Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Yu. Khazov, A. Rodionov and G. Shulyak	NDS 136, 163 (2016)	14-Jul-2016

Q(β^-)=−5210 *50*; S(n)=9.53×10^3 *11*; S(p)=2130 *50*; Q(α)=1130 *50* 2012Wa38

Produced and identified: 1973NeZU, 1974Ne01. ^{141}Pr target, irradiated by 118 MeV ^{12}C beam.

^{146}Tb level scheme was built on the basis of $\gamma\gamma$(DCO), γ(X-ray), $\gamma\gamma(\theta)$(lin pol) coin, ce measurements. The level scheme consists of two unconnected parts: obtained from ^{146}Dy ε decay, and from reaction study data. The latter includes two isomers: $J^\pi=5^-$, $T_{1/2}$=24.1 s and $J^\pi=10^+$, $T_{1/2}$=1.18 ms; placements of these states are not known exactly. There are supposed as 150 keV *100* and 930 keV *110* correspondingly higher g.s., 1$^+$; (2012Au07; systematics).

In framework of shell model, nuclide ^{146}Tb has one proton-particle and one neutron-hole with respect to doubly closed ^{146}Gd. The ground state has $\pi d^{-1}_{5/2}\nu d^{-1}_{3/2}$ structure. The higher lying states should arise from coupling of the odd neutrons in $s_{1/2}$, $d_{3/2}$ or $h_{11/2}$ and odd protons in the same orbitals, as well as in $d_{5/2}$. Intense β^+ feedings of the states between 1.7 and 2.2 MeV were observed, these states were populated through $(\pi h^2_{11/2})_{0+}\rightarrow(\pi h_{11/2}\nu h_{9/2})_{1+}$ transitions.

In the second part of the scheme, the states higher than the isomer J=5$^-$ have two quasi-particles configuration, their mixture or many-quasi-particle excitations, also coupling to the excitations of ^{146}Gd (detailed probable shell-model configurations for large number of levels are given in the table II of 2004Kr14). Three γ ray cascades were observed at 5-8 MeV, one of them was interpreted as ΔJ=1 magnetic transition sequence.

^{146}Tb Levels

Detailed shell-model configurations for many levels are given in table II of 2004Kr14.

Cross Reference (XREF) Flags

A	^{146}Dy ε decay	D	^{118}Sn(^{32}S,p3nγ)
B	^{146}Tb IT decay	E	^{144}Sm(^{6}Li,4nγ)
C	^{115}In(^{34}S,3nγ)		

E(level)[†]	J^π[‡]	$T_{1/2}$	XREF	Comments
0.0	1$^+$	8 s *4*	A	%ε+%β^+=100 configuration=$\pi d^{-1}_{5/2}\nu d^{-1}_{3/2}$ (1987Zu02). J^π: log *ft*=5.24 in ^{146}Dy ε decay ($J^\pi=0^+$); shell model treatment and systematics. $T_{1/2}$: from Iγ(t) ^{146}Dy ε decay (1982No08).
241.09 *10*	1$^+$		A	J^π: 241.1γ M1 to 1$^+$, log *ft*=5.94 in ^{146}Dy ε decay ($J^\pi=0^+$).
280.19 *12*	1$^+$		A	J^π: 280.2γ M1 to 1$^+$, log *ft*=6.1 in ^{146}Dy ε decay ($J^\pi=0^+$).
338.15 *13*	1$^+$		A	J^π: 338.1γ E2 to 1$^+$, log *ft*=6.3 in ^{146}Dy ε decay ($J^\pi=0^+$).
354.85 *11*	1$^+$		A	J^π: 354.9γ M1 to 1$^+$, log *ft*=5.8 in ^{146}Dy ε decay ($J^\pi=0^+$).
384.65 *12*	1$^+$		A	J^π: 384.6γ M1 to 1$^+$, log *ft*=6.2 in ^{146}Dy ε decay ($J^\pi=0^+$).
397.99 *23*	(1$^+$)		A	J^π: 117.8γ to 1$^+$, log *ft*=6.3 in ^{146}Dy ε decay ($J^\pi=0^+$).
565.91 *13*	(1$^+$)		A	J^π: 565.9γ to 1$^+$, log *ft*=6.2 in ^{146}Dy ε decay ($J^\pi=0^+$).
574.95 *24*	(1$^+$)		A	J^π: 236.8γ to 1$^+$, log *ft*=6.5 in ^{146}Dy ε decay ($J^\pi=0^+$).
618.4 *3*	(1$^+$)		A	J^π: 618.4γ to 1$^+$, log *ft*=6.1 in ^{146}Dy ε decay ($J^\pi=0^+$).
653.15 *18*	(0,1)$^+$		A	J^π: 268.4γ M1 to 1$^+$, log *ft*>7.0 in ^{146}Dy ε decay ($J^\pi=0^+$).
660.31 *13*	1$^+$		A	J^π: 322.1γ M1 to 1$^+$, log *ft*=6.4 in ^{146}Dy ε decay ($J^\pi=0^+$).
664.83 *23*	(1$^+$)		A	J^π: 664.9γ to 1$^+$, log *ft*=6.2 in ^{146}Dy ε decay ($J^\pi=0^+$).
682.14 *17*	(1$^+$)		A	J^π: log *ft*=6.1 in ^{146}Dy ε decay ($J^\pi=0^+$), 441.1γ and 682.1γ to 1$^+$.
920.0 *3*	(1$^+$)		A	J^π: 920.0γ to 1$^+$, log *ft*=6.25 in ^{146}Dy ε decay ($J^\pi=0^+$).
1162.3 *4*	(1$^+$)		A	J^π: 882.1γ to 1$^+$, log *ft*=6.2 in ^{146}Dy ε decay ($J^\pi=0^+$).
1696.1 *3*	(1$^+$)		A	J^π: 1696.1γ to 1$^+$, log *ft*=5.6 in ^{146}Dy ε decay ($J^\pi=0^+$).
1726.96 *14*	1$^+$		A	J^π: log *ft*=4.53 in ^{146}Dy ε decay ($J^\pi=0^+$), $\pi h_{11/2}\rightarrow\nu h_{11/2}$ transition (1987Zu02).
1737.40 *15*	1$^+$		A	J^π: log *ft*=5.2 in ^{146}Dy ε decay ($J^\pi=0^+$) $\pi h_{11/2}\rightarrow\nu h_{11/2}$ transition (1987Zu02).
1923.8 *3*			A	

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Adopted Levels, Gammas (continued)

^{146}Tb Levels (continued)

