Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	NDS 108,79 (2007)	15-Oct-2006

Q(β^-)=−4434 *15*; S(n)=7253 *18*; S(p)=5.03×10^3 *8*; Q(α)=3.34×10^3 *3* 2012Wa38
Note: Current evaluation has used the following Q record −4430 29 *7250* 30 *5020* 80 *3350* 40 2003Au03.
Nuclear structure calculations and systematics: 2001Xu01 (level systematics and configurations), 1993Sa04 (three-quasiparticle states).
Additional information 1.

^{199}Pb Levels

Cross Reference (XREF) Flags

A ^{199}Bi ε decay (27 min+24.70 min)
B ^{199}Pb IT decay (12.2 min)
C ^{203}Po α decay (36.7 min)
D ^{186}W(^{18}O,5nγ)
E ^{198}Hg(α,3nγ)

E(level)†	J$^\pi$‡	T$_{1/2}$#	XREF	Comments
0	3/2$^-$	90 min *10*	ABC	%ε+%β^+=100 μ=−1.0742 *12* (1989Ra17,1986An06) Q=+0.08 *9* (1989Ra17,1986An06) <r^2>$^{1/2}$=5.450 fm *9* (2004An14, evaluation). μ,Q: atomic-beam with LASER fluorescence spectroscopy (1986An06,1989Ra17,2005St24). Δ<r^2>(^{199}Pb−^{208}Pb)=−0.516 fm^2 4 (1986An06) from isotope shift measurements. Δ<r^2>(^{199}Pb−^{201}Pb)=−0.107 fm^2 5 is ascribed to a change from f$_{5/2}$ (in ^{201}Pb) to p$_{3/2}$ (in ^{199}Pb) g.s. configurations. J$^\pi$: spin from hyperfine structure, π: μ and Q are consistent with ν 3p$_{3/2}$ assignment (1983Th03). T$_{1/2}$: from 1955An01; other: ≈80 min (1950Ne77).
0+x	(5/2$^-$)		ABCDE	E(level): x<9.3 keV (1962Ju05,1957An53) from ^{199}Pb IT decay. J$^\pi$: See comment for 424.8+x level. Probable ν2f$_{5/2}$ configuration.
19.1+x? *4*	(−)		A	E(level): This level energy is inconsistent with results from 1962Ju05, who concluded that the energy difference between the f$_{5/2}$ and p$_{3/2}$ levels is less than 9.3 keV. The placement of the two γ's feeding this state may be inconsistent with some of the $\gamma\gamma$-coin results of 1978Ri04. J$^\pi$: M1+E2 γ from (7/2$^-$,9/2$^-$).
424.8+x *2*	(13/2$^+$)	12.2 min *3*	AB DE	%IT≈93; %ε+%β^+≈7 J$^\pi$: M4 γ to 0+x level; the only possible shell model states available for an M4 transition in the N=117 nucleus are the i$_{13/2}$ and f$_{5/2}$ states. The i$_{13/2}$ probably corresponds to 424.8+x and f$_{5/2}$ to 0+x level. T$_{1/2}$: from 1955An01. Other: 13 min *1* (1956St05). %IT,%ε+%β^+: 1978LeZA (Table of Isotopes 1978) list %IT=93, %ε+%β^+=7 from a priv. comm. (from authors of 1973JoZF,1974JoZX) in 1974. But a copy of this communication is no longer available from the Table of Isotopes group. The e-mail queries (in July 2001) by the evaluator (of the 2006 evaluation of A=199) from two of the authors of 1973JoZF produced no response. Inspection of the gamma-ray spectrum from the decay of ^{199}Pb isomer presented in 1973JoZF shows a dominant 425γ and a weak 382γ, the latter assigned to 9/2$^-$ isomer in ^{199}Tl, suggesting that %IT branch is much stronger than the %ε+%β^+ branch. But in the opinion of the evaluator, definitive information about the decay branches is lacking. E(level): others: 429.5 *27* (2003Au02) based on x<9.3 (1962Ju05), 444 (1994Ba43,1999Po13) based on a proposed 19.6 level by 1978Ri04. But the existence of 19.6 level is considered as suspect since the $\gamma\gamma$ coin evidence presented by 1978Ri04 is very tentative.

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Adopted Levels, Gammas (continued)

^{199}Pb Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[#]	XREF	Comments
945.9+x *3*	(7/2⁻,9/2⁻)		A	Jπ: E2 γ to (5/2⁻); possible ε feeding from 9/2⁻.
1022.7+x *4*	(7/2⁻,9/2⁻)		A	Jπ: M1,E2 γ to (5/2⁻); possible ε feeding from 9/2⁻.
1052.8+x *4*	(7/2⁻,9/2⁻)		A	Jπ: E2,M1 γ to (5/2⁻); possible ε feeding from 9/2⁻.
1262.2+x *5*	(11/2⁺)		A	Jπ: E2+M1 γ to (13/2⁺); possible ε feeding from 9/2⁻.
1266.5+x *5*	(11/2⁺)		A	Jπ: E2+M1 γ to (13/2⁺); possible ε feeding from 9/2⁻.
1305.6+x *5*	(7/2⁻,9/2⁻)		A	Jπ: M1+E2 γ to (5/2⁻); possible ε feeding from 9/2⁻.
1337.1+x *5*	(7/2⁻,9/2⁻,11/2⁻)		A	Jπ: M1+E2 γ to (7/2⁻,9/2⁻); possible ε feeding from 9/2⁻.
1351.4+x *3*	(13/2⁺)		D	Jπ: ΔJ=(0) γ to (13/2⁺).
1402.5+x *3*	(17/2⁺)		DE	Jπ: ΔJ=2, E2 γ to (13/2⁺).
1437.5+x *3*	(15/2⁺)		DE	Jπ: ΔJ=1, E2(+M1) γ to (13/2⁺).
1505.8+x *4*	(7/2⁻,9/2⁻)		A	Jπ: possible M1+E2 γ to (7/2⁻,9/2⁻); γ to (5/2⁻); possible ε feeding from 9/2⁻.
1677.8+x *4*			D	Jπ: γ to (13/2⁺).
1743.1+x *4*	(9/2⁻,11/2⁻)		A	Jπ: possible M1+E2 γ to (7/2⁻,9/2⁻); γ to (11/2⁺); possible ε feeding from 9/2⁻.
1799.6+x *4*	(9/2⁻)		A	Jπ: M1 γ to (7/2⁻,9/2⁻); γ to (11/2⁺); possible γ to (5/2⁻) possible ε feeding from 9/2⁻.
1803.3+x *3*	(17/2⁺)		D	Jπ: ΔJ=2 γ to (13/2⁺).
1826.0+x *3*	(19/2⁺)	<2 ns	DE	Jπ: ΔJ=2, E2 γ to (15/2⁺). $T_{1/2}$: from (α,3nγ).
1842.1+x *3*	(21/2⁺)		DE	Jπ: ΔJ=2, E2 γ to (17/2⁺).
1904.8+x *3*	(17/2⁺)		D	
1971.8+x *3*	(19/2⁺)		DE	
2068.9+x *5*	(11/2⁻)		A	Jπ: possible M1,E2 γ to (7/2⁻,9/2⁻); γ to (13/2⁺); possible ε feeding from 9/2⁻.
2082.1+x *3*	(21/2⁺)		DE	
2083.1+x *5*	(11/2⁻)		A	Jπ: M1,E2 γ to (7/2⁻,9/2⁻); possible γ to (13/2⁺); possible ε feeding from 9/2⁻.
2108.4+x *5*	(11/2⁻)		A	Jπ: γ to (7/2⁻,9/2⁻); possible γ to (13/2⁺); possible ε feeding from 9/2⁻.
2127.5+x *3*	(21/2⁻)	3.85 ns *16*	DE	
2129.4+x *3*	(19/2)		D	
2186.2+x *8*	(7/2⁻,9/2⁻,11/2⁻)		A	Jπ: γ to (7/2⁻,9/2⁻); possible ε feeding from 9/2⁻.
2306.2+x *3*	(21/2⁺)		DE	
2451.6+x *4*	(23/2⁻)		DE	
2499.9+x *4*	(25/2⁻)	7.9 ns *6*	DE	$T_{1/2}$: weighted average of 9.3 ns 6 (1988Pa12), 7.5 ns 3 (1988Ro08), 11 ns 3 (1985St16). Other: 33 ns 3 (1981He07) is discrepant (1981He07).
2501.7+x *3*	(21/2⁺)		D	
2559.1+x *4*	(29/2⁻)	10.1 μs *2*	DE	μ=−1.076 *3* (1989Ra17,1988Ro08) Configuration=$((\nu\, i_{13/2})^{-2}_{12+}(\nu\, f_{5/2})^{-1})$. Jπ: E2 γ to 25/2⁻ level; measured g-factor agrees with proposed configuration. μ: TDPAD method (1988Ro08,1987Ca23,1989Ra17,2005St24). Other: −1.07 *7* (1985St16). $T_{1/2}$: weighted average of 10.6 μs *5* (1989Su12,1988Pa12,1981He07), 10.0 μs *2* (1988Ro08).
2560.2+x *4*	(25/2)		D	
2571.1+x *4*	(27/2⁻)		D	
2748.0+x *4*	(25/2⁺)		D	
2841.2+x *4*	(25/2)		D	
2921.1+x *3*	(21/2⁺)		D	
2982.9+x *4*	(25/2⁺)		D	
2984.2+x *4*	(23/2⁺)		D	
3134.1+x *4*	(25/2⁺)		D	
3210.3+x *4*	(29/2)		D	

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Adopted Levels, Gammas (continued)

^{199}Pb Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[#]	XREF	Comments
3359.0+x *4*	(29/2)		D	
3386.2+x *4*	(27/2$^+$)		D	
3401.3+x *4*	(29/2$^+$)		DE	
3490.1+x *4*	(33/2$^+$)	63 ns *4*	DE	μ=−2.39 *15* (1989Ra17,1988Ro08) μ: TDPAD method (1988Ro08,1989Ra17,2005St24). Other: −2.51 *5* (1985St16). Configuration=(ν $i_{13/2}$)$^{-3}$. $T_{1/2}$: weighted average of 63 ns *4* (1989Su12), 71 ns *4* (1988Pa12). 55 ns *5* (1988Ro08), 58 ns *6* (1985St16), 55 ns *8* (1981He07).
3530.0+x *4*	(33/2)		D	
3584.9+x[@] *4*	(25/2$^-$)		D	
3603.7+x *5*			D	
3657.5+x *4*	(29/2$^+$)		D	
3674.8+x[@] *5*	(27/2$^-$)		D	
3742.6+x *5*			D	
3745.7+x *4*	(29/2$^+$)		D	
3791.9+x *4*	(33/2)		D	
3848.7+x[@] *6*	(29/2$^-$)		D	
3850.9+x *4*	(31/2)		D	
3859.3+x *5*			D	
3876.5+x *4*	(33/2)		D	
3966.7+x *5*			D	
4006.3+x *4*	(29/2$^+$)		D	
4086.0+x *4*	(31/2$^+$)		D	
4108.1+x *4*			D	
4124.1+x[@] *7*	(31/2$^-$)		D	
4143.3+x *5*			D	
4228.3+x *5*	(35/2)		D	
4257.5+x *5*	(37/2$^+$)		D	
4292.6+x *4*			D	
4339.4+x *5*	(37/2)		D	
4348.8+x *4*	(31/2)		D	
4363.6+x *4*	(31/2)		D	
4367.6+x *5*	(37/2)		D	
4474.7+x *5*	(41/2$^+$)	40 ns *10*	D	
4483.5+x[@] *7*	(33/2$^-$)		D	
4543.3+x *4*	(37/2)		D	
4769.0+x *4*	(33/2$^+$)		D	
4770.0+x *4*	(33/2$^+$)		D	
4777.2+x *5*	(41/2)		D	
4778.6+x *4*			D	
4884.8+x[@] *7*	(35/2$^-$)		D	
5067.1+x *5*	(41/2)		D	
5129.4+x *5*	(41/2)		D	
5222.6+x *5*	(41/2)		D	
5282.4+x *5*	(43/2)		D	
5305.6+x[@] *7*	(37/2$^-$)		D	
5314.9+x *5*	(41/2)		D	
5338.9+x *5*	(41/2)		D	
5478.7+x *4*	(43/2)		D	
5495.4+x *6*			D	
5554.2+x *6*			D	
5727.2+x[@] *7*	(39/2$^-$)		D	
6055.7+x[@] *7*	(41/2$^-$)		D	

