Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	G. Gürdal and F. G. Kondev	NDS 113,1315 (2012)	1-Aug-2011

Q(β^-)=−8392 *15*; S(n)=11282 *16*; S(p)=6643 *15*; Q(α)=−1135 *14* 2012Wa38
Note: Current evaluation has used the following Q record −8394 1511282 166644 14-1138 14 2011AuZZ.

^{110}Sn Levels

Cross Reference (XREF) Flags

A	^{110}Sb ε decay	E	Coulomb excitation
B	^{94}Mo(^{19}F,p2nγ)	F	^{112}Sn(p,t)
C	^{98}Mo(^{16}O,4nγ)	G	^{113}In(p,4nγ), ^{112}Sn(p,p2nγ)
D	^{108}Cd(α,2nγ)	H	^{110}Cd(^{3}He,3nγ),^{104}Pd(^{12}C,α2nγ)

E(level)[†]	J$^\pi$	T$_{1/2}$[#]	XREF	Comments
0.0[@]	0$^+$	4.154 h *4*	ABCDEFGH	%ε=100 T$_{1/2}$: Weighted average of 4.15 h *12* (1973Ka45), 4.0 h *2* (1956Me94), 4.173 h 23 (280γ(t) in 2005Gy02, uncertainty is statistical only), and 4.153 h 4 (280γ(t) in 2009Ra17, uncertainty is statistical only), weighted average of 4.145 h *6* (Au catcher), 4.165 h *9* (Pb catcher) and 4.156 h *7* (Al catcher). Other: 4.1 h (1967Bo43).
1212.02[@] *9*	2$^+$	0.48 ps *4*	ABCDEFGH	B(E2)↑=0.226 *18* J$^\pi$: 1212.01γ E2 to 0$^+$. B(E2)↑: Weighted average of 0.240 *32* from 2007Va22, measured relative to B(E2)↑(3/2$^+$ (g.s.) to 7/2$^+$ (547 keV level))=0.449 *41* for ^{197}Au, and 0.220 *22* from 2007Ce02, measured relative to B(E2)↑(0$^+$ to 2$^+$)=0.0695 *20* for ^{58}Ni. T$_{1/2}$: From adopted B(E2)↑.
2058.0 *4*	(0$^+$,2)		C	J$^\pi$: 846.0γ to 2$^+$.
2121.04 *23*	2$^+$		A FG	XREF: F(2123). J$^\pi$: 908.9γ to 2$^+$; 2120.8γ to 0$^+$; direct population in ^{110}Sb ε decay (J^π=(3$^+$)).
2197.05[@] *10*	4$^+$		ABCD FGH	J$^\pi$: L(p,t)=4; 984.6γ E2 to 2$^+$; band structure.
2309[‡] *3*	0$^+$		F	J$^\pi$: L(p,t)=0.
2455.6 *3*	4$^+$		A CD G	J$^\pi$: 1242.3γ E2 to 2$^+$; direct population in ^{110}Sb ε decay (J^π=(3$^+$)).
2458.42[c] *15*	3$^-$		C F	XREF: F(2462). J$^\pi$: 261.5γ to 4$^+$; 1246.4γ E1 to 2$^+$; L(p,t)=3+4. configuration: possible ν(h$_{11/2}$,d$_{5/2}$) or octupole structure.
2477.68[@] *15*	6$^+$	5.6 ns *3*	BCD FGH	μ=0.072 *18* Q=0.34 *4* XREF: D(2480). J$^\pi$: L(p,t)=6; 280.2γ E2 to 4$^+$. T$_{1/2}$: Weighted average of 5.6 ns 4 (280γ(t), slope analysis in ^{104}Pd(^{12}C,α2nγ), by taking into account the decay of the 8$^-$ isomer at 3765 keV), 5.2 ns *8* (280γ(t), centroid-shift analysis in ^{110}Cd(^{3}He,3n)) and 5.8 ns *4* (280γ(t), slope analysis in ^{110}Cd(^{3}He,3n)) in 1989An14. Others: 8.0 ns *2* (1212γ(t)), 8.4 ns *2* (985γ(t)) and 8.5 ns *4* (282.9γ(t)) in 1980Va13; <7 ns 282.9γ(t) in 1969Ya05. μ: From g=0.012 *3* using $\gamma(\theta$,H,t) in ^{108}Cd(α,2n) (1989Vo17). Q: Using $\gamma(\theta$,H,t) in ^{108}Cd(α,2n) (1989Vo17).
2545.7 *5*	2$^+$		A F	J$^\pi$: L(p,t)=2; 1333.6γ to 2$^+$; 2545.4γ to 0$^+$; direct population in ^{110}Sb ε decay (J^π=(3$^+$)).

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Adopted Levels, Gammas (continued)

^{110}Sn Levels (continued)

