^{122}Sn(^{31}P,4nγ) 1994Me12

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen	NDS 185, 2 (2022)	23-Aug-2022

1994Me12 (also 1990MeZU,1991Me04): two measurements were performed. In the first one of gamma spectroscopy, E=150 MeV beam was produced from the Strasbourg MP Tandem accelerator and target was isotopically enriched ^{122}Sn on a lead backing. γ rays were detected with the Chateau de Cristal multi-detector array consisting of 12 Compton-suppressed Ge detectors surrounding a 38-BaF_2 sum-energy and multiplicity filter. Measured Eγ, Iγ, γγ-coin, γγ(θ) (DCO at 90° and 33°). In the second measurement of electron spectroscopy, E=140 and 150 beams were from the MP Tandem in Orsay. Targets were 1 mg/cm^2 ^{122}Sn. γ rays were detected with a Ge detector and an array of 8 BaF_2 crystals and conversion electrons were detected with a cooled Si(Li) detector. Measured Eγ, Iγ, E(ce), I(ce), ce-γ-coin, ce(t). Deduced levels, J^π, $T_{1/2}$, configurations, band structures, conversion coefficients, γ-ray multipolarities, mixing ratios. Comparison with theoretical calculations. The author also mention a measurement of electron spectroscopy using ^{134}Ba(^{19}F,4nγ) at E=90 MeV but no data are given. The 61/2$^+$ isomer at 9955 and four levels above the isomer were studied by 1991Me04 in (^{31}P,4nγ). Level scheme interpretation (1994Me12) in terms of deformed independent particle model.

Other:
1990CoZW: ^{121}Sb(^{28}Si,f) E=344 MeV: (fragment)(particle) coin.

^{149}Tb Levels

E(level)[†]	J^π[‡]	$T_{1/2}$	Comments
35.75[@] 8	11/2$^-$	4.17 min 5	%ε+%β$^+$=99.978 4; %α=0.022 4 Energy, J^π, $T_{1/2}$ and decay modes from the Adopted Levels. Additional information 1.
822.3[@] 3	15/2$^-$		
1129.0[&] 4	15/2$^+$		
1382.3[@] 4	19/2$^-$		
1672.8[@] 5	23/2$^-$		
1813.6 5	21/2$^-$		
1868.0[&] 5	19/2$^+$		
2303.1[@] 5	27/2$^-$		
2350.2[&] 5	23/2$^+$		
2518.7[&] 5	27/2$^+$	2.4 ns 2	$T_{1/2}$: from the Adopted Levels.
2812.8[&] 6	29/2$^+$		
3141.8[&] 6	31/2$^+$		
3526.9[&] 6	33/2$^+$		
3603.1[@] 12	31/2$^-$		
4061.6 7			
4107.1 7	(31/2$^+$)		
4208.4[a] 6	33/2$^+$		
4463.2[a] 6	35/2$^+$		
4673.9[a] 6	37/2$^+$		
4923.3[a] 6	39/2$^+$		Other possible configuration= $\pi h^2_{11/2}\otimes\pi d^{-1}_{5/2}\otimes\nu f_{7/2}\otimes\nu h_{9/2}$ (1994Me12).
5148.1[a] 6	41/2$^+$		Other possible configuration= $\pi h^2_{11/2}\otimes\pi d^{-1}_{5/2}\otimes\nu f_{7/2}\otimes\nu h_{9/2}$ (1994Me12).
5257.9 6	39/2$^-$		Configuration=$\pi h_{11/2})^3\otimes\pi d^{-2}_{5/2}\otimes\nu f^2_{7/2}$ (1994Me12).
5618.8[b] 7	41/2$^-$		
5712.4[b] 6	43/2$^-$		
5735.1 7	45/2$^+$		
5966.1 7	(43/2$^+$)		Configuration=$\pi h^2_{11/2}\otimes\pi g^{-1}_{7/2}\otimes\nu f_{7/2}\otimes\nu h_{9/2}$ (1994Me12).
6025.2[c] 7	43/2$^-$		
6112.2[b] 7	45/2$^-$		

Continued on next page (footnotes at end of table)

$^{122}Sn(^{31}P,4n\gamma)$ 1994Me12 (continued)

^{149}Tb Levels (continued)