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Adopted Levels, Gammas (continued)

^{199}Pb Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[#]	XREF	Comments
6290.3+x[@] *8*	(43/2⁻)	0.26 ps *+35−20*	D	
6530.4+x[@] *8*	(45/2⁻)	0.21 ps *+21−17*	D	
6804.2+x[@] *9*	(47/2⁻)	0.118 ps *+42−28*	D	
6986.7+x *6*			D	
7120.5+x[@] *9*	(49/2⁻)	0.090 ps *+28−21*	D	
7483.7+x[@] *9*	(51/2⁻)	0.139 ps *35*	D	
7895.1+x[@] *9*	(53/2⁻)	0.111 ps *+35−28*	D	
8354.5+x[@] *9*	(55/2⁻)	0.104 ps *+35−28*	D	
8862.8+x[@] *9*	(57/2⁻)	0.146 ps *+42−35*	D	
9417.5+x[@] *9*	(59/2⁻)		D	
10022.4+x[@] *9*	(61/2⁻)		D	
10659.5+x[@] *9*	(63/2⁻)		D	
y[&]	(35/2⁺)		D	E(level): y>4784+x since the level decays to triplet of states at 4775+x, 4776+x and 4784+x.
98.2+y[&] *3*	(37/2⁺)		D	
223.2+y[&] *4*	(39/2⁺)		D	
388.8+y[&] *5*	(41/2⁺)		D	
589.2+y[a] *4*	(39/2⁺)		D	
603.3+y[&] *5*	(43/2⁺)		D	
726.8+y[a] *5*	(41/2⁺)		D	
871.1+y[&] *6*	(45/2⁺)		D	
891.4+y[a] *5*	(43/2⁺)		D	
1099.8+y[a] *5*	(45/2⁺)		D	
1194.2+y[&] *6*	(47/2⁺)	0.13 ps *+10−6*	D	
1370.7+y[a] *6*	(47/2⁺)		D	
1571.2+y[&] *6*	(49/2⁺)	0.097 ps *+42−28*	D	
1712.7+y[a] *6*	(49/2⁺)		D	
2001.4+y[&] *6*	(51/2⁺)	0.146 ps *+28−21*	D	
2129.8+y[a] *6*	(51/2⁺)		D	
2483.5+y[&] *7*	(53/2⁺)	0.111 ps *+35−21*	D	
2612.6+y[a] *6*	(53/2⁺)		D	
3015.5+y[&] *7*	(55/2⁺)	0.090 ps *+28−21*	D	
3149.4+y[a] *7*	(55/2⁺)		D	
3164.8+y *7*			D	
3589.1+y[&] *7*	(57/2⁺)	0.097 ps *+21−14*	D	
3608.4+y *7*	(57/2⁺)		D	
3734.6+y[a] *8*	(57/2⁺)		D	
3967.6+y *8*	(59/2⁺)		D	
4197.5+y *7*	(59/2⁺)		D	
4207.5+y[&] *7*	(59/2⁺)		D	
4546.7+y[&] *7*	(61/2⁺)		D	
4932.6+y[&] *8*	(63/2⁺)		D	
5353.6+y[&] *8*	(65/2⁺)		D	
5807.0+y[&] *9*	(67/2⁺)		D	
6303.5+y[&] *9*	(69/2⁺)		D	
6846.0+y[&] *10*	(71/2⁺)		D	

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Adopted Levels, Gammas (continued)

^{199}Pb Levels (continued)

E(level)[†]	Jπ[‡]	XREF	Comments
7433.7+y[&] *10*	(73/2$^+$)	D	
z[b]	J≈(37/2)	D	E(level): z>5135+x, since the level decays into states between 4234+x and 5135+x. Jπ: possibly 37/2, since the bandhead feeds levels near 33/2.
97.7+z[b] *3*	J+1	D	
232.9+z[b] *5*	J+2	D	
426.1+z[b] *6*	J+3	D	
673.5+z[b] *6*	J+4	D	
967.5+z[b] *6*	J+5	D	
1349.7+z[b] *6*	J+6	D	
1743.8+z[b] *6*	J+7	D	
2227.4+z[b] *7*	J+8	D	
2738.0+z[b] *7*	J+9	D	
3256.8+z[b] *7*	J+10	D	
3595.0+z[b] *8*	J+11	D	
u[c]	J1≈(45/2)	D	E(level): u>4149+x, since the level decays into states between 3216+x and 4149+x. Jπ: possibly 45/2, since the bandhead feeds levels near 41/2.
242.9+u[c] *3*	J1+1	D	
550.3+u[c] *4*	J1+2	D	
863.3+u[c] *4*	J1+3	D	
1247.9+u[c] *5*	J1+4	D	
1662.0+u[c] *5*	J1+5	D	
2149.2+u[c] *5*	J1+6	D	
2620.9+u[c] *6*	J1+7	D	
v		D	E(level): v>5484+x from possible decay to 5484+x.
602.6+v *3*		D	
938.8+v *4*		D	
1088.6+v *4*		D	
1336.1+v *3*		D	
1795.8+v *5*		D	
1813.0+v *5*		D	
2157.2+v *5*		D	
2171.5+v *5*		D	

[†] From least-squares fit to Eγ's. The levels from ^{199}Bi decay seem somewhat tentative in nature.

[‡] From γγ, γγ(θ)(DCO), ce in (^{18}O,5nγ), γ(θ) in (α,3nγ), and associated band structures. It is assumed that J(initial)≥J(final) for observed transitions. All spin assignments are placed in parentheses (by evaluator) since the assignment for the 424.8+x is based on model arguments, rather than on measurement by direct methods. For tentative levels populated in ^{199}Bi ε decay the assignments are based on multipolarities of transitions deduced from conversion electron data and from possible ε feeding from 9/2$^-$ g.s. of ^{199}Bi.

[#] From (^{18}O,5nγ), unless otherwise stated. Methods used are: γ(t) and/or ce(t) in the nanosecond region and Doppler-shift attenuation method in the picosecond region.

[@] Band(A): Magnetic-dipole rotational band #1. Band based on 25/2$^-$. Configuration=$\pi(h_{9/2}i_{13/2})\ \nu(i_{13/2})^{-1}$ below the band crossing and $\pi(h_{9/2}i_{13/2})\nu(i_{13/2})^{-3}$ above the crossing near 41/2.

[&] Band(B): Magnetic-dipole rotational band #2. Band based on 35/2$^+$. Configuration=$\pi(h_{9/2}i_{13/2})\nu(i^{-2}_{13/2}\ f^{-1}_{5/2})$ below the band crossing and $\pi(h_{9/2}i_{13/2})\ \nu(i^{-4}_{13/2}f^{-1}_{5/2})$ above the crossing near 61/2.

[a] Band(C): Magnetic-dipole rotational band #3. Band based on 39/2$^+$. Configuration=$\pi(h_{9/2}i_{13/2})\nu(i^{-2}_{13/2}\ f^{-1}_{5/2})$.

[b] Band(D): Magnetic-dipole rotational band #4. Band probably based on 37/2. Tentative configuration=$\pi(h_{9/2})^2\ \nu i^{-3}_{13/2}$.

[c] Band(E): Magnetic-dipole rotational band #5. Band probably based on 45/2. Tentative configuration=$\pi(h_{9/2})^2\ \nu(i^{-4}_{13/2}p^{-1}_{3/2})$.

Adopted Levels, Gammas (continued)

$\gamma(^{199}Pb)$

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[#]	Comments
0+x	(5/2$^-$)	(x)		0	3/2$^-$			E_γ: x<9.3 from ^{199}Pb IT decay (1962Ju05,1957An53).
424.8+x	(13/2$^+$)	424.8 *2*	100	0+x	(5/2$^-$)	M4	4.0	α(K)=2.42; α(L)=1.24; α(M)=0.334; α(N+..)=0.112 B(M4)(W.u.)<3.2 Additional information 2.
945.9+x	(7/2$^-$,9/2$^-$)	926.4[@] *5*	49 *3*	19.1+x?	($^-$)	M1+E2	0.015 *7*	α(K)=0.012 *6*; α(L)=0.0022 *18*
		946.0 *5*	100 *5*	0+x	(5/2$^-$)	E2	0.0075	α(K)=0.00593; α(L)=0.00119
1022.7+x	(7/2$^-$,9/2$^-$)	1022.8 *5*	100	0+x	(5/2$^-$)	M1,E2	0.012 *6*	
1052.8+x	(7/2$^-$,9/2$^-$)	1034.0[@] *5*	79 *5*	19.1+x?	($^-$)	E2,M1		
		1052.8 *5*	100 *6*	0+x	(5/2$^-$)	E2,M1		
1262.2+x	(11/2$^+$)	837.4 *5*	100	424.8+x	(13/2$^+$)	E2+M1	0.0096	α(K)=0.00747; α(L)=0.00159
1266.5+x	(11/2$^+$)	841.7 *5*	100	424.8+x	(13/2$^+$)	E2+M1	0.0095	α(K)=0.00739; α(L)=0.00157
1305.6+x	(7/2$^-$,9/2$^-$)	253.3 *7*	2.8 *3*	1052.8+x	(7/2$^-$,9/2$^-$)	M1+E2	0.707	α(K)=0.577; α(L)=0.0992; α(M)=0.0233; α(N+..)=0.0075
		1305.6 *5*	100 *5*	0+x	(5/2$^-$)	M1+E2	0.007 *3*	
1337.1+x	(7/2$^-$,9/2$^-$,11/2$^-$)	284.3 *7*	62 *6*	1052.8+x	(7/2$^-$,9/2$^-$)	M1+E2	0.515	α(K)=0.420; α(L)=0.0720; α(M)=0.0169; α(N+..)=0.00547
		391.3 *7*	100 *10*	945.9+x	(7/2$^-$,9/2$^-$)			
1351.4+x	(13/2$^+$)	926.6 *3*	100	424.8+x	(13/2$^+$)	D+Q		
1402.5+x	(17/2$^+$)	977.7 *2*	100	424.8+x	(13/2$^+$)	E2	0.00704	α(K)=0.00558; α(L)=0.00110
1437.5+x	(15/2$^+$)	1012.8 *3*	100	424.8+x	(13/2$^+$)	E2(+M1)		α(K)=0.010 *5*; α(L)=0.0017 *8*
1505.8+x	(7/2$^-$,9/2$^-$)	483.3[@] *7*	10.0 *10*	1022.7+x	(7/2$^-$,9/2$^-$)			
		560.1[@] *7*	4.8 *4*	945.9+x	(7/2$^-$,9/2$^-$)	M1+E2	0.084	α(K)=0.0685; α(L)=0.0115
		1505.9 *5*	100 *6*	0+x	(5/2$^-$)			
1677.8+x		1253.1 *4*	100	424.8+x	(13/2$^+$)			
1743.1+x	(9/2$^-$,11/2$^-$)	237.9[@] *7*	17 *2*	1505.8+x	(7/2$^-$,9/2$^-$)	M1+E2	0.5 *3*	α(K)=0.4 *3*; α(L)=0.107 *11*; α(M)=0.0262 *15*; α(N+..)=0.0085 *5*
		480.4 *7*	30 *3*	1262.2+x	(11/2$^+$)			
		720.3 *5*	100 *5*	1022.7+x	(7/2$^-$,9/2$^-$)			
		797.0 *7*	25 *3*	945.9+x	(7/2$^-$,9/2$^-$)			
1799.6+x	(9/2$^-$)	294.0 *7*	76 *8*	1505.8+x	(7/2$^-$,9/2$^-$)	M1	0.470	α(K)=0.383; α(L)=0.0657; α(M)=0.0154; α(N+..)=0.00498
		462.6[@] *7*	52 *5*	1337.1+x	(7/2$^-$,9/2$^-$,11/2$^-$)	E2+M1	0.0359	α(K)=0.0247; α(L)=0.00841; α(M)=0.00210; α(N+..)=0.00068
		533.1 *5*	100 *5*	1266.5+x	(11/2$^+$)			Mult.: M1+E2 from α(K)exp=0.055 *32* inconsistent with negative parity of 1799.9+x level as suggested by mult of 294.0γ and 462.6γ.
		1374.3[@] *7*	60 *6*	424.8+x	(13/2$^+$)			
		1780.8[@] *7*	83 *9*	19.1+x?	($^-$)			
		1799.0[@] *7*	42 *4*	0+x	(5/2$^-$)			
1803.3+x	(17/2$^+$)	400.8 *4*	43 *23*	1402.5+x	(17/2$^+$)			