E(level)†	Jπ	XREF	Comments
2573‡ *3*	0^+	F	Jπ: L(p,t)=0.
2694.5 *4*	4^+	A F	Jπ: L(p,t)=4; 1482.5γ to 2^+; direct population in ^{110}Sb ε decay ($J^\pi=(3^+)$).
2742.1 *8*	0^+	C F	Jπ: L(p,t)=0; 1530.1γ to 2^+.
2753.67 *16*	6^+	BCD FG	XREF: D(2756). Jπ: L(p,t)=6; 276.08γ M1(+E2) to 6^+.
2800.27& *13*	(6^+)	CD	XREF: D(2804.6). Jπ: 323.1γ to 6^+, 603.4γ to 4^+.
2821.5 *4*	$(2^+,3,4^+)$	A C G	Jπ: 624.4γ to 4^+; 1609.5γ to 2^+; direct population in ^{110}Sb ε decay ($J^\pi=(3^+)$).
2833.6 *3*	2^+	A F	XREF: F(2834). Jπ: L(p,t)=2; 636.5γ to 4^+; 2834.3γ to 0^+; direct population in ^{110}Sb ε decay ($J^\pi=(3^+)$).
2857‡ *3*	2^+	F	Jπ: L(p,t)=2.
2914.8 *10*	2^+	A F	XREF: F(2919). Jπ: L(p,t)=2; 1702.5γ to 2^+; 2915.1γ to 0^+; direct population in ^{110}Sb ε decay ($J^\pi=(3^+)$).
2948.2 *3*	$(3,4^+)$	A G	Jπ: 751.5γ to 4^+; 1735.9γ 2^+; direct population in ^{110}Sb ε decay ($J^\pi=(3^+)$); the absence of γ to 0^+.
2963.82 *14*	5^-	CD G	XREF: D(2967.1). Jπ: 486.0γ E1 to 6^+; 505.8γ to 3^-.
2965‡ *3*	2^+	F	Jπ: L(p,t)=2.
2977.2 *5*	$(2,3,4^+)$	A	Jπ: 1765.3γ to 2^+; direct population in ^{110}Sb ε decay ($J^\pi=(3^+)$).
2983‡	4^+	F	Jπ: L(p,t)=4.
2997‡	(2^+)	F	Jπ: L(p,t)=(2).
3059‡ *3*	4^+	F	Jπ: L(p,t)=4.
3083‡ *3*	2^+	F	Jπ: L(p,t)=2.
3153‡	2^+	F	Jπ: L(p,t)=2.
3182.9 *6*	$(2,3,4^+)$	A	Jπ: 1970.9γ to 2^+; direct population in ^{110}Sb ε decay ($J^\pi=(3^+)$).
3183‡ *3*	0^+	F	Jπ: L(p,t)=0.
3210.9 *4*	(3,4,5)	C f	XREF: f(3216). Jπ: 1013.8γ to 4^+.
3222.6 *3*	$(3,4^+)$	A fG	XREF: f(3216). Jπ: 1025.8γ to 4^+; 2010.1γ to 2^+; direct population in ^{110}Sb ε decay ($J^\pi=(3^+)$); the absence of γ to 0^+.
3249.2 *8*	$(6)^-$	C	Jπ: 285.4γ M1+E2 to 5^-.
3252‡	4^+	F	Jπ: L(p,t)=4.
3320‡	2^+	F	Jπ: L(p,t)=2.
3321.16[a] *18*	(6^+)	C	Jπ: 843.5γ (M1) to 6^+; 865.0γ to 4^+; band member.
3335.2 *5*	(6^+)	C	Jπ: 857.5γ to 6^+.
3355.20[c] *25*	5^-	C F	XREF: F(3357). Jπ: L(p,t)=5; 602.1γ to 6^+; 896.2γ to 3^-; band member.
3416.92 *15*	5^-	C	Jπ: 453.4γ M1+E2 to 5^-; 938.3γ to 6^+; 1219.3γ to 4^+.
3421‡ *3*	2^+	F	Jπ: L(p,t)=2.
3446.8 *5*	$(2,3,4^+)$	A	Jπ: 2234.9γ to 2^+; direct population in ^{110}Sb ε decay ($J^\pi=(3^+)$).
3472‡		F	
3540.5 *7*	4^+	A F	Jπ: L(p,t)=4; 2328.4γ to 2^+; direct population in ^{110}Sb ε decay ($J^\pi=(3^+)$).
3577‡		F	
3594‡		F	
3609‡ *3*	4^+	F	Jπ: L(p,t)=4.
3629.8 *4*	$(3,4^+)$	A	Jπ: 796.2γ to 2^+; 1432.6γ to 4^+; direct population in ^{110}Sb ε decay ($J^\pi=(3^+)$); the absence of γ to 0^+.

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Adopted Levels, Gammas (continued)

^{110}Sn Levels (continued)

E(level)[†]	Jπ	$T_{1/2}$[#]	XREF	Comments
3643[‡]			F	
3687.52[c] *17*	7^-		BCD G	XREF: D(3689.3). Jπ: 1208.8γ E1 to 6^+, 332.0γ to 5^-; band member.
3751[‡] *3*	2^+		F	Jπ: L(p,t)=2.
3765.77[c] *17*	8^-	1.16 ns *10*	BCD G	Jπ: 78.3γ M1+E2 7^-; 1012.3γ M2 to 6^+.
3807[‡]			F	
3812[‡] *3*	2^+		F	Jπ: L(p,t)=2.
3813.09[@] *22*	8^+		BCD	XREF: B(3810.4)D(3814.8). Jπ: 1334.8γ E2 to 6^+. configuration: possible $\nu(g^2_{7/2},d^2_{5/2})$.
3844[‡] *3*	5^-		F	Jπ: L(p,t)=5.
3885.0 *7*	3^-		A F	Jπ: L(p,t)=3; 2673.2γ to 2^+; direct population in ^{110}Sb ε decay ($J^\pi=(3^+)$).
3933.57[c] *18*	9^-	121 ps *19*	BCD	XREF: D(3935.3). Jπ: 167.5γ M1+E2 to 8^-; band member. configuration: possible $\nu(h_{11/2},g_{7/2})$.
3971[‡]			F	
3991.7[&] *3*	(8^+)		C	Jπ: 1191.1γ to (6^+); band member. Member of $\nu[g^2_{7/2}h^2_{11/2}]$ or $\nu[d^2_{5/2}h^2_{11/2}]$ multiplets.
4003.77 *24*	$(7)^+$		C	Jπ: 1249.9γ M1+E2 to 6^+.
4132[‡] *3*	3^-&5^-		F	Jπ: L(p,t)=3+5.
4137.86[a] *20*	(8^+)		C	Jπ: 816.7γ to (6^+); band member.
4158[‡]			F	
4280.6 *7*	(8^+)		C	Jπ: 945.4γ to (6^+). configuration: possible member of $\nu(g^2_{7/2},h^2_{11/2})$ or $\nu(d^2_{5/2},h^2_{11/2})$ multiplets.
4315.7 *3*	$(8)^+$		C	Jπ: 311.7γ M1+E2 to $(7)^+$, 382.7γ to 9^-. configuration: possible member of $\nu(h^2_{11/2})$ multiplet.
4317[‡] *3*	4^+		F	Jπ: L(p,t)=4.
4317.3 *4*	(10)		D	Jπ: 383.7γ D(+Q) to $(9)^-$.
4465[‡]			F	
4501[‡]			F	
4600[‡]			F	
4625.6?			B	E(level): From ^{94}Mo(^{19}F,p2nγ). No γ ray were observed to depopulate this level.
4644[‡]			F	
4780.44[c] *20*	9^-		BC	Jπ: 1092.9γ E2 to 7^-; band member.
4881.07[a] *23*	(10^+)		C	Jπ: 743.2γ to (8^+).
4895.20[c] *20*	10^-	<21 ps	BCD G	XREF: D(4897.2). Jπ: 1129.5γ E2 to 8^-; band member.
5006.1 *6*	$(2,3,4^+)$		A	Jπ: 2172.3γ to 2^+; direct population in ^{110}Sb ε decay ($J^\pi=(3^+)$).
5017.40[@] *23*	(10^+)		C	Jπ: 1203.7γ to (8^+); band member. configuration: possible $\nu(g^2_{7/2}d^2_{5/2})$.
5108.15[c] *23*	11^-	52 ps *16*	BCD	XREF: D(5111.0). Jπ: 1175.3γ E2 to 9^-; band member.
5219.7[&] *4*	(10^+)		C	Jπ: 1227.4γ to (8^+); band member. configuration: possibly a competition between the $\nu(g^2_{7/2},d^2_{5/2})$ and $\nu(h^2_{11/2})$ multiplets.
5228.98[b] *19*	10^+		BC	Jπ: 211.0γ M1+E2 to (10^+); 447.7γ E1 to 9^-; band member.

