^{124}Sn(n,n′γ) 1990De50

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	J. Katakura, Z. D. Wu	NDS 109, 1655 (2008)	1-Apr-2008

1990De50: reactor neutrons; semi γ, γ(θ) (θ=90° and 125°), γ-polarization.
1991Go24: reactor neutrons; semi γ, γ(θ) (θ=90°, 125° and 150°), DSA.
2005Ba02: pulsed neutron by ^{3}H(p,n)^{3}He. enriched target 73 %, measured γ, γ-γ coin, γ(θ), DSA.
The decay scheme is that proposed by 1990De50, unless otherwise indicated.
See ENSDF for gammas.

^{124}Sn Levels

E(level)†	Jπ‡	$T_{1/2}$#	Comments
0.0	0^+		
1131.749 *17*	2^+	>1.2 ps	$T_{1/2}$: from 2005Ba02.
2101.723 *23*	4^+	>0.8 ps	$T_{1/2}$: other: > 1.3 ps (2005Ba02).
2129.615 *25*	2^+	0.8 ps *+5−2*	$T_{1/2}$: other: > 1.6 ps (2005Ba02).
2192.18 *3*	(0^+)	>0.55 ps	$T_{1/2}$: other: > 1.4 ps (2005Ba02).
2204.631 *23*	5^-		
2221.75 *3*	4^+	0.9 ps *+9−3*	$T_{1/2}$: other: > 0.7 ps (2005Ba02).
2325.02 *4*	(7^-)		
2426.323 *21*	2^+	0.35 ps *+20−10*	
2454.35 *3*	6^+		
2568.16 *4*	6^-		
2578.44 *6*	$8^{(+)}$		
2602.50 *3*	3^-	0.068 ps *6*	
2614.46 *3*	4^-		
2688.51 *5*	0^+	>0.28 ps	$T_{1/2}$: other: > 0.8 ps (2005Ba02).
2701.79 *3*	5^-		
2703.207 *25*	2^+	0.62 ps *+16−11*	$T_{1/2}$: from 2005Ba02, other: 0.4 ps *+4−1* (1991Go24).
2753.06 *3*	4^-		
2819.3 *5*	(6^+)	>0.4 ps	E(level): from 2005Ba02. $T_{1/2}$: from 2005Ba02.
2836.60 *4*	3^+	>0.28 ps	$T_{1/2}$: other: > 0.6 ps (2005Ba02).
2855.14 *5*	6^-		
2875.39 *5*	2^+	0.13 ps *+7−3*	
2878.67 *5*	2^+	0.067 ps *+18−14*	$T_{1/2}$: other: > 0.7 ps (2005Ba02).
2958.12 *6*	4^+	>0.9 ps	$T_{1/2}$: from 2005Ba02.
2988.04 *3*	3^-	>0.55 ps	
3143.87 *6*	4^+	0.11 ps *+9−4*	
3214.50 *11*	2^+	0.025 ps *6*	
3227.97 *11*		0.07 ps *+23−3*	
3264.64 *13*	2^+	0.19 ps *+22−8*	
3267.14 *9*	1,2,3	>0.14 ps	
3293.44 *9*	2,3		
3313.01? *7*	2,3,4		
3330.42 *10*	2,3	0.07 ps *+9−3*	
3333.62 *10*	$2^{(+)}$		
3346.47 *7*	(3,4)		
3363.60 *8*	$3^{(+)}$		
3410.16 *13*	1		
3490.18 *14*	1^-	0.0058 ps *12*	$T_{1/2}$: from 2005Ba02, other: 0.006 ps *+4−3* (1991Go24).
3498.60 *15*	1,2,3		
3509.16 *9*	$3^{(+)}$		
3551.51 *16*	(3^-)		
3583.69 *13*	2^+		

Continued on next page (footnotes at end of table)

^{124}Sn(n,n′γ) 1990De50 (continued)

^{124}Sn Levels (continued)

E(level)†	Jπ‡	$T_{1/2}$#	E(level)†	Jπ‡
3603.87 *17*	2,3		3864.1 *7*	$1,2^+$
3655.01 *18*	2,3		3963.6 *3*	1,2
3697.3 *4*	1	0.029 ps *+13−10*	4074.4 *4*	2
3710.41 *24*	2^+	0.030 ps *+28−15*	4094.2 *3*	2,3
3724.4 *3*	$1,2^+$		4155.8 *10*	2^+
3742.06 *17*	$(2)^+$		4208.1 *3*	2,3
3762.1 *3*	2^+	0.05 ps *+7−3*	4227.45 *14*	$1,2^+$
3802.55 *17*	2,3		4269.6 *5*	(4)
3831.5 *3*	2,3,4		4359.59 *20*	0^+ to 4^+

† E(levels) are based on a least-squares fit to Eγ′s (evaluators).
‡ From Adopted Levels.
# From DSA of Eγ (1991Go24), unless otherwise noted.

γ(^{124}Sn)

