^{122}Sn(^{36}S,4nγ) 2002Ma10,1987Cr01,1985AzZY

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	N. Nica	NDS 200,2 (2025)	22-Aug-2022

Additional information 1.

Data are from 2002Ma10 and 2002MaZM, unless otherwise noted.

This data set is based on the data set compiled from 2002Ma10 and from 2002MaZM, a datafile 154Dy_wm.ags on enriched (97%) target. http://radware.phy.ornl.gov, submitted by W. C. Ma, one of the authors of 2002Ma10 in March 2002 at the request of the compilers, R. Zywina and B. Singh (McMaster University) March, 2002.

2002Ma10: ^{36}S(^{122}Sn,4nγ), E(^{122}Sn)=165 MeV. Measured Eγ, Iγ, $\gamma\gamma$, $\gamma\gamma(\theta)$(DCO) using the Gammasphere array of 103 Compton-suppressed Ge detectors.

2002MaZM: A datafile 154Dy_wm.ags on enriched (97%) target. http://radware.phy.ornl.gov, submitted by W. C. Ma one of the authors of 2002Ma10.

1988Ma28: ^{122}Sn(^{36}S,4nγ) with E(^{36}S)=165 MeV on enriched (>92%) target. Measured γ's in array of 8 Ge and 14 BGO detectors and deduced half-lives from Doppler-broadened line shapes.

1987Cr01: ^{110}Pd(^{48}Ca,4nγ) with E(^{48}Ca)=210 MeV on enriched (97%) target. Measured γ's including $\gamma(\theta)$ with an array of 6 Ge and 50 BGO detectors.

1985Az02: Lifetimes and feeding times measured by recoil-distance method following ^{25}Mg(^{134}Xe,5nγ) at 686 MeV with enriched (≥90%) target and ^{124}Sn(^{34}S,4nγ) at 146 MeV with enriched (99%) target. Lifetimes determined up to 18^+ and 17^- levels. Values not given explicitly. Report by same authors: 1985KhZY.

1985AzZY: Thesis, see 1985Az02 for published form.

1983Kh03: Model discussion of scheme from 1982Pa10.

1982Pa10: ^{124}Sn(^{34}S,4nγ) with E(^{34}S)=145-165 MeV. Measured γ singles, $\gamma\gamma$(t), $\gamma(\theta)$ and excitation functions. Large NaI detector used as sum spectrometer and multiplicity filter. Report 45 γ's and about 34 levels.

1978DuZY: Lifetimes measured by recoil-distance method with ^{146}Nd(^{12}C,4nγ). Preliminary values given for first 2^+, 4^+, and 6^+ levels.

1974Ba07: ^{154}Gd(α,4nγ) with enriched (95%) target and E(α)=46-56 MeV. Measured γ singles, $\gamma(\theta)$, and $\gamma\gamma$. Report 18 γ's and levels to 14^+.

1974BeZF, 1975DaZM: ^{156}Gd(α,6nγ). Measured γ singles, 20^+ and 15^+.

1973Kr12: ^{146}Nd(^{12}C,4nγ) with enriched target and E(^{12}C)=57-109 MeV. Measured γ singles, $\gamma(\theta)$, and $\gamma\gamma$(t). Report 14 γ's and levels to 18^+.

1968Wa12: ^{139}La(^{19}F,4nγ) with natural target and E(^{19}F) ≈ 86 MeV. Measured excitation function and $\gamma(\theta)$. Report 13 γ's and levels to 10^+.

^{154}Dy Levels

See 2002Ma10 for detailed multi-quasiparticle configurations for different rotational bands, based on cranked Nilsson-Strutinsky calculations.

E(level)[†‡]	Jπ	$T_{1/2}$[@]	E(level)[†‡]	Jπ	$T_{1/2}$[@]	E(level)[†‡]	Jπ	$T_{1/2}$[@]
0.0[g]	0^+		2303.81[g] 8	10^+	1.1 ps 3	3288.8[a] 9	12^+	
334.30[g] 3	2^+	27.5 ps 20	2420.71[i] 8	9^-		3314.01[o] 16	11^-	
660.70[a] 17	0^+		2566.7[o] 7	7^-		3389.81[i] 9	13^-	1.7 ps
746.50[g] 5	4^+	6.9 ps +3–5	2664.2[h] 8	8^-		3483.5[h] 12	12^-	
904.7[a] 6	2^+		2757.8[a] 11	10^+		3503.61[p] 17	12^-	
1223.40[g] 6	6^+	2.4 ps +4–3	2865.9[p] 6	8^-		3508.41[g] 10	14^+	0.55 ps 10
1250.6[a] 7	4^+		2881.71[i] 8	11^-	4.5 ps +2–3	3679.12[b] 11	14^+	
1657.2[a] 8	6^+		2892.31[g] 9	12^+	0.94 ps 19	3719.61[o] 17	13^-	
1746.91[g] 7	8^+	1.5 ps 3	3011.61[o] 15	9^-		3963.71[p] 18	14^-	
1964.01[i] 8	7^-		3047.8[h] 7	10^-		3981.91[i] 10	15^-	3.0 ps
2163.1[a] 11	8^+		3158.61[p] 17	10^-		4005.6[h] 16	14^-	

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^{122}Sn(^{36}S,4nγ) 2002Ma10,1987Cr01,1985AzZY (continued)

^{154}Dy Levels (continued)

E(level)[†‡]	Jπ	$T_{1/2}$[@]	E(level)[†‡]	Jπ
4090.03[b] *10*	16^+	1.3 ps *5*	8884[h] *3*	28^-
4172.45[g] *12*	16^+		8916.19[f] *14*	28^+
4230.11[o] *18*	15^-		9001.3[p] *5*	28^-
4518.61[p] *18*	16^-		9118.4[k] *11*	(28^-)
4587.3[h] *19*	16^-		9187.8[i] *6*	29^-
4636.56[b] *12*	18^+	0.76 ps *17*	9216.79[n] *15*	29^-
4641.51[i] *10*	17^-	1.3 ps *+10–6*	9349.33[b] *14*	30^+
4826.01[o] *18*	17^-		9444.5[o] *5*	29^-
4868.23[g] *15*	18^+		9566.64[d] *16*	30^+
5151.01[p] *19*	18^-		9645.84[g] *17*	30^+
5205.6[h] *21*	18^-		9667.86[f] *16*	30^+
5248.98[b] *12*	20^+	0.62 ps *9*	9765[h] *4*	30^-
5338.11[i] *11*	19^-		9893.3[k] *15*	(30^-)
5488.61[o] *19*	19^-		9897.9[p] *9*	30^-
5563.66[g] *16*	20^+		10106.8[i] *6*	31^-
5840.51[p] *19*	20^-		10155.50[n] *16*	31^-
5866.2[h] *24*	20^-		10358.36[b] *16*	32^+
5934.10[b] *13*	22^+	0.38 ps	10367.1[o] *12*	31^-
6035.08[i] *12*	21^-		10383.94[d] *15*	32^+
6181.1[n] *5*	21^-		10433.8[k] *18*	(32^-)
6200.71[o] *19*	21^-		10445.48[f] *16*	32^+
6284.93[g] *16*	22^+		10628.88[g] *19*	32^+
6559[h] *3*	22^-		10703[h] *4*	32^-
6573.01[p] *25*	22^-		10846.4[p] *14*	32^-
6689.92[b] *13*	24^+	0.2 ps	11072.8[i] *6*	33^-
6753.59[i] *13*	23^-		11081.9[l] *8*	33^-
6804.6[n] *5*	23^-		11119.91[d] *15*	34^+
6952.0[o] *3*	23^-		11147.00[n] *18*	33^-
7044.86[g] *16*	24^+		11318.51[f] *15*	34^+
7288[h] *3*	24^-		11340.1[o] *15*	33^-
7342.5[p] *3*	24^-		11431.37[b] *18*	34^+
7374.97[f] *17*	24^+		11605.2[m] *8*	34^-
7512.95[b] *14*	26^+	0.2 ps *+4–2*	11665.49[g] *20*	34^+
7518.59[i] *14*	25^-		11703[h] *4*	34^-
7740.7[o] *5*	25^-		11758.2[k] *21*	(34^-)
7771.7[n] *5*	25^-		11829.2[l] *8*	35^-
7855.83[g] *16*	26^+		11849.5[p] *17*	34^-
8060[h] *3*	26^-		11915.8[j] *13*	35^-
8138.75[f] *15*	26^+		11924.94[d] *16*	36^+
8151.0[p] *5*	26^-		12062.70[n] *19*	(35^-)
8280.0[n] *5*	27^-		12094.8[i] *6*	35^-
8334.59[i] *14*	27^-		12306.5[m] *8*	36^-
8400.08[b] *14*	28^+	0.15 ps	12409.16[f] *16*	36^+
8569.7[o] *5*	27^-		12540.1[l] *8*	37^-
8722.80[g] *16*	28^+		12556.77[b] *19*	36^+