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Adopted Levels, Gammas (continued)

^{110}Sn Levels (continued)

E(level)[†]	Jπ	XREF		Comments
				configuration: Possible $\nu(h^2_{11/2})$.
5331.27[c] *20*	11^-	CD		XREF: D(5332.4). Jπ: 1397.0γ E2 to 9^-.
5730.8[a] *3*	(12^+)	C		Jπ: 849.7γ to (10^+); band member.
5939.4[d] *3*	(9^-)	C		Jπ: 604.5γ to 11^-;
6037.14[b] *21*	(12^+)	BC		Jπ: 808.2γ (E2) to 10^+; band member.
6066.5[d] *3*	(10^-)	C		Jπ: 127.0γ to (9^-); band member.
6207.13[d] *21*	(11^-)	C		Jπ: 978.2γ to 10^+; 1099.0γ D to 11^-.
6354.9[d] *4*	(12^-)	C		Jπ: 147.7γ to (11^-); 318.0γ to (12^+); band member.
6370.9[c] *11*	(12)	C		Jπ: 1041.0γ to 11^-; band member.
6545.2[c] *5*	(13)	C		Jπ: 1215.3γ to 11^-; band member.
6598.3[a] *4*	(14^+)	C		Jπ: 867.5γ to (12^+); band member.
6613.2?[d] *8*	(13)	C		Jπ: 259.6γ to (12); band member.
6778.04[b] *23*	(14^+)	BC	G	Jπ: 740.9γ E2 to (12^+); band member.
6974.4?[d] *13*	(14)	C		Jπ: 361.2γ to (13); band member.
7541.1[a] *5*	(16^+)	C		Jπ: 942.8γ to (14^+); band member.
7587.9[b] *3*	(16^+)	BC		Jπ: 809.9γ (E2) to (14^+); band member.
8491.8[b] *3*	(18^+)	BC		Jπ: 903.9γ E2 to (16^+); band member.
9495.2[b] *3*	(20^+)	BC		Jπ: 1003.3γ to (18^+); band member.
10501.5?[b] *6*	(22^+)	C		Jπ: 1007.6γ to (20^+); band member.
11516.0?[b] *6*	(24^+)	C		

† From a least-squares fit to Eγ's, unless otherwise stated.
‡ From ^{112}Sn(p,t).
# From recoil-distance method in 1986Ka25, unless otherwise stated.
@ Band(A): g.s. band.
& Band(B): band based on the 2800.27 keV level.
[a] Band(C): band based on the 3321.16 keV level.
[b] Band(D): band based on the 5228.98 keV level.
[c] Band(E): band based on the 2458.42 keV level.
[d] Band(F): band based on the 5939.4 keV level.

Adopted Levels, Gammas (continued)

γ(^{110}Sn)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[@]	δ[&]	α[†]	Comments
1212.02	2^+	1212.01 *9*	100	0.0	0^+	E2		0.000859 *12*	α(K)=0.000740 *11*; α(L)=8.95×10^{-5} *13*; α(M)=1.746×10^{-5} *25*; α(N+..)=1.203×10^{-5} α(N)=3.28×10^{-6} *5*; α(O)=2.83×10^{-7} *4*; α(IPF)=8.47×10^{-6} *12* B(E2)(W.u.)=14.4 *12* E_γ: From ^{108}Cd(α,2nγ). Mult.: DCO=1.00 *9*; A_2=+0.20 *7*, A_4=−0.07 *4* (2005Wo03).
2058.0	$(0^+,2)$	846.0 *4*	100	1212.02	2^+				
2121.04	2^+	908.9[#] *3*	100[#] *8*	1212.02	2^+				
		2120.8[#] *6*	94[#] *5*	0.0	0^+				
2197.05	4^+	985.03 *3*	100	1212.02	2^+	E2		0.001330 *19*	α(K)=0.001155 *17*; α(L)=0.0001421 *20*; α(M)=2.78×10^{-5} *4*; α(N+..)=5.65×10^{-6} α(N)=5.21×10^{-6} *8*; α(O)=4.43×10^{-7} *7* E_γ: From ^{108}Cd(α,2nγ). Mult.: DCO=0.96 *8*; A_2=+0.29 *7*, A_4=−0.01 *1* (2005Wo03); α(K)exp=1.16×10^{-3}; A_2=0.314 *13*, A_4=−0.06 *2* (1980Va13).
2455.6	4^+	1243.3[#] *3*	100[#]	1212.02	2^+	E2		0.000820 *12*	α(K)=0.000702 *10*; α(L)=8.48×10^{-5} *12*; α(M)=1.653×10^{-5} *24*; α(N+..)=1.644×10^{-5} α(N)=3.11×10^{-6} *5*; α(O)=2.68×10^{-7} *4*; α(IPF)=1.306×10^{-5} *19* Mult.: α(K)exp=0.67×10^{-3} *12*; A_2=0.31 *2*, A_4=−0.06 *4* (1980Va13).
2458.42	3^-	261.5 *2*	40 *4*	2197.05	4^+				
		1246.4 *2*	100 *13*	1212.02	2^+	E1		0.000424 *6*	α(K)=0.000319 *5*; α(L)=3.72×10^{-5} *6*; α(M)=7.23×10^{-6} *11*; α(N+..)=6.04×10^{-5} *9* Mult.: A_2=−0.16 *5*, A_4=+0.01 *2* (2005Wo03).
2477.68	6^+	280.2 *3*	100	2197.05	4^+	E2		0.0444	α(K)=0.0372 *6*; α(L)=0.00584 *9*; α(M)=0.001160 *17*; α(N+..)=0.000227 *4* α(N)=0.000213 *3*; α(O)=1.473×10^{-5} *22* B(E2)(W.u.)=1.79 *10* Mult.: DCO=1.20 *13*; A_2=+0.11 *1*, A_4=−0.14 *9*; α(K)exp=0.030 *12*; A_2=0.32 *3*, A_4=−0.07 *10* (1980Va13).
2545.7	2^+	1333.6[#] *5*	100[#] *12*	1212.02	2^+				
		2545.4[#] *15*	35[#] *12*	0.0	0^+				
2694.5	4^+	1482.5[#] *4*	100[#]	1212.02	2^+				
2742.1	0^+	1530.1 *8*	100	1212.02	2^+				
2753.67	6^+	276.08 *6*	100	2477.68	6^+	M1(+E2)	0.0 *2*	0.0354 *7*	α(K)=0.0307 *6*; α(L)=0.00381 *11*; α(M)=0.000747 *22*; α(N+..)=0.000153 *4* E_γ: From ^{108}Cd(α,2nγ). Mult.: DCO=1.18 *25*; A_2=+0.35 *9*, A_4=−0.01 *2*; α(K)exp=0.038 *8*; A_2=0.382 *11*, A_4=0.01 *2* (1980Va13).