E(level)[†]	J^{π}[‡]	$T_{1/2}$	Comments
6220.9[c] 7	45/2$^-$		
6400.7[c] 7	47/2$^-$		
6788.5 7	47/2$^+$		Configuration=$\pi h^3_{11/2}\otimes\pi d^{-2}_{5/2}\otimes\nu f_{7/2}\otimes\nu i_{13/2}$ (1994Me12).
6874.3 7	47/2$^+$		
7112.8 7	(49/2)$^+$		Configuration=$\pi h^3_{11/2}\otimes\pi d^{-2}_{5/2}\otimes\nu h_{9/2}\otimes\nu i_{13/2}$ (1994Me12).
7194.2 7	49/2		
7740.9 8	51/2		
7976.5[#] 7	(51/2$^+$)		
8048.5 10	(51/2$^+$)		
8247.4[#] 7	53/2$^+$		
8281.1 8	53/2		
8733.7[#] 8	55/2$^{(+)}$		
8922.1 8	(53/2$^+$)		
9197.2 9	59/2$^{(+)}$		
9227.6? 8			
9482.6? 8			
9771.7 8	57/2$^+$		Configuration=$\pi h^3_{11/2}\otimes\pi d^{-2}_{5/2}\otimes\nu h_{9/2}\otimes\nu i_{13/2}$ (1994Me12).
9955.8 8	61/2$^+$	4.0 ns 2	$T_{1/2}$: from ce(K)(t) (1991Me04,1994Me12). Configuration=$\pi h^3_{11/2}\otimes\pi d^{-2}_{5/2}\otimes\nu f^2_{7/2}\otimes\nu h_{9/2}\otimes\nu i_{13/2}\otimes\nu d^{-2}_{3/2}$ (1994Me12).
10184.2? 13			
11000.7 9	65/2$^+$		Configuration=$\pi h^2_{11/2}\otimes\pi d^{-1}_{5/2}\otimes\nu f_{7/2}\otimes\nu h_{9/2}\otimes\nu i^2_{13/2}\otimes\nu d^{-2}_{3/2}$ (1994Me12).
11177.2? 17			
11204.7[d] 9	67/2$^-$		
12152.4[d] 10	71/2$^{(-)}$		
13118.2[d] 10	75/2$^{(-)}$		

† From a least-squares fit to γ-ray energies, assuming $\Delta E\gamma$=1 keV for Eγ values quoted as near to keV and 0.3 keV otherwise.

‡ As proposed by 1994Me12 based on measured $\gamma\gamma(\theta)$(DCO), ce data, and known assignments of low-lying states. The assignments are the same in the Adopted Levels, except that several are placed in parentheses, where strong arguments seem lacking.

Configuration= $\pi h^3_{11/2}\otimes\pi d^{-2}_{5/2}\otimes\nu f_{7/2}\otimes\nu i_{13/2}$ multiplet (1994Me12).

@ Band(A): Band based on 11/2$^-$. Configuration=$\pi h_{11/2}\otimes\nu,f^2_{7/2}$ (1994Me12).

& Band(B): Band based on 15/2$^+$. Configuration=$\pi h_{11/2}\otimes\nu,f_{7/2}\otimes\nu i_{13/2}$ (1994Me12).

a Band(C): Band based on 33/2$^+$. Configuration=$\pi h^2_{11/2}\otimes\pi d^{-1}_{5/2}\otimes\nu f^2_{7/2}$ (1994Me12).

b Band(D): Band based on 41/2$^-$. Configuration=$\pi h^2_{11/2}\otimes\pi d^{-1}_{5/2}\otimes\nu f_{7/2}\otimes\nu i_{13/2}$ (1994Me12).

c Band(E): Band based on 43/2$^-$. Configuration=$\pi h^2_{11/2}\otimes\pi g^{-1}_{7/2}\otimes\nu f_{7/2}\otimes\nu i_{13/2}$ (1994Me12).

d Band(F): Band based 67/2$^-$, multi-qp band. Configuration=$\pi h^{+3}_{11/2}\otimes\pi d^{-2}_{5/2}\otimes\nu f_{7/2}\otimes\nu h_{9/2}\otimes\nu i^{+2}_{13/2}\otimes\nu d^{-2}_{3/2}$ (1994Me12).

γ(^{149}Tb)

γ-ray assignments in the level scheme are from γγ-coin data of 1994Me12 built on previous work of 1991La17 and 1979Si19. Above 5148 level, all levels are from 1994Me12.

For DCO measurements, the gating transition is generally ΔJ=2, E2, in which case DCO≈1 suggests ΔJ=2, quadrupole and for ΔJ=0, dipole; DCO>1 suggests ΔJ=1, dipole or dipole+quadrupole.