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^{122}Sn(^{36}S,4nγ) 2002Ma10,1987Cr01,1985AzZY (continued)

^{154}Dy Levels (continued)

E(level)[†‡]	J$^\pi$	T$_{1/2}$[@]	E(level)[†‡]	J$^\pi$	T$_{1/2}$[@]
12761.99[g] 21	36$^+$		15483.7[i] 6	41$^-$	
12764[h] 4	36$^-$		15504.6[c] 13	(41$^+$)	
13038.8[m] 10	38$^-$		15661.2[j] 15	(43$^-$)	
13087.9[n] 11	(37$^-$)		16011.0[f] 13	44$^+$	0.16[&] ps 6
13088.2[c] 11	37$^+$		16088.4[c] 13	43$^+$	
13165.7[i] 6	37$^-$		16271.56[b] 21	42$^+$	
13257.1[f] 8	38$^+$	0.8[&] ps 3	16321[h] 4	42$^-$	
13310.9[l] 8	39$^-$		16359.4[e] 13	(43$^+$)	
13402.1[j] 13	39$^-$		16373.15[g] 22	42$^+$	
13557.9[m] 11	40$^-$		16734.9[i] 6	43$^-$	
13744.08[b] 20	38$^+$		16737.2[j] 18	(45$^-$)	
13888[h] 4	38$^-$		17186.5[c] 16	45$^+$	
13908.93[g] 21	38$^+$		17293.4[e] 16	(45$^+$)	
14024.3[#l] 11	41$^-$		17322.1[f] 16	46$^+$	0.08[&] ps 3
14134.9[f] 8	40$^+$	0.8[&] ps 3	17608.26[b] 22	44$^+$	
14294.2[i] 6	39$^-$		17628[h] 5	44$^-$	
14374.9[j] 13	41$^-$		18055.7[i] 6	45$^-$	
14423.3[c] 13	39$^+$		18485.0[c] 19	47$^+$	
14468.4[e] 13	39$^+$		18732.1[#f] 19	48$^+$	<0.11[&] ps
14589.9[#m] 13	42$^-$		18914.4[e] 19	47$^+$	
14885.2[f] 8	42$^+$	1.1[&] ps 3	18962.9[b] 11	46$^+$	
14980.48[b] 21	40$^+$		19447.1[i] 12	47$^-$	
15074[h] 4	40$^-$		20906.2[i] 16	49$^-$	
15118.14[g] 22	40$^+$		22437.6[i] 19	51$^-$	

[†] From least-squares fit to Eγ's; an uncertainty of 1 keV is the default uncertainty when none is given. Seven E$_\gamma$ values out of 238 differ by 3σ or more from the calculated ones.

[‡] There are several levels reported in 1988Ma28 that are not given in 2002Ma10. Since the first author is the same for both papers, these levels are omitted here. The lowest of these levels are at 2493, 2900, and 5589 keV.

[#] Maximally-aligned state; proposed termination of this level sequence.

[@] From 1985AzZY, unless noted as being from 1988Ma28. See also 1985Az02 and 1982Pa10, where the T$_{1/2}$ values are reported in terms of transition-quadrupole moments.

[&] From 1988Ma28, Doppler-broadened line-shape analysis.

[a] Band(A): First excited 0$^+$ band.

[b] Band(B): S, or 'Super', band. Denoted as (π=+,α=0)$_1$ by 2002Ma10. Band starts at 14$^+$ and crosses the gs band at J$^\pi$=14$^+$. It loses its yrast status above the 32$^+$ level.

[c] Band(b): (π=+,α=1)$_1$ band. Band starts at 37$^+$.

[d] Band(C): (π=+,α=0)$_2$ band. Band starts at 30$^+$.

[e] Band(c): (π=+,α=1)$_2$ band. Band starts at 39$^+$.

[f] Band(D): (π=+,α=0)$_3$ band. Band starts at 24$^+$.

[g] Band(E): Ground-state band. Denoted as (π=+,α=0)$_4$ by 2002Ma10.

[h] Band(F): (π=−,α=0)$_1$ band. Band starts at 8$^-$.

[i] Band(f): (π=−,α=1)$_1$ band. As observed in this reaction, this band starts at 7$^-$. For lower-spin states proposed to be associated with it, see the Adopted Levels data set.

[j] Band(G): (π=−,α=1)$_3$ band. Band starts at 35$^-$.

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^{122}Sn(^{36}S,4nγ) 2002Ma10,1987Cr01,1985AzZY (continued)

^{154}Dy Levels (continued)

[k] Band(g): (π=−,α=0)$_3$ band. Band starts at (28$^-$).
[l] Band(H): (π=−,α=1)$_2$ band. Band starts at 33$^-$.
[m] Band(h): (π=−,α=0)$_2$ band. Band starts at 34$^-$.
[n] Band(I): (π=−,α=1)$_5$ band. Band starts at 21$^-$.
[o] Band(J): (π=−,α=1)$_4$ band. As seen in ^{36}S(^{122}Sn,4nγ), band starts at 7$^-$.
[p] Band(j): (π=−,α=0)$_4$ band. Band starts at 8$^-$.

γ(^{154}Dy)

For $\gamma\gamma$ coincidence data, see 1973Kr12. Others: 1968Wa12, 1973Kr12.

E_γ[†]	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡#]	Comments
145.7	10.0	3011.61	9$^-$	2865.9	8$^-$		
147.0	10.0	3158.61	10$^-$	3011.61	9$^-$		
155.40 *5*	5.0	3314.01	11$^-$	3158.61	10$^-$		
189.60 *4*	5.0	3503.61	12$^-$	3314.01	11$^-$		
216.00 *4*	5.0	3719.61	13$^-$	3503.61	12$^-$		
224.00 *4*	1.00 *10*	11829.2	35$^-$	11605.2	34$^-$	(D)	
233.60 *4*	5.0	12540.1	37$^-$	12306.5	36$^-$		
244.10 *7*	5.0	3963.71	14$^-$	3719.61	13$^-$		
244.5	1.0	904.7	2$^+$	660.70	0$^+$		
247.0	0.3	13557.9	40$^-$	13310.9	39$^-$		
266.40 *4*	5.0	4230.11	15$^-$	3963.71	14$^-$		
272.1	3.0	13310.9	39$^-$	13038.8	38$^-$		
288.50 *5*	5.0	4518.61	16$^-$	4230.11	15$^-$		
292.7	2.0 *3*	3158.61	10$^-$	2865.9	8$^-$		
299.2	2.0	2865.9	8$^-$	2566.7	7$^-$		
302.40 *7*	5.0	3314.01	11$^-$	3011.61	9$^-$		
307.40 *5*	5.0	4826.01	17$^-$	4518.61	16$^-$		
325.00 *5*	5.0	5151.01	18$^-$	4826.01	17$^-$		
326.2[@] *3*		660.70	0$^+$	334.30	2$^+$		
334.30 *3*	100	334.30	2$^+$	0.0	0$^+$	E2	
337.60 *5*	5.0	5488.61	19$^-$	5151.01	18$^-$		
345.00 *6*	5.0	3503.61	12$^-$	3158.61	10$^-$		
346.0	5.0	1250.6	4$^+$	904.7	2$^+$		
351.90 *7*	5.0	5840.51	20$^-$	5488.61	19$^-$		
360.20 *4*	5.0	6200.71	21$^-$	5840.51	20$^-$		
372.30 *17*	1.0	6573.01	22$^-$	6200.71	21$^-$		
379.00 *19*	1.0	6952.0	23$^-$	6573.01	22$^-$		
383.6	2.0 *3*	3047.8	10$^-$	2664.2	8$^-$		
390.3	2.3	3679.12	14$^+$	3288.8	12$^+$		
390.50 *15*	1.0	7342.5	24$^-$	6952.0	23$^-$		
398.2	1.0	7740.7	25$^-$	7342.5	24$^-$		
405.60 *9*	5.0	3719.61	13$^-$	3314.01	11$^-$		
406.7	5.0	1657.2	6$^+$	1250.6	4$^+$		
410.30 *18*	1.0	8151.0	26$^-$	7740.7	25$^-$		
410.90 *10*	5.0	4090.03	16$^+$	3679.12	14$^+$		
412.20 *3*	94 *3*	746.50	4$^+$	334.30	2$^+$	E2	
418.70 *19*	1.0	8569.7	27$^-$	8151.0	26$^-$		
431.60 *21*	1.0	9001.3	28$^-$	8569.7	27$^-$		
432.3	2.0 *5*	3314.01	11$^-$	2881.71	11$^-$		
433.8	1.0	1657.2	6$^+$	1223.40	6$^+$		I_γ: Other: Iγ(433)/Iγ(406)=1.05 *26* from 1974Ba07.
435.7	4.0	3483.5	12$^-$	3047.8	10$^-$		
443.20 *15*	1.0	9444.5	29$^-$	9001.3	28$^-$		