Eγ†	Iγ‡	Ei(level)	J_i^π	E_f	J_f^π	Mult.#	δ#	Comments
102.91 *2*	8.9 *4*	2204.631	5^-	2101.723	4^+	D,D+Q		A_2=−0.053 *3*, A_4=−0.025 *7*.
120.39 *3*	1.22 *6*	2325.02	(7^-)	2204.631	5^-			A_2=+0.08 *2*, A_4=0.00 *3*.
129.3 *3*	0.071 *10*	2454.35	6^+	2325.02	(7^-)			
133.52 *13*	0.141 *12*	2701.79	5^-	2568.16	6^-	D,D+Q		A_2=−0.11 *6*, A_4=0.
150.3 *2*	0.061 *8*	2753.06	4^-	2602.50	3^-	D(+Q)		A_2=−0.30 *15*, A_4=+0.06 *26*. δ: −0.02 *20* or −4 *+18−3*.
x160.35 *5*	0.29 *2*							
x180.2 *2*	0.043 *7*							
x200.43 *9*	0.208 *12*							
234.95 *7*	0.157 *10*	2988.04	3^-	2753.06	4^-	D(+Q)	−0.07 *11*	A_2=+0.04 *4*, A_4=+0.07 *6*. δ: 73% probable. Other: −4 *+2−8* (1990De50).
243.13 *3*	0.56 *3*	2568.16	6^-	2325.02	(7^-)	M1(+E2)&	+0.01 *3*	A_2=−0.23 *3*, A_4=−0.08 *5*; γ-pol=0.6 *3*.
249.72 *2*	0.87 *4*	2454.35	6^+	2204.631	5^-	E1(+M2)&	+0.05 *3*	A_2=−0.21 *2*, A_4=−0.03 *3*; γ-pol=1.9 *+6−4*.
253.42 *4*	0.268 *15*	2578.44	$8^{(+)}$	2325.02	(7^-)	D+Q	+0.09 *5*	A_2=−0.10 *6*, A_4=0.; γ-pol=2.3 *+10−6*.
x276.4 *2*	0.037 *9*							
x290.90 *14*	0.070 *10*							
x338.9 *2*	0.070 *9*							
x350.88 *12*	0.099 *10*							
355.75 *12*	0.110 *10*	3583.69	2^+	3227.97		(Q)		A_2=+0.27 *8*, A_4=−0.07 *12*.
363.52 *3*	1.18 *8*	2568.16	6^-	2204.631	5^-	M1(+E2)&	+0.01 *2*	A_2=−0.240 *12*, A_4=−0.011 *19*; γ-pol=0.56 *10*.
373.75 *13*	0.100 *9*	2988.04	3^-	2614.46	4^-	D(+Q)		A_2=−0.08 *5*, A_4=0. δ: −0.01 *12* or −8 *+4−92*.
385.38 *5*	0.50 *4*	2988.04	3^-	2602.50	3^-	M1+E2&	+1.7 *3*	A_2=+0.22 *2*, A_4=0.00 *3*; γ-pol=0.8 *3*. δ: other: −0.05, but not established (1990De50).
409.83 *2*	3.5 *3*	2614.46	4^-	2204.631	5^-	M1(+E2)&	+0.02 *2*	A_2=−0.165 *6*, A_4=−0.018 *9*; γ-pol=0.63 *5*.
x448.50 *6*	0.207 *16*					D,D+Q		A_2=−0.35 *3*, A_4=+0.01 *4*.
497.16 *2*	1.49 *12*	2701.79	5^-	2204.631	5^-	M1(+E2)&	−0.01 *4*	A_2=+0.394 *9*, A_4=+0.006 *11*; γ-pol=6 *+4−1*.
x529.1 *2*	0.146 *13*					(D,D+Q)		A_2=−0.05 *7*, A_4=−0.28 *11*.
531.1 *2*	0.122 *12*	2958.12	4^+	2426.323	2^+	(Q)		A_2=+0.24 *8*, A_4=−0.03 *8*. not reported in 2005Ba02.

Continued on next page (footnotes at end of table)

^{124}Sn(n,n′γ) 1990De50 (continued)

γ(^{124}Sn) (continued)

E_γ [†]	I_γ [‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ[#]	Comments
[x]542.75 *10*	0.176 *16*							A_2=+0.42 *6*, A_4=+0.23 *7*.
548.43 *2*	2.34 *19*	2753.06	4^-	2204.631	5^-	M1+E2[&]	−0.46 *3*	A_2=+0.280 *8*, A_4=−0.010 *10*; γ-pol=0.28 *5*.
558.81 *12*	0.094 *10*	2688.51	0^+	2129.615	2^+			A_2=+0.09 *6*, A_4=+0.11 *9*. E_γ,I_γ: from unplaced γ in 1990De50. Placement is from 2005Ba02. Branching ratio = 0.22 *1* (2005Ba02).
[x]568.71 *3*	0.65 *13*							A_2=+0.08 *4*, A_4=+0.14 *4*.
573.89 *12*	0.107 *11*	2703.207	2^+	2129.615	2^+	D+Q	−0.4 *+4−8*	E_γ,I_γ: from unplaced γ in 1990De50. Placement is from 2005Ba02. Mult.,δ: from 2005Ba02. Branching ratio = 0.09 *1* (2005Ba02).
601.4 *2*	0.065 *8*	2703.207	2^+	2101.723	4^+			not reported in 2005Ba02.
614.77 *6*	0.25 *2*	2836.60	3^+	2221.75	4^+	D+Q		A_2=−0.20 *7*, A_4=+0.13 *9*. δ: +0.4 *2* or +1.9 *10*; other: > 10 or −0.06 *16* (2005Ba02). Branching ratio = 0.20 *1* (2005Ba02).
[x]618.19 *8*	0.28 *3*							
[x]628.51 *16*	0.132 *14*					(D,D+Q)		A_2=−0.03 *7*, A_4=−0.29 *10*.
630.35 *14*	0.170 *17*	3333.62	$2^{(+)}$	2703.207	2^+	D+Q		A_2=+0.16 *7*, A_4=−0.02 *10*. δ: +2.3 *12* or 0.0 *3*.
650.51 *4*	0.59 *5*	2855.14	6^-	2204.631	5^-	M1(+E2)[&]	+0.02 *3*	A_2=−0.23 *2*, A_4=−0.03 *3*; γ-pol=0.54 *13*.
656.8 *5*	0.075 *5*	2878.67	2^+	2221.75	4^+			E_γ: from 2005Ba02. uncertainty is not given. evaluator assumed the uncertainty is 0.5 keV. I_γ: from branching ratio to to 1747-keV γ in 2005Ba02. Branching ratio = 0.059 *4* (2005Ba02).
[x]674.6 *3*	0.047 *8*							
686.2 *2*	0.100 *11*	2878.67	2^+	2192.18	(0^+)			A_2=+0.21 *12*, A_4=−0.16 *17*. the transition is from 2005Ba02. excitation function and coincidence data supports the placement. 1990De50 reports that the 686.2-keV transition is from the 4269.8-keV level. Branching ratio = 0.096 *4* (2005Ba02).
[x]701.08 *17*	0.163 *15*							A_2=+0.35 *8*, A_4=−0.04 *10*.
706.98 *4*	0.97 *8*	2836.60	3^+	2129.615	2^+	M1+E2[&]	+2.1 *3*	A_2=+0.41 *2*, A_4=+0.05 *3*; γ-pol=0.7 *2*. δ: other: +0.60 *+15−10* or +2.7 *+10−7* (2005Ba02). Branching ratio = 0.58 *1* (2005Ba02).
717.6 *5*		2819.3	(6^+)	2101.723	4^+	Q		E_γ: from 2005Ba02. uncertainty is not given. evaluator assumed the uncertainty is 0.5 keV. Mult.: from 2005Ba02, δ=−0.02 *10*.
717.68 *8*	0.37 *3*	3143.87	4^+	2426.323	2^+			A_2=+0.23 *4*, A_4=−0.18 *5*.
735.34 *18*	0.183 *18*	2836.60	3^+	2101.723	4^+	D+Q	−0.94 *10*	A_2=+0.27 *4*, A_4=−0.10 *6*. δ: other: −0.9 *5* (2005Ba02). Branching ratio = 0.05 *1* (2005Ba02).
737.4 *5*	0.20 *3*	2958.12	4^+	2221.75	4^+	D+Q	+0.6 *9*	E_γ: from 2005Ba02. uncertainty is not given. evaluator assumed the uncertainty is 0.5 keV. I_γ: from branching ratio to 1826-keV γ in 2005Ba02 and Iγ in 1990De50. Mult.,δ: from 2005Ba02. Branching ratio = 0.24 *4* (2005Ba02).