E_γ[†]	I_γ[†]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	δ[@]	α[&]	Comments
93.6	2.0 *5*	5712.4	43/2−	5618.8	41/2−	M1		2.66 *4*	α(L)exp=0.38 *14*; DCO=1.8 *5* α(K)=2.239 *31*; α(L)=0.327 *5*; α(M)=0.07138 *99*
140.7	1.5 *5*	1813.6	21/2−	1672.8	23/2−	E2(+M1)	>1	0.781 *20*	α(K)exp=0.46 *12*; DCO=1.9 *6* α(K)=0.51 *6*; α(L)=0.21 *4*; α(M)=0.049 *9*
146.2	2.2 *5*	6112.2	45/2−	5966.1	(43/2+)	(E1)		0.1082 *15*	α(K)=0.0912 *13*; α(L)=0.01338 *19*; α(M)=0.00291 *4* α(K)exp=0.14 *4*; DCO=1.6 *3*
168.5	11 *1*	2518.7	27/2+	2350.2	23/2+	E2		0.409 *6*	α(K)=0.262 *4*; α(L)=0.1136 *16*; α(M)=0.0266 *4* α(K)exp=0.31 *5*; DCO=1.1 *2*
180.0	8 *1*	6400.7	47/2−	6220.9	45/2−	M1+E2	1.3 *+18−6*	0.360 *28*	α(K)exp=0.27 *4*; DCO=1.3 *2* α(K)=0.27 *4*; α(L)=0.073 *11*; α(M)=0.0168 *27*
184.1	25 *2*	9955.8	61/2+	9771.7	57/2+	E2		0.303 *4*	α(K)exp=0.20 *2*; DCO=1.0 *1* α(K)=0.2009 *28*; α(L)=0.0786 *11*; α(M)=0.01832 *26*
195.9	3.6 *5*	6220.9	45/2−	6025.2	43/2−	M1+E2	0.9 *+11−6*	0.292 *31*	α(K)exp=0.23 *4*; DCO=2.2 *6* α(K)=0.23 *4*; α(L)=0.049 *8*; α(M)=0.0112 *20*
204.0	21 *1*	11204.7	67/2−	11000.7	65/2+	E1		0.0446 *6*	α(K)exp=0.035 *7*; DCO=1.7 *3* α(K)=0.0377 *5*; α(L)=0.00540 *8*; α(M)=0.001174 *16*
211.1	22 *2*	4673.9	37/2+	4463.2	35/2+	E2(+M1)	>1.2	0.207 *16*	α(K)exp=0.14 *3*; DCO=1.4 *2* α(K)=0.153 *19*; α(L)=0.0425 *26*; α(M)=0.0098 *7*
215.8	49 *3*	2518.7	27/2+	2303.1	27/2−	E1		0.0385 *5*	α(K)exp=0.025 *8*; DCO=1.1 *1* α(K)=0.0326 *5*; α(L)=0.00465 *7*; α(M)=0.001010 *14* ΔJ=0 transition.
225.0	35 *2*	5148.1	41/2+	4923.3	39/2+	M1+E2	1.1 *3*	0.187 *11*	α(K)exp=0.15 *1*; DCO=1.5 *1* α(K)=0.147 *13*; α(L)=0.0316 *13*; α(M)=0.00714 *35*
238.6	5 *1*	7112.8	(49/2)+	6874.3	47/2+	M1		0.1925 *27*	α(L)exp=0.044 *20*; DCO=2.0 *5* α(K)=0.1627 *23*; α(L)=0.02334 *33*; α(M)=0.00509 *7*
249.6	48 *2*	4923.3	39/2+	4673.9	37/2+	M1+E2	1.6 *+10−5*	0.128 *10*	α(K)=0.099 *11*; α(L)=0.0226 *6*; α(M)=0.00513 *17* α(K)exp=0.10 *1*; DCO=1.4 *1*
254	11.0 *15*	5966.1	(43/2+)	5712.4	43/2−	D		0.0252	DCO=1.4 *2* Mult.: ΔJ=0 transition. Mult=(E1) in 1994Me12.
255.0[a]	1.5 *5*	9482.6?		9227.6?					α(K)exp=0.075 *14* Mult.: α(K)exp is for 255.0+255.2 doublet. 1994Me12 conclude that DCO is is consistent with dominant dipole for stronger (255.2) line, while the total conversion coefficient is that for an E2 transition, but according to the level scheme it is consistent with M1+E2 for the 255.2γ and E1 for the 255.0γ.
255.2	19 *2*	4463.2	35/2+	4208.4	33/2+	(M1+E2)		0.132 *29*	DCO=1.6 *2*

From ENSDF

$^{149}_{65}Tb_{84}$-3

γ(^{149}Tb) (continued)

