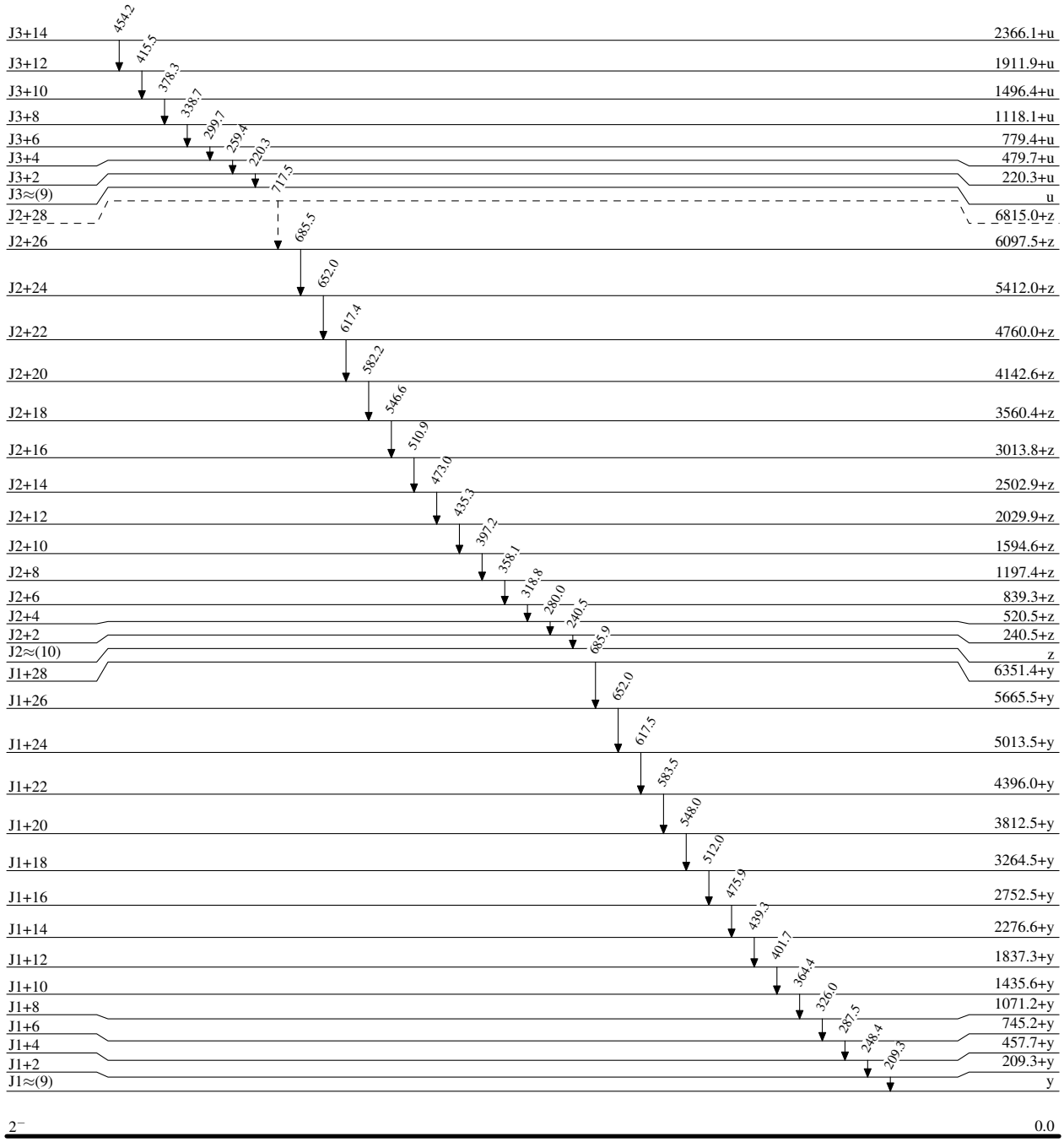
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)