Adopted Levels, Gammas (continued)

γ(^{199}Pb) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ	α[#]	Comments
1803.3+x	(17/2$^+$)	451.9 *3*	26 *7*	1351.4+x	(13/2$^+$)				
		1378.5 *3*	100 *17*	424.8+x	(13/2$^+$)	Q			
1826.0+x	(19/2$^+$)	22.7 *3*	0.21	1803.3+x	(17/2$^+$)	[M1]		134	B(M1)(W.u.)>0.0011
		148.2[@] *4*		1677.8+x					
		388.5 *2*	36 *6*	1437.5+x	(15/2$^+$)	E2		0.0563	α(K)=0.0362; α(L)=0.0150; α(M)=0.00380; α(N+..)=0.00122 B(E2)(W.u.)>0.094
		423.4 *2*	100 *14*	1402.5+x	(17/2$^+$)	M1+E2	−1.0 *4*	0.11 *3*	α(K)=0.09 *3*; α(L)=0.018 *3*; α(M)=0.0043 *7*; α(N+..)=0.00138 *23* B(M1)(W.u.)>2.4×10^{-5}; B(E2)(W.u.)>0.050 δ: from (α,3nγ).
1842.1+x	(21/2$^+$)	439.5 *2*	100	1402.5+x	(17/2$^+$)	E2		0.0408	α(K)=0.0276; α(L)=0.0099; α(M)=0.00249; α(N+..)=0.00080
1904.8+x	(17/2$^+$)	502.2	100 *33*	1402.5+x	(17/2$^+$)	D			
		553.4	71 *24*	1351.4+x	(13/2$^+$)	Q			
		1480.1	14 *5*	424.8+x	(13/2$^+$)				
1971.8+x	(19/2$^+$)	129.7 *2*	90 *15*	1842.1+x	(21/2$^+$)	M1		4.64	α(K)=3.78; α(L)=0.656; α(M)=0.154; α(N+..)=0.0508
		569.4 *3*	100 *20*	1402.5+x	(17/2$^+$)	M1+E2			α(K)=0.041 *25*; α(L)=0.008 *4*
2068.9+x	(11/2$^-$)	563.2[@] *7*	18 *2*	1505.8+x	(7/2$^-$,9/2$^-$)	M1,E2		0.0826	α(K)=0.0676; α(L)=0.00113
		802.1 *7*	68 *7*	1266.5+x	(11/2$^+$)				
		806.4 *7*	100 *10*	1262.2+x	(11/2$^+$)				
		1643.8 *7*	64 *7*	424.8+x	(13/2$^+$)				
2082.1+x	(21/2$^+$)	239.9 *2*	100	1842.1+x	(21/2$^+$)	M1(+E2)		0.5 *3*	α(K)=0.4 *3*; α(L)=0.104 *12*; α(M)=0.0255 *16*; α(N+..)=0.0082 *6*
2083.1+x	(11/2$^-$)	820.5[@] *7*	5.6 *6*	1262.2+x	(11/2$^+$)				
		1137.0 *5*	100 *6*	945.9+x	(7/2$^-$,9/2$^-$)	M1,E2		0.009 *4*	
		1658.3[@] *7*	5.6 *6*	424.8+x	(13/2$^+$)				
2108.4+x	(11/2$^-$)	1085.8[@] *7*	30 *4*	1022.7+x	(7/2$^-$,9/2$^-$)				
		1162.4 *7*	100 *10*	945.9+x	(7/2$^-$,9/2$^-$)				
		1683.2[@] *7*	32 *3*	424.8+x	(13/2$^+$)				
2127.5+x	(21/2$^-$)	155.7 *2*	11.2 *11*	1971.8+x	(19/2$^+$)	E1		0.147	α(K)=0.118; α(L)=0.0216; α(M)=0.00507; α(N+..)=0.00162 B(E1)(W.u.)=1.32×10^{-6} *16*
		301.4 *2*	100 *6*	1826.0+x	(19/2$^+$)	E1		0.0294	α(K)=0.0240; α(L)=0.00407; α(M)=0.00095; α(N+..)=0.00030 B(E1)(W.u.)=1.63×10^{-6} *15*
2129.4+x	(19/2)	303.4	25 *25*	1826.0+x	(19/2$^+$)				
		727.0	100 *50*	1402.5+x	(17/2$^+$)				
2186.2+x	(7/2$^-$,9/2$^-$,11/2$^-$)	1240.3 *7*	100	945.9+x	(7/2$^-$,9/2$^-$)				

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Adopted Levels, Gammas (continued)

γ(^{199}Pb) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult. ‡	α #	Comments
2306.2+x	(21/2$^+$)	903.8	100	1402.5+x	(17/2$^+$)	Q		
2451.6+x	(23/2$^-$)	324.2 *2*	100	2127.5+x	(21/2$^-$)	M1	0.360	α(K)=0.294; α(L)=0.0502; α(M)=0.0118; α(N+..)=0.00381
2499.9+x	(25/2$^-$)	48.2 *4*	1.1	2451.6+x	(23/2$^-$)	[M1]	15.3	B(M1)(W.u.)=0.00022 *4*
		372.4 *2*	100 *15*	2127.5+x	(21/2$^-$)	E2	0.0631	α(K)=0.0398; α(L)=0.0174; α(M)=0.00441; α(N+..)=0.00142 B(E2)(W.u.)=0.117 *25*
2501.7+x	(21/2$^+$)	596.9	100 *43*	1904.8+x	(17/2$^+$)	Q		
		1099.2	38 *14*	1402.5+x	(17/2$^+$)			
2559.1+x	(29/2$^-$)	59.1 *3*	100	2499.9+x	(25/2$^-$)	E2	72.3	ce(L)/(γ+ce)=0.732; ce(M)/(γ+ce)=0.192; ce(N)/(γ+ce)=0.0616 B(E2)(W.u.)=0.0154 *7*
2560.2+x	(25/2)	108.7	100	2451.6+x	(23/2$^-$)	D		
2571.1+x	(27/2$^-$)	11.8 *3*	<0.5	2559.1+x	(29/2$^-$)	[D]	92 *86*	
		70.9 *3*	100 *17*	2499.9+x	(25/2$^-$)	M1	4.94	ce(L)/(γ+ce)=0.634; ce(M)/(γ+ce)=0.149; ce(N)/(γ+ce)=0.0486
2748.0+x	(25/2$^+$)	905.9	100	1842.1+x	(21/2$^+$)	Q		
2841.2+x	(25/2)	389.5	64 *32*	2451.6+x	(23/2$^-$)			
		713.8	100 *24*	2127.5+x	(21/2$^-$)	Q		
2921.1+x	(21/2$^+$)	419.4	63 *54*	2501.7+x	(21/2$^+$)			
		614.9	100 *30*	2306.2+x	(21/2$^+$)	D		
		791.7	20 *9*	2129.4+x	(19/2)	D		
		838.7	15 *9*	2082.1+x	(21/2$^+$)			
		1016.3	59 *24*	1904.8+x	(17/2$^+$)			
		1079.0	24 *9*	1842.1+x	(21/2$^+$)	D		
		1095.1	48 *13*	1826.0+x	(19/2$^+$)	D		
		1117.7	46 *13*	1803.3+x	(17/2$^+$)	Q		
2982.9+x	(25/2$^+$)	676.9	100 *29*	2306.2+x	(21/2$^+$)	Q		
		1140.8	29 *7*	1842.1+x	(21/2$^+$)			
2984.2+x	(23/2$^+$)	63.1	100	2921.1+x	(21/2$^+$)	M1	6.95	α(L)=5.30; α(M)=1.24; α(N+..)=0.407
3134.1+x	(25/2$^+$)	150.0	100 *39*	2984.2+x	(23/2$^+$)	M1	3.07	α(K)=2.50; α(L)=0.433; α(M)=0.101; α(N+..)=0.0335 Mult.: from DCO ratio and intensity balance.
		828.0	29 *15*	2306.2+x	(21/2$^+$)			
3210.3+x	(29/2)	369.2 *4*	55 *27*	2841.2+x	(25/2)			
		639.1	27 *7*	2571.1+x	(27/2$^-$)			
		651.2	100 *16*	2559.1+x	(29/2$^-$)			
		710.5	13 *4*	2499.9+x	(25/2$^-$)			
3359.0+x	(29/2)	787.8	100 *23*	2571.1+x	(27/2$^-$)	D		
		799.0	58 *15*	2560.2+x	(25/2)			
3386.2+x	(27/2$^+$)	252.0	100	3134.1+x	(25/2$^+$)	M1	0.717	α(K)=0.585; α(L)=0.101; α(M)=0.0236; α(N+..)=0.00765
3401.3+x	(29/2$^+$)	830.2 *2*	100 *22*	2571.1+x	(27/2$^-$)	E1	0.00353	α(K)=0.00293; α(L)=0.00045
		842.0 *4*	17 *5*	2559.1+x	(29/2$^-$)	(E1)	0.00344	α(K)=0.00286; α(L)=0.00044
3490.1+x	(33/2$^+$)	88.7 *2*	100	3401.3+x	(29/2$^+$)	E2	10.5	B(E2)(W.u.)=2.06 *15*
3530.0+x	(33/2)	970.9	100	2559.1+x	(29/2$^-$)	Q		
3584.9+x	(25/2$^-$)	450.8	27 *7*	3134.1+x	(25/2$^+$)	D		
		600.7	100 *20*	2984.2+x	(23/2$^+$)	D		

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Adopted Levels, Gammas (continued)

