^{124}Sn(^{7}Li,5nγ) 2012Zh30,2013Ka50,2012MoZZ

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	H. Iimura, J. Katakura, S. Ohya	NDS 180, 1 (2022)	1-Oct-2021

2012Zh30:^{7}Li beam at E=48 MeV from tandem accelerator. Target=4.6 mg/cm^2 ^{124}Sn. γ rays detected with a multidetector array consisting of 12 BGO-Compton-suppressed HPGe detectors. Measured Eγ, Iγ, γγ-coin, DCO. Deduced high-spin levels, J, π, bands, multipolarity and configurations. Triaxial projected shell-model (TPSM) and cranked-shell-model (CSM) calculations.

2013Ka05:^{7}Li beam at E=50 MeV from Pelletron accelerator. Target=2.7 mg/cm^2, 99.9% enriched ^{124}Sn. γ rays detected with an array consisting of 15 Compton-suppressed HPGe Clover detectors. Measured Eγ, Iγ, γγ-coin, γγ(θ)(DCO), γγ(linear pol). Deduced high-spin levels, J, π, bands, multipolarity and mixing ratio. Comparison with particle rotor model calculations. Total Routhian surface calculations.

2012MoZZ:^{7}Li beam at E(lab)=50 MeV provided by Pelletron accelerator γ rays detected by an array consisting of six Compton-suppressed HPGe detectors and two LEPS detectors. Measured Eγ, Iγ, γγ-coin, DCO. Deduced high-spin levels, J, π, bands, multipolarity and configurations. Cranked mean-field calculations.

^{126}I Levels

E(level)[†‡]	Jπ[#]	$T_{1/2}$	Comments
0.0	2^-	12.93 d *5*	Jπ,$T_{1/2}$: from Adopted Levels.
56.37 *24*	1^+	20 ns	Jπ: from Adopted Levels. $T_{1/2}$: from γ(t) (2012MoZZ). 15.9 ns *14* in Adopted Levels.
110.94 *22*	(3^+)	128 ns	Jπ: from Adopted Levels. 2012MoZZ propose 5^+. $T_{1/2}$: from γ(t) (2012MoZZ). 56 ns *3* in Adopted Levels.
122.14 *19*	4^-	11 ns	$T_{1/2}$: from γ(t) (2012MoZZ). 13.5 ns *11* in Adopted Levels. In-out intensity is imbalance. Jπ: stretched E2 γ to 2^-.
204.2 *3*	(4^+)		Jπ: M1+E2 γ from (5^+) and (3^+).
237.22 *25*	6^-	16 ns	$T_{1/2}$: from γ(t) (2012MoZZ). Jπ: stretched E2 γ to 4^-.
244.71 *24*	$(4)^+$		Jπ: M1,E2 γ from 2^+ in (p,nγ) γ and γ from (6^+). 2012Zh30 and 2012MoZZ propose (5^-) and 5, respectively.
291.0[i] *4*	(5^+)		Jπ: M1+E2 γ to (4^+), sretched E2 γ from (7^+).
305.0 *3*	(7^-)		Jπ: M1+E2 γ to 6^-.
328.9 *3*	(6^+)		Jπ: M1+E2 γ from 501.6 keV (7^+) level.
394.1[j] *3*	$(3)^+$		Jπ: from Adopted Levels.
410.7[@] *3*	(8^-)		Jπ: M1+E2 γ to (7^-), stretched E2 γ to 6^-.
501.6 *3*	(7^+)		Jπ: D γ to (8^-), M1+E2 γ to (6^+).
564.7 *3*	(4^+)		Jπ: M1+E2 γ to $(3)^+$, γ to (6^+). 2012MoZZ proposed spin-parity of 6^+.
577.6[h] *3*	(8^-)		Jπ: M1+E2 γ to(7^-).
735.2[&] *3*	(9^-)		Jπ: M1+E2 γ to (8^-), streched E2 γ to (7^-).
794.7 *5*	(6^+)		Jπ: M1+E2 γ to (5^+).
865.8[j] *4*	(5^+)		Jπ: E2 γ to $(3)^+$, M1+E2 γ to (4^+). 2012MoZZ proposed spin-parity of 7^+.
907.2 *3*	(8^+)		Jπ: M1+E2 γ from (9^+).
921.6[i] *4*	(7^+)		Jπ: E2 γ from (9^+).
941.4 *4*			
1076.8 *3*	(9^-)		Jπ: M1+E2 γ to (8^-), strethed E2 γ to (7^-).
1129.8[@] *3*	(10^-)		Jπ: M1+E2 γ to (9^-), stretched E2 γ to (8^-).
1211.1 *4*			Jπ: 2012MoZZ propose spin-parity of 8^+. However, mult′s of the deexciting g′s are unknown.
1239.3 *4*			
1304.0[h] *4*	(10^-)		Jπ: M1+E2 γ to (9^-), stretched E2 γ to (8^-).
1352.6 *3*	(9^+)		Jπ: M1+E2 γ to (8^+), E1+M2 γ to (8^-) from DCO and γγ(linear pol) (2013Ka50). 2012MoZZ proposed spin-parity of (9^-).
1379.4[g] *4*	(10^-)		Jπ: M1+E2 γ to (9^-), γ to (8^-).
1431.3 *6*	(8^+)		Jπ: stretched E2 γ to (6^+).

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^{124}Sn(^{7}Li,5nγ) 2012Zh30,2013Ka50,2012MoZZ (continued)

^{126}I Levels (continued)

E(level)[†‡]	Jπ[#]	Comments
1432.6[c] 3	(10+)	Jπ: E1 γ to (9−), M1+E2 γ to (9+).
1468.5[&] 3	(11−)	
1567.3[j] 5	(7+)	Jπ: stretched E2 γ to (5+). 2012MoZZ proposed spin-parity of 9−.
1614.2[i] 4	(9+)	Jπ: stretched E2 γ to (7+).
1832.1[d] 4	(11+)	
1893.8[@] 4	(12−)	
1947.8 5		
2079.2 4	(11)	
2131.1[c] 4	(12+)	
2137.2[g] 4	(12−)	
2170.8[h] 4	(12−)	
2213.9[b] 3	(11+)	
2322.2[&] 4	(13−)	
2427.2[i] 5	(11+)	
2433.0[a] 4	(12+)	
2497.6[d] 4	(13+)	
2597.9 4	(13−)	
2644.4[e] 4	(13+)	
2708.0[b] 4	(13+)	
2759.3[@] 4	(14−)	
2800.9[c] 4	(14+)	
2959.8[a] 4	(14+)	
3018.1[e] 5	(14+)	
3020.3[d] 4	(15+)	
3025.4[g] 4	(14−)	
3170.9[h] 7	(14−)	
3290.6[&] 4	(15−)	
3359.0[b] 4	(15+)	
3410.2[c] 5	(16+)	
3427.8[e] 5	(15+)	
3575.8 4	(15−)	
3603.5[f] 4	(15−)	
3674.7[@] 4	(16−)	
3686.5 5		
3746.3[a] 5	(16+)	
3842.9 5		
3847.9[e] 6	(16+)	
4019.0[d] 5	(17+)	
4097.3[g] 5	(16−)	
4130.1 5		
4184.3[&] 5	(17−)	
4235.8[b] 6	(17+)	
4293.7 6		
4314.3[f] 4	(17−)	
4328.4[e] 7		
4501.5[c] 5	(18+)	
4534.3[@] 5	(18−)	
4650.6[a] 6	(18+)	
4767.7 7		

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^{124}Sn(^{7}Li,5nγ) 2012Zh30,2013Ka50,2012MoZZ (continued)

^{126}I Levels (continued)

E(level)[†‡]	J$^{\pi}$[#]	E(level)[†‡]	J$^{\pi}$[#]	E(level)[†‡]	J$^{\pi}$[#]	E(level)[†‡]
4885.9[f] 7	(19$^-$)	5529.1[@] 6	(20$^-$)	6104.4[c] 7		7045.4?[d] 7
4982.1[d] 5	(19$^+$)	5569.7 8	(20$^-$)	6231.7[&] 7		7117.4?[c] 8
5143.2[&] 6	(19$^-$)	5610.6[a] 8		6506.1 9	(22$^-$)	
5217.2[b] 7		5706.9[f] 8	(21$^-$)	6659.9[@] 8		
5424.8[c] 6	(20$^+$)	5954.4[d] 6	(21$^+$)	6806.4[f] 9	(23$^-$)	

† From 2012Zh30, 2013Ka50 and 2012MoZZ. The levels at 4175 and 4701 keV reported in 2012Zh30 are inconsisitent with those of 2013Ka50 and 2012MoZZ. The levels at 2351 and 2655 keV reported in 2012MoZZ are inconsistent with those of 2012Zh30 and 2013Ka50.

‡ From least-squares fit to Eγ data.