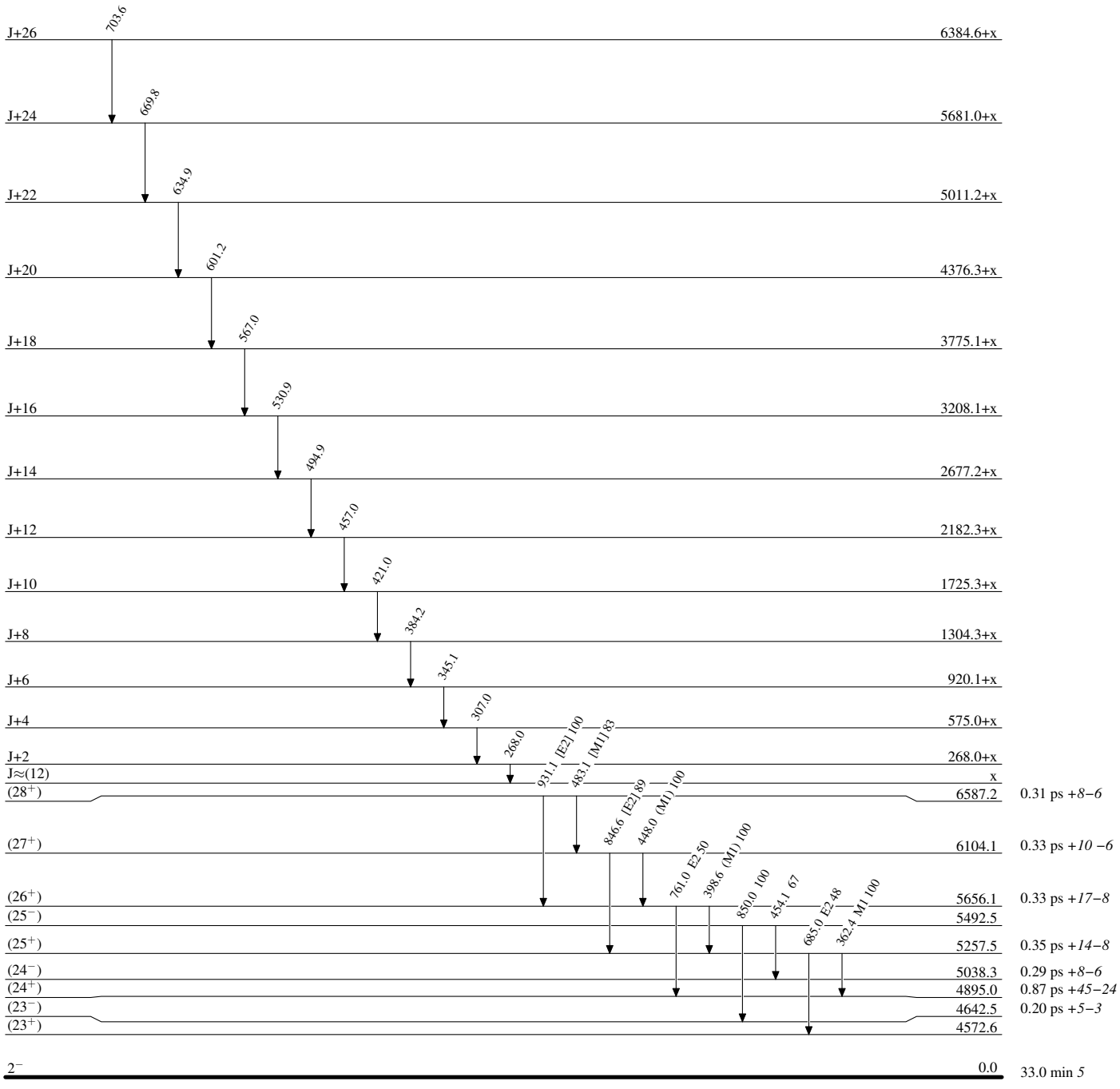


$^{194}_{81}Tl_{113}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

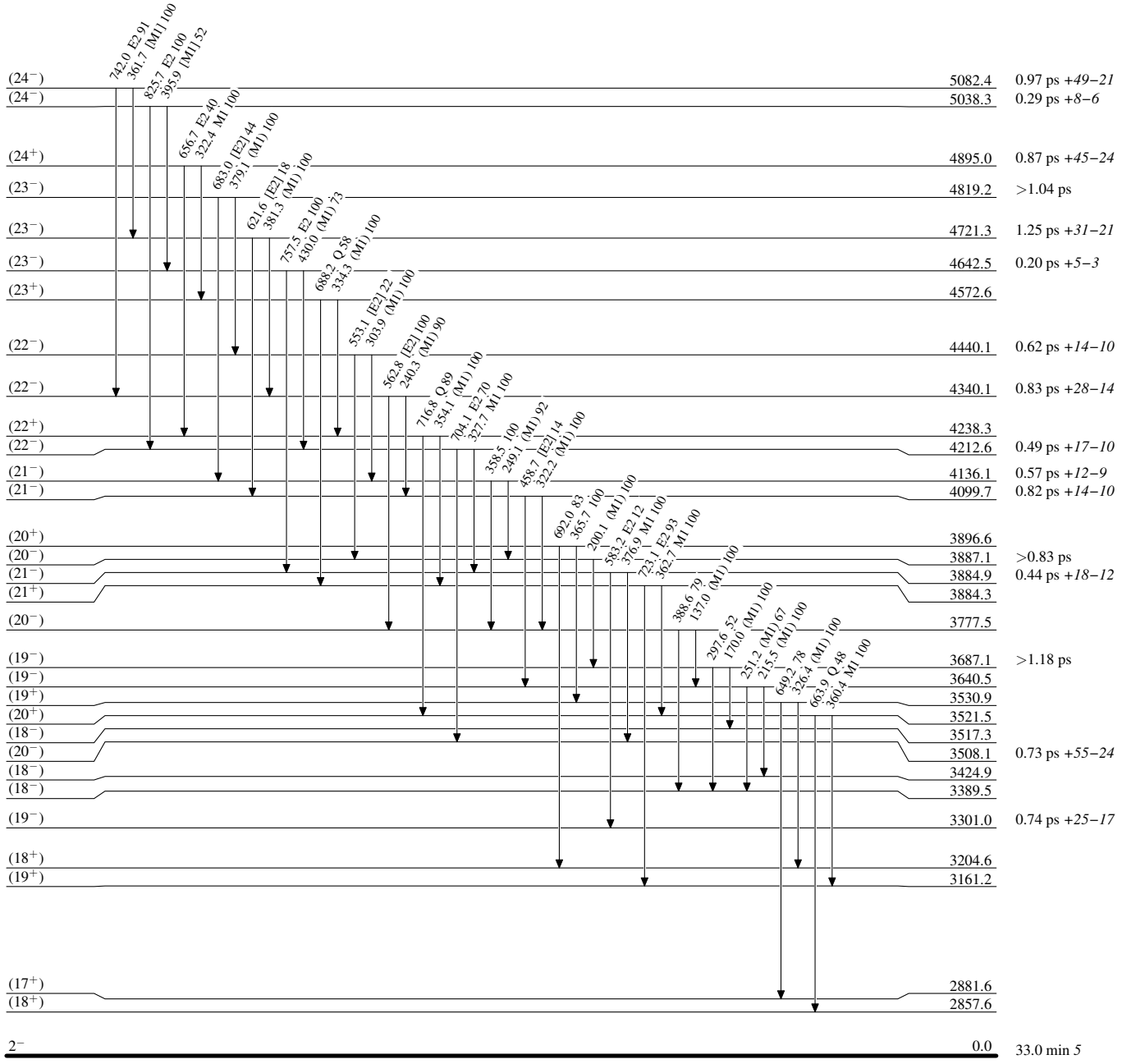