$\gamma(^{199}Pb)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[#]	Comments
3603.7+x		469.6	100	3134.1+x	$(25/2^+)$			
3657.5+x	$(29/2^+)$	271.3	90 *52*	3386.2+x	$(27/2^+)$	D		
		674.6	100 *29*	2982.9+x	$(25/2^+)$	Q		
		909.5	33 *14*	2748.0+x	$(25/2^+)$	Q		
3674.8+x	$(27/2^-)$	89.9	100	3584.9+x	$(25/2^-)$	M1	13.3	ce(K)/(γ+ce)=0.757; ce(L)/(γ+ce)=0.132; ce(M)/(γ+ce)=0.0309; ce(N)/(γ+ce)=0.0102
3742.6+x		212.7	100	3530.0+x	(33/2)			
3745.7+x	$(29/2^+)$	359.5	100 *28*	3386.2+x	$(27/2^+)$	D		
		762.8	86 *31*	2982.9+x	$(25/2^+)$			
		997.6	21 *14*	2748.0+x	$(25/2^+)$			
3791.9+x	(33/2)	432.8	22 *8*	3359.0+x	(29/2)	Q		
		581.6	100 *16*	3210.3+x	(29/2)	Q		
		1232.8	9 *3*	2559.1+x	$(29/2^-)$			
3848.7+x	$(29/2^-)$	173.9	100	3674.8+x	$(27/2^-)$	M1	2.02	ce(K)/(γ+ce)=0.546; ce(L)/(γ+ce)=0.094; ce(M)/(γ+ce)=0.0221; ce(N)/(γ+ce)=0.00725
3850.9+x	(31/2)	1291.8	100	2559.1+x	$(29/2^-)$			
3859.3+x		369.2	100	3490.1+x	$(33/2^+)$			
3876.5+x	(33/2)	517.6	38 *15*	3359.0+x	(29/2)	Q		
		666.1	100 *50*	3210.3+x	(29/2)			
3966.7+x		224.1	100	3742.6+x				
4006.3+x	$(29/2^+)$	620.1	100	3386.2+x	$(27/2^+)$	D		
4086.0+x	$(31/2^+)$	340.4	64 *36*	3745.7+x	$(29/2^+)$	D		
		428.5	100 *29*	3657.5+x	$(29/2^+)$	D		
		699.9	7 *7*	3386.2+x	$(27/2^+)$			
4108.1+x		617.9	100	3490.1+x	$(33/2^+)$			
4124.1+x	$(31/2^-)$	275.4	100	3848.7+x	$(29/2^-)$	M1	0.562	ce(K)/(γ+ce)=0.294; ce(L)/(γ+ce)=0.0504; ce(M)/(γ+ce)=0.0118; ce(N)/(γ+ce)=0.00383
4143.3+x		932.9	100	3210.3+x	(29/2)			
4228.3+x	(35/2)	738.2	100	3490.1+x	$(33/2^+)$	D		
4257.5+x	$(37/2^+)$	767.3 *4*	100	3490.1+x	$(33/2^+)$	Q		
4292.6+x		1733.5	100	2559.1+x	$(29/2^-)$			
4339.4+x	(37/2)	809.4	100	3530.0+x	(33/2)	Q		
4348.8+x	(31/2)	342.4	100 *55*	4006.3+x	$(29/2^+)$	D		
		1789.7	30 *15*	2559.1+x	$(29/2^-)$			
4363.6+x	(31/2)	357.3	67 *33*	4006.3+x	$(29/2^+)$			
		1804.3	100 *44*	2559.1+x	$(29/2^-)$			
4367.6+x	(37/2)	110.3	29 *8*	4257.5+x	$(37/2^+)$			
		139.4	10 *6*	4228.3+x	(35/2)			
		877.4	100 *18*	3490.1+x	$(33/2^+)$			
4474.7+x	$(41/2^+)$	217.2 *3*	100	4257.5+x	$(37/2^+)$	(E2)	0.30	B(E2)(W.u.)=0.12 *5*
4483.5+x	$(33/2^-)$	359.4	100 *11*	4124.1+x	$(31/2^-)$	(M1)	0.272	ce(K)/(γ+ce)=0.175; ce(L)/(γ+ce)=0.0298; ce(M)/(γ+ce)=0.00698; ce(N)/(γ+ce)=0.00226

$^{199}_{82}Pb_{117}$-9

Adopted Levels, Gammas (continued)

γ(^{199}Pb) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[#]	Comments
4483.5+x	(33/2$^-$)	634.8	2.5 *7*	3848.7+x	(29/2$^-$)	[E2]	0.0171	ce(K)/(γ+ce)=0.0126; ce(L)/(γ+ce)=0.00322
4543.3+x	(37/2)	666.8	100 *50*	3876.5+x	(33/2)			
		751.4	95 *15*	3791.9+x	(33/2)	Q		
		1013.4	48 *28*	3530.0+x	(33/2)	Q		
4769.0+x	(33/2$^+$)	660.8	100 *31*	4108.1+x				
		1278.9	56 *13*	3490.1+x	(33/2$^+$)			
		1367.7	19 *13*	3401.3+x	(29/2$^+$)			
4770.0+x	(33/2$^+$)	406.3	48 *13*	4363.6+x	(31/2)	D		
		421.2	100 *23*	4348.8+x	(31/2)	D		
		477.3	19 *6*	4292.6+x				
		684.0	52 *13*	4086.0+x	(31/2$^+$)	D		
		763.8	1.9 *19*	4006.3+x	(29/2$^+$)			
		1112.5	13 *6*	3657.5+x	(29/2$^+$)			
4777.2+x	(41/2)	302.5	100 *24*	4474.7+x	(41/2$^+$)	D		
		519.7	16 *8*	4257.5+x	(37/2$^+$)			
4778.6+x		486.0	75 *25*	4292.6+x				
		670.4	56 *25*	4108.1+x				
		919.3	81 *25*	3859.3+x				
		927.7	100 *44*	3850.9+x	(31/2)			
4884.8+x	(35/2$^-$)	401.3	100 *15*	4483.5+x	(33/2$^-$)	(M1)	0.203	ce(K)/(γ+ce)=0.138; ce(L)/(γ+ce)=0.0234; ce(M)/(γ+ce)=0.00547; ce(N)/(γ+ce)=0.00177
		760.8	11.8 *26*	4124.1+x	(31/2$^-$)	(E2)	0.0117	ce(K)/(γ+ce)=0.0089; ce(L)/(γ+ce)=0.00200
5067.1+x	(41/2)	289.8	65 *26*	4777.2+x	(41/2)			
		592.3	100 *22*	4474.7+x	(41/2$^+$)			
5129.4+x	(41/2)	352.1	24 *6*	4777.2+x	(41/2)	D		
		654.6	51 *11*	4474.7+x	(41/2$^+$)	D		
		761.8	100 *19*	4367.6+x	(37/2)	Q		
		872.0	16 *6*	4257.5+x	(37/2$^+$)			
5222.6+x	(41/2)	748.1	100	4474.7+x	(41/2$^+$)			
		965.0	100	4257.5+x	(37/2$^+$)			
5282.4+x	(43/2)	807.8	100	4474.7+x	(41/2$^+$)	D		
5305.6+x	(37/2$^-$)	420.7	100 *15*	4884.8+x	(35/2$^-$)	(M1)	0.179	ce(K)/(γ+ce)=0.124; ce(L)/(γ+ce)=0.0210; ce(M)/(γ+ce)=0.00491; ce(N)/(γ+ce)=0.00160
		822.1	16 *4*	4483.5+x	(33/2$^-$)	(E2)	0.0099	ce(K)/(γ+ce)=0.00766; ce(L)/(γ+ce)=0.00165
5314.9+x	(41/2)	771.7	100 *16*	4543.3+x	(37/2)	Q		
		975.6	33 *8*	4339.4+x	(37/2)			
5338.9+x	(41/2)	795.6	100	4543.3+x	(37/2)	Q		
5478.7+x	(43/2)	139.9	16 *4*	5338.9+x	(41/2)	D		
		163.8	21 *5*	5314.9+x	(41/2)	D		
		196.3	13 *7*	5282.4+x	(43/2)			
		256.1	12 *4*	5222.6+x	(41/2)			
		349.3	100 *15*	5129.4+x	(41/2)	D		

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Adopted Levels, Gammas (continued)

$\gamma(^{199}Pb)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[#]	Comments
5478.7+x	(43/2)	411.5	53 *21*	5067.1+x	(41/2)	D		
		701.5	34 *6*	4777.2+x	(41/2)	D		
		1004.1	18 *4*	4474.7+x	(41/2$^+$)	D		
		1512.0	23 *4*	3966.7+x				
5495.4+x		180.5	100	5314.9+x	(41/2)			
5554.2+x		1079.5	100	4474.7+x	(41/2$^+$)			
5727.2+x	(39/2$^-$)	421.5	100 *15*	5305.6+x	(37/2$^-$)	(M1)	0.178	ce(K)/(γ+ce)=0.124; ce(L)/(γ+ce)=0.0209; ce(M)/(γ+ce)=0.00489; ce(N)/(γ+ce)=0.00159
		842.4	20 *5*	4884.8+x	(35/2$^-$)	Q		
6055.7+x	(41/2$^-$)	328.6	100 *13*	5727.2+x	(39/2$^-$)	(M1)	0.347	ce(K)/(γ+ce)=0.211; ce(L)/(γ+ce)=0.0359; ce(M)/(γ+ce)=0.0084; ce(N)/(γ+ce)=0.00272
		750.1	12 *3*	5305.6+x	(37/2$^-$)	Q		
6290.3+x	(43/2$^-$)	234.6	100	6055.7+x	(41/2$^-$)	(M1)	0.87	ce(K)/(γ+ce)=0.381; ce(L)/(γ+ce)=0.0656; ce(M)/(γ+ce)=0.0154; ce(N)/(γ+ce)=0.00499 B(M1)(W.u.)=4 *+4−3*
6530.4+x	(45/2$^-$)	240.1	100	6290.3+x	(43/2$^-$)	(M1)	0.820	ce(K)/(γ+ce)=0.368; ce(L)/(γ+ce)=0.0633; ce(M)/(γ+ce)=0.0148; ce(N)/(γ+ce)=0.00482 B(M1)(W.u.)=4 *+4−3*
6804.2+x	(47/2$^-$)	273.8	100	6530.4+x	(45/2$^-$)	(M1)	0.571	ce(K)/(γ+ce)=0.297; ce(L)/(γ+ce)=0.0509; ce(M)/(γ+ce)=0.0119; ce(N)/(γ+ce)=0.00387 B(M1)(W.u.)=5.8 *21*
6986.7+x		1432.5	100	5554.2+x				
7120.5+x	(49/2$^-$)	316.3	100 *13*	6804.2+x	(47/2$^-$)	(M1)	0.385	ce(K)/(γ+ce)=0.227; ce(L)/(γ+ce)=0.0388; ce(M)/(γ+ce)=0.0091; ce(N)/(γ+ce)=0.00294 B(M1)(W.u.)=5.4 *20*
		590.1	4.3 *13*	6530.4+x	(45/2$^-$)	[E2]	0.0201	ce(K)/(γ+ce)=0.0145; ce(L)/(γ+ce)=0.00394 B(E2)(W.u.)=38 *18*
7483.7+x	(51/2$^-$)	363.1	100 *16*	7120.5+x	(49/2$^-$)	(M1)	0.265	ce(K)/(γ+ce)=0.171; ce(L)/(γ+ce)=0.0292; ce(M)/(γ+ce)=0.00682; ce(N)/(γ+ce)=0.00221 B(M1)(W.u.)=2.5 *9*
		679.5	8 *3*	6804.2+x	(47/2$^-$)	[E2]	0.0148	ce(K)/(γ+ce)=0.0110; ce(L)/(γ+ce)=0.00268 B(E2)(W.u.)=24 *12*
7895.1+x	(53/2$^-$)	411.3	100 *18*	7483.7+x	(51/2$^-$)	(M1)	0.190	ce(K)/(γ+ce)=0.131; ce(L)/(γ+ce)=0.0221; ce(M)/(γ+ce)=0.00517; ce(N)/(γ+ce)=0.00168 B(M1)(W.u.)=2.2 *9*
		774.6	11 *4*	7120.5+x	(49/2$^-$)	[E2]	0.0112	ce(K)/(γ+ce)=0.0086; ce(L)/(γ+ce)=0.00191 B(E2)(W.u.)=22 *12*
8354.5+x	(55/2$^-$)	459.3	100 *23*	7895.1+x	(53/2$^-$)	(M1)	0.141	ce(K)/(γ+ce)=0.101; ce(L)/(γ+ce)=0.0171; ce(M)/(γ+ce)=0.00400; ce(N)/(γ+ce)=0.00130 B(M1)(W.u.)=1.8 *9*
		870.9	10 *5*	7483.7+x	(51/2$^-$)	[E2]	0.0089	ce(K)/(γ+ce)=0.00687; ce(L)/(γ+ce)=0.00143 B(E2)(W.u.)=13 *9*