J^{π} assignments are proposed based on the multipolarity of transitions, band structures and assuming that the spin values increase with increasing excitation energy. Quadrupole transitions and dipole transitions from DCO values are assumed to be stretche E2 transitions and M1+E2 transitions, respectively unless otherwise noted. The parity of Band(B), Band(b) and Band(D) proposed negative by 2012Zh30. However, the parity is determined as positive by 2013Ka50 from DCO and $\gamma\gamma$(linear pol).

@ Band(A): Band based on (8$^-$),α=0. Proposed configuration=$\pi d_{5/2}\otimes\nu h_{11/2}$.

& Band(a): Band based on (9$^-$),α=1. Proposed configuration=$\pi d_{5/2}\otimes\nu h_{11/2}$.

a Band(B): Band based on (12$^+$),α=0. Proposed configuration=$\pi h_{11/2}\otimes\nu h_{11/2}$.

b Band(b): Band based on (11$^+$),α=1. Proposed configuration=$\pi h_{11/2}\otimes\nu h_{11/2}$.

c Band(C): Band based on (10$^+$),α=0. Proposed configuration=$\pi h_{11/2}\otimes\nu h_{11/2}$.

d Band(c): Band based on 11$^+$,α=1. Proposed configuration=$\pi h_{11/2}\otimes\nu h_{11/2}$.

e Band(D): Band based on (13$^+$).

f Band(E): Band based on (15$^-$). Possible 4-qp band.

g Band(F): Band based on (10$^-$). Proposed configuration=$\pi d_{5/2}\otimes\nu h_{11/2}$.

h Band(G): Band based on (8$^-$). Proposed configuration=$\pi g_{7/2}\otimes\nu h_{11/2}$.

i Band(H): Band based on (5$^+$).

j Band(I): Band based on (3)$^+$.

γ(^{126}I)

Most of DCO values are adopted from 2012Zh30. DCO(2) for gate on ΔJ=2, quadrupole transition; expected values are 1.0 for ΔJ=2, quadrupole and <0.7 for ΔJ=1, dipole. DCO(1) for gate on ΔJ=1, dipole transition; expected values are 1.6 for ΔJ=2, quadrupole and 1.0 for ΔJ=1, dipole. If no data are given in 2012Zh30, DCO values from 2012MoZZ and 2013Ka50 are adopted.

DCO(S) values for gate on E2 transition, and DCO(T) values for gate on total gated spectra from 2012MoZZ.

DCO(C) values for gate on E2 transition; expected values are 1.0 for for ΔJ=2, quadrupole and 0.5 for ΔJ=1, dipole. DCO(D) values for M1/E2 transition; expected values are 1.5 for ΔJ=2 quadrupole and 1.0 for ΔJ=1, dipole from 2013Ka50. DCO(C) values of 220.0, 356.2, 366.9, 390.5, 644.4, 942.4 and 1084.5 keV γ rays and DCO(D) values of 394.9, 410.2, 420.2, 877.2 and 888.7 keV γ rays reported in table I of 2013Ka50 are inconsitent with authors′ multipolarities.

Pol values from 2013Ka50. Expected POL values are positive for ΔJ=2, E2; ΔJ=1, E1; Δ J=0, M1; and negative for ΔJ=1, M1 and ΔJ=0, E1 transitions.

E$_\gamma$[†]	I$_\gamma$[‡]	E$_i$(level)	J$^{\pi}_i$	E$_f$	J$^{\pi}_f$	Mult.[f]	δ[g]	α[h]	Comments
51.8[c] 3	1.5[c] 4	2131.1	(12$^+$)	2079.2	(11)				
54.6[b] 3		110.94	(3$^+$)	56.37	1$^+$				
56.4[b] 3		56.37	1$^+$	0.0	2$^-$				
67.8 2	367.4 25	305.0	(7$^-$)	237.22	6$^-$	M1+E2	+0.16 3	2.40 7	DCO(S)=0.64 1

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^{124}Sn(^{7}Li,5nγ) 2012Zh30,2013Ka50,2012MoZZ (continued)

γ(^{126}I) (continued)

Eγ[†]	Iγ[‡]	Ei(level)	J^π_i	Ef	J^π_f	Mult.[f]	δ[g]	α[h]	Comments
72.0[ej] 5	<0.1	7117.4?		7045.4?					
80.0 2	23.7 3	1432.6	(10+)	1352.6	(9+)	M1+E2	+0.25 3	1.56 5	DCO(S)=0.60 2
84.2 2	50.7 20	328.9	(6+)	244.71	(4)+	(E2)		2.2 10	DCO(S)=0.76 2 Mult.: γ to (4)+ required E2. However, 2012MoZZ propose dipole transition. The evaluators assumed E2.
86.8[a] 3	7.2[a] 11	291.0	(5+)	204.2	(4+)	M1+E2		2.0 9	DCO(S)=0.82 10
91.2[c] 3	8.4[c] 14	501.6	(7+)	410.7	(8−)	D			DCO(t)=0.81 3
91.7[b] 3		328.9	(6+)	237.22	6−				Eγ: doublet with 91.2γ.
93.4[a] 3	4.9[a] 8	204.2	(4+)	110.94	(3+)	M1+E2		1.6 7	DCO(S)=0.70 11
103.1[a] 3	3.7[a] 6	394.1	(3)+	291.0	(5+)				
105.7 2	291.3 9	410.7	(8−)	305.0	(7−)	M1+E2	+0.25 1	0.686 11	DCO(2)=0.51 9
111.0[a] 3	10.3[a] 16	110.94	(3+)	0.0	2−	E1		0.152 3	DCO(S)=0.68 12 Mult.: from α(K)exp in (p,nγ).
115.1 2	366.6 9	237.22	6−	122.14	4−	E2+M3	+0.23 1	2.77 15	DCO(2)=1.08 9 Mult.: δ(M3/E2)= +0.23 1 is reported in (20013Ka50). From RUL (M3)<10, one expects δ<1.2x10^{-4}. The evaluators adopt mult=E2.
122.1 2	367.1 9	122.14	4−	0.0	2−	E2+M3	0.24 3	2.3 4	DCO(2)=1.07 8 Mult.: δ(M3/E2)= +0.24 3 is reported in (20013Ka50). From RUL (M3)<10, one expects δ<1.2x10^{-4}. The evaluators adopt mult=E2.
122.5 2	58.4 18	244.71	(4)+	122.14	4−				
135.4[b] 3		1076.8	(9−)	941.4					
137.2 5	0.43 6	5706.9	(21−)	5569.7	(20−)	M1+E2		0.44 14	DCO(S)=0.87 2
149.3[a] 3	10.6[a] 16	394.1	(3)+	244.71	(4)+	(M1+E2)			DCO(S)=0.55 12 Mult.: The authors do not propose mult. However, the evaluators assumed (M1+E2) from the value of DOC.
150.0 5	3.5 12	6104.4		5954.4	(21+)				
151.5[c] 3	0.6[c] 1	2322.2	(13−)	2170.8	(12−)	M1+E2		0.32 9	
157.5 4	5.2 2	735.2	(9−)	577.6	(8−)	M1+E2		0.28 7	DCO(S)=0.56 3
164.4 4	5.5 3	1468.5	(11−)	1304.0	(10−)	M1+E2		0.25 6	DCO(S)=0.56 4
170.6[a] 3	5.2[a] 8	564.7	(4+)	394.1	(3)+	M1+E2	+0.09 2	0.169 3	DCO(S)=0.50 3
172.6 2	37.9 15	501.6	(7+)	328.9	(6+)	M1+E2		0.21 5	DCO(2)=0.65 7
173.5[c] 3	6.3[c] 10	410.7	(8−)	237.22	6−	E2		0.253 4	DCO(C)=0.92 6
176.7[@] 5		4019.0	(17+)	3842.9					
184.4 5	1.2 8	4314.3	(17−)	4130.1					Eγ: The authors of 2012Zh30 place this γ from 4886 level. The placement is inconsistent with the decay pattern by 2012MoZZ and 2013Ka50.
189.9[a] 3	4.6[a] 7	394.1	(3)+	204.2	(4+)				DCO(S)=0.81 11
193.4[b] 3		1432.6	(10+)	1239.3					
208.1[&] 5	2.8[&] 9	4501.5	(18+)	4293.7					
211.6 5	4.0 2	2644.4	(13+)	2433.0	(12+)	M1+E2		0.111 18	DCO(S)=0.50 5
216.7[&] 5	3.2[&] 12	4314.3	(17−)	4097.3	(16−)				

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^{124}Sn(^{7}Li,5nγ) 2012Zh30,2013Ka50,2012MoZZ (continued)