Continued on next page (footnotes at end of table)

^{124}Sn(n,n′γ) 1990De50 (continued)

γ(^{124}Sn) (continued)

E_γ [†]	I_γ [‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [#]	δ [#]	Comments
[x]747.3 *3*	0.080 *13*							
749.05 *10*	0.21 *2*	2878.67	2^+	2129.615	2^+	D,D+Q		A_2=−0.14 *6*, A_4=−0.17 *8*; γ-pol=1.4 *+6−4*.
								not reported in 2005Ba02.
776.7 *2*	0.104 *12*	2878.67	2^+	2101.723	4^+	Q		δ: −0.08 *+17−28* from 2005Ba02.
								A_2=+0.14 *7*, A_4=−0.01 *10*.
								Branching ratio = 0.094 *4* (2005Ba02).
[x]798.75 *11*	0.22 *2*							A_2=+0.16 *4*, A_4=+0.02 *6*.
[x]853.1 *3*	0.065 *10*							
856.55 *13*	0.22 *2*	2958.12	4^+	2101.723	4^+	(M1+E2)		A_2=−0.12 *4*, A_4=−0.06 *7*.
								δ: −1.0 *4* or −6 *+18−14*; −1.0 is 45% probable (1990De50) other: > 20 or −0.9 *6*.
								Branching ratio = 0.20 *1* (2005Ba02).
[x]891.62 *11*	0.24 *2*							A_2=+0.37 *4*, A_4=+0.06 *6*.
[x]938.04 *6*	0.46 *4*							A_2=+0.06 *4*, A_4=+0.15 *6*.
952.4[a] *2*	0.117 *12*	3655.01	2,3	2703.207	2^+			
969.97 *2*	16.9 *13*	2101.723	4^+	1131.749	2^+	E2[&]		A_2=+0.193 *6*, A_4=−0.043 *8*; γ-pol=1.82 *15*.
[x]980.7 *2*	0.183 *17*							A_2=+0.17 *6*, A_4=−0.04 *8*.
997.86 *2*	9.3 *7*	2129.615	2^+	1131.749	2^+	M1+E2[&]	+3.2 *+7−5*	A_2=+0.115 *6*, A_4=−0.022 *8*; γ-pol=0.76 *6*.
								δ: from 2005Ba02. 1990De50 gives +3.4 ⟨.
								Branching ratio = 0.983 *1* (2005Ba02).
[x]1012.47 *16*	0.152 *14*							
[x]1035.74 *12*	0.115 *11*							
[x]1050.77 *14*	0.136 *13*							A_2=+0.52 *16*, A_4=+0.21 *21*.
1060.42 *2*	1.59 *13*	2192.18	(0^+)	1131.749	2^+			A_2=0.00 *3*, A_4=−0.02 *3*; γ-pol=1.1 *2*.
[x]1063.78 *5*	0.43 *4*					(D,D+Q)		A_2=−0.01 *5*, A_4=+0.06 *4*.
1072.88 *2*	7.5 *6*	2204.631	5^-	1131.749	2^+			A_2=+0.182 *8*, A_4=0.017 *11*.
1089.99 *2*	6.5 *5*	2221.75	4^+	1131.749	2^+	E2[&]		A_2=+0.325 *5*, A_4=−0.086 *6*; γ-pol=3.5 *+8−4*.
[x]1094.41 *11*	0.140 *12*							
1098.4 *2*	0.12 *3*	3227.97		2129.615	2^+			
[x]1111.2 *3*	0.055 *8*							
[x]1114.9 *2*	0.141 *13*							
1131.70 *2*	100	1131.749	2^+	0.0	0^+	E2[&]		A_2=+0.202 *5*, A_4=−0.062 *7*; γ-pol=1.78 *14*.
[x]1155.71 *10*	0.176 *15*					(D,D+Q)		A_2=−0.03 *4*, A_4=−0.14 *7*.
1163.82 *9*	0.16 *2*	3293.44	2,3	2129.615	2^+	D,D+Q		A_2=−0.15 *4*, A_4=+0.02 *6*.
1177.3 *3*	0.049 *7*	3603.87	2,3	2426.323	2^+			
1183.39 *6*	0.27 *2*	3313.01?	2,3,4	2129.615	2^+			A_2=+0.26 *5*, A_4=−0.06 *7*.
[x]1210.2 *2*	0.067 *8*							
1244.71 *6*	0.26 *2*	3346.47	(3,4)	2101.723	4^+			A_2=+0.35 *4*, A_4=+0.02 *6*.
[x]1251.9 *3*	0.082 *8*							
1261.30 *16*	0.096 *10*	3363.60	$3^{(+)}$	2101.723	4^+	(M1+E2)	−1.1 *6*	A_2=+0.30 *6*, A_4=+0.03 *8*.
1280.37 *15*	0.122 *11*	3410.16	1	2129.615	2^+			A_2=+0.01 *5*, A_4=−0.02 *7*.
1294.54 *2*	1.23 *13*	2426.323	2^+	1131.749	2^+	M1+E2[&]	−0.21 *2*	A_2=+0.051 *6*, A_4=−0.012 *6*; γ-pol=2.5 *+13−7*.
[x]1314.67 *15*	0.133 *12*							A_2=+0.23 *4*, A_4=−0.10 *6*.
1329.9 *4*	0.132 *12*	3551.51	(3^-)	2221.75	4^+			A_2=+0.14 *9*, A_4=0.00 *12*.
1352.06 *13*	0.116 *11*	4227.45	$1,2^+$	2875.39	2^+	D,D+Q		A_2=−0.09 *3*, A_4=0.00 *4*.
[x]1354.2 *3*	0.102 *11*							A_2=+0.24 *5*, A_4=−0.03 *6*.
1369.2 *2*	0.090 *9*	3498.60	1,2,3	2129.615	2^+			