E_γ[†]	I_γ[†]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	δ[@]	α[&]	Comments
									Mult.: D+Q from DCO, M1(+E2) in 1994Me12. Intensity balance at 4463 level favors M1+E2.
288.0	13 *2*	6400.7	47/2−	6112.2	45/2−	M1+E2	1.1 *+10−5*	0.091 *13*	α(K)=0.073 *13*; α(L)=0.01381 *22*; α(M)=0.00309 *5* α(K)exp=0.074 *12*; DCO=1.5 *2*
289.0[a]	1.5 *5*	9771.7	57/2+	9482.6?					
290.5	83 *2*	1672.8	23/2−	1382.3	19/2−	E2		0.0689 *10*	α(K)exp=0.065 *10*; DCO=1.1 *2* α(K)=0.0518 *7*; α(L)=0.01323 *19*; α(M)=0.00303 *4*
294.2	53 *2*	2812.8	29/2+	2518.7	27/2+	M1+E2	0.9 *2*	0.090 *5*	α(K)exp=0.075 *5*; DCO=1.5 *2* α(K)=0.074 *5*; α(L)=0.01295 *19*; α(M)=0.00288 *4*
306.7	13 *1*	1129.0	15/2+	822.3	15/2−	E1		0.01567 *22*	α(K)exp=0.013 *3*; DCO=1.3 *2* α(K)=0.01330 *19*; α(L)=0.001858 *26*; α(M)=0.000403 *6* ΔJ=0 transition.
324.1	21.0 *15*	7112.8	(49/2)+	6788.5	47/2+	M1		0.0846 *12*	α(K)exp=0.082 *10*; DCO=1.6 *2* α(K)=0.0716 *10*; α(L)=0.01019 *14*; α(M)=0.002221 *31*
329.0	57 *3*	3141.8	31/2+	2812.8	29/2+	M1+E2	1.4 *5*	0.059 *7*	α(K)exp=0.048 *5*; DCO=1.4 *1* α(K)=0.047 *7*; α(L)=0.00891 *31*; α(M)=0.00200 *5*
356.2	4 *1*	4463.2	35/2+	4107.1	(31/2+)	Q			DCO=0.8 *2*
377.0	12 *2*	6112.2	45/2−	5735.1	45/2+	E1		0.00947 *13*	α(K)exp<0.01; DCO=1.8 *2* α(K)=0.00805 *11*; α(L)=0.001112 *16*; α(M)=0.0002412 *34* ΔJ=0 transition.
385.1	41 *2*	3526.9	33/2+	3141.8	31/2+	M1		0.0538 *8*	α(K)exp=0.052 *7*; DCO=1.7 *1* α(K)=0.0455 *6*; α(L)=0.00644 *9*; α(M)=0.001404 *20*
399.6	16 *1*	6112.2	45/2−	5712.4	43/2−	M1		0.0488 *7*	α(K)exp=0.050 *8*; DCO=1.4 *2* α(K)=0.0414 *6*; α(L)=0.00585 *8*; α(M)=0.001274 *18*
431.4	4 *1*	1813.6	21/2−	1382.3	19/2−				
454.3	8.5 *10*	5712.4	43/2−	5257.9	39/2−	Q			DCO=1.0 *1*
460.0	13 *1*	4923.3	39/2+	4463.2	35/2+	E2		0.01815 *25*	α(K)exp=0.014 *4*; DCO=0.9 *1* α(K)=0.01457 *20*; α(L)=0.00279 *4*; α(M)=0.000625 *9*
463.5	8 *1*	9197.2	59/2(+)	8733.7	55/2(+)	E2		0.01778 *25*	α(K)=0.01429 *20*; α(L)=0.00272 *4*; α(M)=0.000611 *9* α(K)exp=0.012 *3*; DCO=1.2 *2*
465.4	8 *1*	4673.9	37/2+	4208.4	33/2+	E2		0.01759 *25*	α(K)exp=0.013 *3*; DCO=1.1 *2* α(K)=0.01414 *20*; α(L)=0.00269 *4*; α(M)=0.000603 *8*
474.2	12 *1*	5148.1	41/2+	4673.9	37/2+	Q			DCO=1.1 *1*.
482.2	16 *1*	2350.2	23/2+	1868.0	19/2+	E2		0.01600 *22*	α(K)exp=0.015 *3*; DCO=1.0 *1* α(K)=0.01291 *18*; α(L)=0.002413 *34*; α(M)=0.000540 *8*
486.0	14 *1*	6220.9	45/2−	5735.1	45/2+	E1		0.00525 *7*	α(K)exp=0.005 *2*; DCO=1.6 *2* α(K)=0.00447 *6*; α(L)=0.000609 *9*; α(M)=0.0001320 *18* ΔJ=0 transition.
509.5	21.0 *15*	2812.8	29/2+	2303.1	27/2−	E1		0.00472 *7*	α(K)=0.00402 *6*; α(L)=0.000547 *8*; α(M)=0.0001184 *17* α(K)exp<0.005; DCO=1.5 *2*
534.8	2.7 *10*	4061.6		3526.9	33/2+				
536.7	4 *1*	2350.2	23/2+	1813.6	21/2−	D			DCO=2.2 *7*
540.1	9 *1*	8281.1	53/2	7740.9	51/2	D			DCO=1.9 *7*

$^{149}_{65}$Tb$_{84}$-4

γ(^{149}Tb) (continued)