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Adopted Levels, Gammas (continued)

$\gamma(^{199}Pb)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[#]	Comments
8862.8+x	(57/2$^-$)	508.3	100 *25*	8354.5+x	(55/2$^-$)	(M1)	0.108	ce(K)/(γ+ce)=0.0799; ce(L)/(γ+ce)=0.0134 B(M1)(W.u.)=0.9 *4*
		967.7	22 *8*	7895.1+x	(53/2$^-$)	[E2]	0.00718	ce(K)/(γ+ce)=0.00564; ce(L)/(γ+ce)=0.00112 B(E2)(W.u.)=11 *6*
9417.5+x	(59/2$^-$)	554.8		8862.8+x	(57/2$^-$)			
		1063.0[@]		8354.5+x	(55/2$^-$)			
10022.4+x	(61/2$^-$)	604.7		9417.5+x	(59/2$^-$)			
		1159.6		8862.8+x	(57/2$^-$)			
10659.5+x	(63/2$^-$)	636.9		10022.4+x	(61/2$^-$)			
		1242.1		9417.5+x	(59/2$^-$)			
98.2+y	(37/2$^+$)	98.2	100	y	(35/2$^+$)	[M1]	10.3	ce(K)/(γ+ce)=0.742; ce(L)/(γ+ce)=0.129; ce(M)/(γ+ce)=0.0303; ce(N)/(γ+ce)=0.0100
223.2+y	(39/2$^+$)	125.0	100	98.2+y	(37/2$^+$)	(M1)	5.16	ce(K)/(γ+ce)=0.683; ce(L)/(γ+ce)=0.118; ce(M)/(γ+ce)=0.0277; ce(N)/(γ+ce)=0.0092
388.8+y	(41/2$^+$)	165.6	100	223.2+y	(39/2$^+$)	(M1)	2.32	ce(K)/(γ+ce)=0.570; ce(L)/(γ+ce)=0.098; ce(M)/(γ+ce)=0.0231; ce(N)/(γ+ce)=0.00759
589.2+y	(39/2$^+$)	491.0	100	98.2+y	(37/2$^+$)			
603.3+y	(43/2$^+$)	214.6	100	388.8+y	(41/2$^+$)	(M1)	1.12	ce(K)/(γ+ce)=0.431; ce(L)/(γ+ce)=0.0743; ce(M)/(γ+ce)=0.0174; ce(N)/(γ+ce)=0.00567
726.8+y	(41/2$^+$)	137.7	100 *29*	589.2+y	(39/2$^+$)	(M1)	3.91	
		503.7	14 *5*	223.2+y	(39/2$^+$)	D		
871.1+y	(45/2$^+$)	267.8	100	603.3+y	(43/2$^+$)	(M1)	0.606	ce(K)/(γ+ce)=0.308; ce(L)/(γ+ce)=0.0529; ce(M)/(γ+ce)=0.0124; ce(N)/(γ+ce)=0.00402
891.4+y	(43/2$^+$)	164.6	100 *29*	726.8+y	(41/2$^+$)	(M1)	2.36	
		502.6	9.6 *16*	388.8+y	(41/2$^+$)	D		
1099.8+y	(45/2$^+$)	208.3	100 *24*	891.4+y	(43/2$^+$)	(M1)	1.22	
		496.5	4.0 *8*	603.3+y	(43/2$^+$)	D		
1194.2+y	(47/2$^+$)	323.1	100	871.1+y	(45/2$^+$)	(M1)	0.363	ce(K)/(γ+ce)=0.218; ce(L)/(γ+ce)=0.0372; ce(M)/(γ+ce)=0.0087; ce(N)/(γ+ce)=0.00282 B(M1)(W.u.)=4 *3*
1370.7+y	(47/2$^+$)	271.0	100 *19*	1099.8+y	(45/2$^+$)	[M1]	0.59	
		499.6	2.5 *4*	871.1+y	(45/2$^+$)			
1571.2+y	(49/2$^+$)	377.1	100 *15*	1194.2+y	(47/2$^+$)	(M1)	0.239	ce(K)/(γ+ce)=0.158; ce(L)/(γ+ce)=0.0269; ce(M)/(γ+ce)=0.00628; ce(N)/(γ+ce)=0.00204 B(M1)(W.u.)=3.2 *16*
		700.1	6.4 *17*	871.1+y	(45/2$^+$)	[E2]	0.0139	ce(K)/(γ+ce)=0.0104; ce(L)/(γ+ce)=0.00247 B(E2)(W.u.)=25 *13*
1712.7+y	(49/2$^+$)	342.0	100 *8*	1370.7+y	(47/2$^+$)	(M1)	0.311	
		518.5	2.2 *4*	1194.2+y	(47/2$^+$)	D		
2001.4+y	(51/2$^+$)	430.3	100 *15*	1571.2+y	(49/2$^+$)	(M1)	0.168	ce(K)/(γ+ce)=0.118; ce(L)/(γ+ce)=0.0200; ce(M)/(γ+ce)=0.00466; ce(N)/(γ+ce)=0.00152 B(M1)(W.u.)=1.5 *5*

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Adopted Levels, Gammas (continued)

$\gamma(^{199}Pb)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[#]	Comments
2001.4+y	(51/2$^+$)	807.1	7.7 *26*	1194.2+y	(47/2$^+$)	E2	0.0103	ce(K)/(γ+ce)=0.00793; ce(L)/(γ+ce)=0.00172 B(E2)(W.u.)=10 *5*
2129.8+y	(51/2$^+$)	417.0	100 *13*	1712.7+y	(49/2$^+$)	(M1)	0.183	
		558.6	1.3 *3*	1571.2+y	(49/2$^+$)			
2483.5+y	(53/2$^+$)	481.9	100 *18*	2001.4+y	(51/2$^+$)	(M1)	0.124	ce(K)/(γ+ce)=0.091; ce(L)/(γ+ce)=0.0153; ce(M)/(γ+ce)=0.00357; ce(N)/(γ+ce)=0.00117 B(M1)(W.u.)=1.5 *6*
		912.4	7.1 *21*	1571.2+y	(49/2$^+$)	E2	0.00807	ce(K)/(γ+ce)=0.00630; ce(L)/(γ+ce)=0.00128 B(E2)(W.u.)=7 *4*
2612.6+y	(53/2$^+$)	482.7	100 *20*	2129.8+y	(51/2$^+$)	(M1)	0.123	
		900.0	13 *5*	1712.7+y	(49/2$^+$)			
3015.5+y	(55/2$^+$)	532.0	100 *19*	2483.5+y	(53/2$^+$)	(M1)	0.096	ce(K)/(γ+ce)=0.0716; ce(L)/(γ+ce)=0.0120 B(M1)(W.u.)=1.3 *6*
		1014.2	18 *5*	2001.4+y	(51/2$^+$)	E2	0.00655	ce(K)/(γ+ce)=0.00517; ce(L)/(γ+ce)=0.00100 B(E2)(W.u.)=12 *6*
3149.4+y	(55/2$^+$)	536.8	100 *25*	2612.6+y	(53/2$^+$)	(M1)		ce(K)/(γ+ce)=0.0701; ce(L)/(γ+ce)=0.0118
		1019.6		2129.8+y	(51/2$^+$)			
3164.8+y		552.2	100	2612.6+y	(53/2$^+$)			
3589.1+y	(57/2$^+$)	573.6	100 *21*	3015.5+y	(55/2$^+$)	(M1)	0.079	B(M1)(W.u.)=0.9 *4*
		1105.7	21 *6*	2483.5+y	(53/2$^+$)	(E2)	0.00554	ce(K)/(γ+ce)=0.00441; ce(L)/(γ+ce)=0.00083 B(E2)(W.u.)=8 *4*
3608.4+y	(57/2$^+$)	593.1		3015.5+y	(55/2$^+$)			
		1124.6		2483.5+y	(53/2$^+$)			
3734.6+y	(57/2$^+$)	585.2		3149.4+y	(55/2$^+$)			
		1122.0		2612.6+y	(53/2$^+$)			
3967.6+y	(59/2$^+$)	359.2		3608.4+y	(57/2$^+$)			
4197.5+y	(59/2$^+$)	608.5		3589.1+y	(57/2$^+$)			
		1181.8		3015.5+y	(55/2$^+$)			
4207.5+y	(59/2$^+$)	618.2	100 *23*	3589.1+y	(57/2$^+$)	[M1]	0.065	ce(K)/(γ+ce)=0.0497; ce(L)/(γ+ce)=0.00833
		1192.1	16 *4*	3015.5+y	(55/2$^+$)			
4546.7+y	(61/2$^+$)	339.2		4207.5+y	(59/2$^+$)			
		349.3		4197.5+y	(59/2$^+$)			
4932.6+y	(63/2$^+$)	385.9		4546.7+y	(61/2$^+$)			
5353.6+y	(65/2$^+$)	421.0		4932.6+y	(63/2$^+$)			
5807.0+y	(67/2$^+$)	453.4		5353.6+y	(65/2$^+$)			
6303.5+y	(69/2$^+$)	496.5		5807.0+y	(67/2$^+$)			
6846.0+y	(71/2$^+$)	542.5		6303.5+y	(69/2$^+$)			
7433.7+y	(73/2$^+$)	587.7		6846.0+y	(71/2$^+$)			
97.7+z	J+1	97.7	100	z	J≈(37/2)	(M1)	10.1	
232.9+z	J+2	135.2	100	97.7+z	J+1	(M1)	4.12	ce(K)/(γ+ce)=0.656; ce(L)/(γ+ce)=0.114; ce(M)/(γ+ce)=0.0266; ce(N)/(γ+ce)=0.0088

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Adopted Levels, Gammas (continued)

$\gamma(^{199}Pb)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[#]	Comments
426.1+z	J+3	193.2	100	232.9+z	J+2	(M1)	1.50	ce(K)/(γ+ce)=0.489; ce(L)/(γ+ce)=0.085; ce(M)/(γ+ce)=0.0198; ce(N)/(γ+ce)=0.00649
673.5+z	J+4	247.4	100	426.1+z	J+3	(M1)	0.755	ce(K)/(γ+ce)=0.351; ce(L)/(γ+ce)=0.0604; ce(M)/(γ+ce)=0.0141; ce(N)/(γ+ce)=0.00459
967.5+z	J+5	294.1	100 *7*	673.5+z	J+4	(M1)	0.469	ce(K)/(γ+ce)=0.261; ce(L)/(γ+ce)=0.0447; ce(M)/(γ+ce)=0.0105; ce(N)/(γ+ce)=0.00339
		541.4	15 *4*	426.1+z	J+3			
1349.7+z	J+6	382.1	100 *20*	967.5+z	J+5	(M1)	0.231	
		676.2	13 *4*	673.5+z	J+4			
1743.8+z	J+7	394.2	100 *26*	1349.7+z	J+6	(M1)	0.213	
		776.4	36 *9*	967.5+z	J+5			
2227.4+z	J+8	483.5	100 *23*	1743.8+z	J+7	(M1)	0.123	
		877.6	27 *11*	1349.7+z	J+6			
2738.0+z	J+9	510.5	100 *28*	2227.4+z	J+8	(M1)	0.107	
		994.2	24 *9*	1743.8+z	J+7			
3256.8+z	J+10	518.8		2738.0+z	J+9			
		1029.4		2227.4+z	J+8			
3595.0+z	J+11	338.2		3256.8+z	J+10			
242.9+u	J1+1	242.9	100	u	J1≈(45/2)	(M1)		
550.3+u	J1+2	307.3	100	242.9+u	J1+1	(M1)		
863.3+u	J1+3	313.0	100 *16*	550.3+u	J1+2	(M1)	0.396	
		620.5	24 *7*	242.9+u	J1+1			
1247.9+u	J1+4	384.6	100 *20*	863.3+u	J1+3	(M1)	0.227	
		697.6	11 *4*	550.3+u	J1+2			
1662.0+u	J1+5	414.0	100 *23*	1247.9+u	J1+4	(M1)	0.187	
		798.7	23 *6*	863.3+u	J1+3			
2149.2+u	J1+6	487.0	100 *25*	1662.0+u	J1+5	(M1)	0.121	
		901.4	26 *10*	1247.9+u	J1+4			
2620.9+u	J1+7	471.7	100	2149.2+u	J1+6	(M1)		
602.6+v		602.6	100	v				
938.8+v		336.3	100	602.6+v				
1088.6+v		149.8	52 *26*	938.8+v				
		485.9	100 *20*	602.6+v				
1336.1+v		1336.1	100	v				
1795.8+v		1193.2	100	602.6+v				
1813.0+v		724.4	100	1088.6+v				
2157.2+v		1068.6	100	1088.6+v				
2171.5+v		1568.9	100	602.6+v				

[†] Mainly from (^{18}O,5nγ), except for gammas from levels from ^{199}Bi ε decay only.