$^{110}_{50}Sn_{60}$-5

Adopted Levels, Gammas (continued)

γ(^{110}Sn) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[@]	α[†]	Comments
2800.27	(6$^+$)	323.1 *2*	48 *4*	2477.68	6$^+$			E_γ: 324.6 keV *2* in ^{108}Cd(α,2nγ).
		603.4 *1*	100 *8*	2197.05	4$^+$			
2821.5	(2$^+$,3,4$^+$)	624.4[#] *5*	44[#] *4*	2197.05	4$^+$			
		1609.5[#] *5*	100[#] *8*	1212.02	2$^+$			
2833.6	2$^+$	636.5[#] *4*	100[#] *9*	2197.05	4$^+$			
		1621.4[#] *5*	38[#] *6*	1212.02	2$^+$			
		2834.3[#] *15*	8[#] *4*	0.0	0$^+$			
2914.8	2$^+$	1702.5[#] *12*	100[#] *36*	1212.02	2$^+$			
		2915.1[#] *15*	86[#] *36*	0.0	0$^+$			
2948.2	(3,4$^+$)	751.5[#] *4*	44[#] *4*	2197.05	4$^+$			
		827.1[#] *3*	100[#] *7*	2121.04	2$^+$			
		1735.9[#] *5*	75[#] *4*	1212.02	2$^+$			
2963.82	5$^-$	163.9 *1*	69 *8*	2800.27	(6$^+$)			
		486.0 *1*	100 *8*	2477.68	6$^+$	E1	0.00255 *4*	α(K)=0.00222 *4*; α(L)=0.000266 *4*; α(M)=5.18×10^{-5} *8*; α(N+..)=1.053×10^{-5} *15* α(N)=9.71×10^{-6} *14*; α(O)=8.22×10^{-7} *12* Mult.: DCO=0.56 *22*; A_2=−0.44 *14*, A_4=+0.01 *2*.
		505.8 *2*	85 *8*	2458.42	3$^-$			
2977.2	(2,3,4$^+$)	1765.3[#] *5*	100[#]	1212.02	2$^+$			
3182.9	(2,3,4$^+$)	1970.9 *6*	100	1212.02	2$^+$			
3210.9	(3,4,5)	1013.8 *3*	100	2197.05	4$^+$			
3222.6	(3,4$^+$)	766.8[#] *6*	36[#] *12*	2455.6	4$^+$			
		1025.8[#] *4*	100[#] *12*	2197.05	4$^+$			
		1101.2[#] *6*	33[#] *8*	2121.04	2$^+$			
		2010.1[#] *12*	18[#] *6*	1212.02	2$^+$			
3249.2	(6)$^-$	285.4 *7*	100	2963.82	5$^-$	M1+E2	0.037 *5*	α(K)=0.032 *4*; α(L)=0.0045 *10*; α(M)=0.00089 *21*; α(N+..)=0.00018 *4* α(N)=0.00016 *4*; α(O)=1.26×10^{-5} *14* Mult.: DCO=1.03 *17*; A_2=−0.13 *19*, A_4=+0.04 *7*.
3321.16	(6$^+$)	843.5 *1*	100 *9*	2477.68	6$^+$	(M1)	0.00230 *4*	α(K)=0.00200 *3*; α(L)=0.000240 *4*; α(M)=4.68×10^{-5} *7*; α(N+..)=9.61×10^{-6} *14* α(N)=8.83×10^{-6} *13*; α(O)=7.79×10^{-7} *11* Mult.: DCO=0.53 *13*.
		865.0 *5*	26 *4*	2455.6	4$^+$			
3335.2	(6$^+$)	857.5 *4*	100	2477.68	6$^+$			
3355.20	5$^-$	602.1 *3*	65 *4*	2753.67	6$^+$			
		896.2 *3*	100 *13*	2458.42	3$^-$			
3416.92	5$^-$	453.4 *1*	23 *5*	2963.82	5$^-$	M1+E2	0.00994 *20*	α(K)=0.00856 *23*; α(L)=0.00111 *5*; α(M)=0.000218 *10*;

Adopted Levels, Gammas (continued)

γ(^{110}Sn) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[@]	δ[&]	α[†]	Comments
									α(N+..)=4.42×10^{-5} *15* α(N)=4.08×10^{-5} *16*; α(O)=3.36×10^{-6} *11* Mult.: DCO=1.04 *16*; A_2=+0.36 *20*, A_4=+0.06 *9*.
3416.92	5$^-$	938.3 *3*	30 *5*	2477.68	6$^+$				
		1219.3 *2*	100 *8*	2197.05	4$^+$				
3446.8	(2,3,4$^+$)	1325.6[#] *6*	22[#] *4*	2121.04	2$^+$				
		2234.9[#] *8*	100[#] *12*	1212.02	2$^+$				
3540.5	4$^+$	1419.6[#] *9*	28[#] *8*	2121.04	2$^+$				
		2328.4[#] *8*	100[#] *17*	1212.02	2$^+$				
3629.8	(3,4$^+$)	796.2[#] *7*	32[#] *7*	2833.6	2$^+$				
		1432.6[#] *5*	100[#] *14*	2197.05	4$^+$				
		2417.8[#] *12*	56[#] *14*	1212.02	2$^+$				
3687.52	7$^-$	270.8 *2*	5.8 *3*	3416.92	5$^-$				
		332.0[a] *1*	0.7 *3*	3355.20	5$^-$				
		437.2[a] *3*	2.3 *3*	3249.2	(6)$^-$				
		933.9 *2*	5.5 *3*	2753.67	6$^+$	(E1)		0.000623 *9*	α(K)=0.000544 *8*; α(L)=6.40×10^{-5} *9*; α(M)=1.244×10^{-5} *18*; α(N+..)=2.54×10^{-6} *4* α(N)=2.34×10^{-6} *4*; α(O)=2.03×10^{-7} *3* Mult.: A_2=−0.22 *9*, A_4=+0.01 *1*.
		1208.8 *5*	100 *3*	2477.68	6$^+$	E1		0.000424 *6*	α(K)=0.000337 *5*; α(L)=3.93×10^{-5} *6*; α(M)=7.64×10^{-6} *11*; α(N+..)=4.04×10^{-5} *7* α(N)=1.438×10^{-6} *21*; α(O)=1.252×10^{-7} *18*; α(IPF)=3.89×10^{-5} *6* Mult.: DCO=0.72 *09*; A_2=−0.29 *9*, A_4=+0.01 *1*; α(K)exp=0.67×10^{-3} *8* for unresolved 1209.4-1212.0 doublet in 1980Va13.
3765.77	8$^-$	78.3 *1*	100 *4*	3687.52	7$^-$	M1+E2	+0.05 *3*	1.136 *20*	α(K)=0.979 *16*; α(L)=0.127 *4*; α(M)=0.0250 *9*; α(N+..)=0.00509 *15* α(N)=0.00469 *15*; α(O)=0.000400 *7* B(M1)(W.u.)=0.0153 *16*; B(E2)(W.u.)=5 *+7−5* Mult.: DCO=1.3 *3*; A_2=+0.07 *5*, A_4=+0.06 *3*; 0.07≤α≤1.5 deduced from intensity balance by the authors in 1980Va13. α=1.5 *2* by the evaluators.
		1012.3 *1*	37.7 *22*	2753.67	6$^+$	M2		0.00370 *6*	α(K)=0.00320 *5*; α(L)=0.000398 *6*; α(M)=7.81×10^{-5} *11*; α(N+..)=1.601×10^{-5} *23* α(N)=1.472×10^{-5} *21*; α(O)=1.292×10^{-6} *18* B(M2)(W.u.)=0.160 *18* Mult.: DCO=0.90 *15*; A_2=+0.30 *12*, A_4=−0.06 *7*; α(K)exp=3.8×10^{-3} *12* (1980Va13).
		1287.5[a] *5*	6.5 *7*	2477.68	6$^+$	[M2]		0.00202 *3*	α(K)=0.001752 *25*; α(L)=0.000214 *3*; α(M)=4.19×10^{-5} *6*; α(N+..)=1.344×10^{-5} *19*