Continued on next page (footnotes at end of table)

^{124}Sn(n,n′γ) 1990De50 (continued)

γ(^{124}Sn) (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ[#]	Comments
[x]1371.6 *4*	0.029 *5*							
1379.58 *9*	0.24 *2*	3509.16	$3^{(+)}$	2129.615	2^+	(M1+E2)	+2.4 *4*	A_2=+0.50 *5*, A_4=+0.19 *7*. δ: 74% probable. Other: +0.68 *8* (1990De50).
[x]1386.00 *10*	0.154 *14*					D,D+Q		A_2=−0.19 *6*, A_4=+0.01 *8*.
[x]1392.9 *3*	0.026 *5*							
[x]1413.62 *17*	0.125 *11*							A_2=+0.40 *8*, A_4=+0.13 *11*.
1421.7 *2*	0.074 *8*	3551.51	(3^-)	2129.615	2^+			A_2=+0.12 *20*, A_4=−0.25 *23*.
[x]1425.16 *7*	0.214 *18*					D,D+Q		A_2=−0.17 *5*, A_4=+0.05 *7*.
[x]1430.4 *2*	0.065 *7*							
1433.3 *3*	0.045 *6*	3655.01	2,3	2221.75	4^+			
1450.1 *3*	0.104 *10*	3551.51	(3^-)	2101.723	4^+	(D,D+Q)		A_2=−0.08 *11*, A_4=−0.12 *12*.
1453.5 *3*	0.154 *13*	3583.69	2^+	2129.615	2^+	D+Q		A_2=−0.05 *5*, A_4=−0.09 *8*. δ: −20 *31* or −0.4 *3*.
1470.71 *2*	4.0 *3*	2602.50	3^-	1131.749	2^+	E1+M2[&]	+0.05 *2*	A_2=−0.171 *5*, A_4=0.000 *7*; γ-pol=2.1 *+3−2*.
[x]1488.7 *4*	0.028 *5*							
[x]1506.90 *11*	0.171 *15*							A_2=+0.14 *5*, A_4=+0.16 *7*.
1519.9 *3*	0.054 *7*	3742.06	$(2)^+$	2221.75	4^+			
1525.0 *3*	0.056 *7*	3655.01	2,3	2129.615	2^+	D,D+Q		A_2=−0.16 *10*, A_4=−0.08 *14*.
[x]1540.2 *2*	0.082 *8*							
[x]1544.6 *3*	0.037 *5*							
1553.6 *3*	0.027 *5*	3655.01	2,3	2101.723	4^+			
1556.77 *5*	0.44 *4*	2688.51	0^+	1131.749	2^+			A_2=0.00 *2*, A_4=−0.00 *3*; γ-pol=0.9 *4*. Branching ratio = 0.78 *1* (2005Ba02).
[x]1563.5 *3*	0.073 *7*							
1571.43 *2*	1.48 *12*	2703.207	2^+	1131.749	2^+	M1+E2[&]	−0.27 *4*	A_2=+0.038 *12*, A_4=+0.006 *17*; γ-pol=2.0 *3*. Mult.: other: −0.25 *8* or +6.4 *+6−2* (2005Ba02). Branching ratio = 0.75 *1* (2005Ba02).
[x]1616.16 *14*	0.129 *12*							A_2=+0.01 *3*, A_4=+0.19 *6*.
[x]1631.8 *3*	0.067 *8*							
1640.5 *2*	0.087 *8*	3742.06	$(2)^+$	2101.723	4^+			
[x]1649.0 *2*	0.071 *8*							
[x]1666.0 *3*	0.035 *5*							
1673.3 *3*	0.028 *5*	3802.55	2,3	2129.615	2^+			
1702.6 *4*	0.064 *6*	3831.5	2,3,4	2129.615	2^+			
1704.91 *8*	0.34 *3*	2836.60	3^+	1131.749	2^+	D+Q	+1.5 *3*	A_2=+0.54 *6*, A_4=+0.23 *7*. δ: other: +2.7 *7* (2005Ba02). Branching ratio = 0.161 *5* (2005Ba02).
1743.62 *4*	0.86 *7*	2875.39	2^+	1131.749	2^+	M1+E2[&]	+5.6 *+11−8*	A_2=+0.023 *10*, A_4=−0.038 *15*; γ-pol=1.0 *+4−3*. δ: preferred value. Other −0.20 *6* (1990De50).
1746.95 *5*	0.91 *8*	2878.67	2^+	1131.749	2^+	M1+E2[&]	+0.67 *8*	A_2=+0.34 *3*, A_4=+0.01 *4*; γ-pol=1.4 *+8−5*. δ: +0.67 *8* if $J^\pi=2^+$, +2.6 *4* if $J^\pi=3^+$ in 1990De50. 2005Ba02 gives +0.4 *+9−1* or +1.0 *+3−7*. Branching ratio = 0.717 *7* (2005Ba02).
[x]1749.22 *9*	0.168 *15*							
[x]1760.0 *4*	0.027 *5*							
[x]1766.4 *5*	0.034 *5*							
[x]1788.7 *3*	0.058 *7*							A_2=+0.30 *12*, A_4=+0.01 *15*.