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^{122}Sn(^{36}S,4nγ) 2002Ma10,1987Cr01,1985AzZY (continued)

$\gamma(^{154}Dy)$ (continued)

E_γ[†]	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡#]	Comments
444.9	0.4	3011.61	9^-	2566.7	7^-		
453.4	1.0	9897.9	30^-	9444.5	29^-		
456.70 *4*	2.0 *4*	2420.71	9^-	1964.01	7^-		
460.10 *12*	5.0	3963.71	14^-	3503.61	12^-		
461.00 *6*	15.0	2881.71	11^-	2420.71	9^-	E2	
466.4	1.0	14024.3	41^-	13557.9	40^-		
473.50 *7*	4.9 *4*	3981.91	15^-	3508.41	14^+	D	
476.90 *4*	91 *3*	1223.40	6^+	746.50	4^+	E2	
477.30 *9*	3.0	12306.5	36^-	11829.2	35^-		
484.10 *7*	4.0	12409.16	36^+	11924.94	36^+		
497.50 *6*	5.9 *4*	3389.81	13^-	2892.31	12^+	D	
498.7	1.0	13038.8	38^-	12540.1	37^-		
504.0	1.0	1250.6	4^+	746.50	4^+		I_γ: Other: Iγ(504)/Iγ(346)=1.12 *30* from 1974Ba07.
505.9	5.0	2163.1	8^+	1657.2	6^+		
508.10 *4*	33.5 *12*	3389.81	13^-	2881.71	11^-	E2	
508.30 *5*	1.0	8280.0	27^-	7771.7	25^-		
510.50 *12*	5.0	4230.11	15^-	3719.61	13^-		
516.00 *5*	4.0	8916.19	28^+	8400.08	28^+		
519.1	0.3	13557.9	40^-	13038.8	38^-		
522.1	4.0	4005.6	14^-	3483.5	12^-		
523.30 *15*	1.0 *3*	11605.2	34^-	11081.9	33^-		
523.50 *4*	90 *3*	1746.91	8^+	1223.40	6^+	E2	
531.0	2.5	3288.8	12^+	2757.8	10^+		
540.5	1.0	10433.8	(32^-)	9893.3	(30^-)		
546.50 *5*	35.0 *15*	4636.56	18^+	4090.03	16^+	E2	
554.90 *10*	5.0	4518.61	16^-	3963.71	14^-		
556.90 *4*	78 *3*	2303.81	10^+	1746.91	8^+	E2	
565.6	1.0	14589.9	42^-	14024.3	41^-		
570.2	2.0	904.7	2^+	334.30	2^+		
577.90 *5*	18.0	2881.71	11^-	2303.81	10^+	D	
581.60 *5*	35.6 *13*	4090.03	16^+	3508.41	14^+	E2	
581.7	4.0	4587.3	16^-	4005.6	14^-		
588.50 *5*	55.3 *19*	2892.31	12^+	2303.81	10^+	E2	
590.90 *13*	5.0	3011.61	9^-	2420.71	9^-		
592.10 *4*	31.5 *12*	3981.91	15^-	3389.81	13^-	E2	
594.7	3.5	2757.8	10^+	2163.1	8^+		
595.90 *6*	5.0	4826.01	17^-	4230.11	15^-		
605.90 *19*	4.0	11924.94	36^+	11318.51	34^+		
612.40 *4*	35.8 *13*	5248.98	20^+	4636.56	18^+	E2	
616.10 *4*	45.6 *16*	3508.41	14^+	2892.31	12^+	E2	
618.3	4.0	5205.6	18^-	4587.3	16^-		
623.50 *5*	2.0	6804.6	23^-	6181.1	21^-		
626.01 *6*	3.0	8138.75	26^+	7512.95	26^+		
627.1	2.00 *20*	3047.8	10^-	2420.71	9^-		
632.40 *12*	5.0	5151.01	18^-	4518.61	16^-		
650.50 *8*	5.0	9566.64	30^+	8916.19	28^+		
659.60 *4*	33.1 *12*	4641.51	17^-	3981.91	15^-	E2	
660.6	4.0	5866.2	20^-	5205.6	18^-		
660.8[@] *2*		660.70	0^+	0.0	0^+		
662.60 *7*	5.0	5488.61	19^-	4826.01	17^-		
664.10 *8*	8.7 *7*	4172.45	16^+	3508.41	14^+	E2	
673.80 *5*	10.0	2420.71	9^-	1746.91	8^+	D	
685.10 *4*	35.2 *12*	5934.10	22^+	5248.98	20^+	E2	
685.10 *12*	1.0	7374.97	24^+	6689.92	24^+		
689.50 *8*	5.0	5840.51	20^-	5151.01	18^-		

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^{122}Sn(^{36}S,4nγ) 2002Ma10,1987Cr01,1985AzZY (continued)

γ(^{154}Dy) (continued)

E_γ[†]	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡#]
693.0	4.0	6559	22^-	5866.2	20^-	
695.60 *12*	10.0	5563.66	20^+	4868.23	18^+	
695.90 *12*	9.2 *9*	4868.23	18^+	4172.45	16^+	
696.60 *4*	27.4 *15*	5338.11	19^-	4641.51	17^-	E2
696.97 *5*	28.4 *13*	6035.08	21^-	5338.11	19^-	E2
701.3	1.0	12306.5	36^-	11605.2	34^-	
710.90 *7*	5.0	12540.1	37^-	11829.2	35^-	E2
712.10 *6*	5.0	6200.71	21^-	5488.61	19^-	
713.4	0.8	14024.3	41^-	13310.9	39^-	
716.1	1.0	10383.94	32^+	9667.86	30^+	
718.50 *4*	21.7 *9*	6753.59	23^-	6035.08	21^-	E2
721.32 *6*	10.0	6284.93	22^+	5563.66	20^+	
728.6	4.0	7288	24^-	6559	22^-	
732.3	0.3	13038.8	38^-	12306.5	36^-	
732.5 *4*	1.0	6573.01	22^-	5840.51	20^-	
735.80 *6*	15.0	11119.91	34^+	10383.94	32^+	E2
740.60 *7*	2.0 *4*	1964.01	7^-	1223.40	6^+	
744.0	0.5	3047.8	10^-	2303.81	10^+	
747.30 *8*	6.0 *5*	11829.2	35^-	11081.9	33^-	(E2)
750.25 *17*	15.0	14885.2	42^+	14134.9	40^+	E2
751.3 *12*	1.0	6952.0	23^-	6200.71	21^-	
751.80 *12*	3.0	9667.86	30^+	8916.19	28^+	
755.80 *4*	29.9	6689.92	24^+	5934.10	22^+	E2
760.00 *8*	10.0	7044.86	24^+	6284.93	22^+	
760.90 *16*	5.0	11119.91	34^+	10358.36	32^+	
761.4	0.7	8280.0	27^-	7518.59	25^-	
763.89 *18*	1.0	8138.75	26^+	7374.97	24^+	
765.00 *4*	20.0	7518.59	25^-	6753.59	23^-	E2
769.5	0.8	6804.6	23^-	6035.08	21^-	
769.5 *3*	1.0	7342.5	24^-	6573.01	22^-	
770.80 *9*	5.0	13310.9	39^-	12540.1	37^-	E2
772.6	4.0	8060	26^-	7288	24^-	
774.9	1.0	9893.3	(30^-)	9118.4	(28^-)	
777.80 *9*	1.0	10445.48	32^+	9667.86	30^+	
778.20 *11*	2.0	8916.19	28^+	8138.75	26^+	
778.40 *22*	5.0	4868.23	18^+	4090.03	16^+	
786.80 *9*	2.7	3679.12	14^+	2892.31	12^+	
788.7	1.0	7740.7	25^-	6952.0	23^-	
805.00 *6*	15.0	11924.94	36^+	11119.91	34^+	E2
808.5 *3*	1.0	8151.0	26^-	7342.5	24^-	
811.00 *5*	10.0	7855.83	26^+	7044.86	24^+	
816.00 *4*	20.0 *7*	8334.59	27^-	7518.59	25^-	E2
817.40 *12*	5.0	10383.94	32^+	9566.64	30^+	
819.8	2.0	2566.7	7^-	1746.91	8^+	
823.00 *4*	27.2 *9*	7512.95	26^+	6689.92	24^+	E2
823.8	1.0	8884	28^-	8060	26^-	
829.0 *7*	1.0	8569.7	27^-	7740.7	25^-	
833.9	1.0	11915.8	35^-	11081.9	33^-	
838.4	1.0	9118.4	(28^-)	8280.0	27^-	
843.0	1.5	6181.1	21^-	5338.11	19^-	
847.9	4.0	13257.1	38^+	12409.16	36^+	
850.3 *4*	1.0	9001.3	28^-	8151.0	26^-	
853.3	16.0	9187.8	29^-	8334.59	27^-	(E2)
862.0	1.0	13402.1	39^-	12540.1	37^-	
867.00 *5*	10.0	8722.80	28^+	7855.83	26^+	