E_γ †	I_γ †	E_i(level)	J_i^π	E_f	J_f^π	Mult.#	δ@	α&	Comments
546.7	10 *1*	7740.9	51/2	7194.2	49/2	M1+E2	1.3 +*10*−*5*	0.0154 *25*	α(K)exp=0.013 *2*; DCO=1.4 *3* α(K)=0.0128 *22*; α(L)=0.00201 *22*; α(M)=0.00044 *5*
560.0	87 *2*	1382.3	19/2⁻	822.3	15/2⁻	E2		0.01087 *15*	α(K)exp=0.0094 *8*; DCO=1.0 *1* α(K)=0.00888 *12*; α(L)=0.001553 *22*; α(M)=0.000346 *5*
564.1	22 *2*	5712.4	43/2⁻	5148.1	41/2⁺	E1		0.00377 *5*	α(K)exp=0.0037 *10*; DCO=1.5 *2* α(K)=0.00322 *5*; α(L)=0.000435 *6*; α(M)=9.42×10^{-5} *13*
567.6	9 *1*	6788.5	47/2⁺	6220.9	45/2⁻	E1		0.00372 *5*	α(K)exp=0.004 *1*; DCO=1.5 *3* α(K)=0.00317 *4*; α(L)=0.000429 *6*; α(M)=9.29×10^{-5} *13*
583.8	6 *1*	5257.9	39/2⁻	4673.9	37/2⁺	D			DCO=1.8 *5* ΔJ=0 transition.
586.9	25.0 *15*	5735.1	45/2⁺	5148.1	41/2⁺	E2		0.00967 *14*	α(K)exp=0.0095 *12*; DCO=1.1 *1* α(K)=0.00793 *11*; α(L)=0.001360 *19*; α(M)=0.000302 *4*
623.2	9 *1*	3141.8	31/2⁺	2518.7	27/2⁺	E2		0.00835 *12*	α(K)exp=0.005 *2*; DCO=1.0 *3* α(K)=0.00687 *10*; α(L)=0.001153 *16*; α(M)=0.000256 *4*
630.2	81 *2*	2303.1	27/2⁻	1672.8	23/2⁻	E2		0.00813 *11*	α(K)exp=0.0064 *7*; DCO=1.0 *1* α(K)=0.00670 *9*; α(L)=0.001118 *16*; α(M)=0.0002478 *35*
676.3	20 *1*	6788.5	47/2⁺	6112.2	45/2⁻	E1		0.00257 *4*	α(K)exp=0.0025 *6*; DCO=1.5 *3* α(K)=0.002194 *31*; α(L)=0.000294 *4*; α(M)=6.36×10^{-5} *9*
681.8	4 *1*	4208.4	33/2⁺	3526.9	33/2⁺	M1		0.01256 *18*	α(K)=0.01067 *15*; α(L)=0.001481 *21*; α(M)=0.000322 *5* α(K)exp=0.011 *3*; DCO=1.2 *5* ΔJ=0 transition.
695.6	16 *1*	5618.8	41/2⁻	4923.3	39/2⁺	E1		2.42×10^{-3} *3*	α(K)exp=0.0036 *15*; DCO=1.5 *2* α(K)=0.002070 *29*; α(L)=0.000277 *4*; α(M)=5.99×10^{-5} *8*
712.1	8 *1*	7112.8	(49/2)⁺	6400.7	47/2⁻	E1		2.31×10^{-3} *3*	α(K)exp=0.0036 *15*; DCO=1.3 *2* α(K)=0.001974 *28*; α(L)=0.000264 *4*; α(M)=5.70×10^{-5} *8*
714	4 *1*	3526.9	33/2⁺	2812.8	29/2⁺				
738.9	16 *1*	1868.0	19/2⁺	1129.0	15/2⁺	E2		0.00560 *8*	α(K)exp=0.0042 *7*; DCO=1.3 *3* α(K)=0.00465 *7*; α(L)=0.000737 *10*; α(M)=0.0001624 *23*
757.2	9 *1*	8733.7	55/2$^{(+)}$	7976.5	(51/2⁺)	E2		0.00529 *7*	α(K)exp=0.0044 *11*; DCO=1.1 *2* α(K)=0.00441 *6*; α(L)=0.000693 *10*; α(M)=0.0001526 *21*
762.2	5.5 *10*	6874.3	47/2⁺	6112.2	45/2⁻				
786.5	100	822.3	15/2⁻	35.75	11/2⁻	E2		0.00486 *7*	α(K)exp=0.0042 *8*; DCO=1.0 α(K)=0.00405 *6*; α(L)=0.000630 *9*; α(M)=0.0001387 *19*
793.5	6 *1*	7194.2	49/2	6400.7	47/2⁻	D			DCO=1.4 *3*
818.1	4 *1*	5966.1	(43/2⁺)	5148.1	41/2⁺	D			DCO=1.5 *3*
849.7	15.5 *10*	9771.7	57/2⁺	8922.1	(53/2⁺)	E2		0.00410 *6*	α(K)exp=0.0030 *6*; DCO=0.9 *2* α(K)=0.00343 *5*; α(L)=0.000522 *7*; α(M)=0.0001147 *16*
873	6.5 *10*	8922.1	(53/2⁺)	8048.5	(51/2⁺)	M1(+E2)	<0.6	0.0064 *4*	α(K)exp=0.006 *2* α(K)=0.00548 *35*; α(L)=0.00076 *4*; α(M)=0.000165 *9* M1 in 1994Me12.

From ENSDF

γ(^{149}Tb) (continued)