Continued on next page (footnotes at end of table)

^{124}Sn(n,n′γ) 1990De50 (continued)

γ(^{124}Sn) (continued)

E_γ [†]	I_γ [‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [#]	δ [#]	Comments
[x]1795.1 *2*	0.057 *7*							
[x]1822.9 *3*	0.094 *10*							A_2=+0.35 *6*, A_4=−0.13 *8*.
1826.38 *7*	0.47 *4*	2958.12	4^+	1131.749	2^+			A_2=+0.34 *3*, A_4=−0.05 *4*. δ: −0.06 *10* (M3/E2) (2005Ba02). Branching ratio = 0.56 *3* (2005Ba02).
1856.33 *3*	0.95 *8*	2988.04	3^-	1131.749	2^+	E1(+M2)[&]	−0.02 *2*	A_2=−0.21 *2*, A_4=−0.01 *3*; γ-pol=1.3 *+8−5*.
[x]1881.2 *3*	0.069 *7*							
[x]1890.2 *4*	0.027 *6*							
[x]1912.75 *12*	0.22 *2*							A_2=+0.13 *5*, A_4=+0.07 *7*.
[x]1942.2 *3*	0.068 *8*							
[x]1951.8 *3*	0.045 *7*							
2011.96 *8*	0.37 *3*	3143.87	4^+	1131.749	2^+			A_2=+0.34 *2*, A_4=−0.05 *3*.
[x]2043.1 *3*	0.106 *10*							A_2=+0.38 *10*, A_4=+0.09 *13*.
[x]2070.00 *15*	0.146 *13*							A_2=+0.28 *7*, A_4=−0.69 *10*.
2082.9 *2*	0.092 *9*	3214.50	2^+	1131.749	2^+	(M1+E2)	+1.2 *5*	A_2=+0.31 *7*, A_4=0.
2096.22 *16*	0.178 *15*	3227.97		1131.749	2^+			A_2=+0.01 *10*, A_4=−0.04 *10*.
2129.82 *14*	0.25 *2*	2129.615	2^+	0.0	0^+	(E2)[@]		A_2=+0.23 *4*, A_4=−0.04 *5*. Branching ratio = 0.017 *1* (2005Ba02).
2135.37 *8*	0.33 *3*	3267.14	1,2,3	1131.749	2^+	D,D+Q		A_2=−0.14 *2*, A_4=+0.02 *3*.
2161.7 *3*	0.061 *7*	3293.44	2,3	1131.749	2^+			
2198.65 *9*	0.24 *2*	3330.42	2,3	1131.749	2^+			A_2=+0.13 *3*, A_4=0.00 *4*.
2201.90 *14*	0.082 *10*	3333.62	$2^{(+)}$	1131.749	2^+	(M1+E2)	+1.1 *6*	A_2=+0.43 *10*, A_4=−0.01 *13*.
2215.0 *2*	0.075 *8*	3346.47	(3,4)	1131.749	2^+			A_2=+0.37 *7*, A_4=+0.14 *10*.
2231.97 *8*	0.26 *2*	3363.60	$3^{(+)}$	1131.749	2^+	D(+Q)	−0.01 *3*	A_2=−0.15 *4*, A_4=+0.01 *3*.
2366.6 *2*	0.146 *13*	3498.60	1,2,3	1131.749	2^+	D,D+Q		A_2=−0.04 *3*, A_4=+0.07 *6*.
[x]2368.9 *2*	0.071 *8*							
2377.2 *2*	0.131 *12*	3509.16	$3^{(+)}$	1131.749	2^+	(M1+E2)	+10 *+90−5*	A_2=+0.36 *8*, A_4=+0.21 *11*. δ: 83% probable. Other: +0.32 *11* (1990De50).
[x]2422.0 *3*	0.137 *12*							A_2=+0.25 *5*, A_4=−0.10 *7*.
2426.36 *3*	2.34 *19*	2426.323	2^+	0.0	0^+	E2[@]		A_2=+0.250 *9*, A_4=−0.093 *13*.
2452.3 *3*	0.079 *8*	3583.69	2^+	1131.749	2^+	D+Q		A_2=−0.08 *8*, A_4=−0.03 *11*. δ: −6 *14* or −0.5 *3*.
2472.2 *2*	0.181 *15*	3603.87	2,3	1131.749	2^+			A_2=+0.23 *5*, A_4=+0.16 *7*.
2565.4 *6*	0.040 *10*	3697.3	1	1131.749	2^+			
2578.6 *3*	0.046 *6*	3710.41	2^+	1131.749	2^+			
2592.6 *3*	0.104 *10*	3724.4	$1,2^+$	1131.749	2^+			A_2=+0.16 *4*, A_4=−0.10 *6*.
2630.3 *4*	0.050 *6*	3762.1	2^+	1131.749	2^+	D,D+Q		A_2=−0.22 *8*, A_4=−0.11 *11*.
[x]2638.7 *4*	0.050 *6*							
2670.6 *2*	0.158 *14*	3802.55	2,3	1131.749	2^+			A_2=+0.18 *5*, A_4=+0.03 *7*.
2698.9 *4*	0.131 *12*	3831.5	2,3,4	1131.749	2^+	Q		A_2=+0.31 *5*, A_4=−0.10 *6*.
2703.31 *8*	0.33 *4*	2703.207	2^+	0.0	0^+	(E2)[@]		A_2=+0.20 *2*, A_4=−0.05 *5*. Branching ratio = 0.16 *1* (2005Ba02).
[x]2718.7 *3*	0.120 *11*					(D,D+Q)		A_2=−0.04 *4*, A_4=−0.16 *6*.
[x]2774.1 *6*	0.031 *5*							
[x]2781.0 *5*	0.033 *5*							
[x]2806.3 *12*	0.023 *5*							
2831.9 *3*	0.069 *8*	3963.6	1,2	1131.749	2^+	(D,D+Q)		A_2=−0.08 *8*, A_4=0.0.
[x]2846.7 *3*	0.075 *8*							A_2=+0.38 *9*, A_4=+0.03 *12*.
2875.8 *4*	0.114 *11*	2875.39	2^+	0.0	0^+	Q		A_2=+0.18 *6*, A_4=−0.06 *9*.
2878.6 *5*	0.043 *4*	2878.67	2^+	0.0	0^+	Q		E_γ: from 2005Ba02. uncertainty is not given. evaluator assumed the uncertainty is 0.5 keV. I_γ: from branching ratio to to 1747-keV