Continued on next page (footnotes at end of table)

^{122}Sn(^{36}S,4nγ) 2002Ma10,1987Cr01,1985AzZY (continued)

γ(^{154}Dy) (continued)

E_γ [†]	I_γ [†]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [‡#]
873.20 *9*	1.0	11318.51	34^+	10445.48	32^+	
874.8 *9*	1.0	9444.5	29^-	8569.7	27^-	
877.84 *11*	15.0	14134.9	40^+	13257.1	38^+	E2
880.3	1.0	9765	30^-	8884	28^-	
882.20 *4*	7.0 *4*	9216.79	29^-	8334.59	27^-	E2
887.00 *4*	22.5 *8*	8400.08	28^+	7512.95	26^+	E2
890.0	1.5	10106.8	31^-	9216.79	29^-	
893.3	1.0	3314.01	11^-	2420.71	9^-	
896.6	1.0	9897.9	30^-	9001.3	28^-	
901.9	3.0 *5*	2865.9	8^-	1964.01	7^-	
904.5	2.0	904.7	2^+	0.0	0^+	
907.8	0.3	9187.8	29^-	8280.0	27^-	
915.70 *6*	1.0 *3*	12062.70	(35^-)	11147.00	33^-	
917.3	2.0	2664.2	8^-	1746.91	8^+	
919.00 *5*	14.0	10106.8	31^-	9187.8	29^-	
922.6	1.0	10367.1	31^-	9444.5	29^-	
923.04 *7*	5.0	9645.84	30^+	8722.80	28^+	
926.4	0.5	11081.9	33^-	10155.50	31^-	
934.90 *8*	3.0	11318.51	34^+	10383.94	32^+	
936.8	2.0	9216.79	29^-	8280.0	27^-	
938.70 *6*	5.7 *3*	10155.50	31^-	9216.79	29^-	E2
938.9	1.0	10703	32^-	9765	30^-	
945.09 *5*	3.0	9667.86	30^+	8722.80	28^+	
948.5	1.00 *10*	10846.4	32^-	9897.9	30^-	
949.20 *4*	19.8 *7*	9349.33	30^+	8400.08	28^+	E2
958.7	3.0	11318.51	34^+	10358.36	32^+	
966.00 *7*	4.0	11072.8	33^-	10106.8	31^-	
967.10 *7*	2.0	7771.7	25^-	6804.6	23^-	
973.0	1.00 *10*	11340.1	33^-	10367.1	31^-	
975.1	10.0	11081.9	33^-	10106.8	31^-	E2
983.04 *7*	5.0	10628.88	32^+	9645.84	30^+	
991.50 *8*	3.9 *3*	11147.00	33^-	10155.50	31^-	E2
999.9	1.0	11703	34^-	10703	32^-	
1003.1	1.00 *10*	11849.5	34^-	10846.4	32^-	
1008.82 *9*	5.0	10358.36	32^+	9349.33	30^+	E2
1010.2	3.0 *3*	3314.01	11^-	2303.81	10^+	
1022.00 *5*	1.0	12094.8	35^-	11072.8	33^-	
1025.2	0.5	13087.9	(37^-)	12062.70	(35^-)	
1032.0	0.2	14589.9	42^-	13557.9	40^-	
1034.60 *4*	20.0	10383.94	32^+	9349.33	30^+	E2
1036.60 *6*	2.0	11665.49	34^+	10628.88	32^+	
1060.9	1.0	12764	36^-	11703	34^-	
1064.0	1.0	14374.9	41^-	13310.9	39^-	
1070.88 *5*	1.0	13165.7	37^-	12094.8	35^-	
1073.00 *8*	3.0	11431.37	34^+	10358.36	32^+	
1076.0	0.5	16737.2	(45^-)	15661.2	(43^-)	
1090.96 *6*	1.0	12409.16	36^+	11318.51	34^+	
1096.50 *6*	2.0	12761.99	36^+	11665.49	34^+	
1123.6	1.0	13888	38^-	12764	36^-	
1125.40 *6*	1.0	12556.77	36^+	11431.37	34^+	
1125.8	10.0	16011.0	44^+	14885.2	42^+	E2
1128.50 *4*	1.0	14294.2	39^-	13165.7	37^-	
1146.93 *5*	2.0	13908.93	38^+	12761.99	36^+	
1163.3	0.4	13088.2	37^+	11924.94	36^+	
1166.2	0.4	14423.3	39^+	13257.1	38^+	

Continued on next page (footnotes at end of table)

^{122}Sn(^{36}S,4nγ) 2002Ma10,1987Cr01,1985AzZY (continued)

γ(^{154}Dy) (continued)

E_γ[†]	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡#]
1175.5	0.3	17186.5	45^+	16011.0	44^+	
1185.7	1.0	15074	40^-	13888	38^-	
1187.30 *6*	1.0	13744.08	38^+	12556.77	36^+	
1189.50 *5*	1.0	15483.7	41^-	14294.2	39^-	
1203.2	0.3	16088.4	43^+	14885.2	42^+	
1209.21 *5*	2.0	15118.14	40^+	13908.93	38^+	
1211.3	0.4	14468.4	39^+	13257.1	38^+	
1236.40 *5*	1.0	14980.48	40^+	13744.08	38^+	
1247.9	1.0	16321	42^-	15074	40^-	
1251.17 *4*	1.0	16734.9	43^-	15483.7	41^-	
1255.00 *5*	2.0	16373.15	42^+	15118.14	40^+	
1264.7	4.0 *5*	3011.61	9^-	1746.91	8^+	
1282.4	0.3	17293.4	(45^+)	16011.0	44^+	
1289.10 *5*	2.0	12409.16	36^+	11119.91	34^+	
1291.07 *5*	1.0	16271.56	42^+	14980.48	40^+	
1298.5	1.0	18485.0	47^+	17186.5	45^+	
1306.5	1.0	17628	44^-	16321	42^-	
1311.1	4.0 *5*	17322.1	46^+	16011.0	44^+	
1318.50 *5*	1.0	18055.7	45^-	16734.9	43^-	
1324.4	0.5	11758.2	(34^-)	10433.8	(32^-)	
1332.1	15.0	13257.1	38^+	11924.94	36^+	E2
1336.70 *4*	0.3	17608.26	44^+	16271.56	42^+	
1354.6	0.3	18962.9	46^+	17608.26	44^+	
1369.7	0.4	15504.6	(41^+)	14134.9	40^+	
1391.4	1.0	19447.1	47^-	18055.7	45^-	
1410.0	1.0	18732.1	48^+	17322.1	46^+	
1459.0	1.0	20906.2	49^-	19447.1	47^-	
1474.2	0.4	16359.4	(43^+)	14885.2	42^+	
1531.4	0.5	22437.6	51^-	20906.2	49^-	
1592.3	0.2	18914.4	47^+	17322.1	46^+	
1636.9	0.6	15661.2	(43^-)	14024.3	41^-	

[†] From 2002MaZM. The data in 2002Ma10 have the energies only to 1 keV, with no uncertainties and no intensities.

[‡] Deduced by evaluator from Iγ(30°)/Iγ(90°) data of 1987Cr01; assigned E2 (i.e., stretched Q interpreted as E2) if ratio is ≥0.70 and D (i.e., stretched D) if it is <0.70. The level scheme of 1987Cr01 differs from that (2002Ma10) given here; the evaluator has associated the multipolarities with the same γ ray in its new location. Others: 1973Kr12 and 1974Ba07.

[#] The multipolarity assignments given in 2002MaZM are suppressed in the present compilation because the RADWARE program requires multipolarities for all γ's, even if there are no supporting data.

[@] From ^{154}Dy Adopted γ radiations.