E_γ[†]	I_γ[†]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	α[&]	Comments
877.3	7 *1*	6025.2	43/2$^-$	5148.1	41/2$^+$	D		DCO=1.5 *3*
935	2.5 *5*	8048.5	(51/2$^+$)	7112.8	(49/2)$^+$			
945.8[a]	7 *1*	8922.1	(53/2$^+$)	7976.5	(51/2$^+$)	D		DCO=1.4 *2* See also comment for 947.7γ.
946[a]	2.0 *5*	9227.6?		8281.1	53/2			Mult.: see comment for 947.7γ.
947.7	16 *1*	12152.4	71/2$^{(-)}$	11204.7	67/2$^-$	Q		DCO=0.8 *2*; α(K)exp=0.005 *1* α(K)exp for 945.8γ+946γ+947.7γ. If 947.7γ is E2 (ΔJ=2 suggested by DCO), then the other two may be ΔJ=1, M1.
965.8	11 *1*	13118.2	75/2$^{(-)}$	12152.4	71/2$^{(-)}$	Q		DCO=0.9 *2* DCO for 965.8γ+966γ.
966	3 *1*	4107.1	(31/2$^+$)	3141.8	31/2$^+$			DCO=0.9 *2* DCO probably for 965.8+966 doublet. Mult.: Q given by 1994Me12 inconsistent with level scheme. ΔJ=(0) transition.
987[‡a]		10184.2?		9197.2	59/2$^{(+)}$			
993[‡a]		11177.2?		10184.2?				
1044.9	31 *1*	11000.7	65/2$^+$	9955.8	61/2$^+$	E2	0.00264 *4*	α(K)exp=0.0026 *4*; DCO=0.86 *15* α(K)=0.002229 *31*; α(L)=0.000324 *5*; α(M)=7.08$\times10^{-5}$ *10*
1066.8	3 *1*	4208.4	33/2$^+$	3141.8	31/2$^+$			
1134.5	30 *1*	8247.4	53/2$^+$	7112.8	(49/2)$^+$	E2	2.24$\times10^{-3}$ *3*	α(K)exp=0.0024 *4*; DCO=0.86 *12* α(K)=0.001889 *26*; α(L)=0.000271 *4*; α(M)=5.90$\times10^{-5}$ *8*