E(level)[†]	J^π[‡]	$T_{1/2}$	XREF	Comments
2082.01 *15*	1^+		A	J^π: log ft=5.8 in ^{146}Dy ε decay (J^π=0^+) $\pi h_{11/2}\rightarrow\nu h_{11/2}$ transition (1987Zu02).
2156.80 *14*	1^+		A	J^π: log ft=4.4 in ^{146}Dy ε decay (J^π=0^+) $\pi h_{11/2}\rightarrow\nu h_{11/2}$ transition (1987Zu02).
0.0+x	5^-	24.1 s *5*	B DE	%ε+%β^+=100 Additional information 1. E(level): the value is not known exactly. It is supposed as 150 keV *110* higher g.s. (from systematics, 2012Au07). J^π: from intense feeding of ^{146}Gd ε decay: J^π=5^- 2658.0 keV level, log ft=5.1; J^π=4^- 2996.6 keV level, log ft=5.3; J^π=6^- 3099.0 keV level, log ft=5.2 (1989StZY); configuration=$(\pi h_{11/2}\nu s^{-1}_{1/2})\otimes(\pi h_{11/2}\nu d^{-1}_{3/2})$ (1997Co23). $T_{1/2}$: from Iγ(t) (1993Al03), other: 23 s *2* (1974Ne01).
18.73+x *13*	6^-		B DE	J^π: 343.1γ M1+E2 from 7^-, 138.0γ M1 from 6^-; configuration =$(\pi h_{11/2}\nu s^{-1}_{1/2})\otimes(\pi h_{11/2}\nu d^{-1}_{3/2})$ (1997Co23).
156.70+x *10*	6^-[#]		B DE	J^π: configuration=$(\pi h_{11/2}\nu s^{-1}_{1/2})\otimes(\pi h_{11/2}\nu d^{-1}_{3/2})$ (1997Co23).
361.87+x *13*	7^-[#]		B DE	J^π: configuration=$(\pi h_{11/2}\nu s^{-1}_{1/2})\otimes(\pi h_{11/2}\nu d^{-1}_{3/2})$ (1997Co23).
779.57+x[b] *16*	10^+	1.20 ms *3*	BCDE	%IT=100 E(level): the value is not known exactly relative to ground state (930 keV *110* higher g.s. (from systematics, 2012Au07)). J^π: configuration=$\pi h_{11/2}\nu h^{-1}_{11/2}$ (1997Co23). $T_{1/2}$: weighted average from Iγ(t) of 1.18 ms *2* (1989Br22) and 1.24 ms *3* (2011Ko08).
804.57+x[b] *24*	8^+		E	J^π: configuration=$\pi h_{11/2}\nu h^{-1}_{11/2}$ (1997Co23).
1370.17+x[b] *18*	11^+		CDE	J^π: configuration=$\pi h_{11/2}\nu h^{-1}_{11/2}$ (1997Co23).
2147.40+x *18*	11^-		CDE	J^π: configuration=$\pi h_{11/2}\nu h^{-1}_{11/2}\otimes3-(^{146}Gd)$ (1997Co23).
2170.64+x *18*	(11^-)		CDE	J^π: configuration=$\pi h_{11/2}\nu h^{-1}_{11/2}\otimes3-(^{146}Gd)$ (1997Co23).
2188.31+x *18*	12^-		CDE	J^π: configuration=$\pi h_{11/2}\nu h^{-1}_{11/2}\otimes3-(^{146}Gd)$ (1997Co23).
2224.22+x *18*	(12^+)		CD	
2577.84+x *18*	13^-		CDE	J^π: configuration=$\pi h_{11/2}\nu h^{-1}_{11/2}\otimes3-(^{146}Gd)$ (1997Co23).
2760.31+x *23*			C	
2920.96+x *22*	(13^+)		CD	
3085.18+x *18*	(13^-)		CDE	J^π: configuration: $\pi h^2_{11/2}\pi d^{-1}_{5/2}\nu h^{-1}_{11/2}$ (1997Co23).
3149.64+x *21*	$(13)^-$		CDE	J^π: configuration: $\pi h^2_{11/2}\pi d^{-1}_{5/2}\nu h^{-1}_{11/2}$ (1997Co23).
3264.44+x *18*	(14^+)		CD	
3284.34+x *19*	14^-		CDE	J^π: configuration: $\pi h^2_{11/2}\pi d^{-1}_{5/2}\nu h^{-1}_{11/2}$ (1997Co23).
3368.02+x *19*	15^-		CDE	J^π: configuration: $\pi h^2_{11/2}\pi d^{-1}_{5/2}\nu h^{-1}_{11/2}$ (1997Co23).
3461.7+x? *5*	$(14)^-$		E	J^π: configuration: $\pi h^2_{11/2}\pi d^{-1}_{5/2}\nu h^{-1}_{11/2}$ (1997Co23).
3487.86+x *19*	16^-		CDE	J^π: configuration: $\pi h^2_{11/2}\pi d^{-1}_{5/2}\nu h^{-1}_{11/2}$ (1997Co23).
3580.06+x *23*	(15^+)		CD	
3584.79+x *20*	17^-		CDE	J^π: configuration: $\pi h^2_{11/2}\pi g^{-1}_{7/2}\nu h^{-1}_{11/2}$ (1997Co23).
3691.73+x *20*			CDE	
3905.13+x *21*	15^-		CD	J^π: 640.75 E1 to (14^+), 312.3γ E2 from 17^-.
3945.72+x *22*	(16^+)		CD	
4115.10+x *21*	18^-		CDE	J^π: configuration: $\pi h^2_{11/2}\pi g^{-1}_{7/2}\nu h^{-1}_{11/2}$ (1997Co23).
4140.67+x *20*	17^-		CDE	
4217.50+x *20*	17^-		CDE	J^π: 17^+ suggested by 2004Xi01 and 1997Co23.
4464.75+x *21*	18^+		CD	
4506.33+x *22*	(17^-)		CD	
4579.91+x *21*	19^-		CDE	J^π: configuration: $\pi h^2_{11/2}\pi g^{-1}_{7/2}\nu h^{-1}_{11/2}$ (1997Co23).
4690.43+x[@] *20*	18^+		CDE	
4775.98+x *22*	(18^-)		CD	
4867.31+x *23*	19^+		CD	
5075.15+x[@] *21*	19^+		CDE	J^π: configuration=$\pi h^3_{11/2}\nu h^{-1}_{11/2}$ (1997Co23).