^{122}Sn(^{36}S,4nγ) 2002Ma10,1987Cr01,1985AzZY

Level Scheme

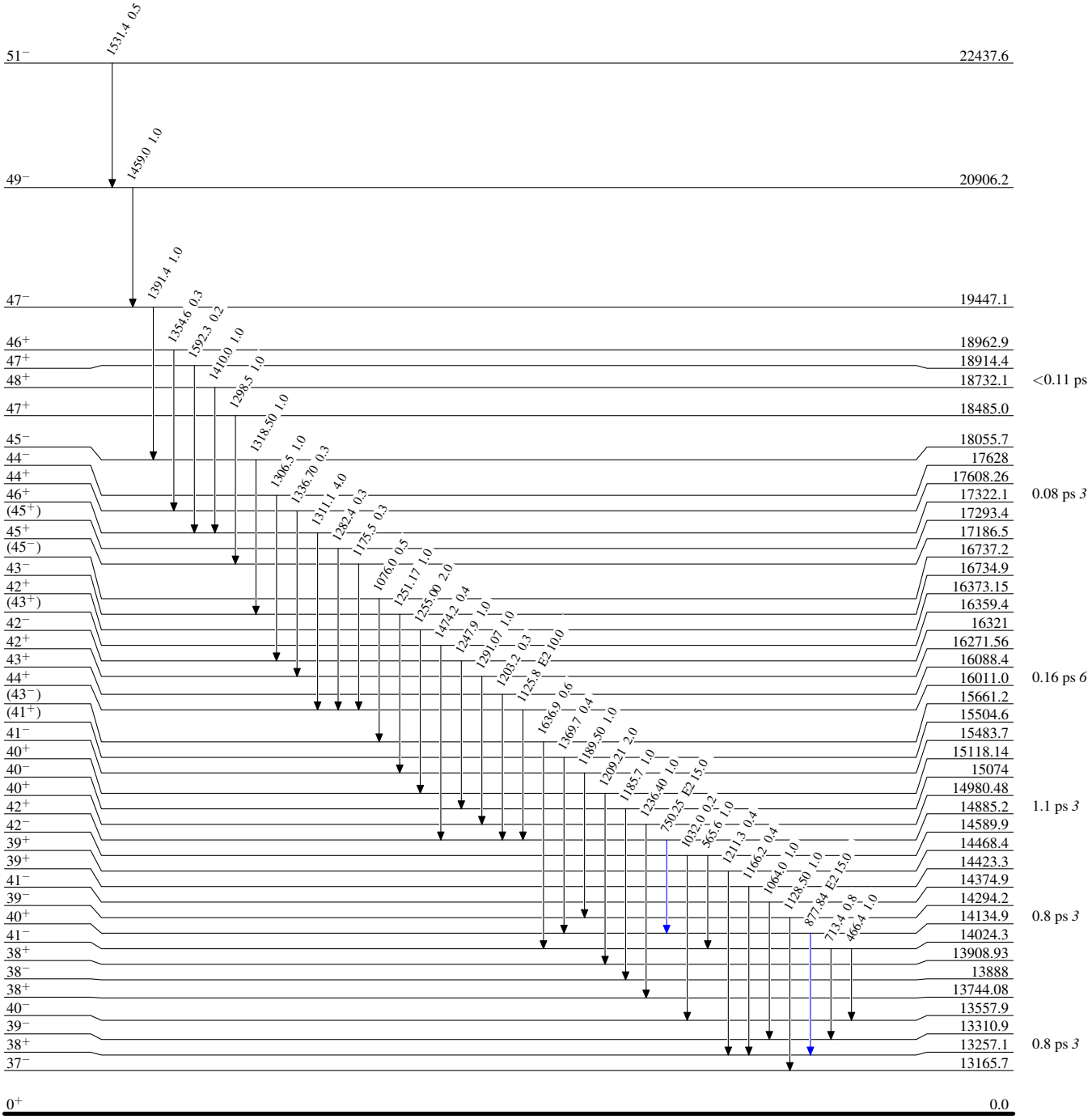
Intensities: Relative I_γ

Legend

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

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

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



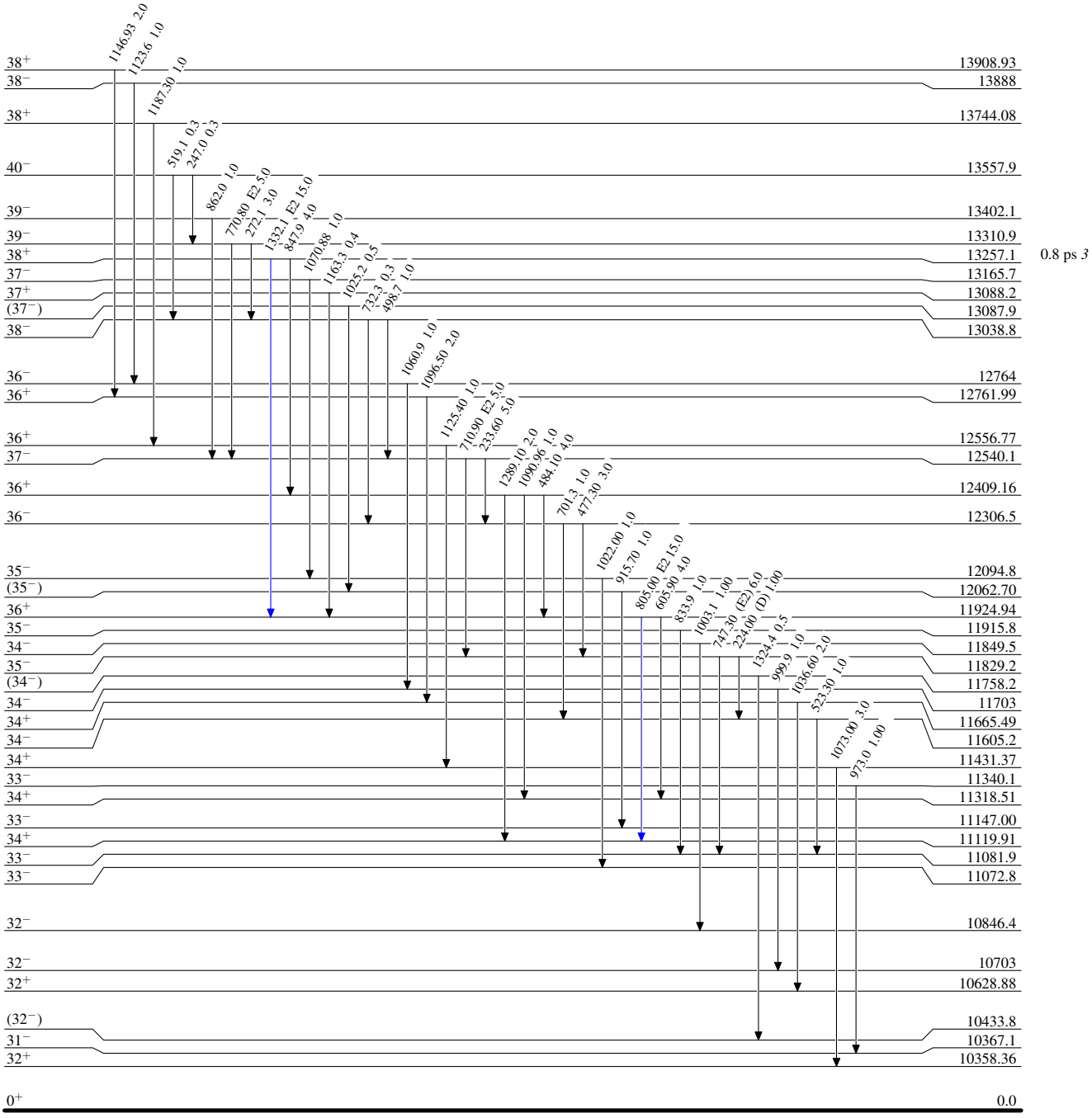
$^{154}_{66}Dy_{88}$

^{122}Sn(^{36}S,4nγ) 2002Ma10,1987Cr01,1985AzZY

Level Scheme (continued)