$^{110}_{50}Sn_{60}$-7

Adopted Levels, Gammas (continued)

γ(^{110}Sn) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[@]	δ[&]	α[†]	Comments
									α(K)=0.001752 *25*; α(L)=0.000214 *3*; α(M)=4.19×10^{-5} *6*; α(N+..)=1.344×10^{-5} *19* α(N)=7.91×10^{-6} *11*; α(O)=6.97×10^{-7} *10*; α(IPF)=4.83×10^{-6} *8* B(M2)(W.u.)=0.0083 *12*
3813.09	8$^+$	1334.8 *2*	100	2477.68	6$^+$	E2		0.000729 *11*	α(K)=0.000608 *9*; α(L)=7.30×10^{-5} *11*; α(M)=1.423×10^{-5} *20*; α(N+..)=3.37×10^{-5} *5* α(N)=2.68×10^{-6} *4*; α(O)=2.32×10^{-7} *4*; α(IPF)=3.08×10^{-5} *5* Mult.: A_2=+0.36 *15*; A_4=−0.03 *4*; α(K)exp=0.59×10^{-3} *10*; A_2=0.35 *2*, A_4=−0.01 *5* in 1980Va13.
3885.0	3$^-$	1339.2[#] *7*	23[#] *4*	2545.7	2$^+$				
		2673.2[#] *10*	100[#] *17*	1212.02	2$^+$				
3933.57	9$^-$	167.84 *6*	100	3765.77	8$^-$	M1+E2	0.08 *3*	0.1341 *20*	B(M1)(W.u.)=0.034 *6*; B(E2)(W.u.)=6 *5* α(K)=0.1159 *17*; α(L)=0.0147 *3*; α(M)=0.00289 *5*; α(N+..)=0.000589 *10* E_γ: From ^{108}Cd(α,2nγ). Mult.: DCO=1.13 *23*; α(K)exp=0.15 *3*; A_2=−0.090 *10*, A_4=−0.01 *2* (1980Va13). δ: Other: 0.06 *3* (1986Ka25).
3991.7	(8$^+$)	1191.1 *3*	100	2800.27	(6$^+$)				
4003.77	(7)$^+$	1249.9 *2*	100	2753.67	6$^+$	M1+E2		0.00089 *8*	α(K)=0.00076 *7*; α(L)=9.1×10^{-5} *8*; α(M)=1.78×10^{-5} *15*; α(N+..)=1.69×10^{-5} *6* α(N)=3.4×10^{-6} *3*; α(O)=2.9×10^{-7} *3*; α(IPF)=1.33×10^{-5} *9* Mult.: DCO=0.8 *3*; A_2=+0.5 *4*, A_4=+0.13 *10*.
4137.86	(8$^+$)	816.7 *1*	100	3321.16	(6$^+$)				
4280.6	(8$^+$)	945.4 *5*	100	3335.2	(6$^+$)				
4315.7	(8)$^+$	311.7 *2*	100 *9*	4003.77	(7)$^+$	M1+E2		0.029 *3*	α(K)=0.0244 *20*; α(L)=0.0034 *7*; α(M)=0.00067 *13*; α(N+..)=0.000134 *23* α(N)=0.000124 *22*; α(O)=9.7×10^{-6} *8* Mult.: A_2=+0.25 *21*, A_4=+0.02 *2*.
		382.7 *4*	45 *9*	3933.57	9$^-$				
4317.3	(10)	383.7 *3*	100	3933.57	9$^-$	M1(+E2)	0.0 *2*	0.01527	α(K)=0.01326 *19*; α(L)=0.00163 *3*; α(M)=0.000319 *6*; α(N+..)=6.53×10^{-5} *11* α(N)=6.00×10^{-5} *10*; α(O)=5.25×10^{-6} *8* E_γ,I_γ: From ^{108}Cd(α,2nγ). Mult.: A_2=−0.16 *2*, A_4=−0.01 *3*.
4780.44	9$^-$	848.5[a] *9*	6 *3*	3933.57	9$^-$				
		967.4 *4*	8 *3*	3813.09	8$^+$				
		1092.9 *1*	100 *8*	3687.52	7$^-$	E2		0.001060 *15*	α(K)=0.000921 *13*; α(L)=0.0001122 *16*; α(M)=2.19×10^{-5} *3*; α(N+..)=4.47×10^{-6}

Adopted Levels, Gammas (continued)

γ(^{110}Sn) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[@]	α[†]	Comments
								α(K)=0.000921 *13*; α(L)=0.0001122 *16*; α(M)=2.19×10^{-5} *3*; α(N+..)=4.47×10^{-6} α(N)=4.12×10^{-6} *6*; α(O)=3.53×10^{-7} *5* Mult.: A_2=+0.24 *11*, A_4=−0.09 *5*.
4881.07	(10$^+$)	743.2 *1*	100	4137.86	(8$^+$)			
4895.20	10$^-$	1129.5 *1*	100	3765.77	8$^-$	E2	0.000989 *14*	α(K)=0.000858 *12*; α(L)=0.0001043 *15*; α(M)=2.04×10^{-5} *3*; α(N+..)=5.44×10^{-6} α(N)=3.83×10^{-6} *6*; α(O)=3.28×10^{-7} *5*; α(IPF)=1.280×10^{-6} *19* B(E2)(W.u.)>0.47 Mult.: DCO=0.64 *14*; A_2=+0.26 *11*, A_4=−0.08 *7*; α(K)exp=0.57×10^{-3} *12*; A_2=0.42 *7*, A_4=−0.18 *8* (1980Va13).
5006.1	(2,3,4$^+$)	1375.8[#] *9*	6.0[#] *25*	3629.8	(3,4$^+$)			
		2029.1[#] *6*	100[#] *8*	2977.2	(2,3,4$^+$)			
		2172.3[#] *15*	3.0[#] *12*	2833.6	2$^+$			
5017.40	(10$^+$)	1203.7 *2*	100	3813.09	8$^+$			
5108.15	11$^-$	1175.3 *5*	100	3933.57	9$^-$	E2	0.000912 *13*	α(K)=0.000790 *11*; α(L)=9.57×10^{-5} *14*; α(M)=1.87×10^{-5} *3*; α(N+..)=8.05×10^{-6} *12* α(N)=3.51×10^{-6} *5*; α(O)=3.02×10^{-7} *5*; α(IPF)=4.24×10^{-6} *8* B(E2)(W.u.)=0.16 *5* Mult.: DCO=0.94 *18*; A_2=+0.33 *8*, A_4=−0.05 *2*; α(K)exp=0.75×10^{-3} *15*; A_2=0.36 *2*, A_4=−0.11 *5* (1980Va13).
5219.7	(10$^+$)	1227.4 *4*	100	3991.7	(8$^+$)			
5228.98	10$^+$	211.0 *2*	23.5	5017.40	(10$^+$)	M1+E2	0.094 *22*	α(K)=0.079 *17*; α(L)=0.012 *5*; α(M)=0.0024 *9*; α(N+..)=0.00048 *17* α(N)=0.00045 *16*; α(O)=3.2×10^{-5} *7* Mult.: DCO=1.07 *15*; A_2=−0.15 *1*, A_4=−0.20 *22*.
		334.5 *3*	15 *3*	4895.20	10$^-$			
		447.7 *8*	100 *3*	4780.44	9$^-$	E1	0.00310 *5*	α(K)=0.00270 *4*; α(L)=0.000324 *5*; α(M)=6.32×10^{-5} *10*; α(N+..)=1.284×10^{-5} *19* α(N)=1.184×10^{-5} *18*; α(O)=9.99×10^{-7} *15* Mult.: DCO=0.55 *10*; A_2=−0.35 *16*, A_4=+0.001 *3*.
		600.8 *5*	75 *13*	4625.6?				E_γ,I_γ: From ^{94}Mo(^{19}F,p2nγ).
		912.8 *7*	8.8	4315.7	(8)$^+$			
		1295.6 *1*	56 *3*	3933.57	9$^-$	D		Mult.: DCO=0.60 *18*; A_2=+0.4 *4*, A_4=+0.16 *18*.
5331.27	11$^-$	1397.6 *1*	100	3933.57	9$^-$	E2	0.000684 *10*	α(K)=0.000554 *8*; α(L)=6.64×10^{-5} *10*; α(M)=1.293×10^{-5} *19*; α(N+..)=5.03×10^{-5} *7* α(N)=2.43×10^{-6} *4*; α(O)=2.11×10^{-7} *3*; α(IPF)=4.77×10^{-5} *7* Mult.: DCO=0.9 *3*; A_2=+0.19 *8*, A_4=−0.11 *6*; α(K)exp=0.56×10^{-3} *14*; A_2=0.38 *3*, A_4=−0.08 *4* (1980Va13).
5730.8	(12$^+$)	849.7 *2*	100	4881.07	(10$^+$)			