[‡] Mainly from ce and/or $\gamma\gamma(\theta)$(DCO) data in ^{186}W(^{18}O,5nγ) supplemented by RUL when level lifetimes are available. Many assignments from $\gamma\gamma(\theta)$(DCO) are

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Adopted Levels, Gammas (continued)

$\gamma(^{199}Pb)$ (continued)

given simply in terms of D or Q, when no other supporting data are available. The mult=D or D+Q indicates ΔJ=1 or ΔJ=0 transition, and mult=Q indicates ΔJ=2 transition. Mixed transitions are likely to be M1+E2.

[#] 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.

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

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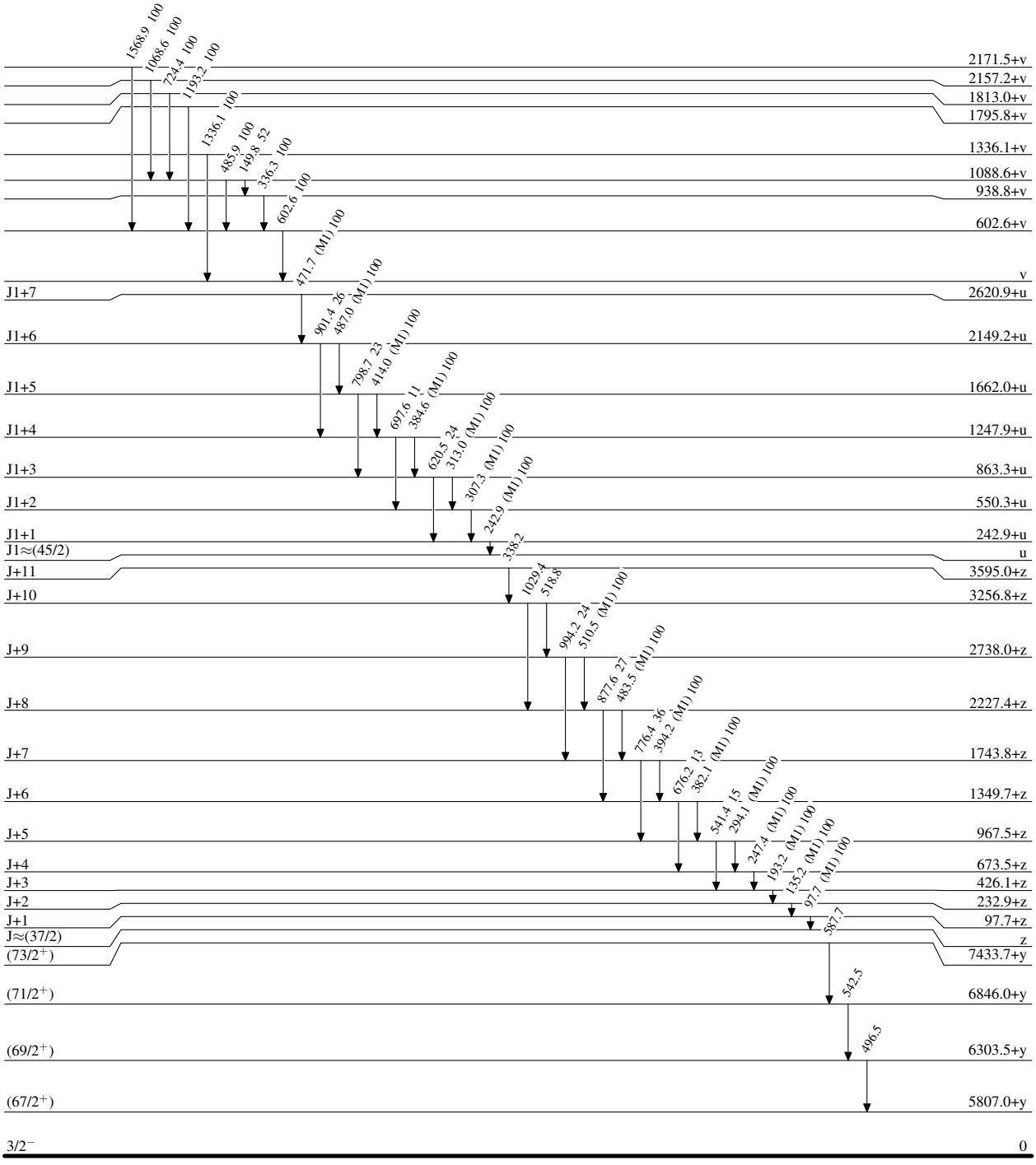
Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level



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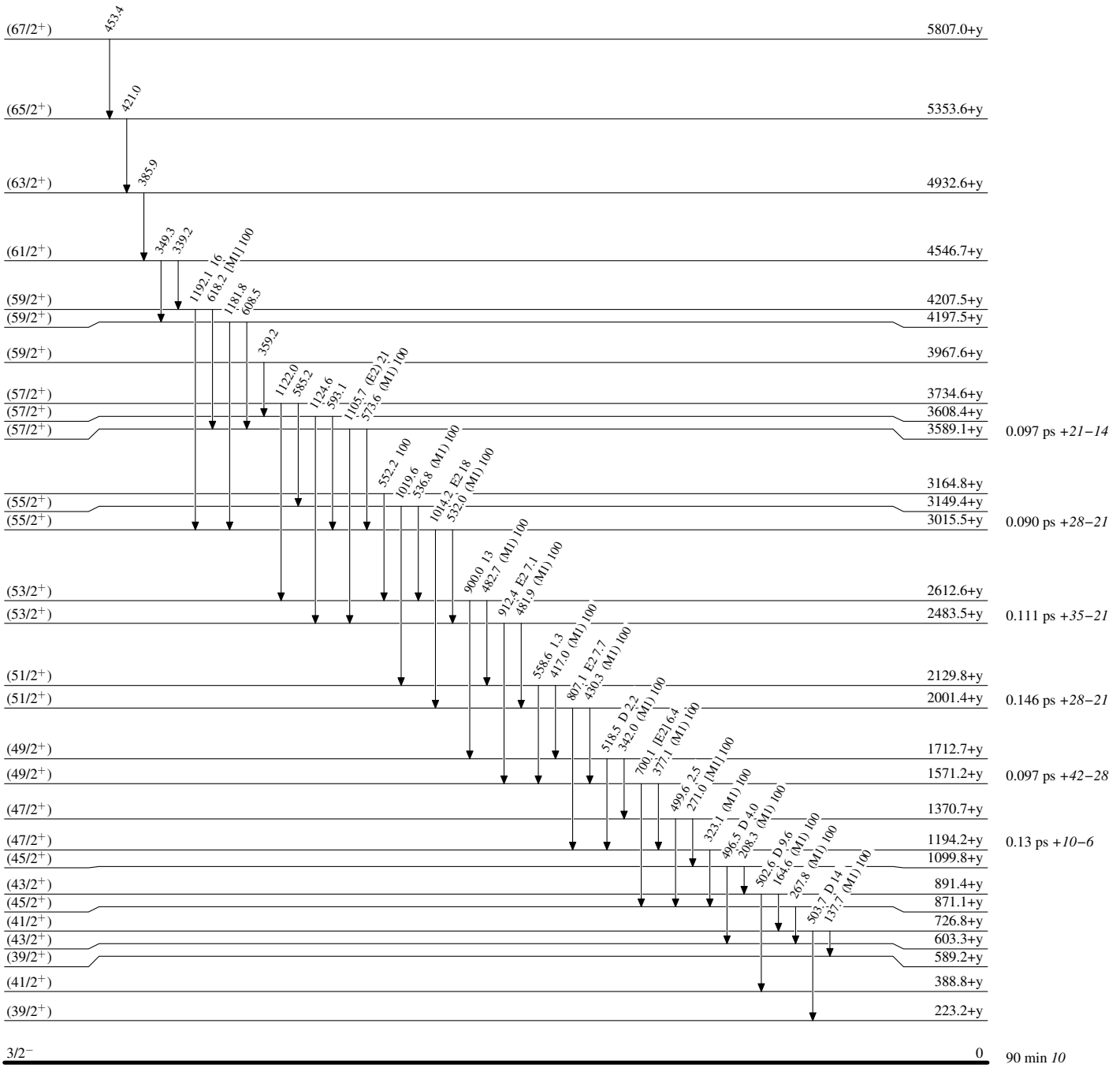
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



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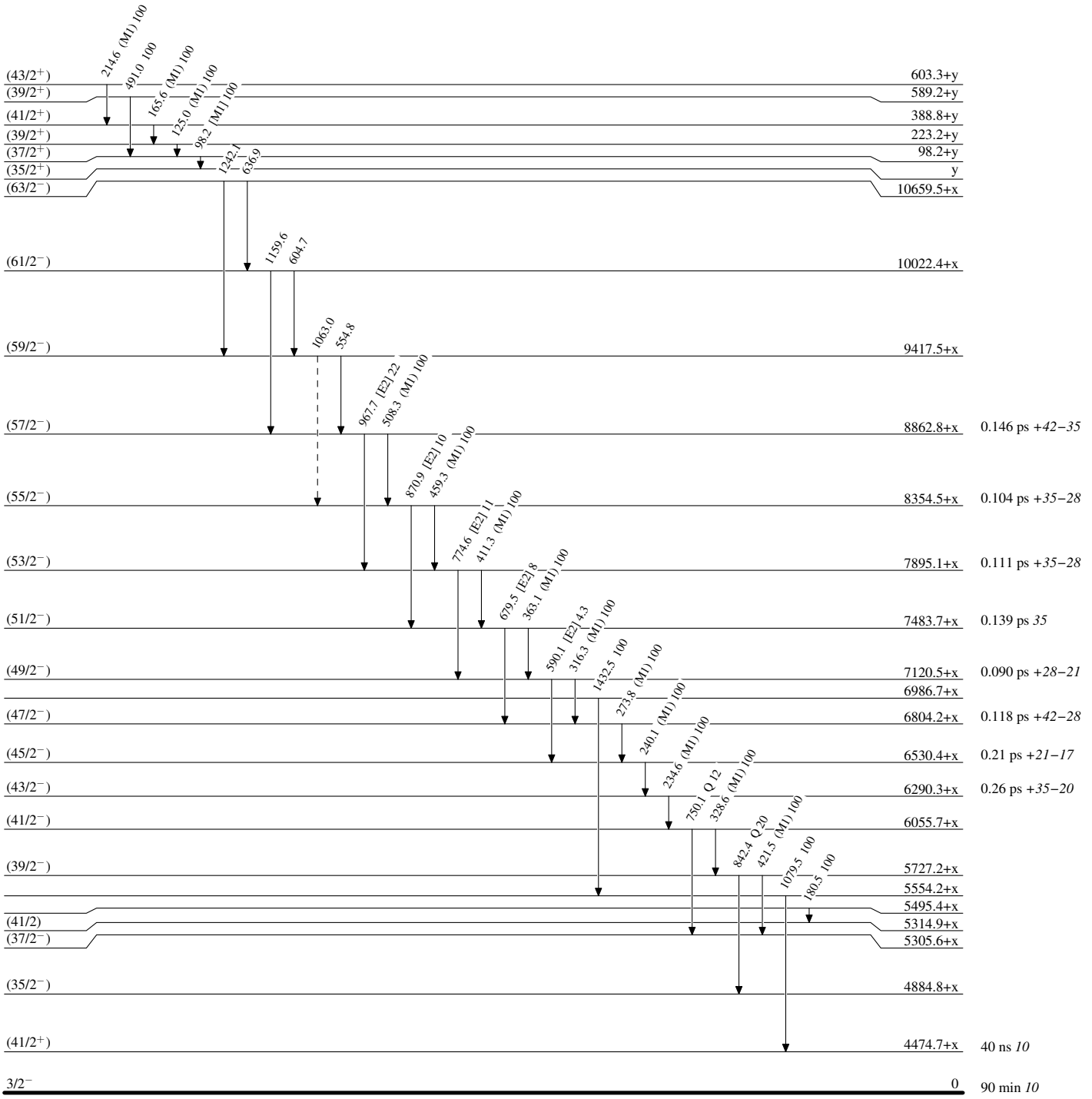
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