γ(^{126}I) (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[f]	δ[g]	α[h]	Comments
219.0 2	28.3 17	2433.0	(12$^+$)	2213.9	(11$^+$)	M1+E2	+0.14 3	0.086 1	DCO(2)=0.64 8
219.4 2	59.5 21	3020.3	(15$^+$)	2800.9	(14$^+$)	M1+E2	+0.23 3	0.0866 13	DCO(1)=0.90 3 E_γ: The authors of 2012MoZZ place this γ on 2131 level. The placement is inconsistent with the decay pattern by 2012Zh30 and 2013Ka50.
235.8[b] 3		564.7	(4$^+$)	328.9	(6$^+$)				
251.8 2	27.4 12	2959.8	(14$^+$)	2708.0	(13$^+$)	M1+E2	+0.10 6	0.0592 9	DCO(1)=0.89 5; DCO(2)=0.63 7
258.4[#] 5	1.7[#] 6	3686.5		3427.8	(15$^+$)				
272.6 2	60.1 20	577.6	(8$^-$)	305.0	(7$^-$)	M1+E2		0.051 4	DCO(2)=0.50 6 POL=−0.01 1.
274.9 2	28.0 8	2708.0	(13$^+$)	2433.0	(12$^+$)	M1+E2	+0.14 5	0.0470 7	DCO(1)=0.99 3; DCO(2)=0.61 11
299.1 4	6.0 2	2131.1	(12$^+$)	1832.1	(11$^+$)	M1+E2		0.0391 16	DCO(1)=0.83 8; DCO(2)=0.42 9
300.3 5	≈0.1	6806.4	(23$^-$)	6506.1	(22$^-$)	M1+E2		0.0386 16	
301.1[a] 3	<2.9[a]	865.8	(5$^+$)	564.7	(4$^+$)	M1+E2		0.0383 15	DCO(S)=0.48 7
303.3 3	19.9 3	2800.9	(14$^+$)	2497.6	(13$^+$)	M1(+E2)	+0.02 2	0.0363 6	DCO(1)=1.07 3; DCO(2)=0.51 14
324.4 2	314.6 21	735.2	(9$^-$)	410.7	(8$^-$)	M1+E2	−0.06 1	0.0305 4	DCO(2)=0.49 2 POL=−0.04 1.
327.8[#] 5	7.8[#] 17	3686.5		3359.0	(15$^+$)				
338.7 2	48.2 9	1468.5	(11$^-$)	1129.8	(10$^-$)	M1+E2	−0.05 2	0.0273 4	DCO(1)=0.93 3; DCO(2)=0.49 3 POL=−0.06 1.
345.3[a] 3	<1.5[a]	1211.1		865.8	(5$^+$)				
350.0 5	2.4 2	4534.3	(18$^-$)	4184.3	(17$^-$)	M1(+E2)	+0.04 4	0.0251 4	DCO(2)=0.65 12
355.7 3	14.9 7	1432.6	(10$^+$)	1076.8	(9$^-$)	E1+M2	+0.13 3	0.0079 8	DCO(1)=0.98 6; DCO(2)=0.66 7 POL=+0.05 2.
366.5 2	55.6 19	2497.6	(13$^+$)	2131.1	(12$^+$)	M1(+E2)	+0.02 3	0.0223 3	DCO(1)=0.91 3 POL=−0.03 1.
374.0 4	6.9 5	3018.1	(14$^+$)	2644.4	(13$^+$)	(M1+E2)	−0.18 3	0.0211 3	DCO(2)=0.53 6
381.9[@][j] 5		2213.9	(11$^+$)	1832.1	(11$^+$)				
384.1 4	9.4 7	3674.7	(16$^-$)	3290.6	(15$^-$)	M1+E2	−0.07 4	0.0198 3	DCO(2)=0.51 7
385.9 5	≈0.2	5529.1	(20$^-$)	5143.2	(19$^-$)				
387.3 4	7.2 7	3746.3	(16$^+$)	3359.0	(15$^+$)	M1(+E2)	0.00 4	0.0194 3	DCO(1)=1.05 16
389.9 2	44.9 8	3410.2	(16$^+$)	3020.3	(15$^+$)	M1+E2	0.04 3	0.0191 3	DCO(1)=0.95 3 POL=−0.05 1.
394.6 2	59.4 1	1129.8	(10$^-$)	735.2	(9$^-$)	M1+E2	−0.05 1	0.0185 3	DCO(1)=1.00 2; DCO(2)=0.40 6 POL=−0.03 2.
399.2 2	26.6 19	3359.0	(15$^+$)	2959.8	(14$^+$)	M1+E2	−0.07 5	0.0179 3	DCO(1)=0.78 3
399.5 2	28.3 16	1832.1	(11$^+$)	1432.6	(10$^+$)	M1+E2	+0.25 3	0.0178 3	DCO(1)=0.92 2
405.7 2	23.9 10	907.2	(8$^+$)	501.6	(7$^+$)	M1+E2		0.0165 8	DCO(2)=0.38 10
409.8 5	2.8 1	3427.8	(15$^+$)	3018.1	(14$^+$)	(M1+E2)	−0.19 2	0.0168 3	DCO(2)=0.35 13
410.8[@] 5		1352.6	(9$^+$)	941.4					
414.8[c] 3	3.5[c] 7	4650.6	(18$^+$)	4235.8	(17$^+$)	M1+E2		0.0155 9	DCO(S)=1.01 5
419.8 5	0.9 1	3847.9	(16$^+$)	3427.8	(15$^+$)	M1+E2		0.0150 9	DCO(2)=0.43 16
425.3 2	31.0 9	1893.8	(12$^-$)	1468.5	(11$^-$)	M1+E2	−0.09 2	0.0153 2	DCO(1)=0.91 2; DCO(2)=0.54 3 POL=−0.09 1.
428.4 5	1.7 1	2322.2	(13$^-$)	1893.8	(12$^-$)	M1+E2		0.0142 9	DCO(2)=0.66 10

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^{124}Sn(^{7}Li,5nγ) 2012Zh30,2013Ka50,2012MoZZ (continued)

γ(^{126}I) (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[f]	δ[g]	α[h]	Comments
430.6[c] 3	4.9[c] 8	735.2	(9⁻)	305.0	(7⁻)	E2		0.0132 2	
437.0 2	25.7 12	2759.3	(14⁻)	2322.2	(13⁻)	M1+E2	−0.19 2	0.0143 2	DCO(1)=0.88 3; DCO(2)=0.48 4 POL=−0.07 1.
442.7 3	17.4 3	5424.8	(20⁺)	4982.1	(19⁺)	M1+E2	+0.14 4	0.0138 2	DCO(2)=0.35 6
445.4 2	22.9 10	1352.6	(9⁺)	907.2	(8⁺)	M1+E2		0.0128 9	DCO(2)=0.54 6
467.8[c] 3	1.5[c] 4	3427.8	(15⁺)	2959.8	(14⁺)				
471.7[a] 3	2.9[a] 6	865.8	(5⁺)	394.1	(3)⁺	E2		0.0101 2	DCO(t)=1.45 15
480.5[ia] 3	1.4[ia] 3	4328.4		3847.9	(16⁺)				
480.6[i] 4	6.7[i] 6	4982.1	(19⁺)	4501.5	(18⁺)	M1+E2		0.0104 9	DCO(2)=0.31 14
482.5 4	9.6 9	4501.5	(18⁺)	4019.0	(17⁺)	M1+E2		0.0103 9	DCO(2)=0.46 14
489.7 5	3.5 4	4235.8	(17⁺)	3746.3	(16⁺)	M1+E2		0.0099 9	DCO(S)=0.36 9
493.9 4	7.4 2	2708.0	(13⁺)	2213.9	(11⁺)	E2		0.00886 13	DCO(2)=0.86 13
503.7[a] 3	3.7[a] 6	794.7	(6⁺)	291.0	(5⁺)	M1+E2		0.0092 9	DCO(S)=0.78 20
509.6 4	<6.5	4184.3	(17⁻)	3674.7	(16⁻)	M1+E2		0.0089 9	
522.7 4	6.8 2	3020.3	(15⁺)	2497.6	(13⁺)	E2		0.00757 11	DCO(1)=2.03 5
526.6[#] 5	14[#] 3	4130.1		3603.5	(15⁻)				
526.7 4	9.7 7	2959.8	(14⁺)	2433.0	(12⁺)	E2		0.00741 11	DCO(1)=1.85 15; DCO(2)=0.89 9
529.6 5	3.7 4	5954.4	(21⁺)	5424.8	(20⁺)	M1+E2		0.0081 8	DCO(1)=1.16 12
530.6[b] 3		941.4		410.7	(8⁻)				
531.3 5	2.4 2	3290.6	(15⁻)	2759.3	(14⁻)	M1+E2		0.0080 8	
550.6[&] 5	5.2[&] 17	3575.8	(15⁻)	3025.4	(14⁻)				
554.3[#] 5	3.1[#] 6	4130.1		3575.8	(15⁻)				
566.4[@] 5		5217.2		4650.6	(18⁺)				
568.9 3	16.5 13	1304.0	(10⁻)	735.2	(9⁻)	M1+E2		0.0067 8	DCO(1)=0.79 3
571.6[d] 5	13.8[d] 5	4885.9	(19⁻)	4314.3	(17⁻)	E2		0.00593 9	DCO(N)=1.05 2; DCO(2)=1.09 8 POL=+0.12 8.
577.9[@] 5		2708.0	(13⁺)	2131.1	(12⁺)				
578.9[#] 5	7.8[#] 17	3603.5	(15⁻)	3025.4	(14⁻)	M1(+E2)	−0.04 5	0.0072 1	DCO(C)=0.52 6
599.8[c] 3	2.4[c] 4	2213.9	(11⁺)	1614.2	(9⁺)	E2		0.00522 8	DCO(S)=1.10 15
600.7 3	15.6 4	2433.0	(12⁺)	1832.1	(11⁺)	M1+E2	+0.20 4	0.0065 1	DCO(1)=0.91 5 POL=−0.02 2.
608.7 2	30.9 9	4019.0	(17⁺)	3410.2	(16⁺)	M1+E2	+0.09 2	0.00633 9	DCO(2)=0.51 5
608.9 5	<4.0	5143.2	(19⁻)	4534.3	(18⁻)				
609.3 4	5.2 4	3410.2	(16⁺)	2800.9	(14⁺)				
617.4 2	65.5 7	1352.6	(9⁺)	735.2	(9⁻)	E1+M2	−0.21 3	0.0024 2	DCO(S)=1.09 1; DCO(D)=0.50 1 POL=−0.07 1.
630.7[a] 3	7.2[a] 11	921.6	(7⁺)	291.0	(5⁺)	E2		0.00458 7	DCO(S)=1.66 20
636.4[b] 3	2.2 6	941.4		305.0	(7⁻)				I_γ: from 2013Ka50.
636.6[a] 3	2.9[a] 5	1431.3	(8⁺)	794.7	(6⁺)	E2		0.00447 6	DCO(S)=1.38 25
644.2 2	22.3 3	1379.4	(10⁻)	735.2	(9⁻)	M1+E2	+0.10 2	0.00552 8	DCO(2)=0.30 8
646.4[a] 3	2.9[a] 5	1211.1		564.7	(4⁺)				
646.6[a] 3	17.0[a] 25	2079.2	(11)	1432.6	(10⁺)	D			DCO(S)=0.62 3
651.0 5	3.6 2	3359.0	(15⁺)	2708.0	(13⁺)	E2		0.00422 6	DCO(1)=1.97 14
661.8[a] 3	6.9[a] 11	1239.3		577.6	(8⁻)				
665.6 4	6.7 2	2497.6	(13⁺)	1832.1	(11⁺)	E2		0.00399 6	DCO(C)=0.69 3 POL=+0.13 5.
666.1 4	6.4 2	1076.8	(9⁻)	410.7	(8⁻)	M1+E2		0.0045 6	DCO(S)=0.63 3
668.7 3	12.2 3	2137.2	(12⁻)	1468.5	(11⁻)	M1+E2		0.0045 6	DCO(2)=0.41 5