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Adopted Levels, Gammas (continued)

^{146}Tb Levels (continued)

E(level)[†]	Jπ[‡]	XREF	E(level)[†]	Jπ[‡]	XREF	E(level)[†]	Jπ[‡]	XREF
5134.33+x *22*	19⁻	CD	6387.8+x[@] *3*	22⁺	C	8003.5+x[a] *3*	(24⁺)	C
5277.56+x[&] *23*	19	CD	6439.9+x *3*		C	8302.5+x *4*		C
5364.98+x[@] *21*	20⁺	CD	6492.67+x *22*	22⁺	C	8370+x *3*	(24⁺)	C
5491.87+x[&] *24*	20	CD	6495.6+x[@] *3*	23$^{(+)}$	C	8388.7+x[a] *4*	(25⁺)	C
5543.11+x *22*	20⁺	CD	6533.2+x[&] *3*	22	C	8875+x[a] *3*	(26⁺)	C
5580.69+x *22*	20⁻	CD	6682.3+x[&] *4*		C	9304+x[a] *3*	(27⁺)	C
5741.5+x *3*		C	6836.0+x[@] *4*	(24⁺)	C	9717+x[a] *3*	(28⁺)	C
5809.1+x *3*		C	7096.4+x[&] *5*		C	10192+x[a] *3*	(29⁺)	C
5814.35+x[@] *23*	21⁺	CD	7142.5+x[@] *5*		C	10655+x[a] *3*	(30⁺)	C
5853.7+x *3*		C	7563.42+x *23*	24⁺	C			
5945.82+x[&] *25*	21	C	7737.0+x[a] *3*	(23⁺)	C			

[†] From a least-squares fit to Eγ′s; normalized χ^2=0.5.

[‡] Assigned on the basis of the measured conversion electrons, DCO values, $\gamma(\theta)$, linear polarization in the ^{115}In(^{34}S,3nγ) (in the main) and ^{118}Sn(^{32}S,p3nγ), ^{144}Sm(^{6}Li,4nγ) reactions, except other marked. Possible configurations are from the ε decay and the reaction studies data.

[#] From coincide cascade of γ-rays between J=10⁺ and J=5⁻: 10⁺ → 417.7γ E3 → 7⁻ → 205.2γ M1 → 6⁻ → 156.7γ M1 → 5⁻.

[@] Band(A): Sequence based on J=18⁺ state. Possible configuration=$\pi(h^3_{11/2}d^{-2}_{5/2})\ \nu h^{-1}_{11/2}$ and/or $\pi(h^3_{11/2}g^{-2}_{7/2})\ \nu h^{-1}_{11/2}$.

[&] Band(B): Sequence based on J=19 state. Possible configuration=$\pi h_{11/2}\nu(h^{-3}_{11/2}f^2_{7/2})$.

[a] Band(C): Sequence based on J=(23⁺) state. Possible configuration=$\pi(h^3_{11/2}d^{-2}_{5/2})\otimes\nu(h^{-3}_{11/2}f^2_{7/2})$ and possible magnetic dipole rotational band.

[b] States of probably two quasi-particle multiplet of configuration=$\pi h_{11/2}\nu h^{-1}_{11/2}$.

Adopted Levels, Gammas (continued)

$\gamma(^{146}Tb)$

E_i(level)	J_i^π	E_γ[†]	I_γ[‡#]	E_f	J_f^π	Mult.[e]	α[f]
241.09	1^+	241.1 *2*	100	0.0	1^+	M1	0.187
280.19	1^+	280.2[@] *2*	100	0.0	1^+	M1	0.1247
338.15	1^+	338.1[@] *2*	100	0.0	1^+	E2	0.0435
354.85	1^+	74.7[@] *2*	5.9[c] *7*	280.19	1^+	M1	5.09 *9*
		113.7[@] *2*	≈9[c]	241.09	1^+		
		354.9[@] *2*	100[c] *4*	0.0	1^+	M1	0.0666
384.65	1^+	143.5[@] *2*	≈3[c]	241.09	1^+		
		384.6[@] *2*	100[c] *3*	0.0	1^+	M1	0.0540
397.99	(1^+)	117.8[@] *2*	100	280.19	1^+		
565.91	(1^+)	285.7[@] *2*	≈14[c]	280.19	1^+		
		324.8[@] *2*	≈51[c]	241.09	1^+		
		565.9[@] *3*	≈100[c]	0.0	1^+		
574.95	(1^+)	236.8[@] *2*	100	338.15	1^+		
618.4	(1^+)	618.4[@] *3*	100	0.0	1^+		
653.15	$(0,1)^+$	268.4[@] *2*	100	384.65	1^+	M1	0.1400
660.31	1^+	305.5[@] *2*	≈29[c]	354.85	1^+		
		322.1[@] *2*	100[c] *13*	338.15	1^+	M1	0.0860
		419.3[@] *2*	≈65[c]	241.09	1^+		
		660.3[@] *3*	≈76[c]	0.0	1^+		
664.83	(1^+)	664.9[@] *3*	100	0.0	1^+		
682.14	(1^+)	441.1[@] *2*	≈81[c]	241.09	1^+		
		682.1[@] *3*	≈100[c]	0.0	1^+		
920.0	(1^+)	920.0[@] *3*	100	0.0	1^+		
1162.3	(1^+)	882.1[@] *3*	100	280.19	1^+		
1696.1	(1^+)	1696.1[@] *3*	100	0.0	1^+		
1726.96	1^+	1062.2[@] *3*	≈44[c]	664.83	(1^+)		
		1066.8[@] *3*	≈98[c]	660.31	1^+		
		1073.4[@] *3*	≈35[c]	653.15	$(0,1)^+$		
		1161.2[@] *3*	≈100[c]	565.91	(1^+)		
		1342.3[@] *3*	≈65[c]	384.65	1^+		
		1372.2[@] *3*	≈35[c]	354.85	1^+		
		1388.8[@] *3*	≈60[c]	338.15	1^+		
		1446.7[@] *3*	≈77[c]	280.19	1^+		
1737.40	1^+	1084.4[@] *3*	≈20[c]	653.15	$(0,1)^+$		

$^{146}_{65}Tb_{81}$-4

Adopted Levels, Gammas (continued)

γ(^{146}Tb) (continued)