$^{194}_{81}Tl_{113}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{194}_{81}Tl_{113}$

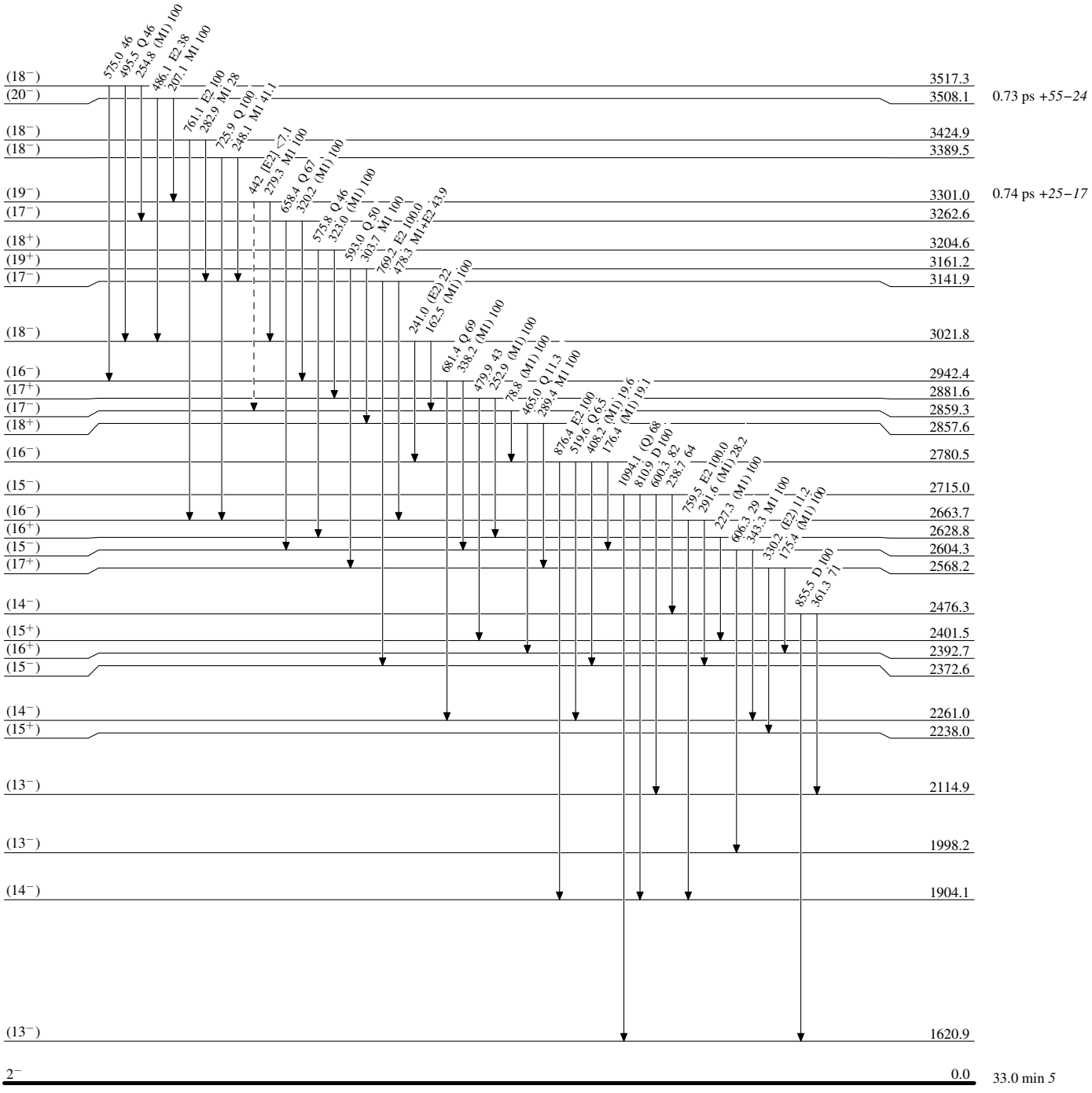
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