Continued on next page (footnotes at end of table)

$^{124}Sn(^{7}Li,5n\gamma)$ 2012Zh30,2013Ka50,2012MoZZ (continued)

$\gamma(^{126}I)$ (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[f]	δ[g]	α[h]	Comments
669.8 *2*	41.4 *23*	2800.9	(14+)	2131.1	(12+)	E2		0.00393 *6*	DCO(1)=1.75 *3* POL=+0.09 *2*.
679.6 *5*	3.4 *7*	6104.4		5424.8	(20+)				
683.8 *5*	3.9 *2*	5569.7	(20−)	4885.9	(19−)	M1+E2	−0.07 *3*	0.00479 *7*	DCO(2)=0.32 *8*
692.6[a] *3*	4.6[a] *7*	1614.2	(9+)	921.6	(7+)	E2		0.00361 *5*	DCO(S)=1.05 *18*
697.4 *2*	42.6 *17*	1432.6	(10+)	735.2	(9−)	E1			DCO(1)=0.89 *5*
698.6 *2*	121.6 *23*	2131.1	(12+)	1432.6	(10+)	E2		0.00354 *5*	DCO(1)=2.03 *12*; DCO(2)=1.04 *3*
701.5[a] *3*	<1.5[a]	1567.3	(7+)	865.8	(5+)	E2		0.00350 *5*	DCO(t)=1.42 *25*
702.6 *5*	≈0.2	6231.7		5529.1	(20−)				
703.4 *4*	5.2 *3*	3025.4	(14−)	2322.2	(13−)	M1+E2		0.0040 *5*	
704.0 *3*	12.7 *6*	2597.9	(13−)	1893.8	(12−)	M1+E2	+0.09 *3*	0.00447 *7*	DCO(2)=0.32 *8*
710.8 *4*	8.7 *5*	4314.3	(17−)	3603.5	(15−)	E2		0.00339 *5*	DCO(1)=1.85 *9*; DCO(2)=0.95 *10* POL=+0.17 *3*. E_γ: The authors of 2012Zh30 place this γ from 4886 level. The placement is inconsistent with the decay pattern by 2012MoZZ and 2013Ka50.
719.0 *2*	90.0 *16*	1129.8	(10−)	410.7	(8−)	E2		0.00329 *5*	DCO(1)=1.95 *8*; DCO(2)=0.83 *6* POL=+0.11 *1*.
726.4 *3*	13.6 *7*	1304.0	(10−)	577.6	(8−)	E2		0.00321 *6*	DCO(1)=1.53 *4*
726.8[@] *5*		3686.5		2959.8	(14+)				
733.3 *2*	100.0 *5*	1468.5	(11−)	735.2	(9−)	E2		0.00314 *5*	DCO(1)=2.00 *2*; DCO(2)=1.13 *2* POL=+0.13 *1*.
736.7[a] *3*	2.3[a] *4*	1947.8		1211.1		E2		0.00310 *5*	DCO(t)=1.48 *20*
738.5 *3*	4.4 *4*	4314.3	(17−)	3575.8	(15−)	E2		0.00308 *5*	DCO(2)=0.76 *12*
750.6 *3*	13.8 *5*	2644.4	(13+)	1893.8	(12−)	(E1+M2)	+0.19 *4*	0.0015 *2*	DCO(1)=0.77 *7*; DCO(2)=0.60 *7*
757.8 *4*	8.3 *4*	2137.2	(12−)	1379.4	(10−)	E2		0.00290 *4*	DCO(2)=0.76 *10*
764.0 *2*	47.7 *9*	1893.8	(12−)	1129.8	(10−)	E2		0.00284 *4*	DCO(1)=2.01 *3*; DCO(2)=1.12 *4* POL=+0.06 *1*.
771.8 *2*	20.5 *1*	1076.8	(9−)	305.0	(7−)	E2		0.00277 *4*	DCO(2)=0.83 *9*
774.9 *3*	11.2 *3*	1352.6	(9+)	577.6	(8−)	E1+(M2)	−0.03 *6*		DCO(1)=0.87 *4*; DCO(2)=0.36 *11* POL=+0.17 *6*.
781.2 *5*	4.3 *2*	2213.9	(11+)	1432.6	(10+)	M1+E2		0.0031 *4*	DCO(S)=0.26 *12*
786.5 *4*	6.5 *5*	3746.3	(16+)	2959.8	(14+)	E2		0.00265 *4*	DCO(1)=1.80 *16*
799.2 *5*	0.57 *6*	6506.1	(22−)	5706.9	(21−)	M1+E2		0.0029 *4*	DCO(2)=0.48 *13*
802.0[@] *5*		1379.4	(10−)	577.6	(8−)				
813.0[a] *3*	1.4[a] *2*	2427.2	(11+)	1614.2	(9+)	E2		0.00245 *4*	DCO(S)=1.20 *25*
813.9 *4*	6.9 *2*	2708.0	(13+)	1893.8	(12−)	E1+M2	−0.12 *6*	0.00107 *13*	DCO(2)=0.41 *13* POL=+0.06 *2*.
816.4 *4*	8.4 *4*	3575.8	(15−)	2759.3	(14−)	M1+E2		0.0028 *4*	DCO(2)=0.40 *12*
821.0 *5*	1.98 *2*	5706.9	(21−)	4885.9	(19−)	E2		0.00239 *4*	DCO(2)=0.86 *6* POL=+0.14 *12*.
822.6[@] *5*		3842.9		3020.3	(15+)				
830.1[@] *5*		3847.9	(16+)	3018.1	(14+)				
834.5[c] *3*	2.4[c] *4*	2213.9	(11+)	1379.4	(10−)	E1+M2	+0.09 *4*		DCO(D)=0.89 *6*
844.1 *3*	16.7 *8*	3603.5	(15−)	2759.3	(14−)	M1(+E2)	0.00 *4*	0.0029 *1*	DCO(2)=0.52 *7*
853.7 *2*	30.6 *6*	2322.2	(13−)	1468.5	(11−)	E2		0.00219 *3*	DCO(1)=1.84 *2*; DCO(2)=0.96 *3* POL=+0.11 *2*.
859.6 *3*	13.2 *7*	4534.3	(18−)	3674.7	(16−)	E2		0.00215 *3*	DCO(2)=0.92 *13*
865.4 *2*	34.5 *9*	2759.3	(14−)	1893.8	(12−)	E2		0.00212 *3*	DCO(2)=0.84 *6*
866.8 *3*	13.1 *9*	2170.8	(12−)	1304.0	(10−)	E2		0.00211 *3*	DCO(1)=2.08 *8*