E$_i$(level)	J^π_i	E$_γ$[†]	I$_γ$[‡#]	E$_f$	J^π_f	Mult.[e]	δ[g]	α[f]	Comments
1737.40	1$^+$	1171.2[@] *3*	≈15[c]	565.91	(1$^+$)				
		1352.8[@] *3*	≈78[c]	384.65	1$^+$				
		1399.3[@] *3*	≈22[c]	338.15	1$^+$				
		1496.3[@] *3*	≈20[c]	241.09	1$^+$				
		1737.4[@] *3*	≈100[c]	0.0	1$^+$				
1923.8		1923.8[@] *3*	100	0.0	1$^+$				
2082.01	1$^+$	1727.1[@] *3*	≈12[c]	354.85	1$^+$				
		1743.8[@] *3*	≈24[c]	338.15	1$^+$				
		1801.8[@] *3*	≈100[c]	280.19	1$^+$				
		1841.0[@] *3*	≈24[c]	241.09	1$^+$				
		2082.0[@] *3*	≈45[c]	0.0	1$^+$				
2156.80	1$^+$	1474.7[@] *3*	≈13[c]	682.14	(1$^+$)				
		1772.1[@] *3*	≈12[c]	384.65	1$^+$				
		1801.8[@] *3*	≈8[c]	354.85	1$^+$				
		1876.7[@] *3*	≈18[c]	280.19	1$^+$				
		1915.7[@] *3*	≈21[c]	241.09	1$^+$				
		2156.8[@] *3*	≈100[c]	0.0	1$^+$				
18.73+x	6$^-$	(18.7 *5*)		0.0+x	5$^-$				
156.70+x	6$^-$	138.0 *1*	30[d] *16*	18.73+x	6$^-$	M1		0.878	
		156.7 *1*	100[d] *16*	0.0+x	5$^-$	M1		0.614	
361.87+x	7$^-$	205.2 *1*	8.4[d] *10*	156.70+x	6$^-$	M1		0.291	
		343.1 *1*	100[d] *4*	18.73+x	6$^-$	M1+E2	1.6 *6*	0.050 *7*	δ: Calculated with BriccMixing using ce data (2011Ko08).
779.57+x	10$^+$	417.7 *1*	100	361.87+x	7$^-$	E3		0.0757	B(E3)(W.u.)=0.335 *6*
804.57+x	8$^+$	442.7[&] *2*	100	361.87+x	7$^-$	E1		0.00649	
1370.17+x	11$^+$	590.60 *6*	100	779.57+x	10$^+$	M1		0.0180	
2147.40+x	11$^-$	777.23 *2*	100	1370.17+x	11$^+$	E1		0.00194	
2170.64+x	(11$^-$)	800.47 *3*	100	1370.17+x	11$^+$	E1		0.00183	
2188.31+x	12$^-$	40.90 *12*	7.0 *7*	2147.40+x	11$^-$				
		818.13 *3*	100 *2*	1370.17+x	11$^+$	E1		1.75×10^{-3}	
2224.22+x	(12$^+$)	53.6 *1*	50 *30*	2170.64+x	(11$^-$)				
		76.7 *1*	100 *30*	2147.40+x	11$^-$				
		854.05 *1*	80 *30*	1370.17+x	11$^+$				
2577.84+x	13$^-$	389.53 *3*	100	2188.31+x	12$^-$	M1		0.0522	
2760.31+x		572.00[a] *15*	100	2188.31+x	12$^-$				
2920.96+x	(13$^+$)	696.5 *2*	100	2224.22+x	(12$^+$)				
3085.18+x	(13$^-$)	896.87 *3*	100	2188.31+x	12$^-$	(M1)		0.00641	
3149.64+x	(13)$^-$	571.8 *1*	100	2577.84+x	13$^-$	(M1)		0.0195	

From ENSDF

γ(^{146}Tb) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡#]	E_f	J_f^π	Mult.[e]	α[f]	Comments
3264.44+x	(14$^+$)	343.35 15	52 8	2920.96+x	(13$^+$)	M1	0.0727	
		1040.25 5	100 11	2224.22+x	(12$^+$)	E2	0.00267	
3284.34+x	14$^-$	199.17 12	7.7 9	3085.18+x	(13$^-$)	D		
		706.43 9	100 11	2577.84+x	13$^-$	M1	0.01150	
3368.02+x	15$^-$	83.67 3	100	3284.34+x	14$^-$	M1	3.67	
3461.7+x?	(14)$^-$	177.6[&h] 2		3284.34+x	14$^-$	M1	0.433	not suggested by ^{115}In(^{34}S,3nγ) (2004Kr14) and ^{118}Sn(^{32}S,p3nγ) (2004Xi01) where the 177γ depopulates the 4867.4+x level.
3487.86+x	16$^-$	119.83 3	100	3368.02+x	15$^-$	M1	1.310	
3580.06+x	(15$^+$)	315.8 2	100	3264.44+x	(14$^+$)	M1	0.0907	
3584.79+x	17$^-$	96.93 3	100	3487.86+x	16$^-$	M1	2.40	
3691.73+x		203.80 6	100 14	3487.86+x	16$^-$			
		323.77 9	80 9	3368.02+x	15$^-$			
3905.13+x	15$^-$	640.75 15	100	3264.44+x	(14$^+$)	E1	0.00287	
3945.72+x	(16$^+$)	365.7 1	100	3580.06+x	(15$^+$)	(M1+E2)	0.048 14	Mult.: ΔJ=1.
4115.10+x	18$^-$	530.17 10	100	3584.79+x	17$^-$	M1	0.0236	
4140.67+x	17$^-$	652.80 6	100	3487.86+x	16$^-$	M1	0.01400	
4217.50+x	17$^-$	271.9[b] 2	≤8	3945.72+x	(16$^+$)			
		312.4 1	23 3	3905.13+x	15$^-$	E2	0.0551	
		525.67 9	31 3	3691.73+x				
		729.69 9	100 3	3487.86+x	16$^-$	M1	0.01062	
4464.75+x	18$^+$	247.3 1	100	4217.50+x	17$^-$	E1	0.0270	
4506.33+x	(17$^-$)	560.65 15	100	3945.72+x	(16$^+$)	E1	0.00382	
4579.91+x	19$^-$	464.73 9	100	4115.10+x	18$^-$	M1	0.0331	
4690.43+x	18$^+$	549.75 9	67 13	4140.67+x	17$^-$	E1	0.00399	
		1105.70 6	100 13	3584.79+x	17$^-$	D		
4775.98+x	(18$^-$)	269.65 5	100 10	4506.33+x	(17$^-$)			
		558.4 2	94 10	4217.50+x	17$^-$			
4867.31+x	19$^+$	177.0 2	100	4690.43+x	18$^+$	M1	0.437	
5075.15+x	19$^+$	384.77 7	100 14	4690.43+x	18$^+$	D		
		960.00 12	45 5	4115.10+x	18$^-$	E1	1.29×10^{-3}	
5134.33+x	19$^-$	358.35 5	100 12	4775.98+x	(18$^-$)	M1	0.0649	
		669.5 1	47 7	4464.75+x	18$^+$			
		916.6 2	83 10	4217.50+x	17$^-$			
5277.56+x	19	1162.45 15	43 4	4115.10+x	18$^-$	D		
		1692.75 15	100 11	3584.79+x	17$^-$	Q		
5364.98+x	20$^+$	289.85 5	100 10	5075.15+x	19$^+$	M1	0.1139	
		785.05 5	52 6	4579.91+x	19$^-$			
5491.87+x	20	214.3 1	100 11	5277.56+x	19	D		
		1377.0 5	29 7	4115.10+x	18$^-$			
5543.11+x	20$^+$	408.75 5	68 7	5134.33+x	19$^-$	E1	0.00781	
		1078.5 1	100 11	4464.75+x	18$^+$	E2	0.00248	
5580.69+x	20$^-$	713.4 1	100 10	4867.31+x	19$^+$	E1	0.00230	