Adopted Levels, Gammas (continued)

γ(^{110}Sn) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[@]	α[†]	Comments
5939.4	(9⁻)	604.5 *6*	100	5331.27	11⁻			
6037.14	(12⁺)	808.2 *1*	100 *6*	5228.98	10⁺	(E2)	0.00210 *3*	α(K)=0.00182 *3*; α(L)=0.000229 *4*; α(M)=4.47×10^{-5} *7*; α(N+..)=9.08×10^{-6} *13* α(N)=8.38×10^{-6} *12*; α(O)=7.02×10^{-7} *10* Mult.: DCO=1.11 *13*; A_2=+0.43 *11*, A_4=−0.01 *1* for 808+810.
		816.9 *4*	8.2 *10*	5219.7	(10⁺)			
		1019.1 *9*	4.1 *10*	5017.40	(10⁺)			
6066.5	(10⁻)	127.0 *1*	100	5939.4	(9⁻)			
6207.13	(11⁻)	140.2 *2*	8 *4*	6066.5	(10⁻)			
		876.0 *4*	32 *4*	5331.27	11⁻			
		978.2 *1*	52 *16*	5228.98	10⁺			
		1099.0 *1*	100 *4*	5108.15	11⁻	D		Mult.: DCO=0.90 *15*.
6354.9	(12⁻)	147.7 *3*	100 *33*	6207.13	(11⁻)			
		318.0 *8*	33 *33*	6037.14	(12⁺)			
6370.9	(12)	1041.0[a] *10*	100	5331.27	11⁻			
6545.2	(13)	1215.3[a] *1*	100	5331.27	11⁻			
6598.3	(14⁺)	867.5 *2*	100	5730.8	(12⁺)			
6613.2?	(13)	259.6[a] *5*	100	6354.9	(12⁻)			
6778.04	(14⁺)	740.9 *1*	100	6037.14	(12⁺)	E2	0.00260 *4*	α(K)=0.00224 *4*; α(L)=0.000285 *4*; α(M)=5.58×10^{-5} *8*; α(N+..)=1.131×10^{-5} *16* α(N)=1.044×10^{-5} *15*; α(O)=8.67×10^{-7} *13* Mult.: DCO=1.02 *10*; A_2=+0.29 *9*; A_4=−0.06 *7*.
6974.4?	(14)	361.2[a] *10*	100	6613.2?	(13)			
7541.1	(16⁺)	942.8 *2*	100	6598.3	(14⁺)			
7587.9	(16⁺)	809.9 *1*	100	6778.04	(14⁺)	(E2)	0.00209 *3*	α(K)=0.00181 *3*; α(L)=0.000227 *4*; α(M)=4.45×10^{-5} *7*; α(N+..)=9.03×10^{-6} *13* α(N)=8.33×10^{-6} *12*; α(O)=6.98×10^{-7} *10* Mult.: DCO=1.11 *13*; A_2=+0.43 *11*, A_4=−0.01 *1* for 808γ+810γ.
8491.8	(18⁺)	903.9 *1*	100	7587.9	(16⁺)	E2	0.001616 *23*	α(K)=0.001401 *20*; α(L)=0.0001739 *25*; α(M)=3.40×10^{-5} *5*; α(N+..)=6.91×10^{-6} α(N)=6.37×10^{-6} *9*; α(O)=5.39×10^{-7} *8* Mult.: A_2=+0.17 *17*; A_4=−0.10 *16* and γ-ray decay pattern.
9495.2	(20⁺)	1003.3 *1*	100	8491.8	(18⁺)	Q		Mult.: A_2=0.19 *10*, A_4=−0.08 *10* in ^{94}Mo(^{19}F,p2nγ).
10501.5?	(22⁺)	1007.6[a] *2*	100	9495.2	(20⁺)			
11516.0?	(24⁺)	1014.5[a] *2*	100	10501.5?	(22⁺)			

[†] Additional information 1.
[‡] From ^{98}Mo(^{16}O,4nγ), unless otherwise stated.

$^{110}_{50}Sn_{60}$-10

Adopted Levels, Gammas (continued)

$\gamma(^{110}Sn)$ (continued)

From ^{110}Sb ε decay.
@ From DCO ratios, $\gamma(\theta)$ and γ-decay pattern in $^{98}Mo(^{16}O,4n\gamma)$, unless otherwise stated.
& From $\gamma(\theta)$ in $^{108}Cd(\alpha,2n\gamma)$.
a Placement of transition in the level scheme is uncertain.