Continued on next page (footnotes at end of table)

^{124}Sn(^{7}Li,5nγ) 2012Zh30,2013Ka50,2012MoZZ (continued)

γ(^{126}I) (continued)

E$_\gamma$ †	I$_\gamma$ ‡	E$_i$(level)	J$^\pi_i$	E$_f$	J$^\pi_f$	Mult. f	δ g	α h	Comments
877.0 *5*	3.6 *2*	4235.8	(17+)	3359.0	(15+)	E2		0.00206 *3*	DCO(1)=1.52 *14*
883.8# *5*	5.8# *14*	4293.7		3410.2	(16+)				
888.4 *5*	1.4 *1*	3025.4	(14−)	2137.2	(12−)	E2		0.00200 *3*	DCO(1)=1.81 *4*
893.7 *3*	10.6 *5*	4184.3	(17−)	3290.6	(15−)	E2			DCO(2)=1.12 *9*
904.0 *5*	3.5 *4*	4650.6	(18+)	3746.3	(16+)	E2			DCO(1)=1.59 *12*
909.9c *3*	1.5c *3*	2213.9	(11+)	1304.0	(10−)	E1(+M2)	+0.07 *8*		DCO(D)=0.86 *15*
915.4 *3*	15.0 *6*	3674.7	(16−)	2759.3	(14−)	E2			DCO(1)=2.02 *6*
923.3 *4*	5.6 *7*	5424.8	(20+)	4501.5	(18+)	E2			DCO(1)=1.62 *12*
941.0ej *5*	<0.1	7045.4?		6104.4					
941.8 *3*	13.8 *8*	1352.6	(9+)	410.7	(8−)	E1+M2	+0.19 *2*		DCO(1)=0.91 *6*; DCO(2)=0.31 *9* POL=+0.04 *1*.
958.9 *5*	1.8 *2*	5143.2	(19−)	4184.3	(17−)	E2			DCO(2)=0.98 *12*
960.0@ *5*		5610.6		4650.6	(18+)				E$_\gamma$: doublet with 958.9γ.
963.1 *4*	8.3 *3*	4982.1	(19+)	4019.0	(17+)	E2			DCO(1)=1.79 *13*; DCO(2)=1.04 *10*
968.3 *2*	30.1 *7*	3290.6	(15−)	2322.2	(13−)	E2			DCO(1)=1.87 *3*; DCO(2)=1.02 *4*
972.3 *4*	7.4 *6*	5954.4	(21+)	4982.1	(19+)	E2			DCO(2)=0.92 *13*
977.8 *5*	3.9 *4*	3575.8	(15−)	2597.9	(13−)	E2			DCO(2)=1.22 *16*
981.6@ *5*		5217.2		4235.8	(17+)				
994.8 *5*	1.6 *2*	5529.1	(20−)	4534.3	(18−)	E2			DCO(2)=1.21 *17*
998.6 *3*	11.8 *3*	4019.0	(17+)	3020.3	(15+)	E2			DCO(1)=2.11 *11*; DCO(2)=0.87 *9*
1000.1 *5*	3.9 *4*	3170.9	(14−)	2170.8	(12−)	E2			
1005.5 *4*	5.7 *1*	3603.5	(15−)	2597.9	(13−)	E2			DCO(2)=1.05 *14*
1007.4 *5*	1.8 *2*	2137.2	(12−)	1129.8	(10−)				
1013.0ej *5*	<0.1	7117.4?		6104.4					
1023.6c *3*	1.3c *2*	4314.3	(17−)	3290.6	(15−)	E2			DCO(S)=1.10 *25*
1042.5@ *5*		3842.9		2800.9	(14+)				
1071.7 *5*	2.0 *2*	4097.3	(16−)	3025.4	(14−)	E2			DCO(2)=0.83 *11*
1081.2# *5*	3.3# *9*	4767.7		3686.5					
1084.0 *3*	14.1 *4*	2213.9	(11+)	1129.8	(10−)	E1+M2	+0.09 *3*		DCO(1)=1.09 *9*; DCO(2)=0.43 *8* POL=+0.07 *3*.
1088.5 *5*	1.4 *2*	6231.7		5143.2	(19−)				
1091.2 *3*	10.9 *8*	4501.5	(18+)	3410.2	(16+)	E2			DCO(1)=1.65 *7*; DCO(2)=0.95 *10*
1091.2ej *5*	<0.1	7045.4?		5954.4	(21+)				
1099.5 *5*	0.54 *7*	6806.4	(23−)	5706.9	(21−)	E2			DCO(2)=1.12 *12*
1104.8# *5*	6.9# *14*	4130.1		3025.4	(14−)				
1130.8 *5*	1.0 *2*	6659.9		5529.1	(20−)				
1131.8 *5*	4.5 *3*	3025.4	(14−)	1893.8	(12−)	E2			DCO(2)=1.13 *9*
1253.7@ *5*		3575.8	(15−)	2322.2	(13−)				

† From 2012Zh30, unless otherwise noted. Uncertainty is stated by authors as 0.2-0.5 keV. Based on this the uncertainties are assigned by the evaluators as follows: 0.2 keV for Iγ>20, 0.3 keV for Iγ=10-20, 0.4 keV for Iγ=5-10 and 0.5 keV I$\gamma\leq$5 or when no intensity is given.

‡ From 2012Zh30, unless otherwise noted. Intensities are normalized to the 733.3 keV γ ray with 100. Relative intensity values from 2012Zh30 are slightly different from those of 2013Ka50 and 2012MoZZ because of the diferences of ^{7}Li beam energy.

From 2013Ka50. Iγ's are normalized to the 733.3 keV γ ray with 100.

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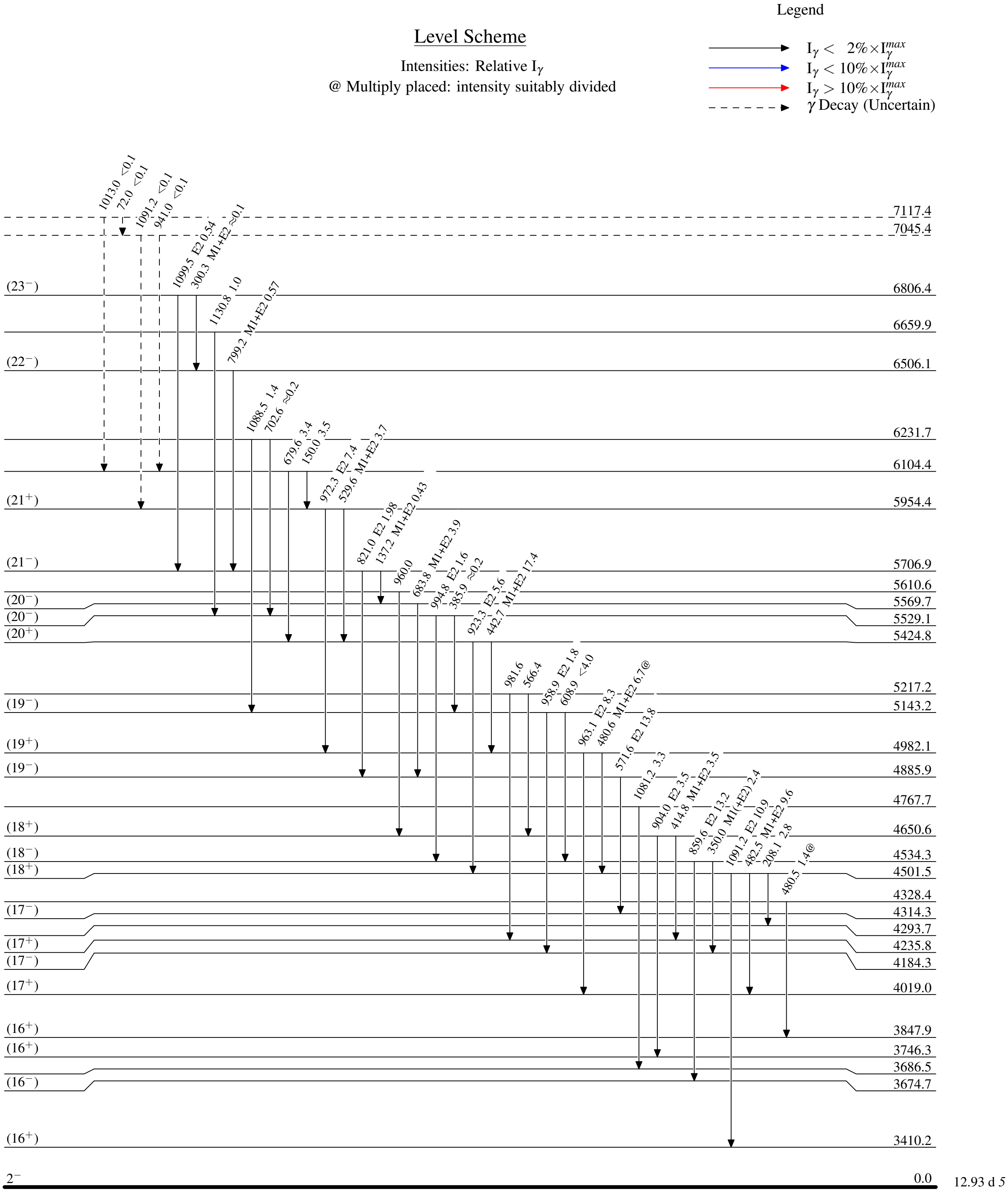
^{124}Sn(^{7}Li,5nγ) 2012Zh30,2013Ka50,2012MoZZ (continued)