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Adopted Levels, Gammas (continued)

γ(^{146}Tb) (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[‡#]	E_f	J^π_f	Mult.[e]	α[f]	Comments
5580.69+x	20⁻	1000.7 *1*	≤30	4579.91+x	19⁻			
5741.5+x		666.40[a] *15*	100	5075.15+x	19⁺	D		
5809.1+x		2229.00[a] *15*	100	3580.06+x	(15⁺)			
5814.35+x	21⁺	233.65 *5*	96 *11*	5580.69+x	20⁻	D		
		449.45 *15*	100 *12*	5364.98+x	20⁺	M1	0.0360	
5853.7+x		1273.80[a] *15*	100	4579.91+x	19⁻			
5945.82+x	21	453.95 *5*	100	5491.87+x	20	D		
6387.8+x	22⁺	573.45 *14*	100	5814.35+x	21⁺	M1	0.0194	
6439.9+x		1860.00[a] *15*	100	4579.91+x	19⁻			
6492.67+x	22⁺	949.55 *3*	100	5543.11+x	20⁺	E2	0.00323	
6495.6+x	23⁽⁺⁾	107.8 *1*	100	6387.8+x	22⁺	D		
6533.2+x	22	587.4 *1*	100	5945.82+x	21	D		
6682.3+x		149.1 *3*	100	6533.2+x	22			
6836.0+x	(24⁺)	340.40[a] *25*	100	6495.6+x	23⁽⁺⁾	M1	0.0743	
7096.4+x		414.10[a] *15*	100	6682.3+x				
7142.5+x		306.50[a] *25*	100	6836.0+x	(24⁺)			
7563.42+x	24⁺	1070.75 *5*	100	6492.67+x	22⁺	E2	0.00251	
7737.0+x	(23⁺)	1244.35 *15*	100	6492.67+x	22⁺	D		
8003.5+x	(24⁺)	266.50[a] *15*	100	7737.0+x	(23⁺)	D		E_γ: 266.5γ and 385.2γ (from 8388.8+x keV level) are in cascade in 2004Kr14 and in 2004Xi01, but in the second paper 385.2γ is placed below.
8302.5+x		739.10[a] *25*	100	7563.42+x	24⁺			
8370+x	(24⁺)	633.0[a] *25*	100	7737.0+x	(23⁺)	M1	0.0151 *3*	
8388.7+x	(25⁺)	385.20[a] *15*	100	8003.5+x	(24⁺)	D		
8875+x	(26⁺)	486.0 *25*	100 *25*	8388.7+x	(25⁺)	M1	0.0295 *6*	
		870.60[ah] *15*	≤8	8003.5+x	(24⁺)	E2	0.00389	
9304+x	(27⁺)	429.30[a] *15*	100	8875+x	(26⁺)	M1	0.0406	
9717+x	(28⁺)	413.40[a] *15*	100	9304+x	(27⁺)	M1	0.0447	
10192+x	(29⁺)	474.60[a] *15*	100	9717+x	(28⁺)	M1	0.0313	
10655+x	(30⁺)	463.10[a] *15*	100	10192+x	(29⁺)	M1	0.0334	

† Unweighted average data from IT decay and reaction except as noted. Evaluators assumed ΔEγ=0.1 keV if Eγ are equal.

‡ Calculated from I(γ+ce) in ^{118}Sn(^{32}S,p3nγ) dataset, assuming [E1], [E2] or [M1+E2] multipolarities for the transitions according to the level pattern, except as noted.

\# % branching from each level; Iγ from ^{118}In(^{32}S,p3nγ), except as noted.

@ From ^{146}Dy ε decay.

& From ^{144}Sm(^{6}Li,4nγ), ΔE assumed by the evaluators.

a From ^{115}In(^{34}S,3nγ), ΔE assumed by the evaluators.

b From ^{118}Sn(^{32}S,p3nγ), ΔE assumed by the evaluators.

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$\gamma(^{146}$Tb) (continued)

[c] From ^{146}Dy ε decay.
[d] From ^{146}Tb IT decay.
[e] From α(K)exp, $\gamma\gamma(\theta)$(DCO), $\gamma\gamma$(lin pol) data, except as noted.
[f] Additional information 2.
[g] If No value given it was assumed δ=1.00 for E2/M1.
[h] Placement of transition in the level scheme is uncertain.