- - - - - - ► γ Decay (Uncertain)

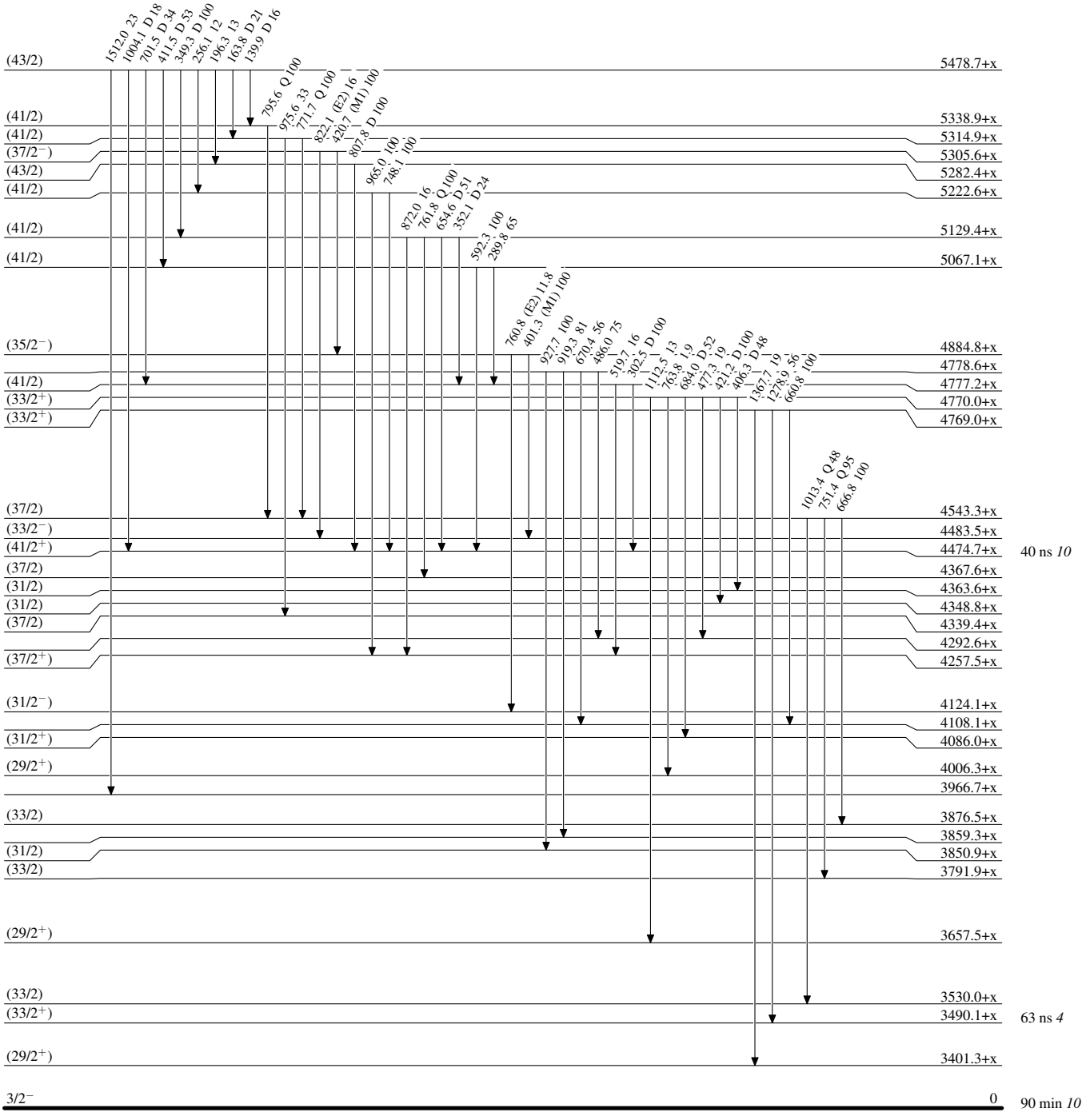


$^{199}_{82}Pb_{117}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

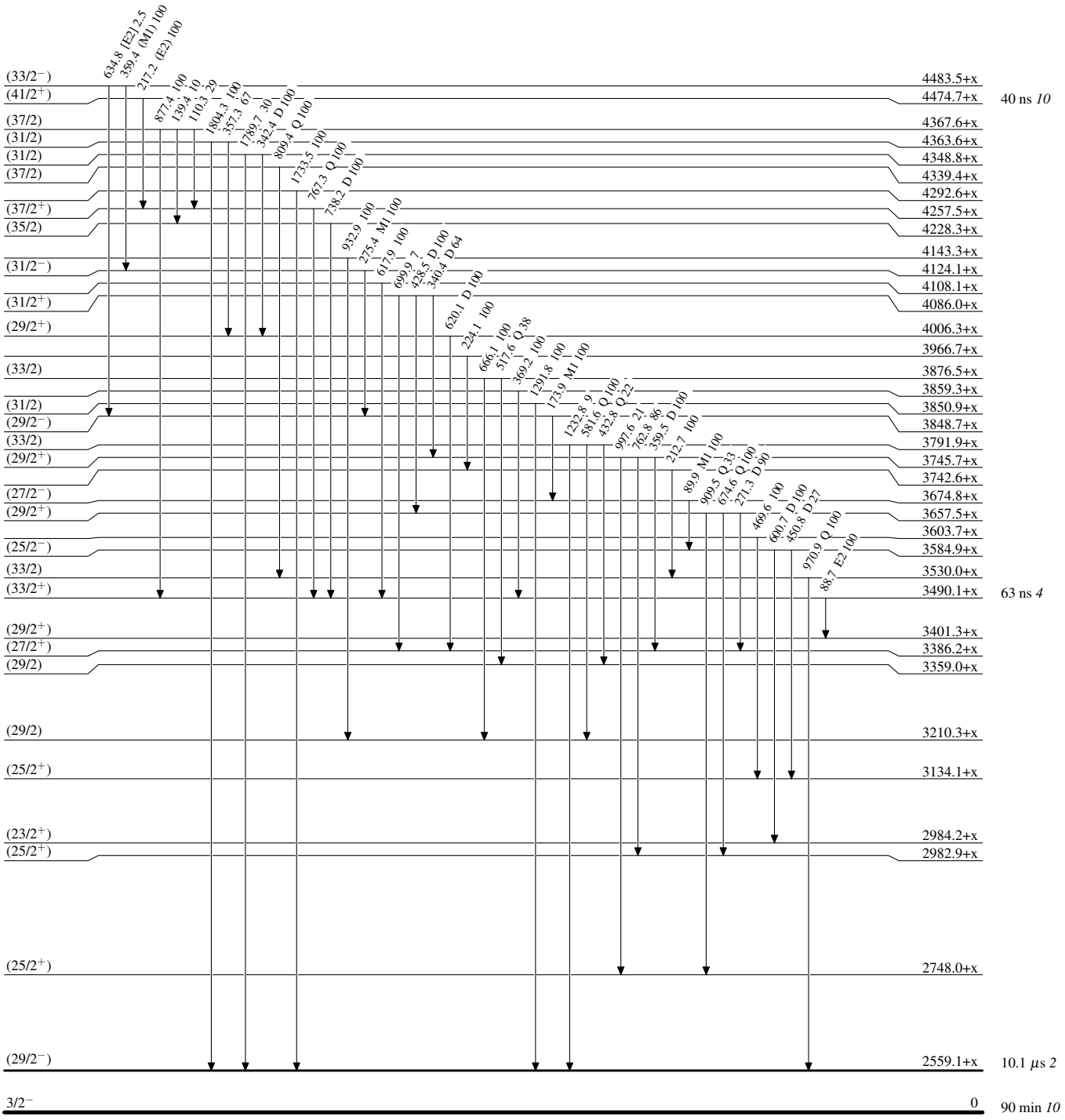


$^{199}_{82}Pb_{117}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{199}_{82}Pb_{117}$

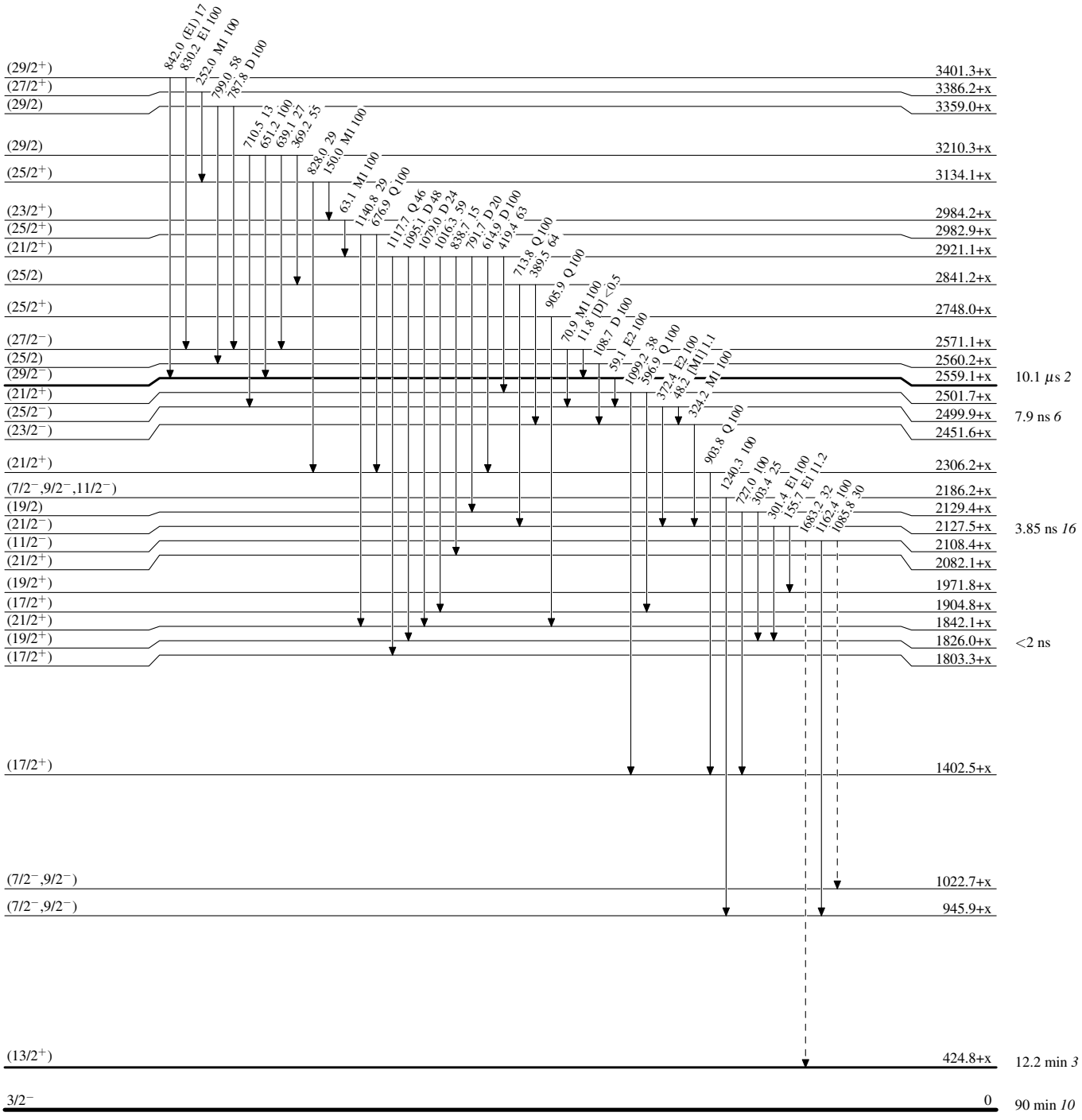
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