γ(^{126}I) (continued)

[@] From 2013Ka50.
[&] From 2013Ka50. The Iγ is normalized with a common transition from the branching ratios of two transitios deexciting the level in 2013Ka50 and 2012Zh30 to avoid Iγ differene by different experimental conditions.
[a] From 2012MoZZ. Iγ's are normalized to the 733.6 keV γ ray with 100. The author of 2012MoZZ reported Iγ's in table 1 normalized the 122.2 keV γ ray with 1000 and assigned uncertainties of Iγ's as 5% for γ rays with Iγ>100 and <15% for weaker ones.
[b] From 2012MoZZ.
[c] From 2012MoZZ. The Iγ is normalized with a common transition from the branching ratios of two transitios deexciting the level in 2012MoZZ and 2012Zh30 to avoid Iγ differene by different experimental conditions.
[d] The authors of 2012Zh30 used the 571.6 keV γ as doublet. They placed one on 4314 leve with Iγ=4.0 *3* and the other with Iγ=9.8 *4* on 3605 level. However, the latter placement is inconsistent with the decay pattern by 2012MoZZ and 2013Ka50. The evaluators adopt the decay pattern and sum of the Iγ's.
[e] Weak transition.
[f] From DCO value and $\gamma\gamma$(linear pol), unless otherwise noted.
[g] From 2013Ka50 assuming alignment parameter σ/I of 0.3 and comparing exprimental DCO values with theoretical DCO values.
[h] 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.
[i] Multiply placed with intensity suitably divided.
[j] Placement of transition in the level scheme is uncertain.

$^{124}Sn(^7Li,5n\gamma)$ 2012Zh30,2013Ka50,2012MoZZ



$^{126}_{53}I_{73}$

^{124}Sn(^{7}Li,5nγ) 2012Zh30,2013Ka50,2012MoZZ

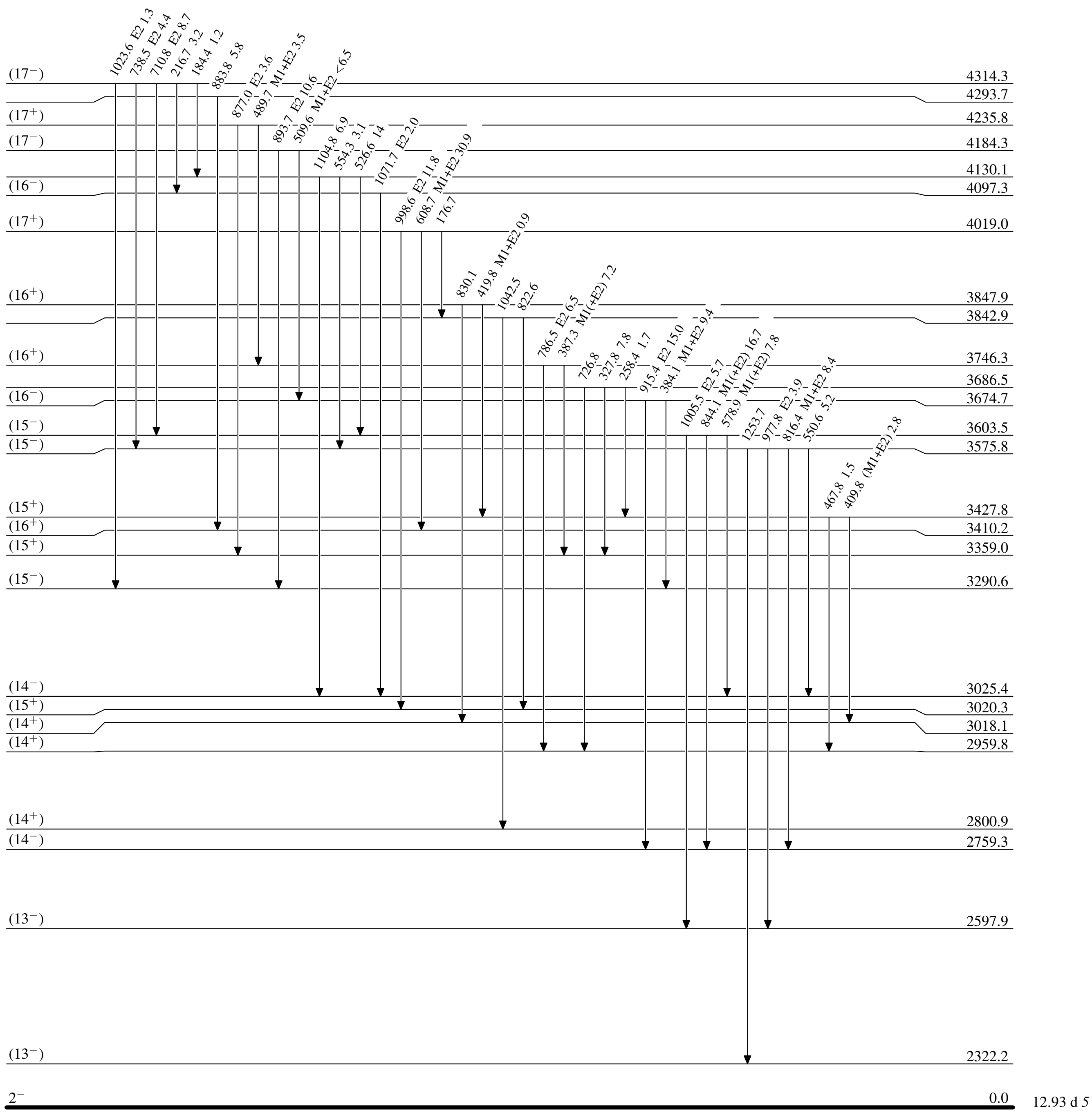
Level Scheme (continued)