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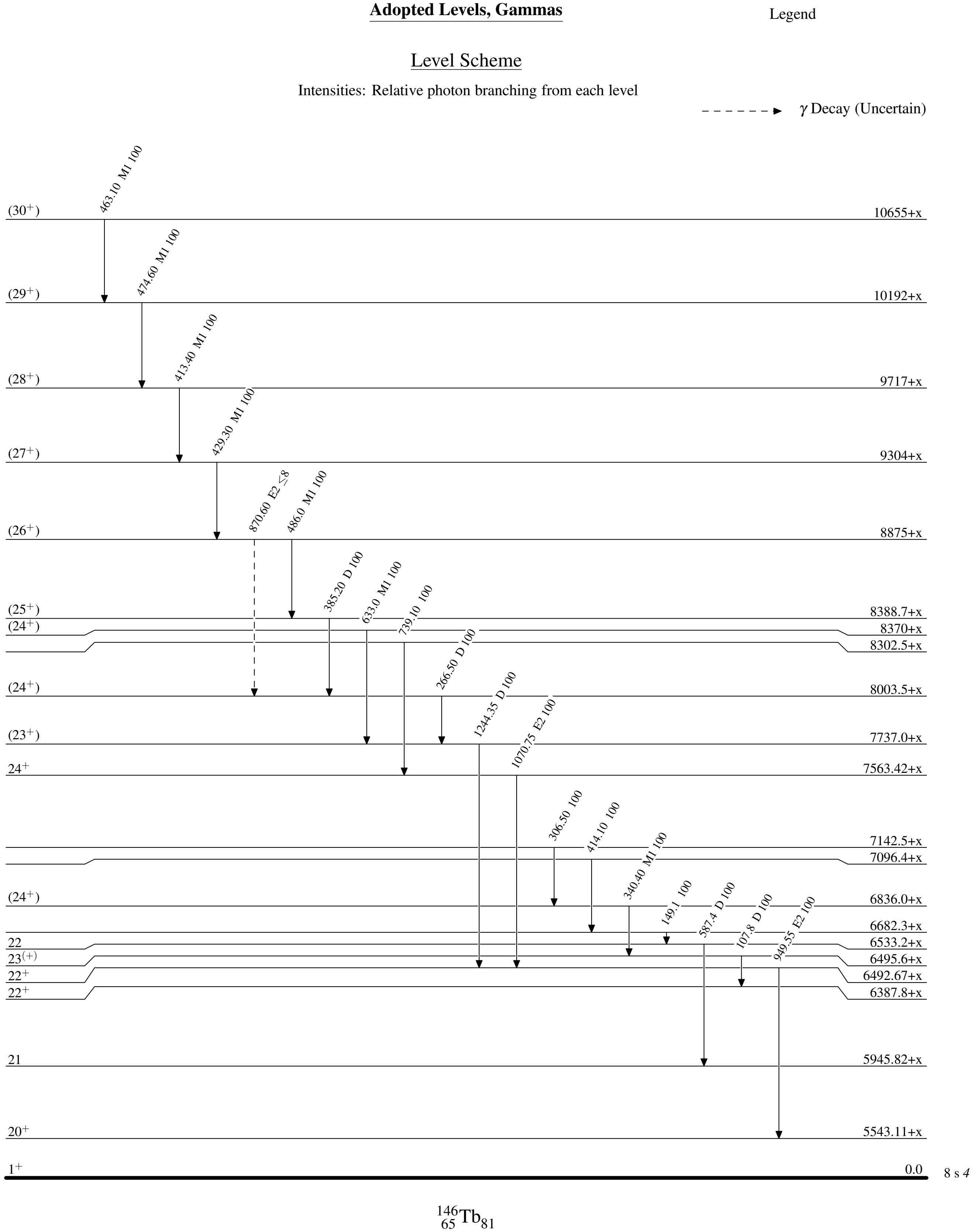
Adopted Levels, Gammas

Level Scheme

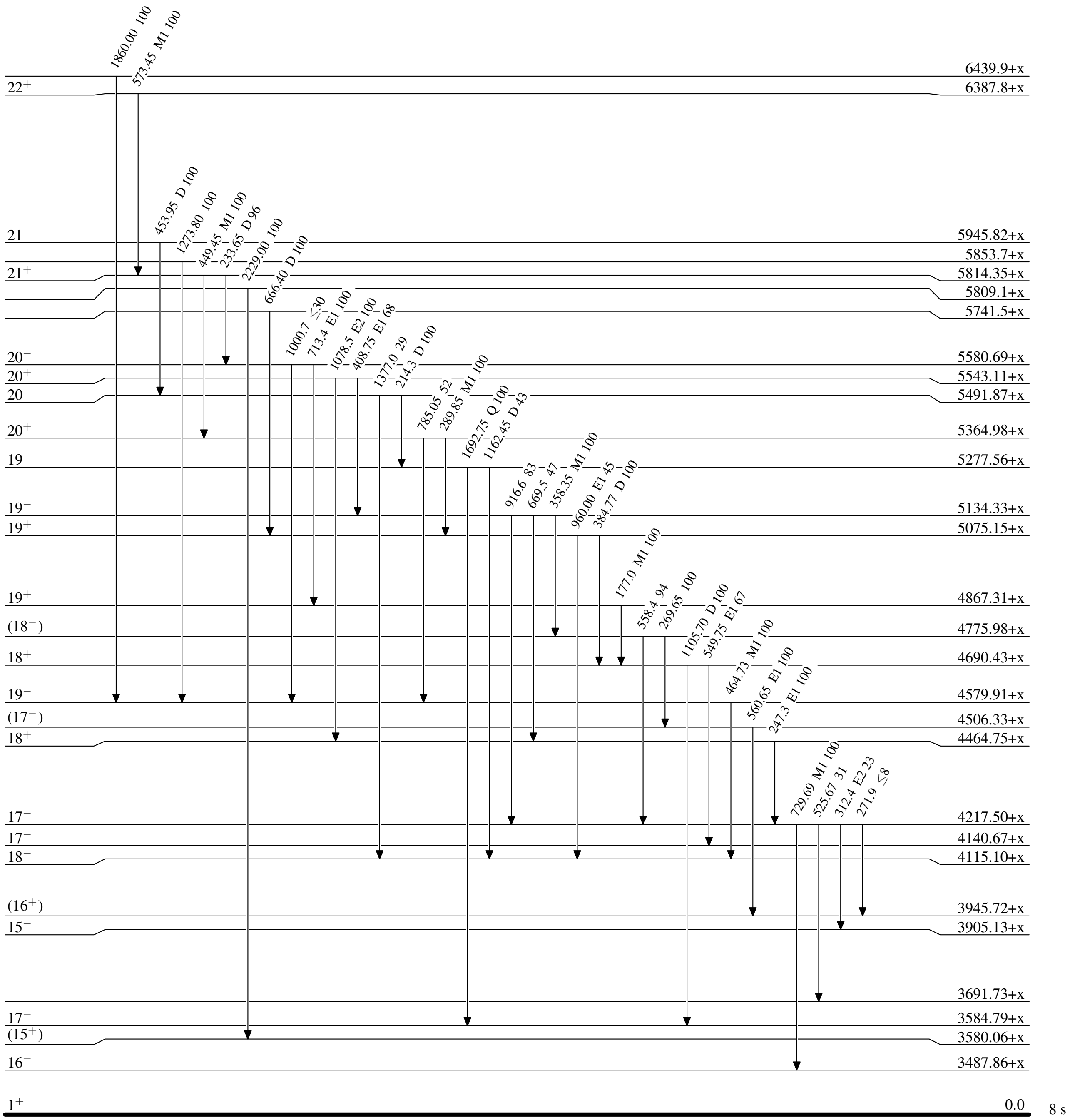
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