Intensities: Relative I_γ

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



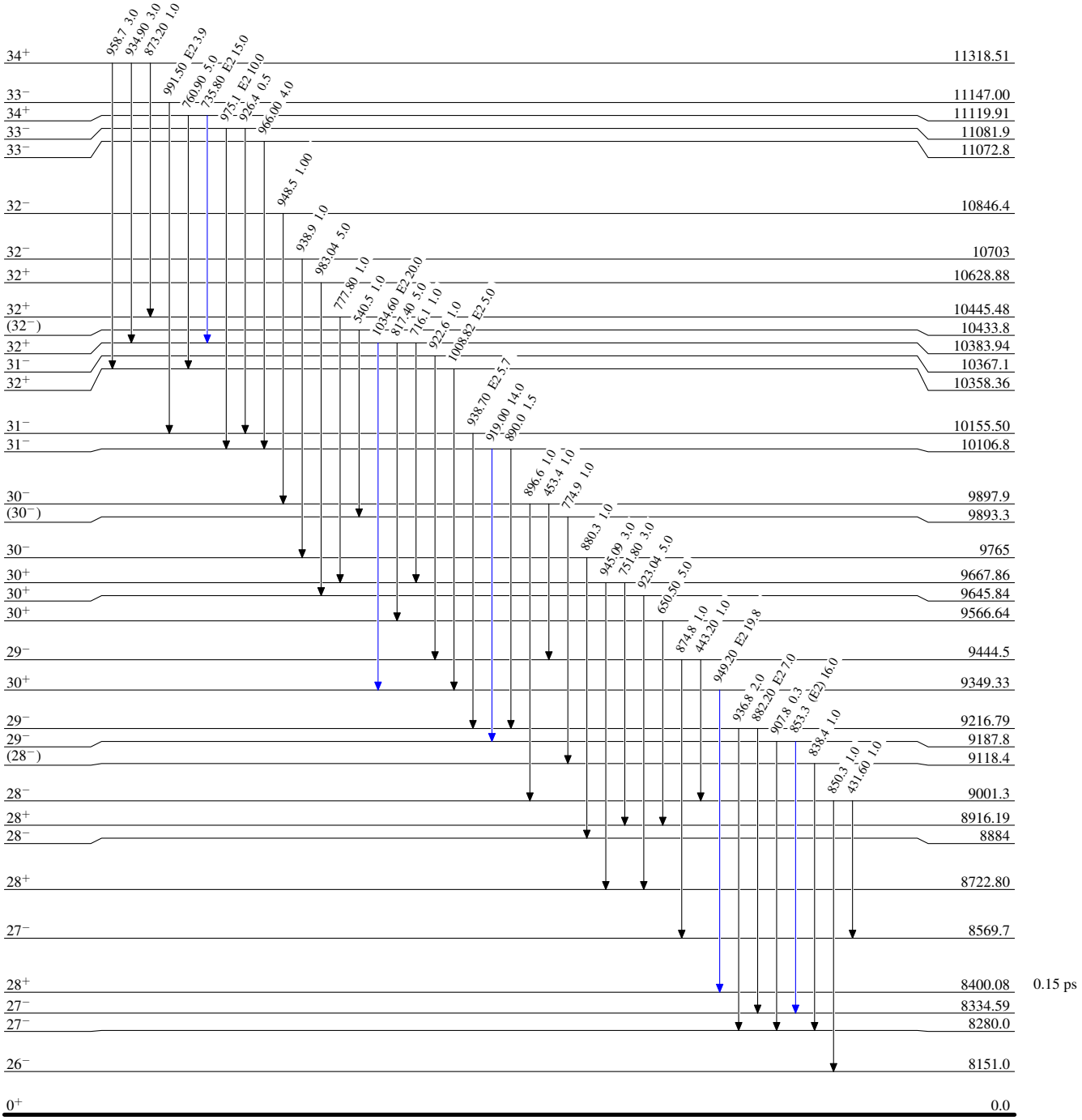
$^{154}_{66}Dy_{88}$

^{122}Sn(^{36}S,4nγ) 2002Ma10,1987Cr01,1985AzZY

Level Scheme (continued)

Intensities: Relative I_γ

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

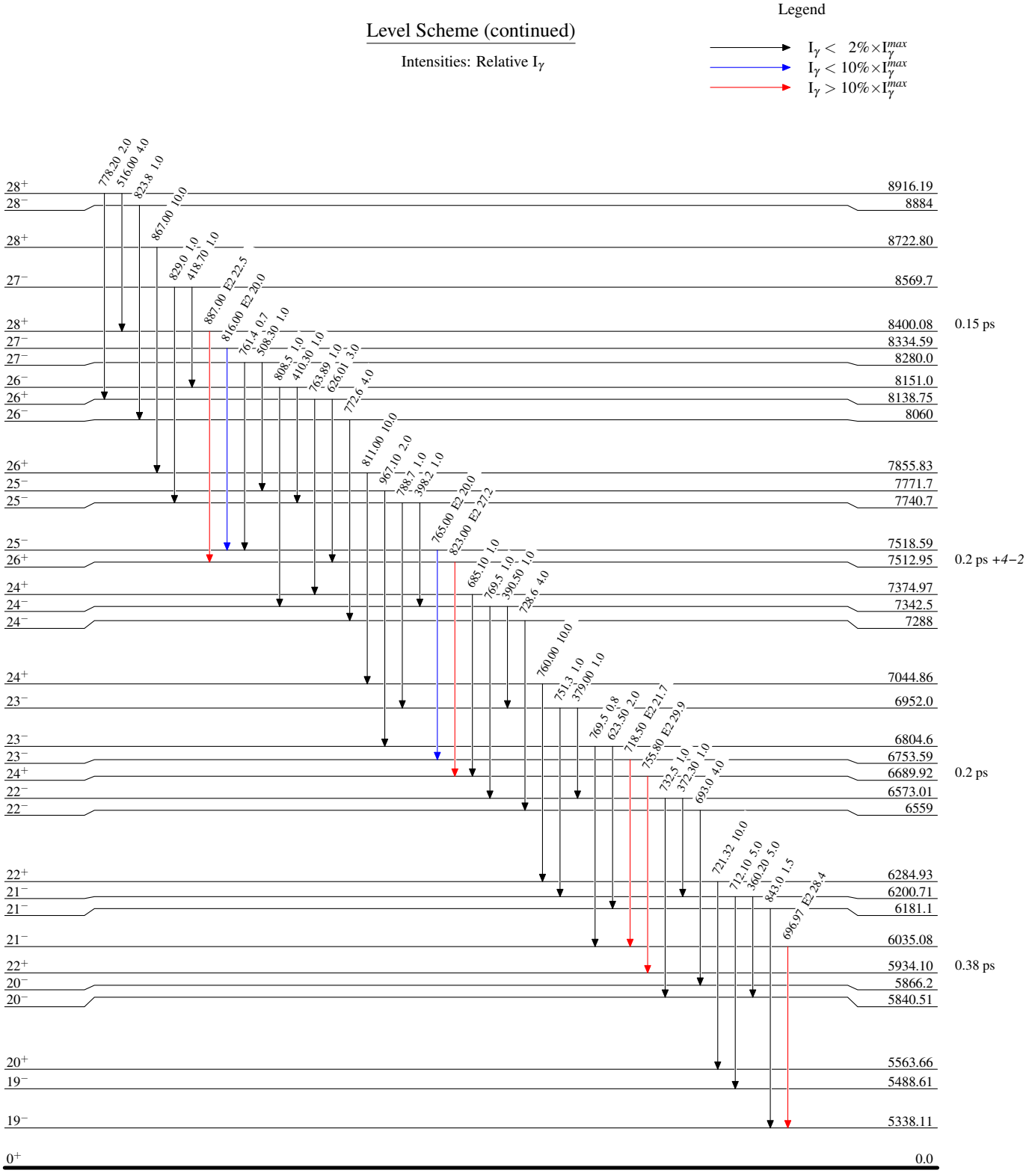


$^{154}_{66}Dy_{88}$

^{122}Sn(^{36}S,4nγ) 2002Ma10,1987Cr01,1985AzZY

Level Scheme (continued)