Intensities: Relative I_γ

@ Multiply placed: intensity suitably divided

Legend

- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$



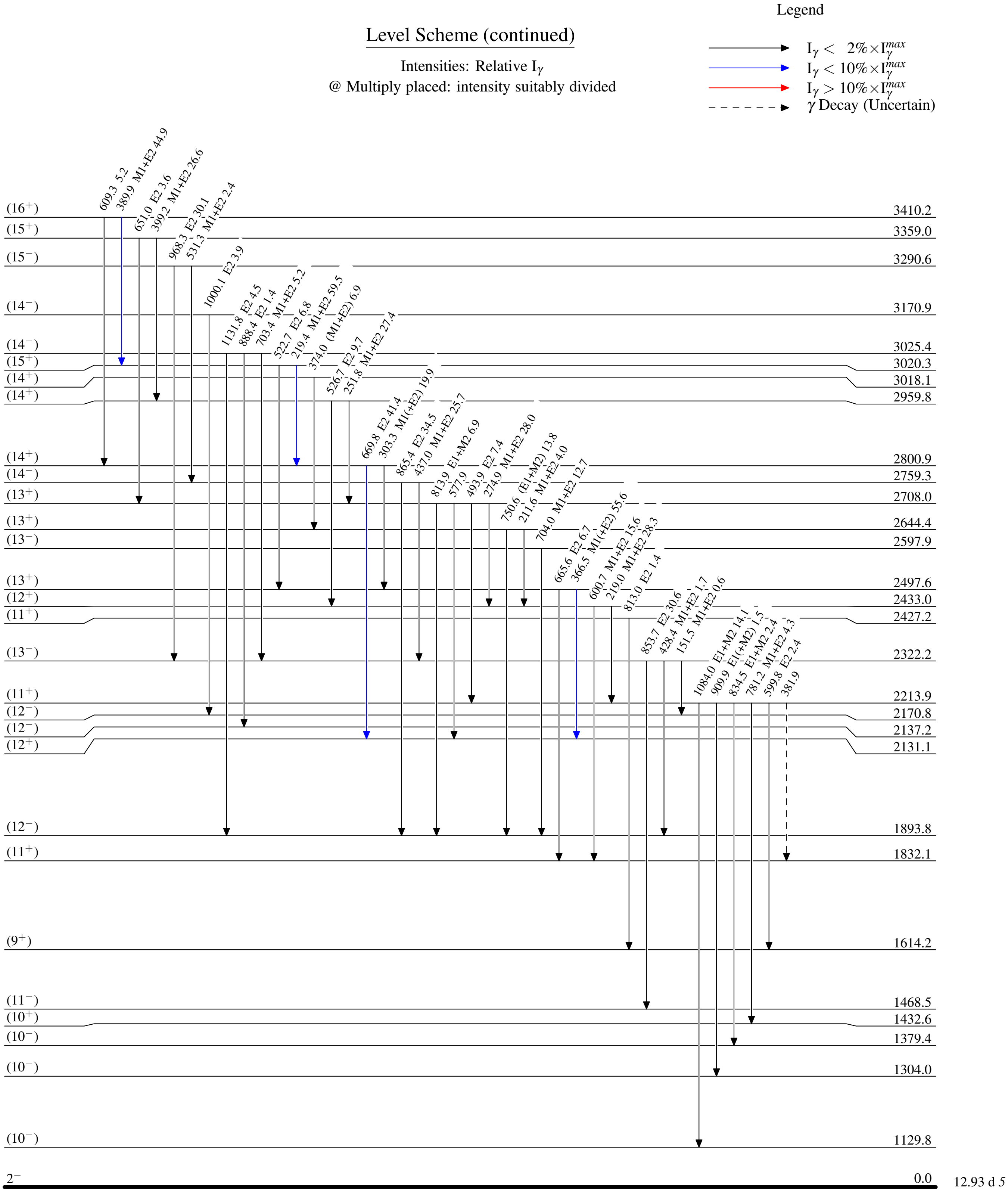
$^{126}_{53}I_{73}$

$^{124}Sn(^{7}Li,5n\gamma)$ 2012Zh30,2013Ka50,2012MoZZ

Level Scheme (continued)

Intensities: Relative I_γ

@ Multiply placed: intensity suitably divided



$^{126}_{53}I_{73}$

$^{124}Sn(^{7}Li,5n\gamma)$ 2012Zh30,2013Ka50,2012MoZZ

Level Scheme (continued)

Intensities: Relative I_γ

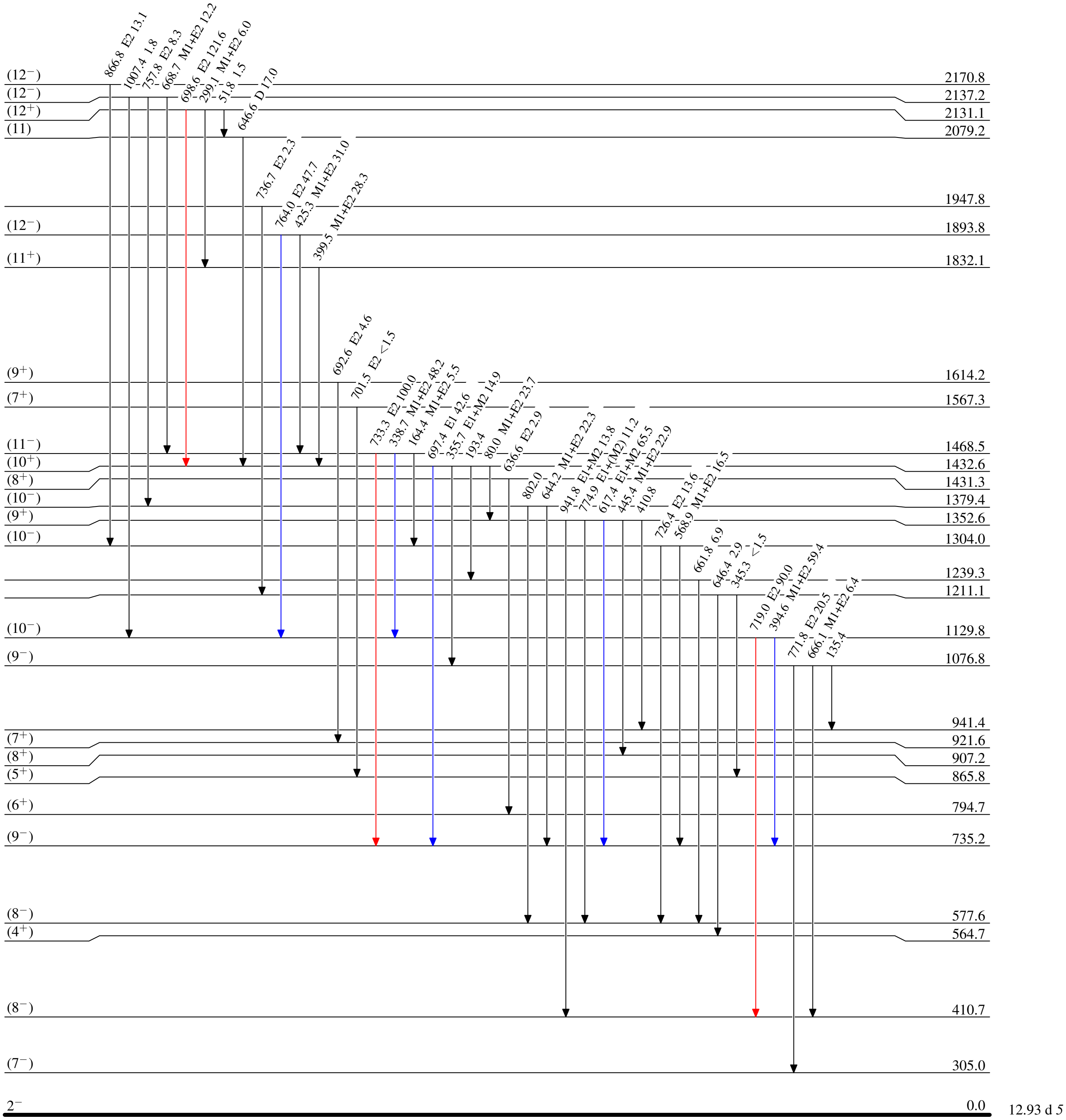
@ Multiply placed: intensity suitably divided