$^{194}_{81}Tl_{113}$

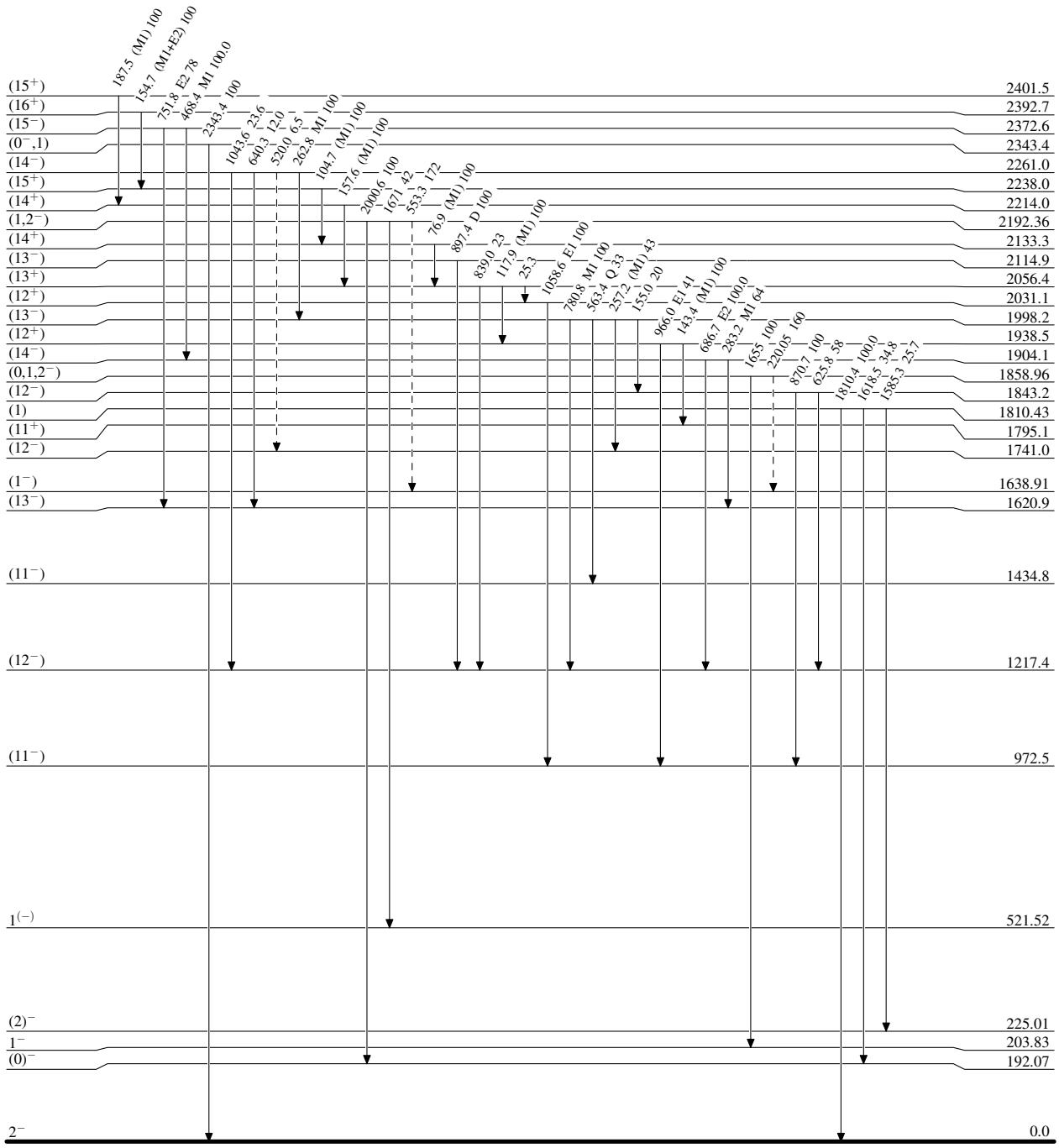
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