$^{110}_{50}Sn_{60}$-11

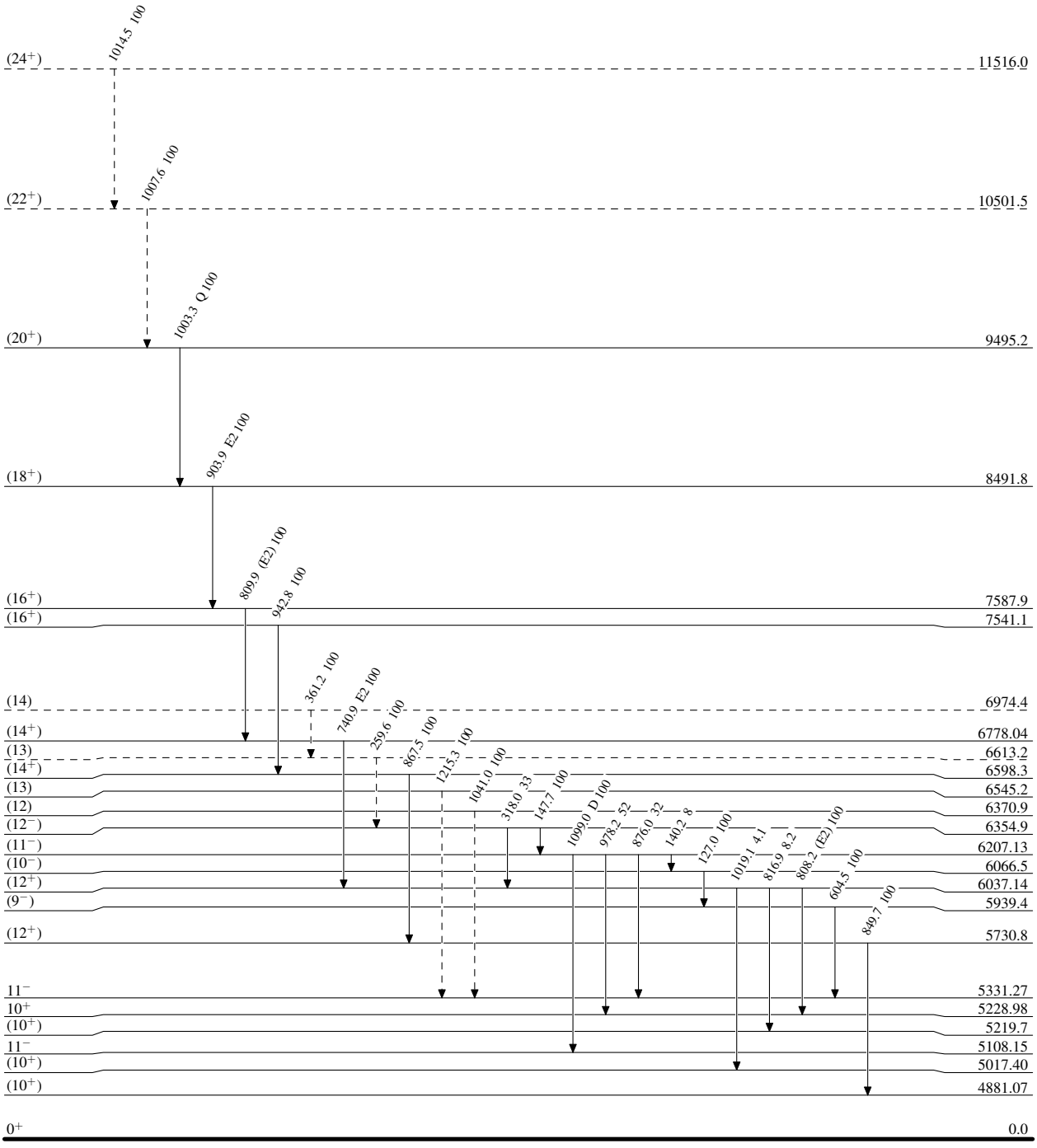
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



$^{110}_{50}Sn_{60}$

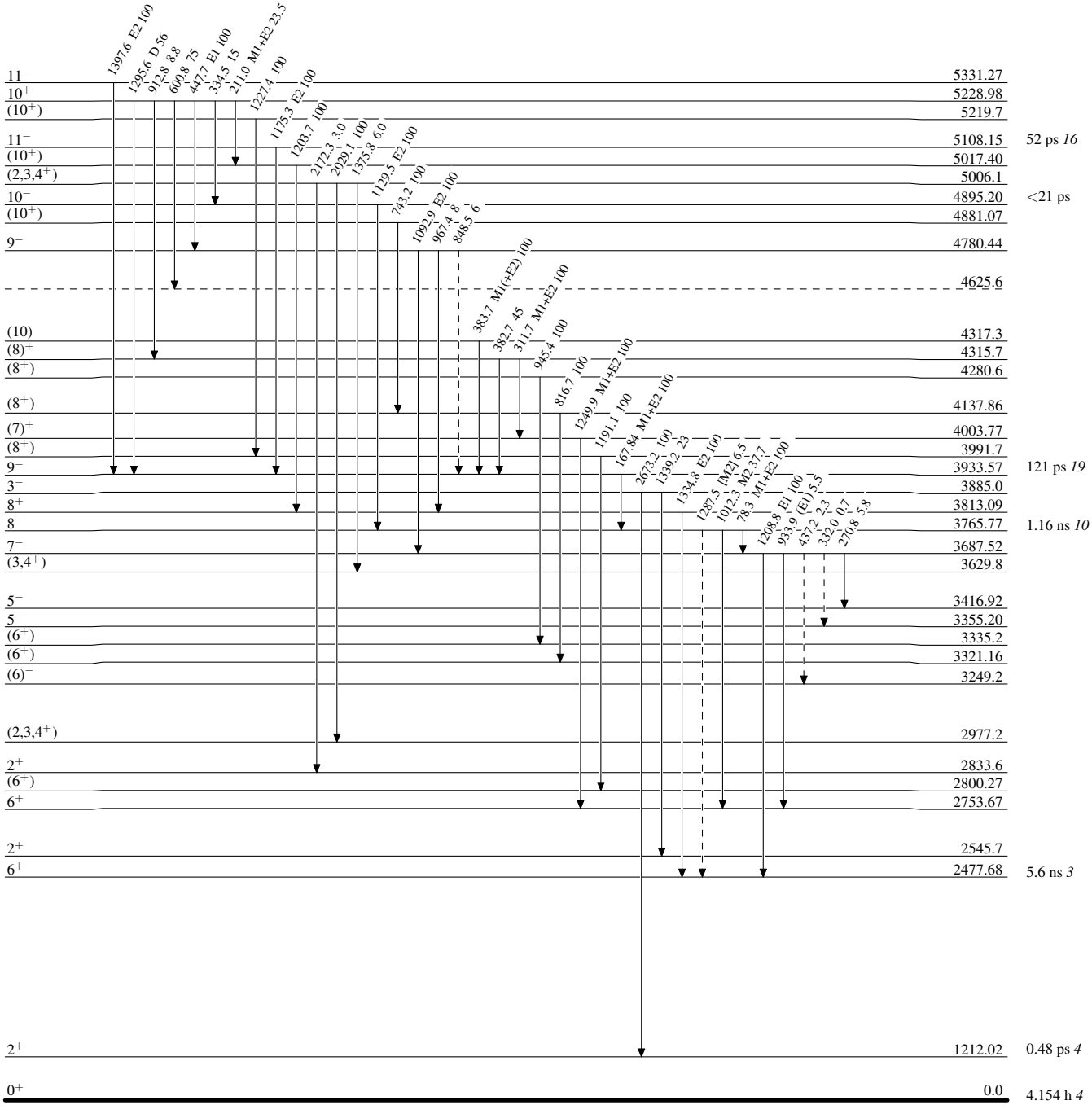
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)