$^{199}_{82}Pb_{117}$

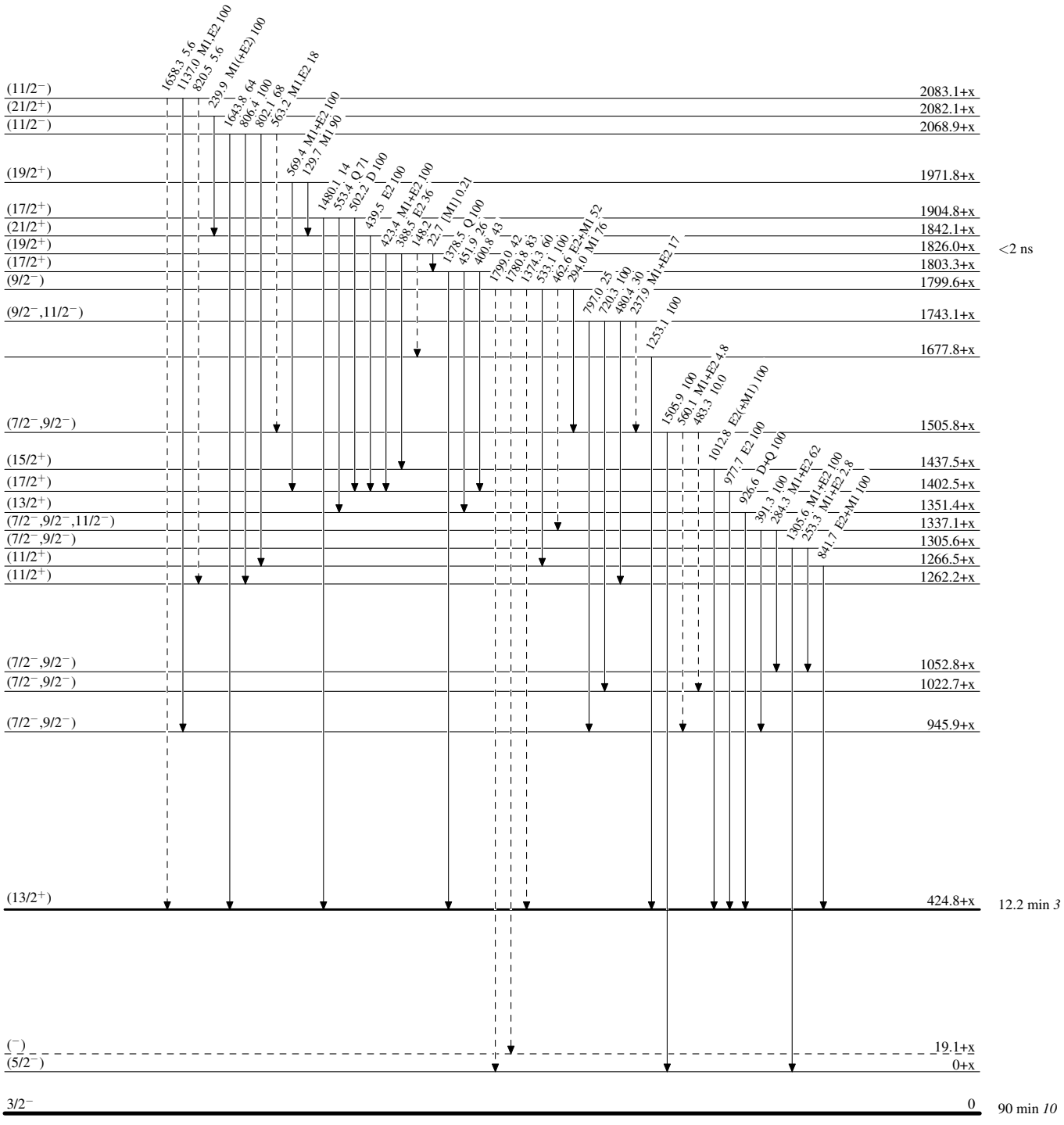
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



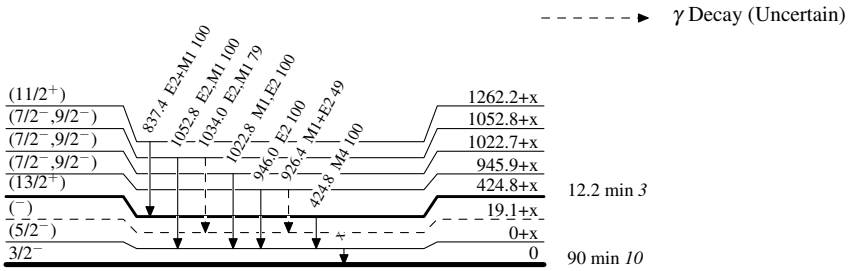
$^{199}_{82}Pb_{117}$

Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level



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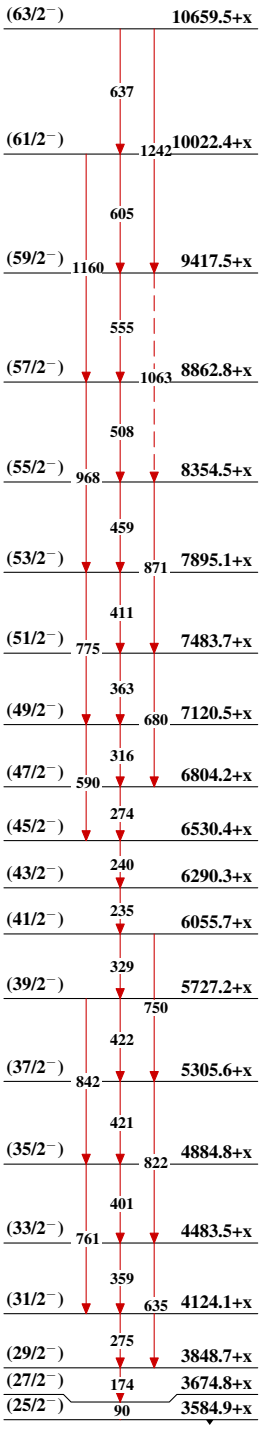
Adopted Levels, Gammas

Band(A): Magnetic-dipole rotational band #1



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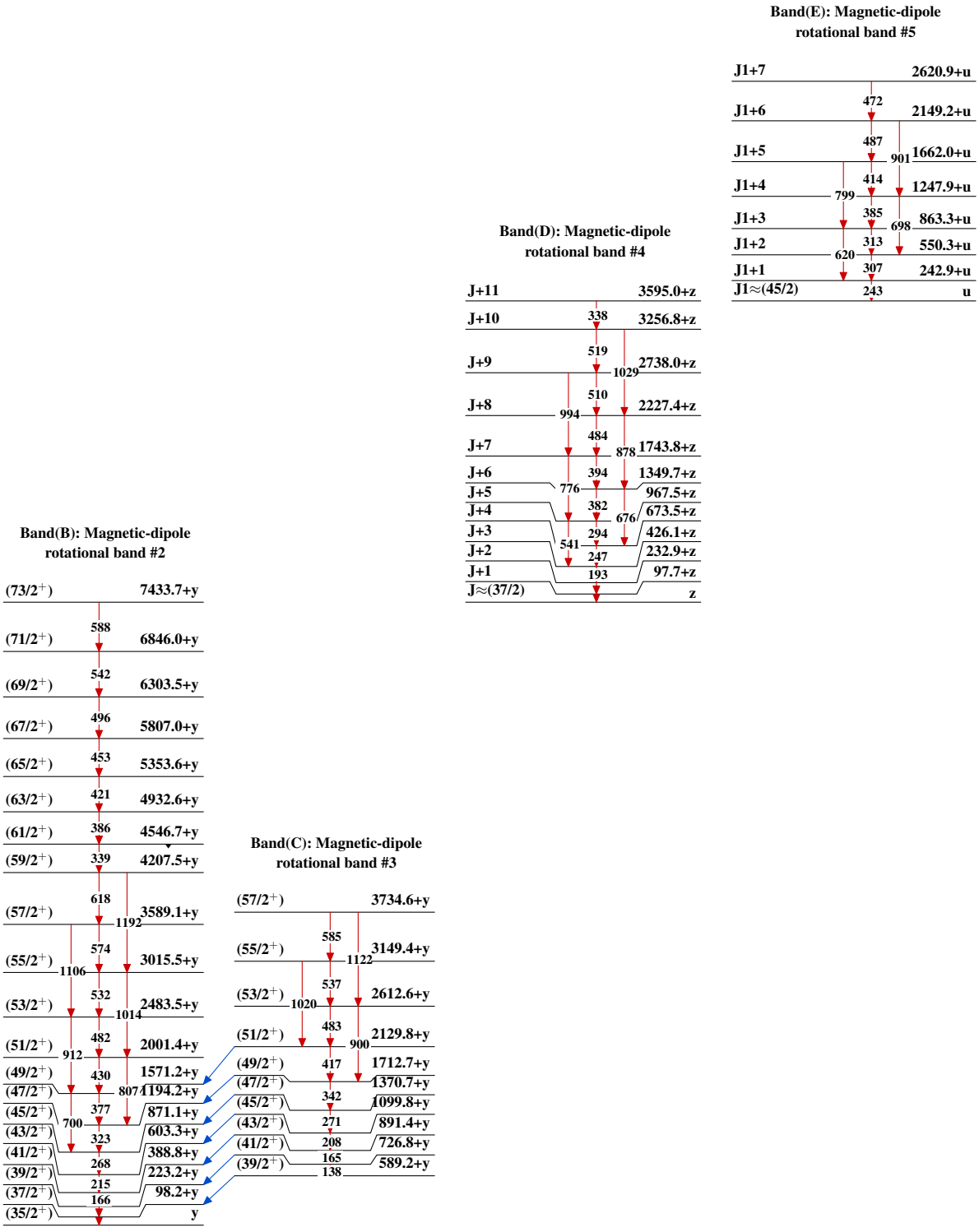
Adopted Levels, Gammas (continued)



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