$^{194}_{81}Tl_{113}$

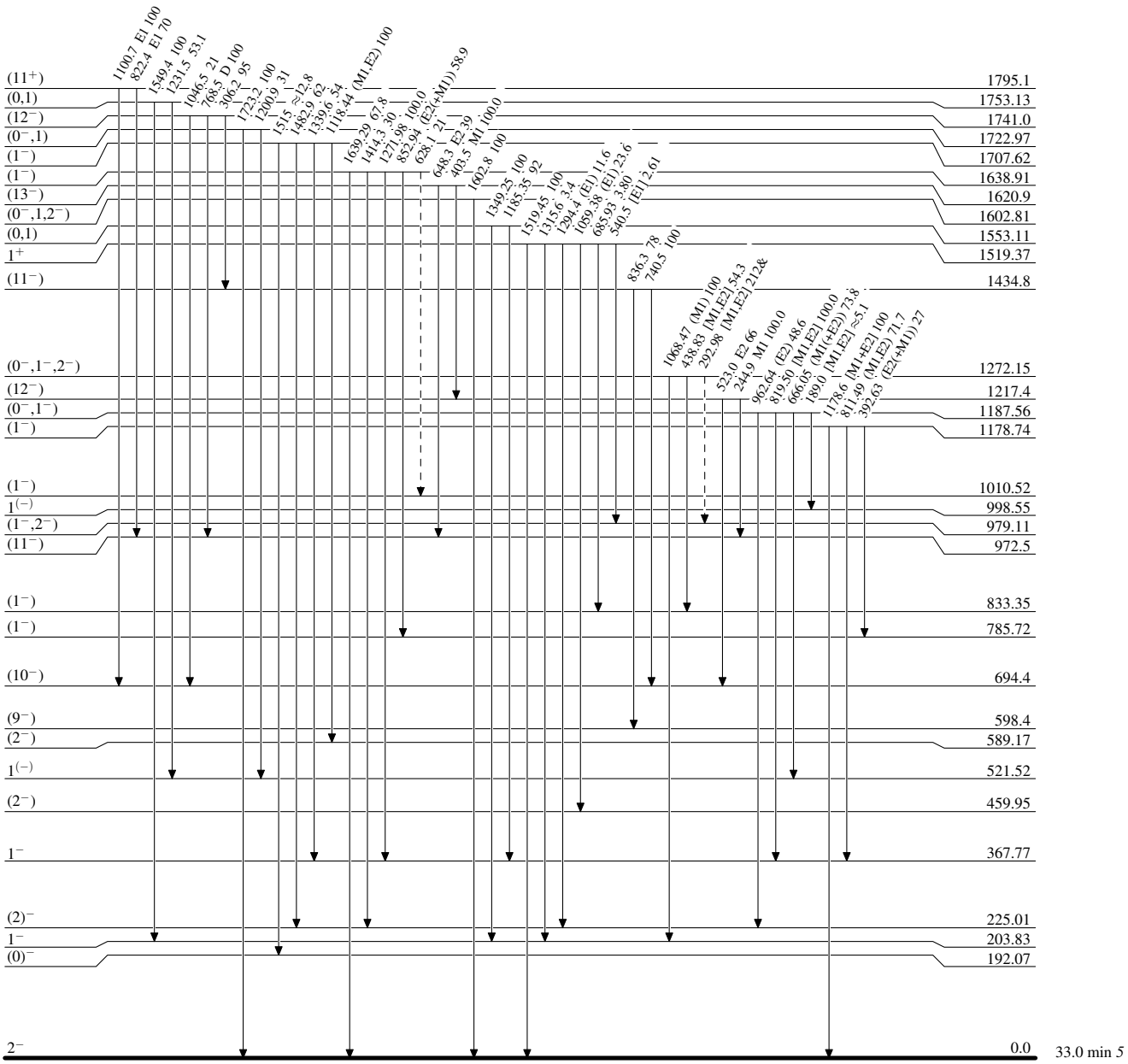
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given

– – – – – – ► γ Decay (Uncertain)