Intensities: Relative I_γ



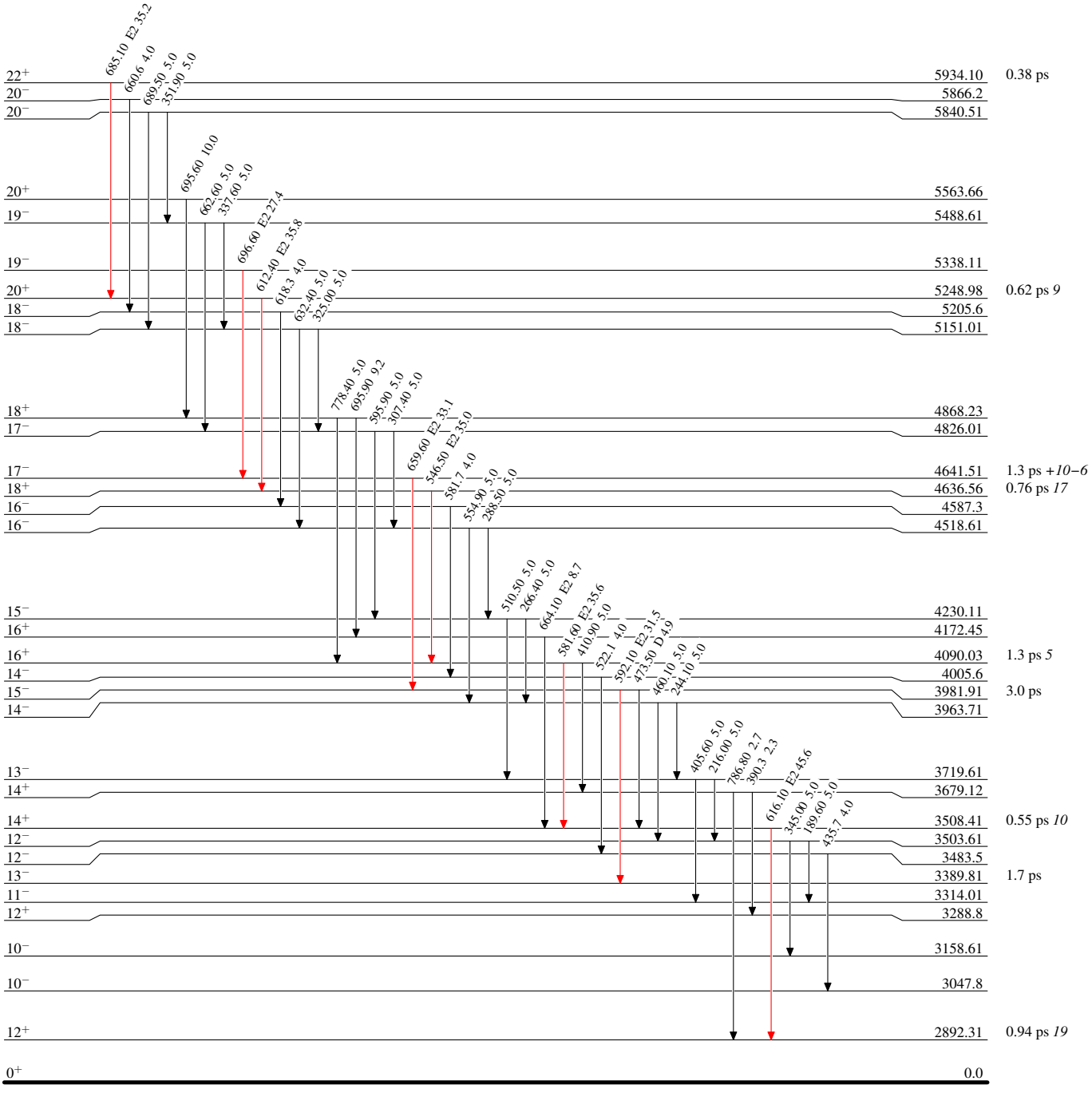
$^{154}_{66}Dy_{88}$

^{122}Sn(^{36}S,4nγ) 2002Ma10,1987Cr01,1985AzZY

Level Scheme (continued)

Intensities: Relative I_γ

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

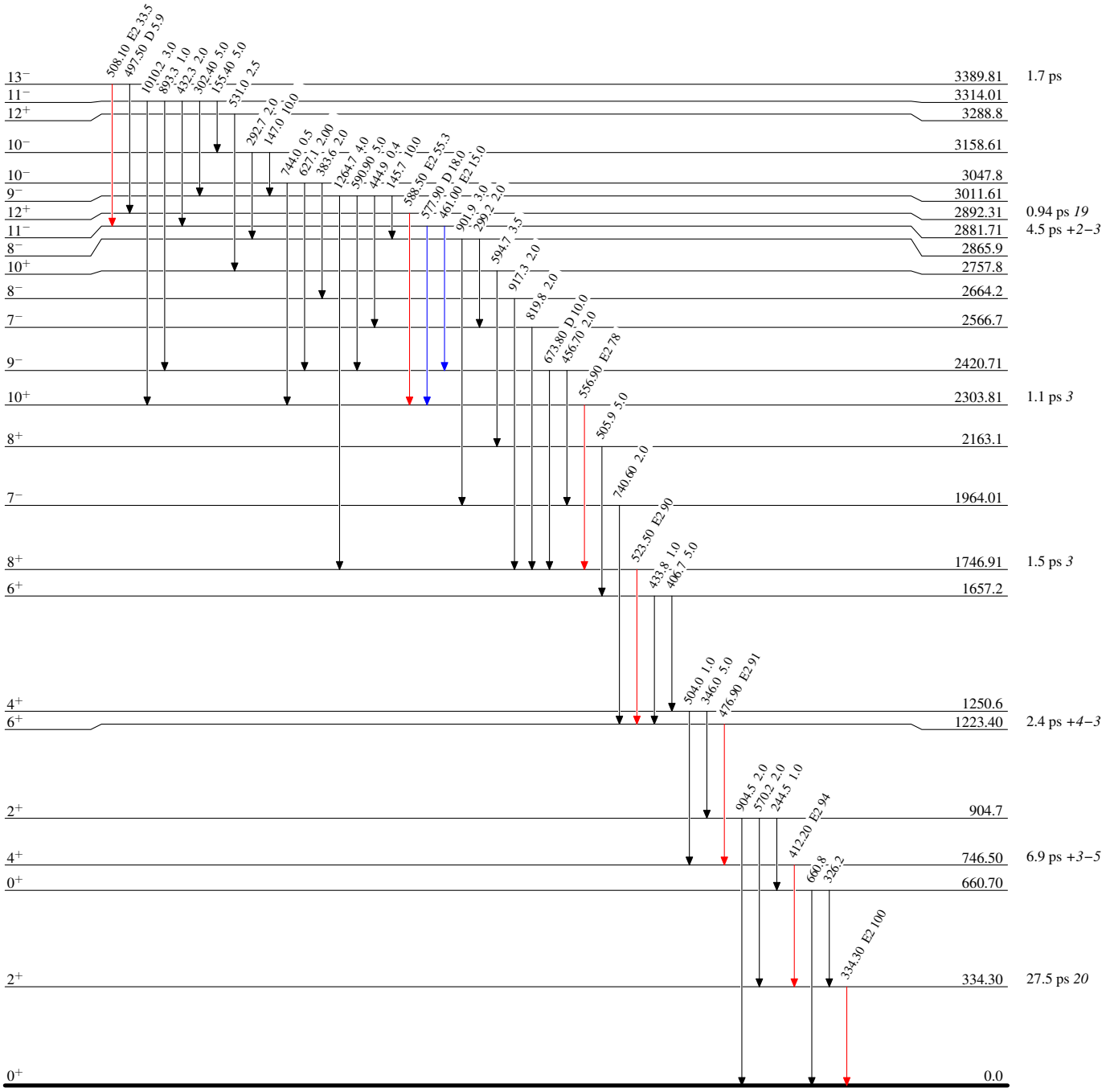


$^{154}_{66}Dy_{88}$

$^{122}Sn(^{36}S,4n\gamma)$ 2002Ma10,1987Cr01,1985AzZY

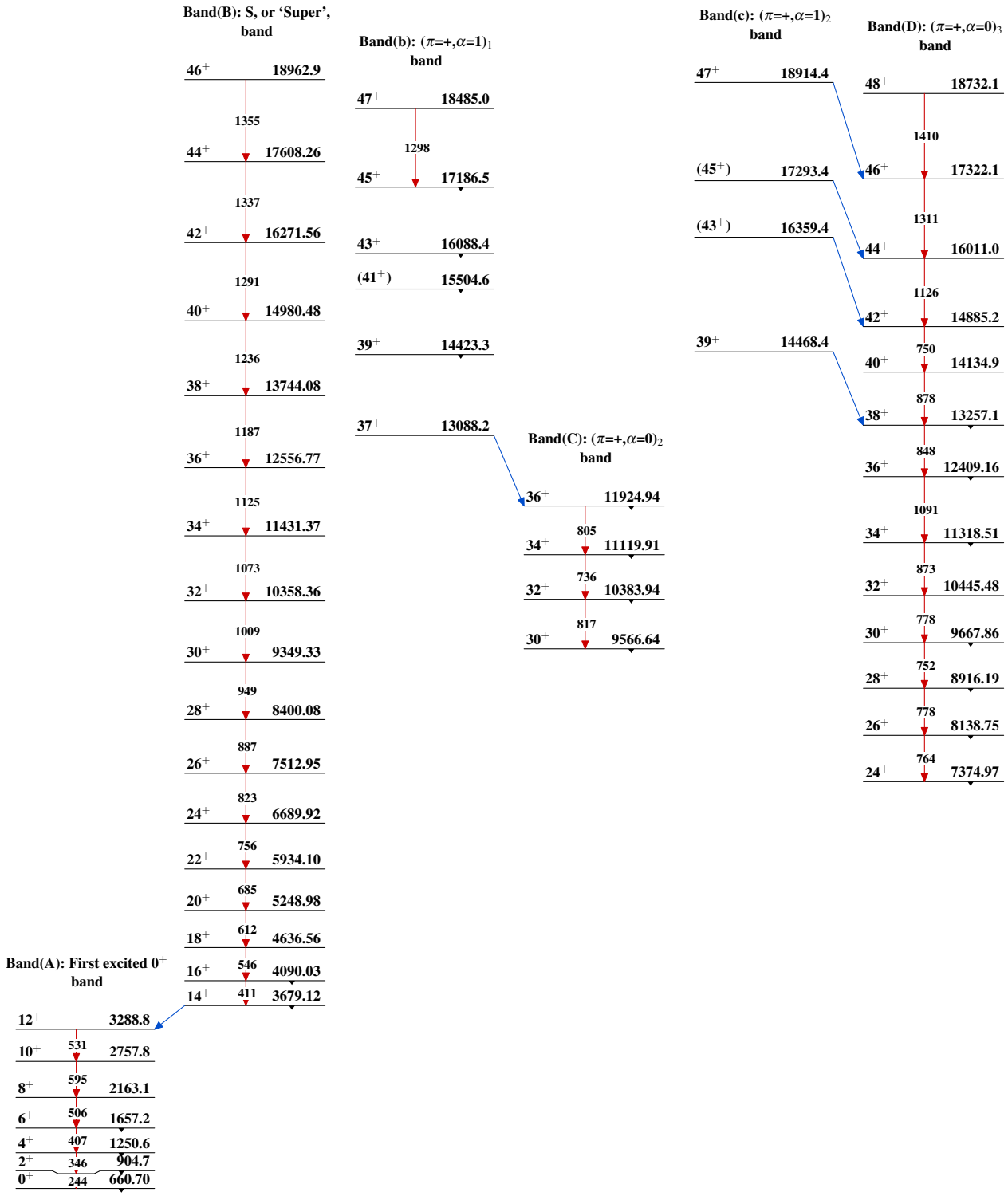
Level Scheme (continued)