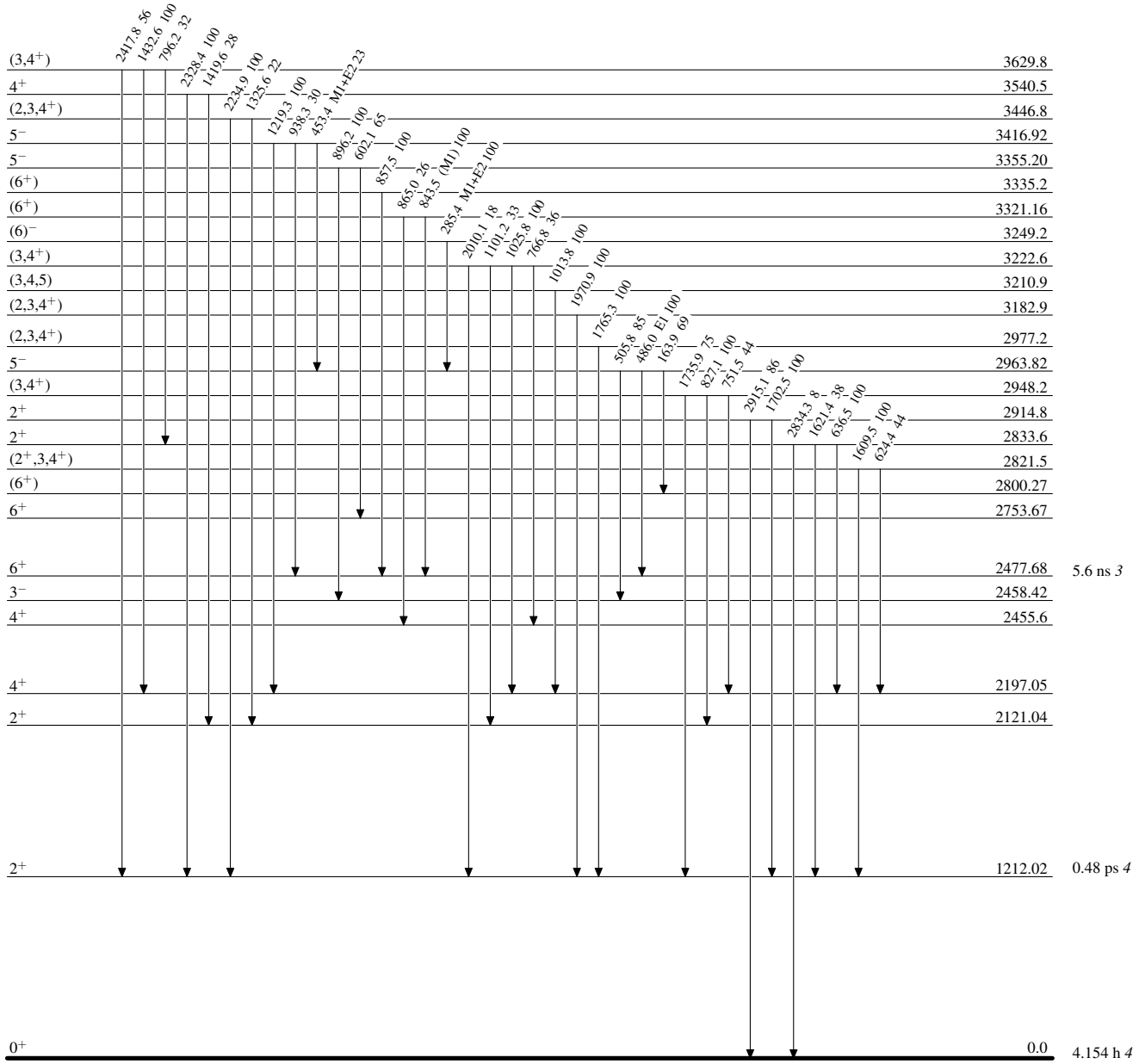


$^{110}_{50}Sn_{60}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

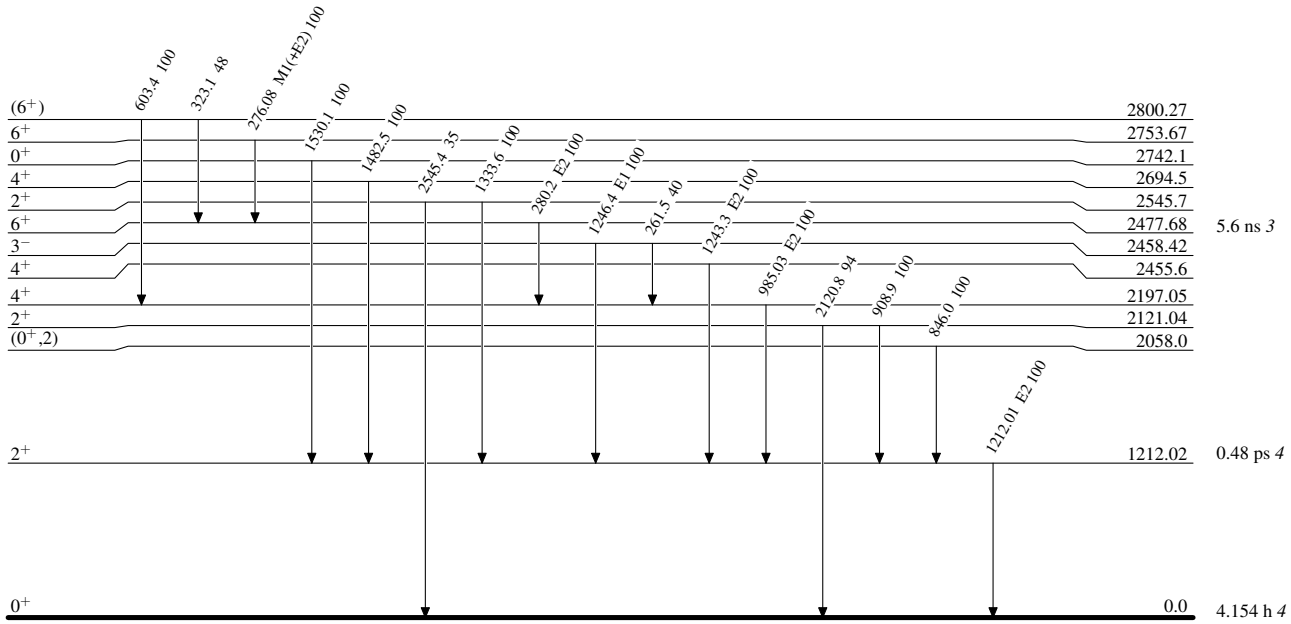


$^{110}_{50}Sn_{60}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{110}_{50}Sn_{60}$

Adopted Levels, Gammas