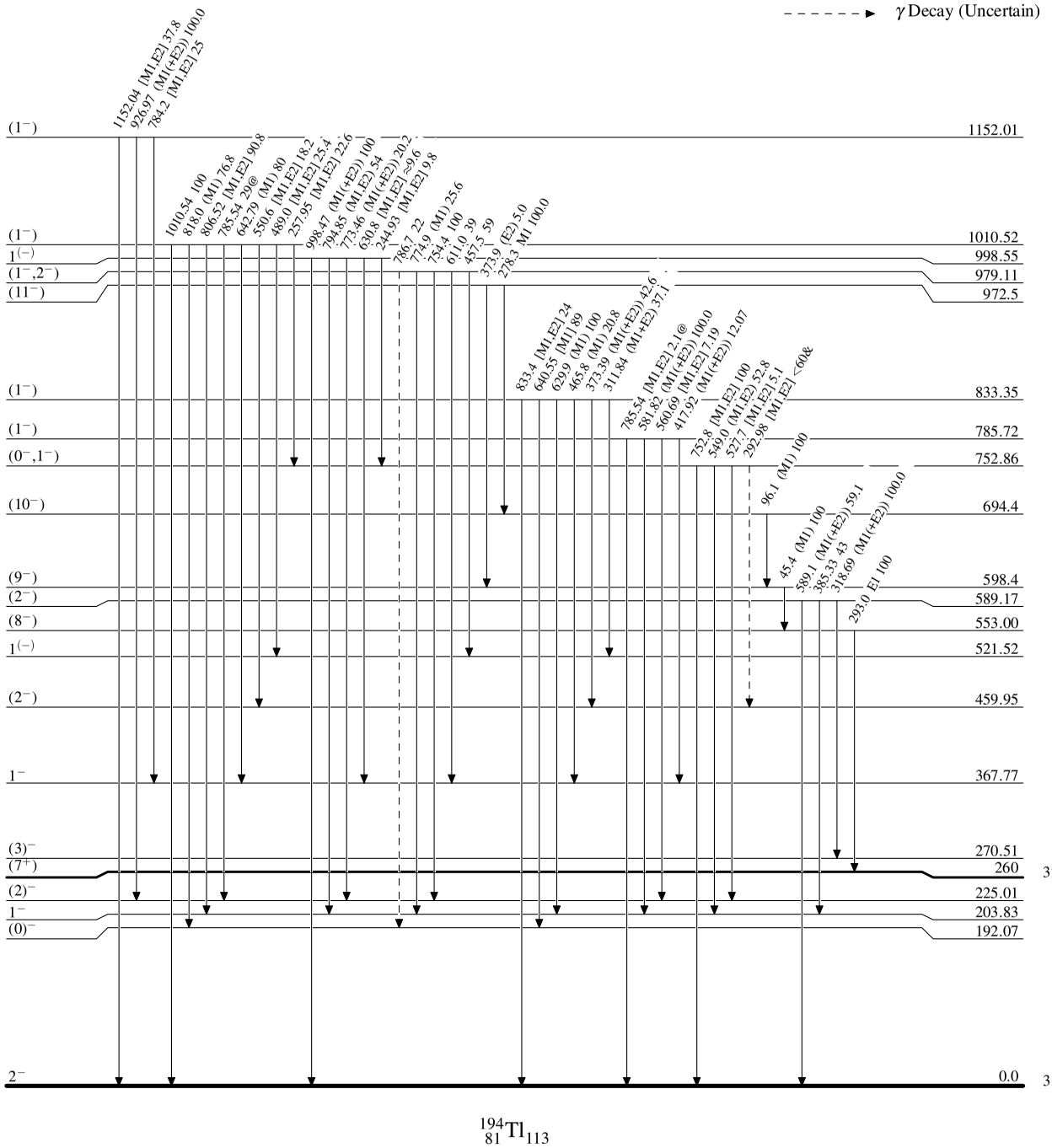
$^{194}_{81}Tl_{113}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided

Legend



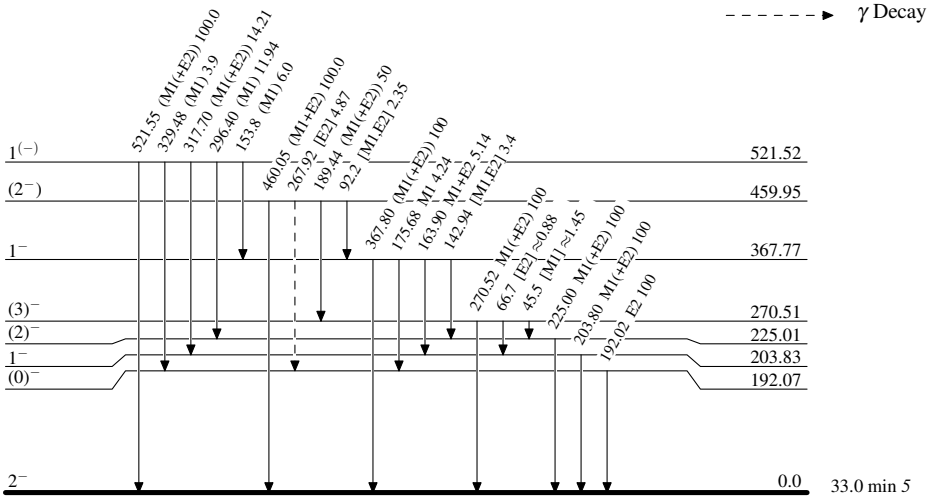
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided

Legend

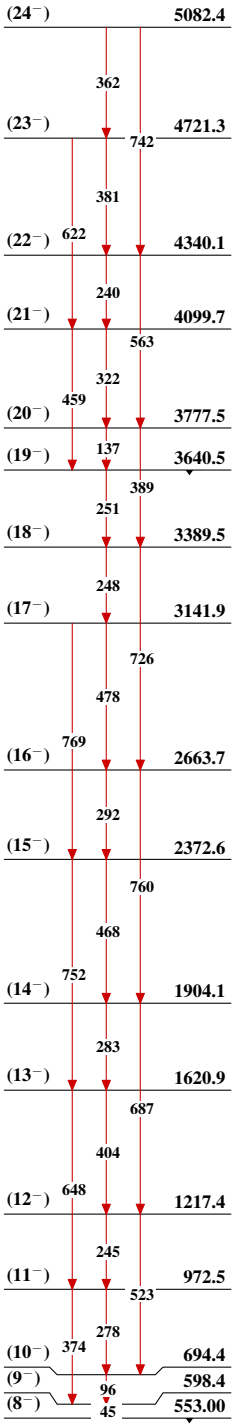
- - - - - - ► γ Decay (Uncertain)