1146.6	38 *1*	4673.9	37/2$^+$	3526.9	33/2$^+$	E2	2.19$\times10^{-3}$ *3*	α(K)exp=0.0019 *2*; DCO=0.8 *1* α(K)=0.001850 *26*; α(L)=0.000264 *4*; α(M)=5.77$\times10^{-5}$ *8*
1188.2	8 *1*	7976.5	(51/2$^+$)	6788.5	47/2$^+$	(Q)		DCO=1.3 *4* Mult=Q in 1994Me12.
1197	4 *1*	5257.9	39/2$^-$	4061.6				
1300	6.0 *15*	3603.1	31/2$^-$	2303.1	27/2$^-$			
1321.3	17 *1*	4463.2	35/2$^+$	3141.8	31/2$^+$	(E2)	1.67$\times10^{-3}$ *2*	α(K)exp<0.002; DCO=0.8 *1* α(K)=0.001401 *20*; α(L)=0.0001960 *27*; α(M)=4.26$\times10^{-5}$ *6* E2 in 1994Me12.
1395.6	16 *1*	4208.4	33/2$^+$	2812.8	29/2$^+$	(E2)	1.53$\times10^{-3}$ *2*	α(K)exp<0.002; DCO=0.96 *14* α(K)=0.001261 *18*; α(L)=0.0001751 *25*; α(M)=3.81$\times10^{-5}$ *5* E2 in 1994Me12.
1524.1	13 *1*	9771.7	57/2$^+$	8247.4	53/2$^+$	E2	1.34$\times10^{-3}$ *2*	α(K)exp=0.0012 *2*; DCO=0.9 *1* α(K)=0.001067 *15*; α(L)=0.0001466 *21*; α(M)=3.18$\times10^{-5}$ *4*

† From 1994Me12.
‡ From the scheme in Fig.5 of 1994Me12, not listed in Table 1.
\# From $\gamma\gamma(\theta)$(DCO) and ce data in 1994Me12, given under comments.

γ(^{149}Tb) (continued)

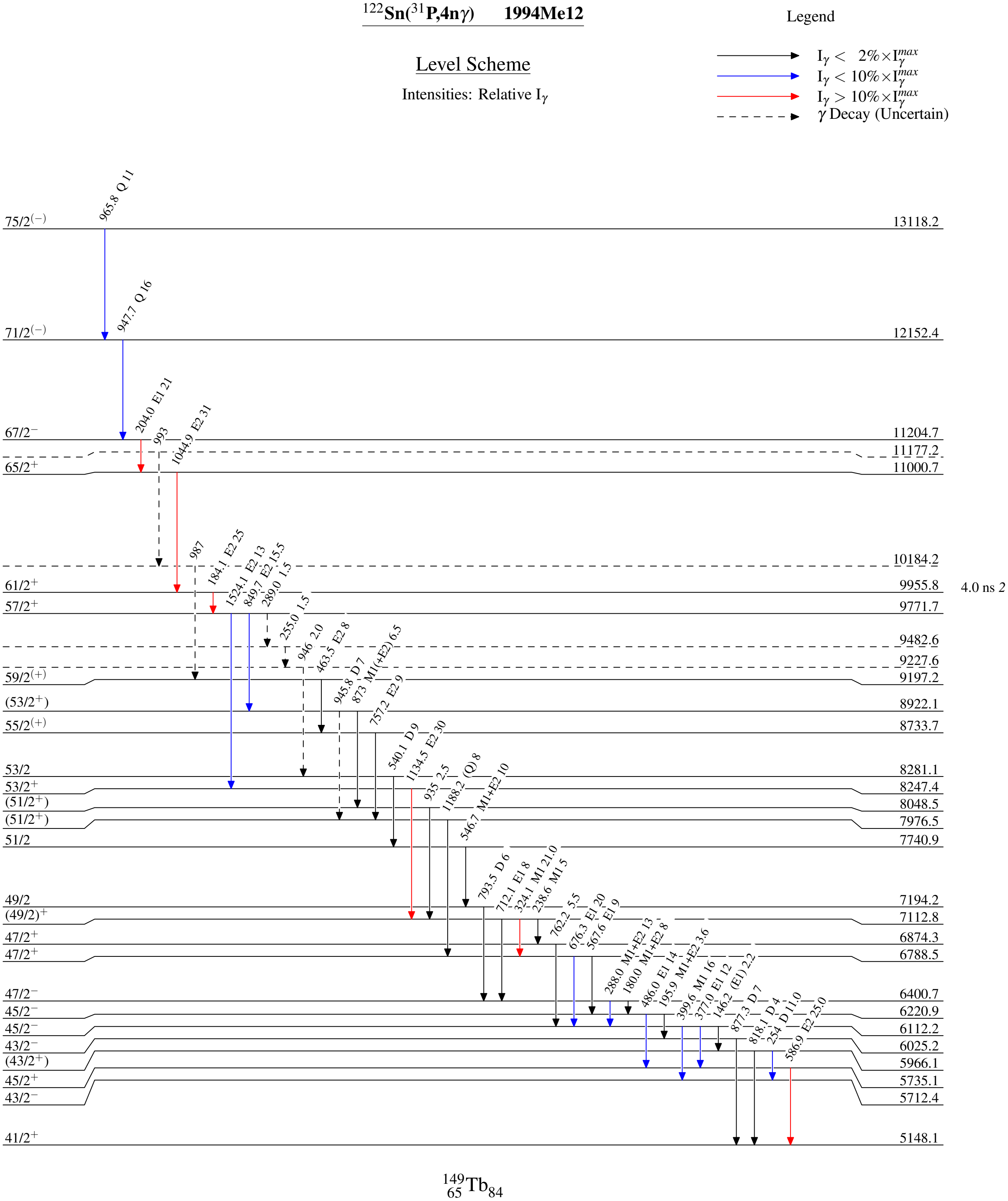
[@] From 1994Me12. The uncertainties and some of the δ values have been deduced by the evaluators from α(K)exp values of 1994Me12.
[&] Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.
[a] Placement of transition in the level scheme is uncertain.