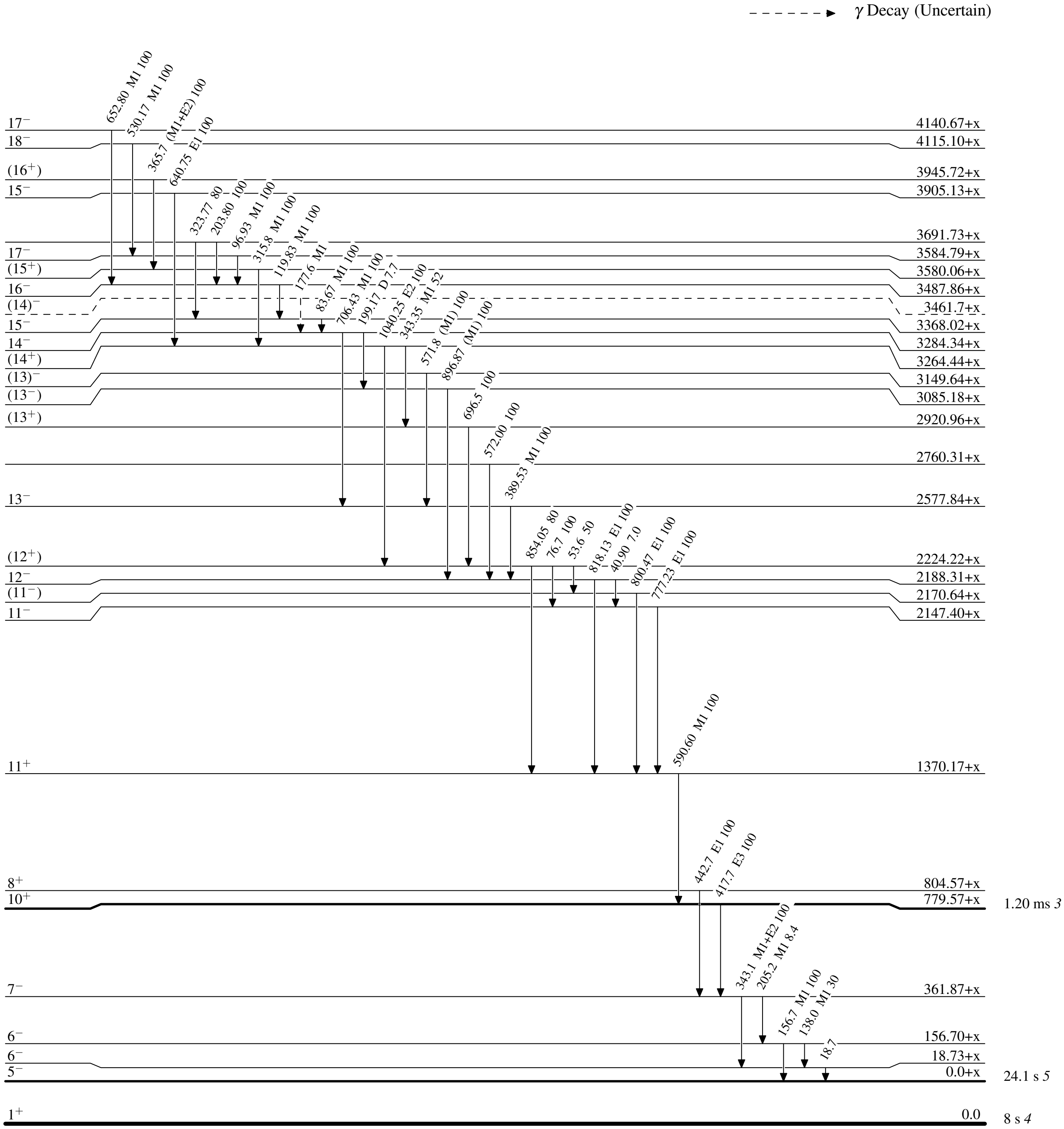


$^{146}_{65}Tb_{81}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



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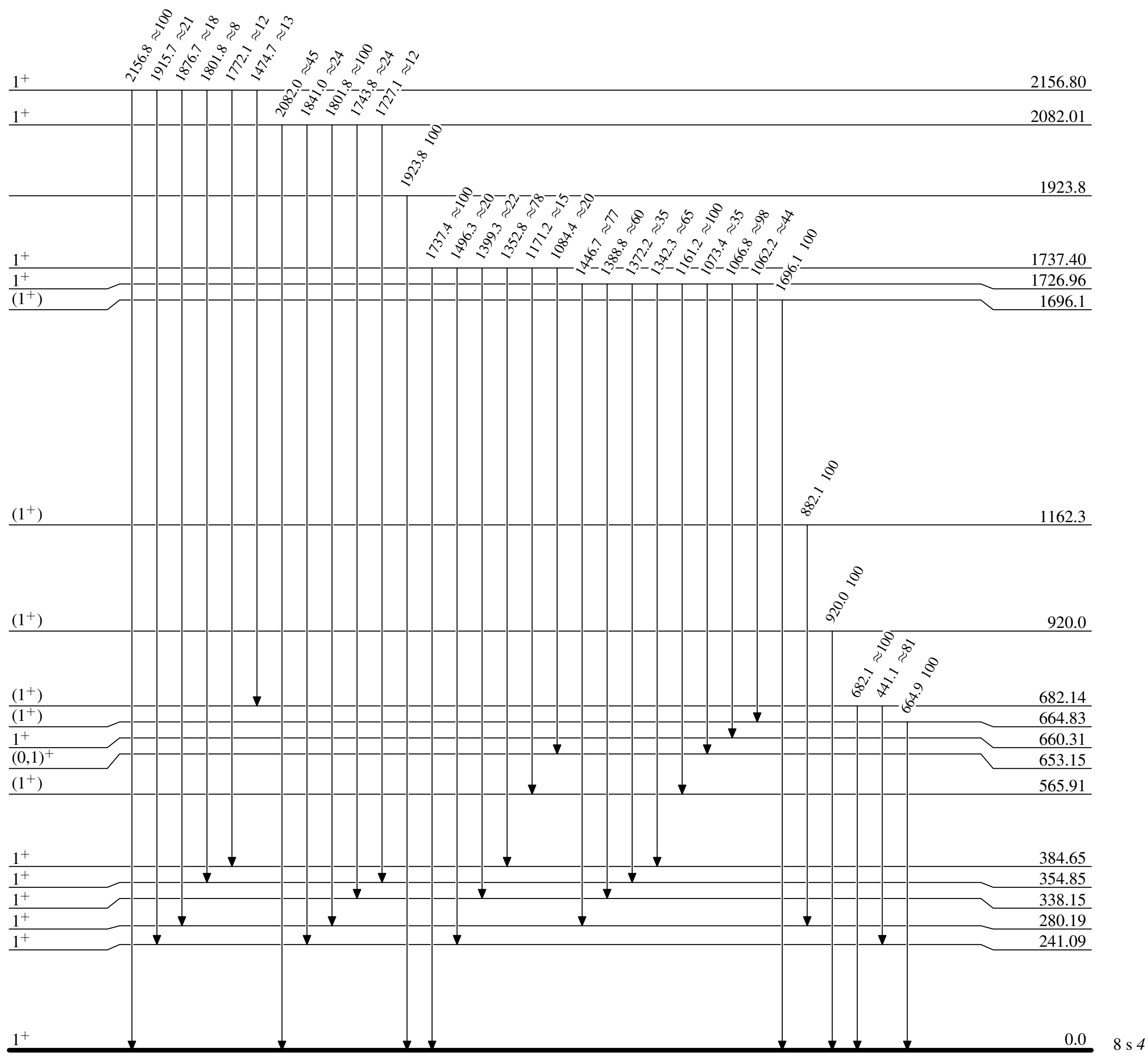
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