$^{194}_{81}Tl_{113}$

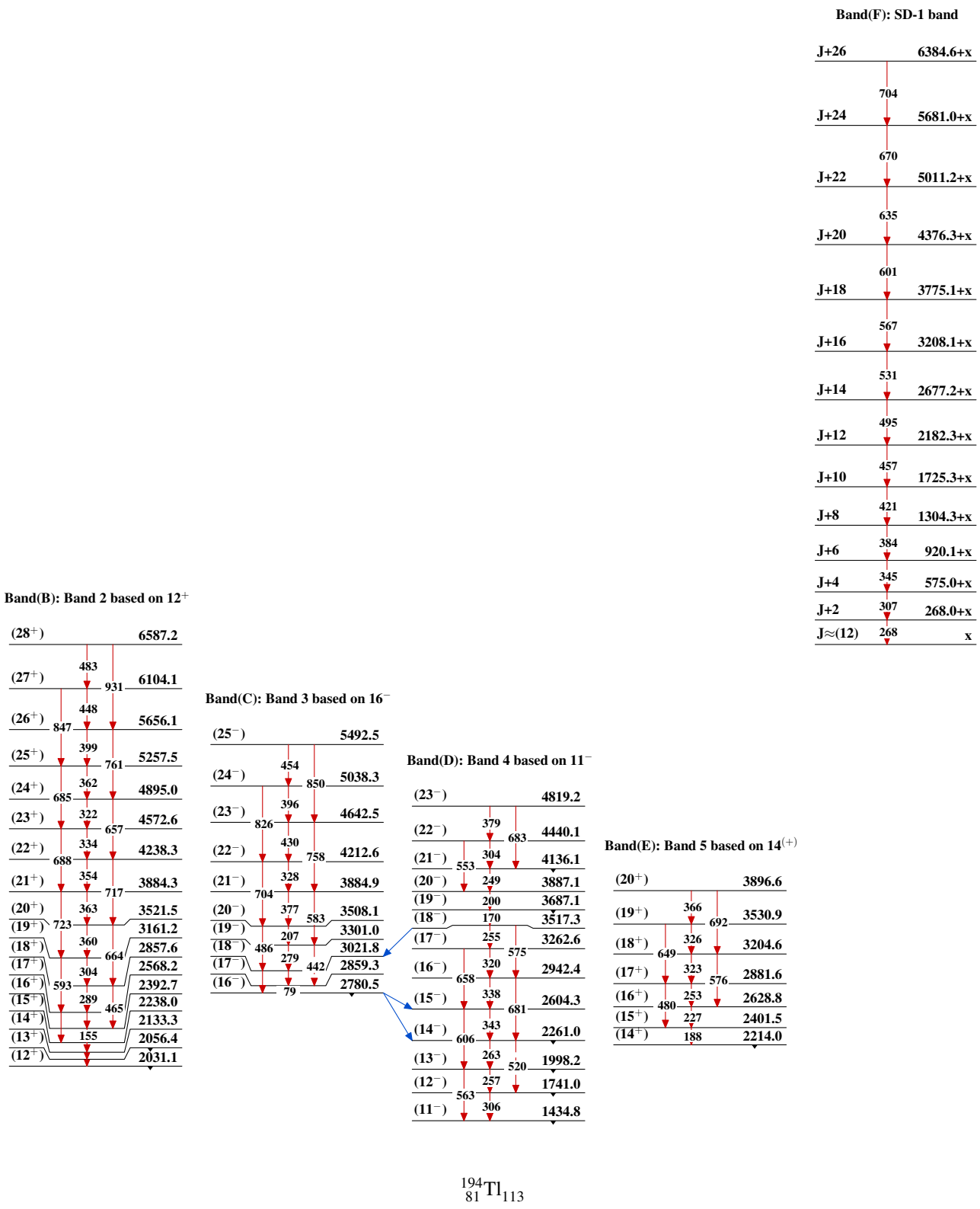
Adopted Levels, Gammas

Band(A): Band 1 based on 8^-



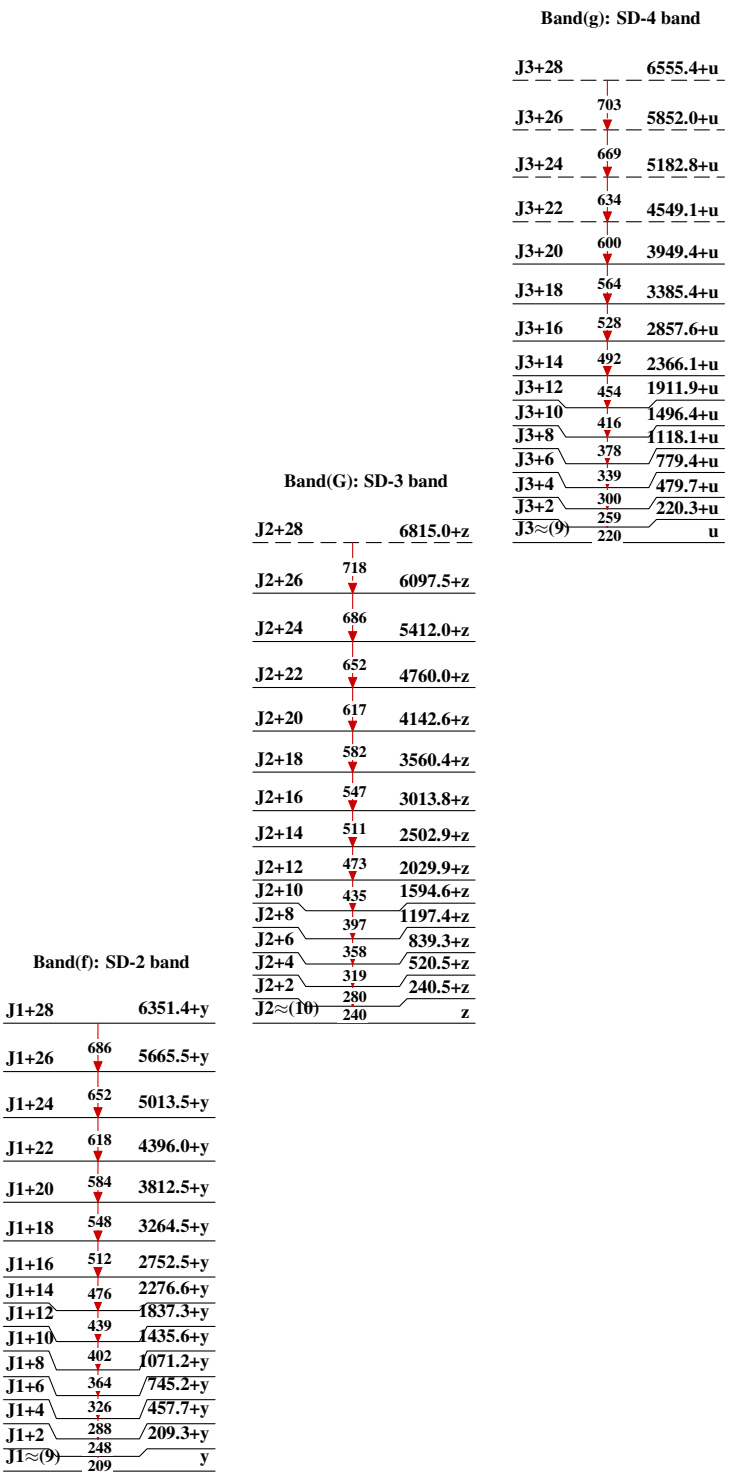
$^{194}_{81}Tl_{113}$