Continued on next page (footnotes at end of table)

^{124}Sn(n,n′γ) 1990De50 (continued)

γ(^{124}Sn) (continued)

E_γ [†]	I_γ [‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [#]	Comments
							γ in 2005Ba02. Branching ratio = 0.034 *3* (2005Ba02).
[x]2885.4 *7*	0.044 *6*						
[x]2898.1 *5*	0.070 *15*						
2942.4 *4*	0.089 *9*	4074.4	2	1131.749	2^+	(D,D+Q)	A_2=−0.09 *9*, A_4=−0.03 *13*.
[x]2952.2 *5*	0.071 *8*						
2962.4 *3*	0.133 *12*	4094.2	2,3	1131.749	2^+		
[x]2985.5 *4*	0.050 *6*						
3024.0 *10*	0.026 *5*	4155.8	2^+	1131.749	2^+		
[x]3034.9 *11*	0.015 *4*						
[x]3041.4 *4*	0.052 *6*						
[x]3070.5 *5*	0.044 *6*						
3076.3 *3*	0.123 *11*	4208.1	2,3	1131.749	2^+		A_2=+0.16 *7*, A_4=−0.05 *10*.
[x]3103.4 *5*	0.042 *6*						
[x]3109.3 *3*	0.060 *7*						
[x]3129.0 *4*	0.080 *8*						
3137.8 *5*	0.052 *6*	4269.6	(4)	1131.749	2^+		
[x]3154.4 *5*	0.076 *8*						
3214.39 *13*	0.53 *4*	3214.50	2^+	0.0	0^+	E2[@]	A_2=+0.27 *2*, A_4=−0.06 *3*.
3227.8 *2*	0.119 *11*	4359.59	0^+ to 4^+	1131.749	2^+		A_2=+0.04 *4*, A_4=−0.07 *6*.
3264.59 *13*	0.37 *3*	3264.64	2^+	0.0	0^+	E2[@]	A_2=+0.26 *3*, A_4=−0.12 *5*.
[x]3270.9 *4*	0.031 *5*						
[x]3279.8 *5*	0.040 *6*						
3333.7 *4*	0.087 *9*	3333.62	$2^{(+)}$	0.0	0^+	(Q)	A_2=+0.23 *6*, A_4=−0.07 *9*.
[x]3356.1 *6*	0.058 *6*						
[x]3378.2 *7*	0.035 *5*						
[x]3396.3 *7*	0.056 *6*						
3410.4 *2*	0.199 *17*	3410.16	1	0.0	0^+	D,D+Q	A_2=−0.11 *8*, A_4=0.
[x]3431.9 *5*	0.033 *5*						
[x]3475.9 *7*	0.045 *6*						
3490.13 *14*	0.27 *2*	3490.18	1^-	0.0	0^+	D,D+Q	A_2=−0.11 *4*, A_4=+0.01 *6*.
3583.6 *4*	0.107 *10*	3583.69	2^+	0.0	0^+	(Q)	A_2=+0.22 *5*, A_4=−0.07 *7*.
[x]3643.3 *6*	0.080 *9*						
3697.3 *4*	0.23 *2*	3697.3	1	0.0	0^+	(D,D+Q)	A_2=−0.05 *6*, A_4=−0.05 *8*.
3710.4 *4*	0.157 *14*	3710.41	2^+	0.0	0^+	E2[@]	A_2=+0.25 *5*, A_4=−0.10 *7*.
[x]3751.8 *4*	0.085 *8*						
3762.0 *4*	0.123 *11*	3762.1	2^+	0.0	0^+	E2[@]	A_2=+0.25 *8*, A_4=−0.08 *11*.
[x]3774.1 *8*	0.022 *5*						
[x]3810.3 *5*	0.068 *7*					D,D+Q	A_2=−0.10 *7*, A_4=+0.03 *10*.
3864.0 *7*	0.063 *7*	3864.1	$1,2^+$	0.0	0^+		
[x]3872.7 *10*	0.027 *5*						
3963.0 *6*	0.065 *7*	3963.6	1,2	0.0	0^+		A_2=+0.09 *10*, A_4=+0.03 *12*.
[x]4014.3 *8*	0.061 *7*						A_2=+0.43 *10*, A_4=0.00 *13*.
[x]4043.9 *8*	0.024 *5*						
4075.3 *8*	0.076 *8*	4074.4	2	0.0	0^+	(Q)	A_2=+0.30 *8*, A_4=−0.06 *11*.

[†] From 1990De50.
[‡] Relative to I(1131.7γ)=100.
[#] From γ(θ), unless otherwise noted (1990De50).
[@] From γ(θ) and RUL (1990De50).
[&] From γ(θ) and γ-polarization (1990De50).
[a] Placement of transition in the level scheme is uncertain.
[x] γ ray not placed in level scheme.