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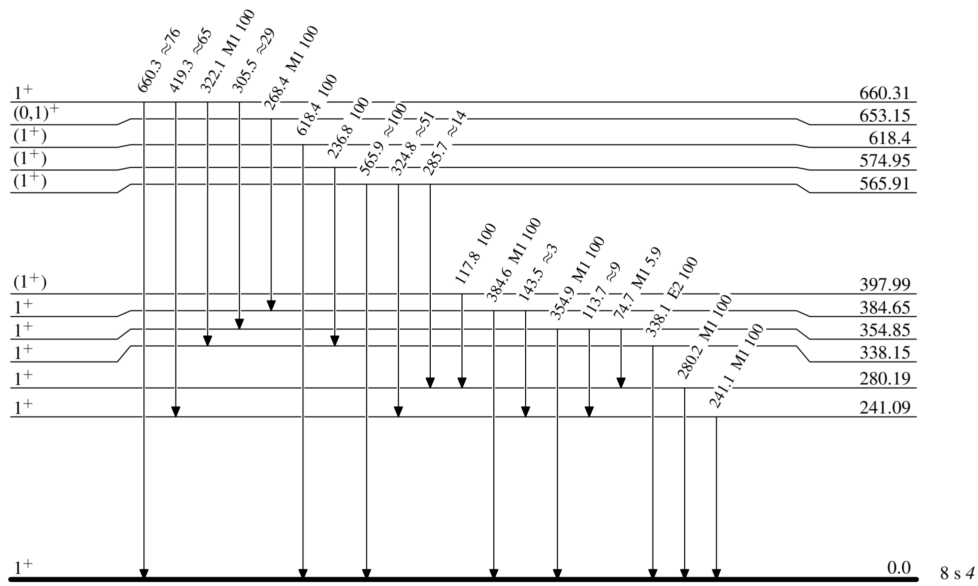
Adopted Levels, Gammas

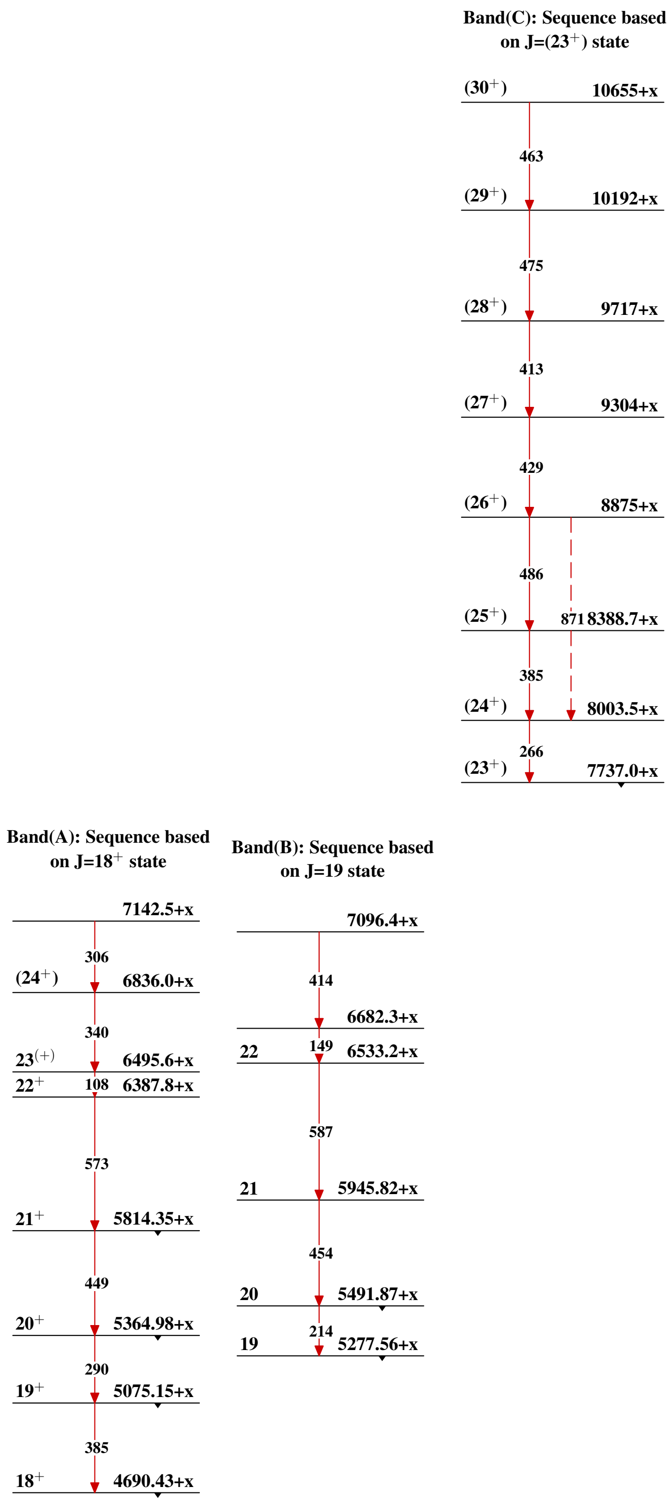
Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{146}_{65}Tb_{81}$

Adopted Levels, Gammas



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