Adopted Levels, Gammas (continued)



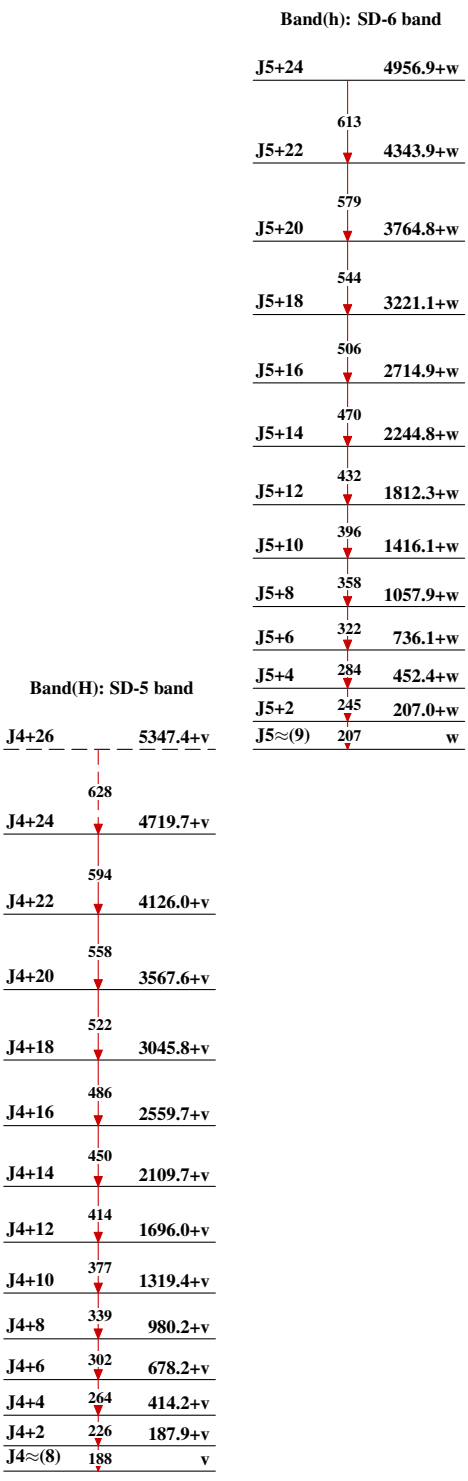
$^{194}_{81}Tl_{113}$

Adopted Levels, Gammas (continued)



$^{194}_{81}Tl_{113}$

Adopted Levels, Gammas (continued)



$^{194}_{81}Tl_{113}$