$^{149}_{65}$Tb$_{84}$-7

$^{122}Sn(^{31}P,4n\gamma)$ 1994Me12

Level Scheme

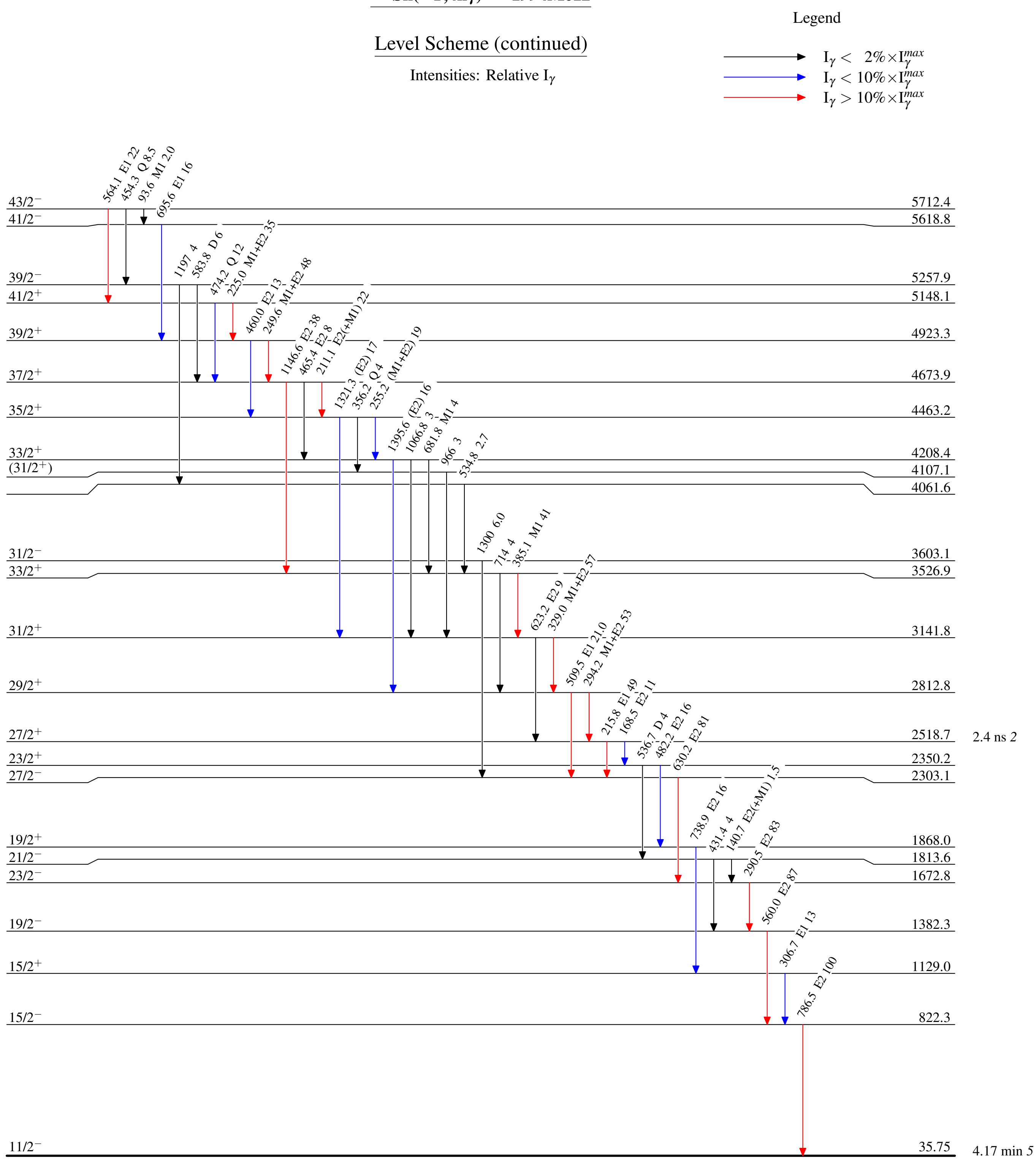
Intensities: Relative I_γ



$^{122}Sn(^{31}P,4n\gamma)$ 1994Me12

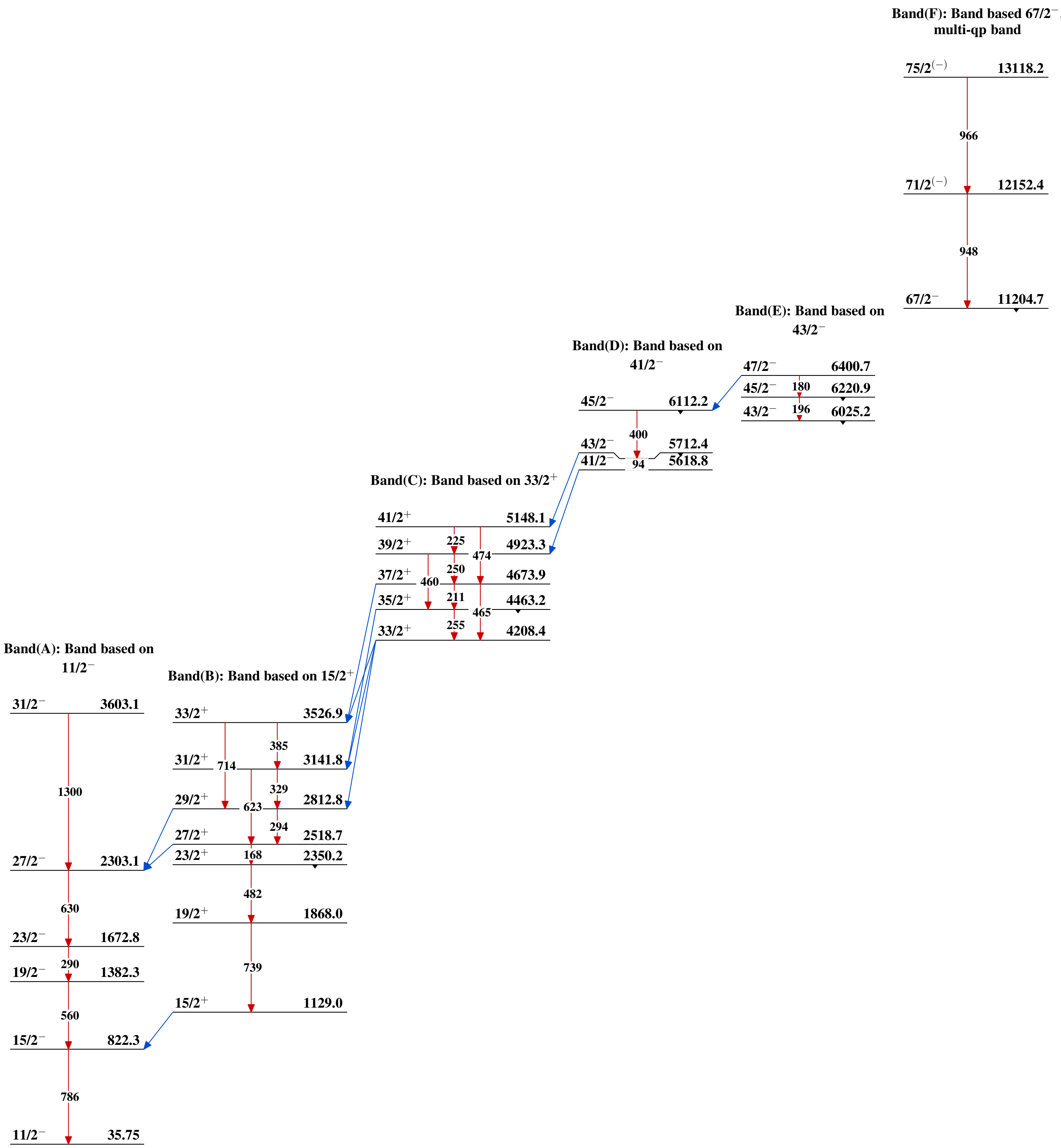
Level Scheme (continued)

Intensities: Relative I_γ



$^{149}_{65}Tb_{84}$

$^{122}Sn(^{31}P,4n\gamma)$ 1994Me12



$^{149}_{65}Tb_{84}$