^{124}Sn(n,n′γ) 1990De50

Level Scheme

Intensities: Relative I_γ

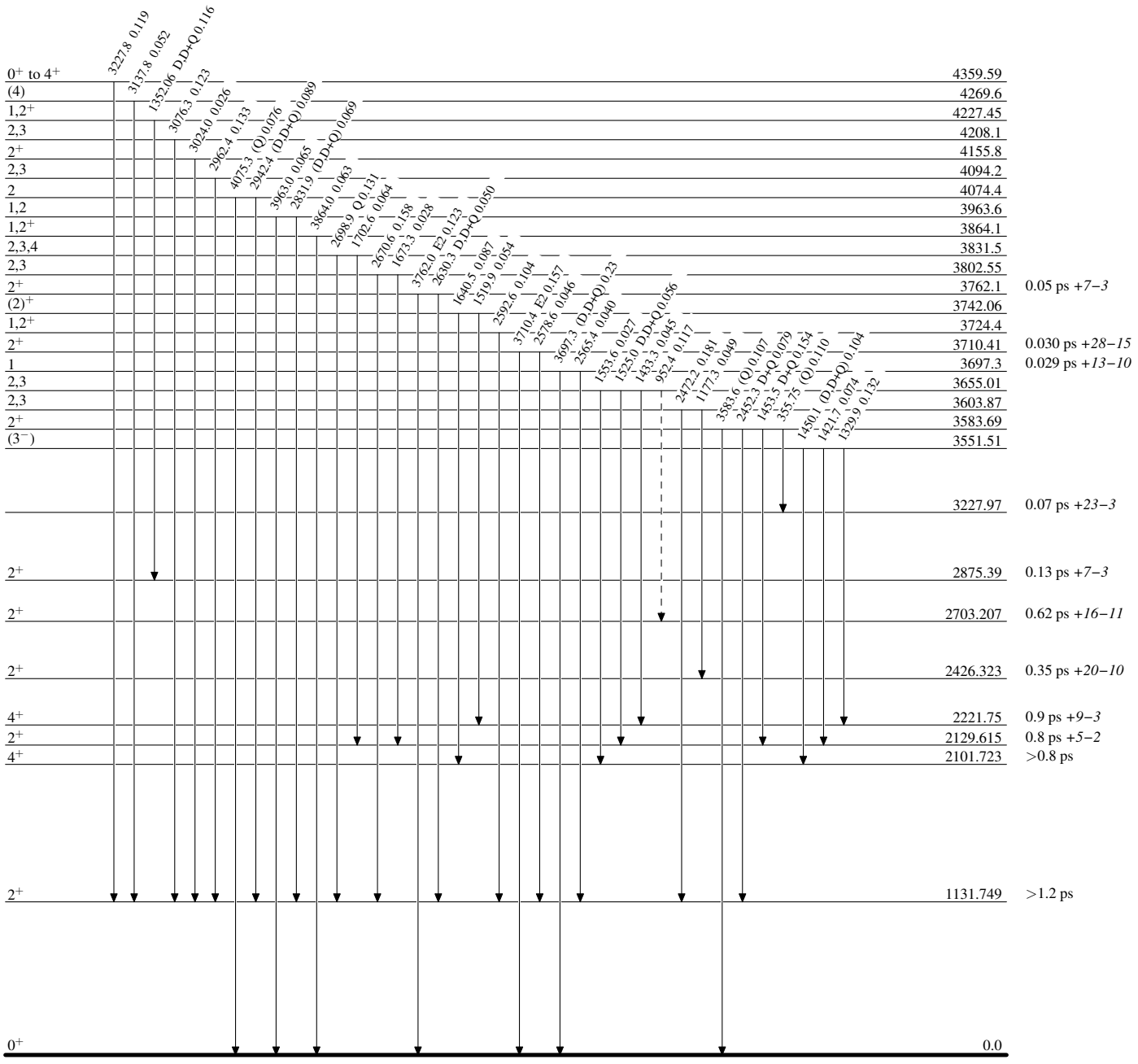
Legend

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

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

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

γ Decay (Uncertain)