Intensities: Relative I_γ



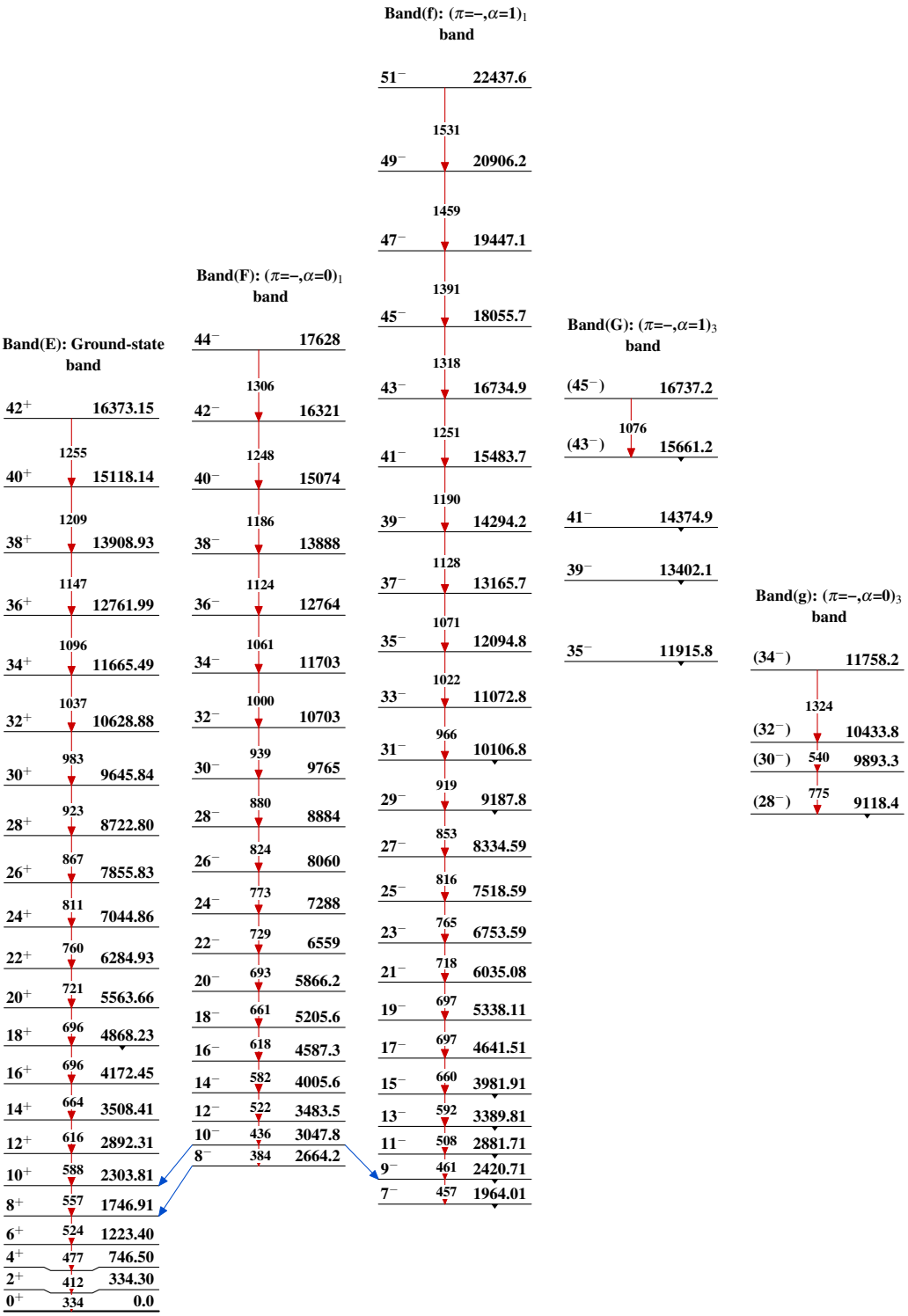
$^{154}_{66}Dy_{88}$

^{122}Sn(^{36}S,4nγ) 2002Ma10,1987Cr01,1985AzZY



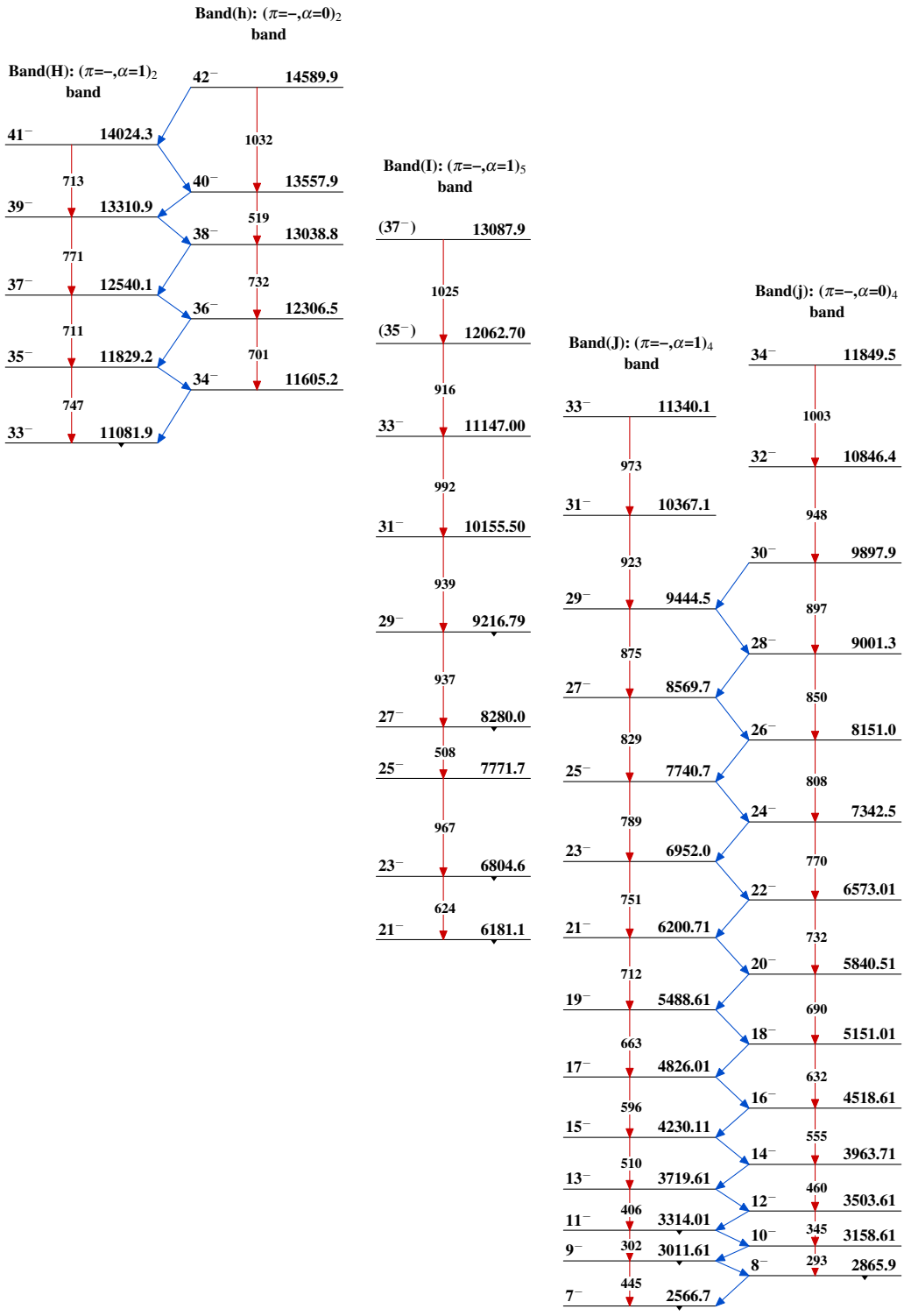
$^{154}_{66}Dy_{88}$

$^{122}Sn(^{36}S,4n\gamma)$ 2002Ma10,1987Cr01,1985AzZY (continued)



$^{154}_{66}Dy_{88}$

$^{122}Sn(^{36}S,4n\gamma)$ 2002Ma10,1987Cr01,1985AzZY (continued)



$^{154}_{66}Dy_{88}$