Legend

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

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

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

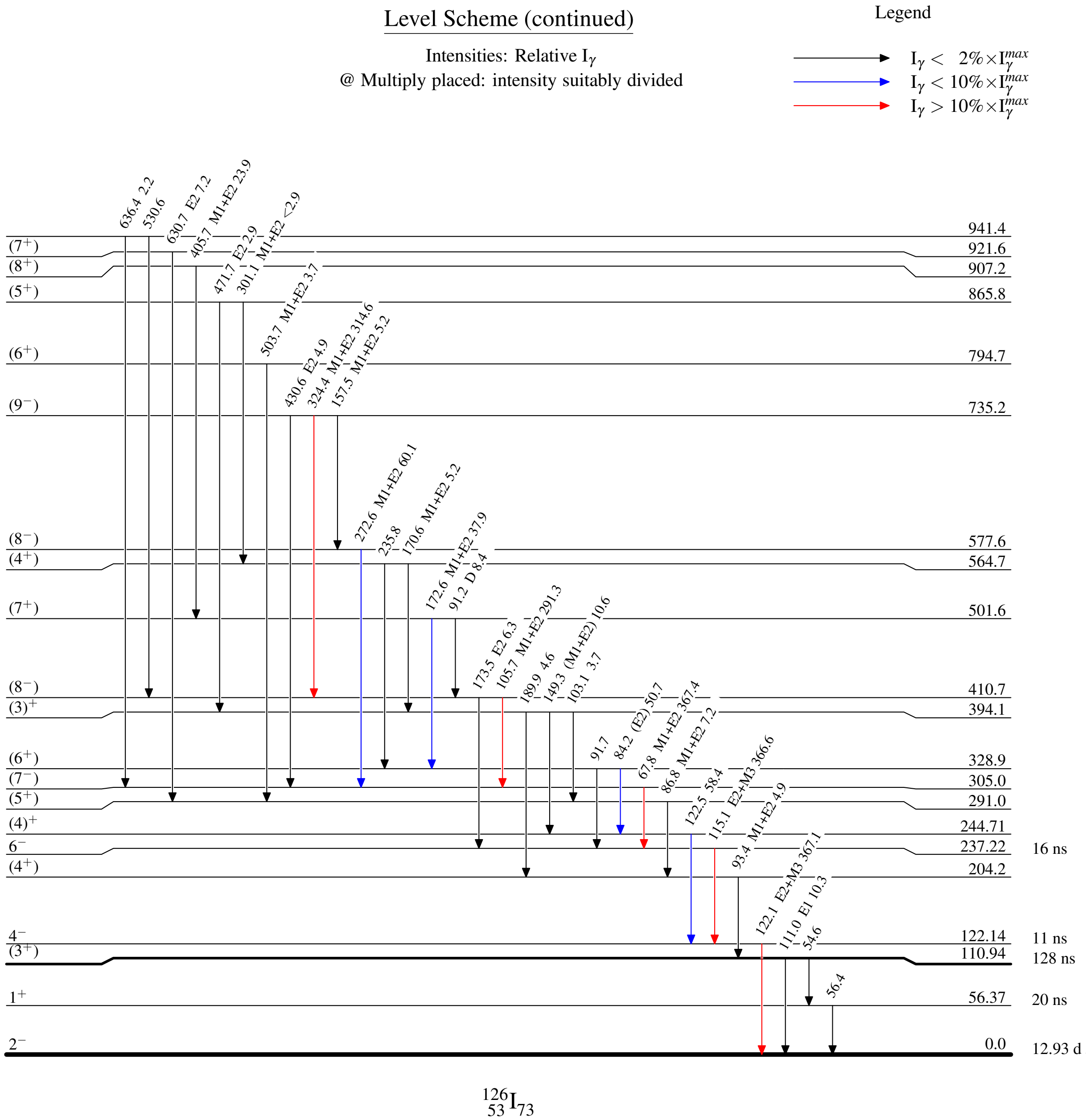


$^{124}Sn(^{7}Li,5n\gamma)$ 2012Zh30,2013Ka50,2012MoZZ

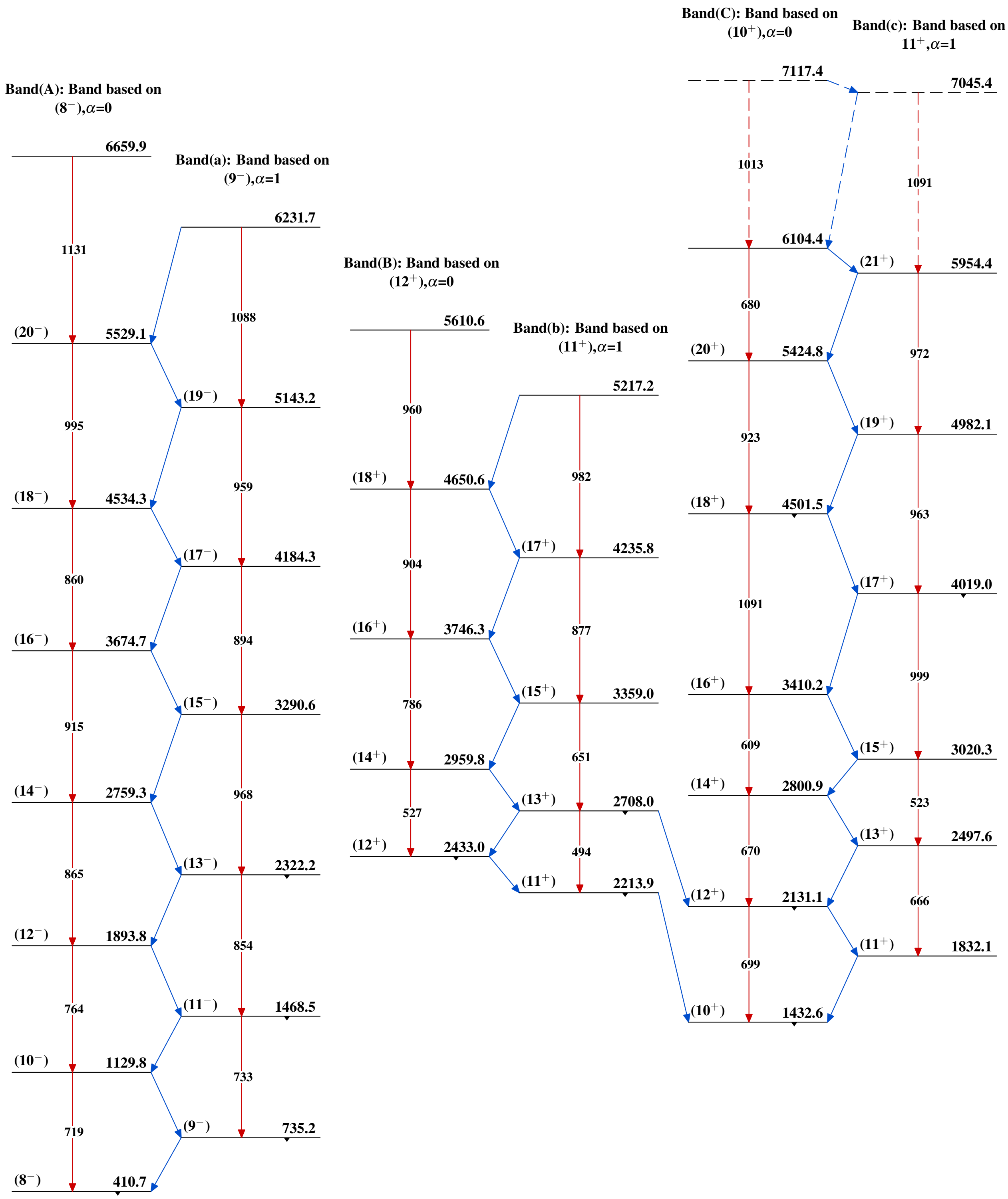
Level Scheme (continued)

Intensities: Relative I_γ

@ Multiply placed: intensity suitably divided

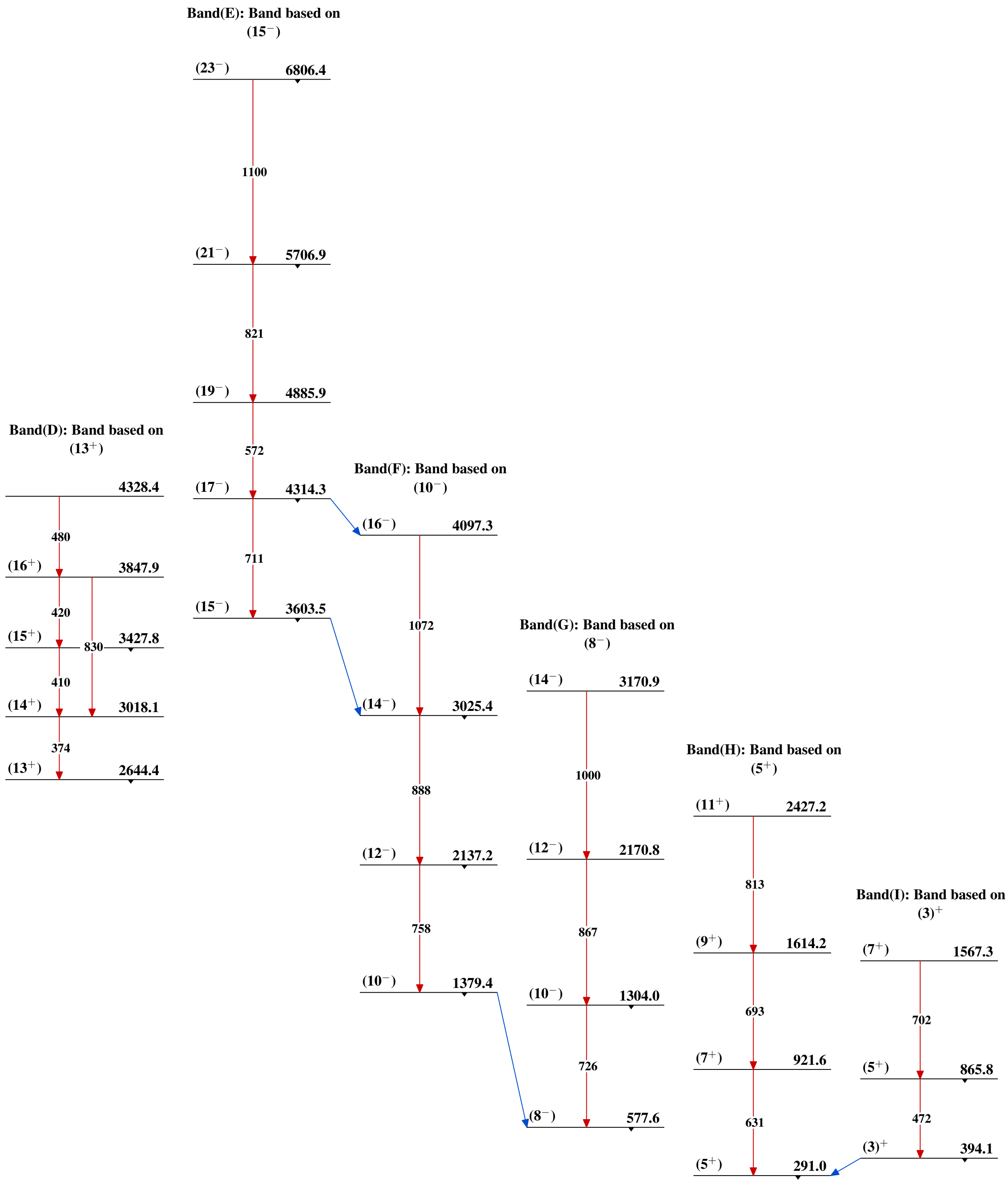


$^{124}Sn(^{7}Li,5n\gamma)$ 2012Zh30,2013Ka50,2012MoZZ



$^{126}_{53}I_{73}$

$^{124}Sn(^{7}Li,5n\gamma)$ 2012Zh30,2013Ka50,2012MoZZ (continued)



$^{126}_{53}I_{73}$