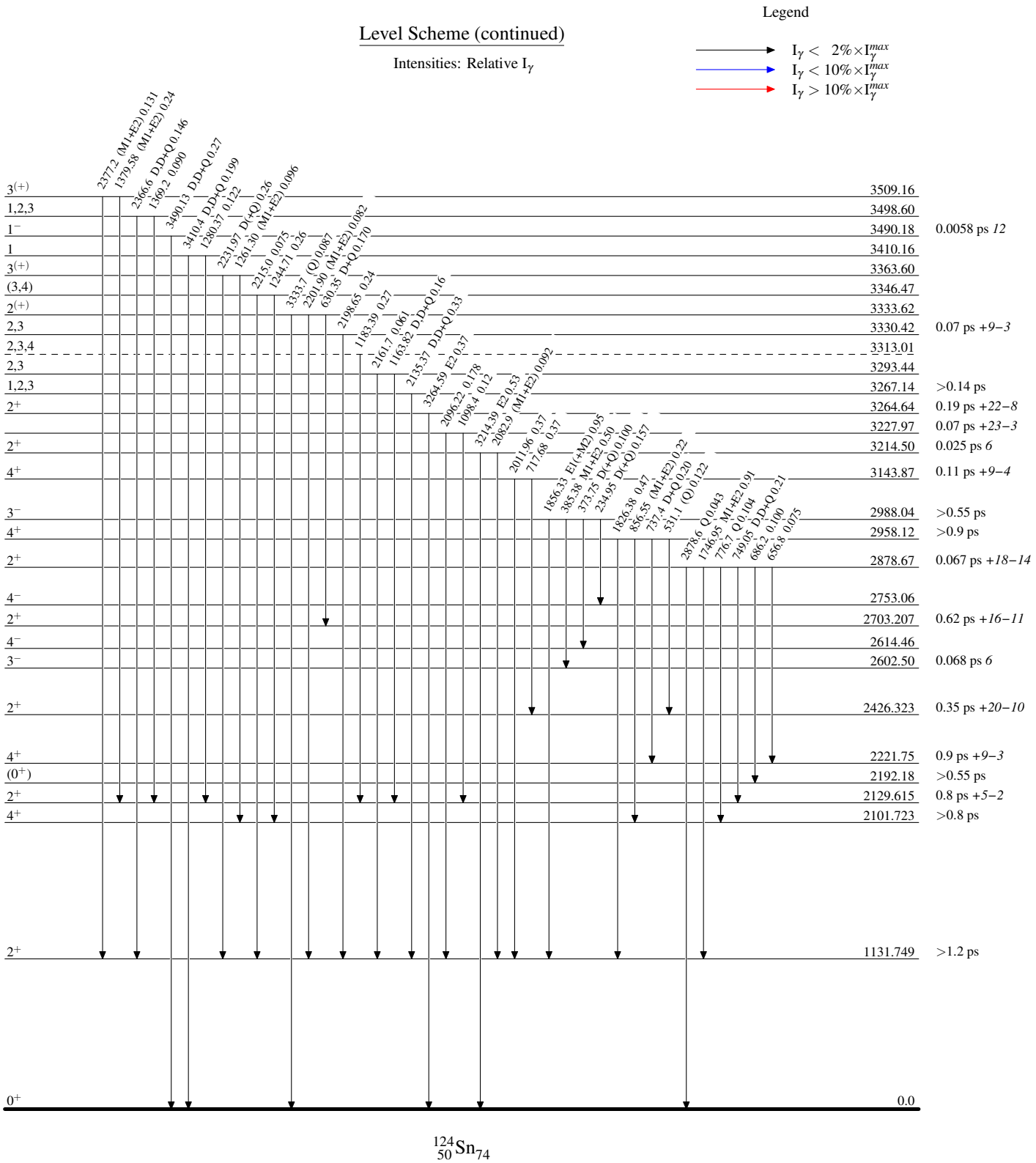


$^{124}_{50}Sn_{74}$

^{124}Sn(n,n′γ) 1990De50

Level Scheme (continued)

Intensities: Relative I_γ

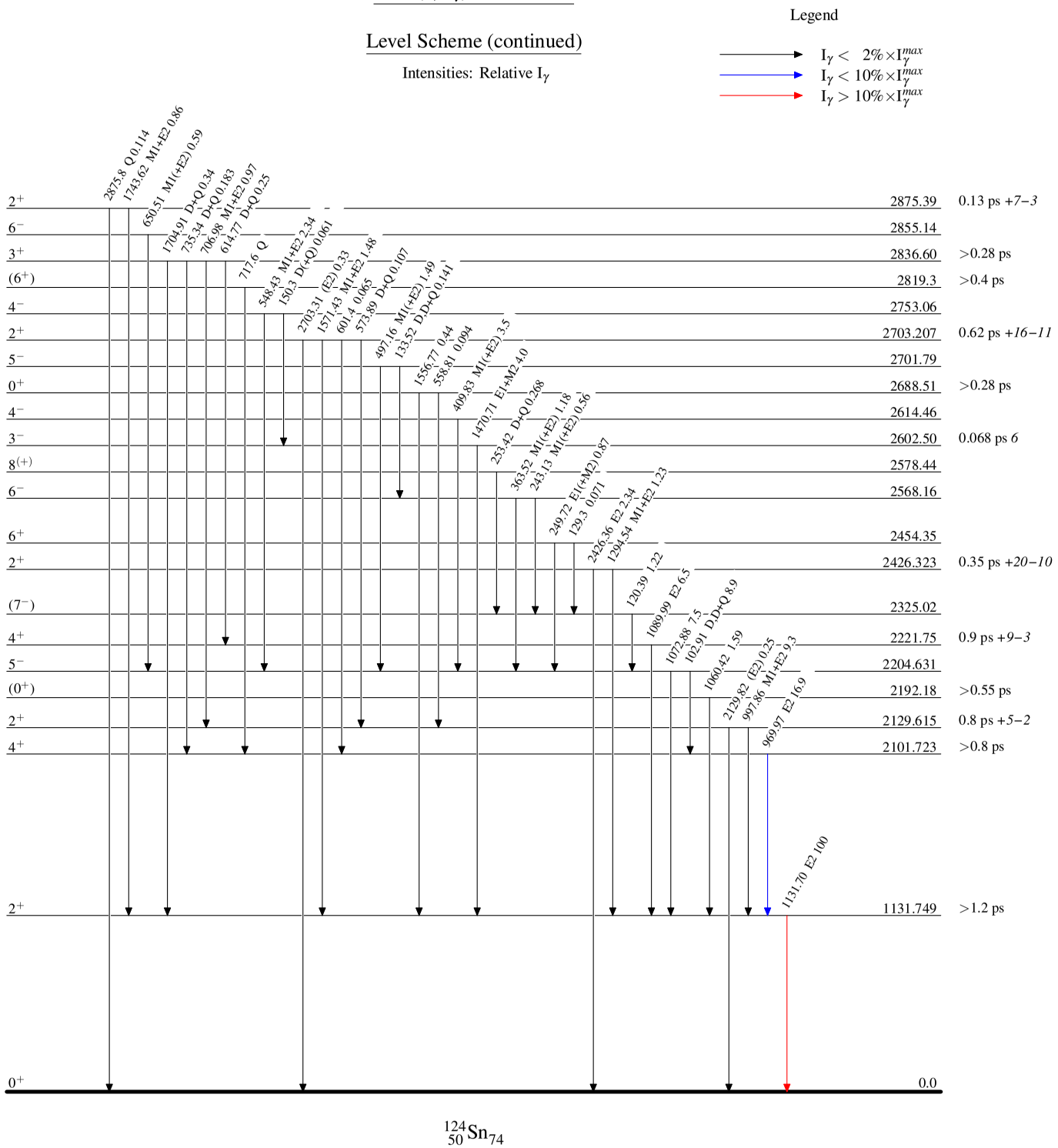


$^{124}_{50}Sn_{74}$

^{124}Sn(n,n′γ) 1990De50

Level Scheme (continued)

Intensities: Relative I_γ



$^{124}_{50}Sn_{74}$