Gd(α,xnγ),(HI,xnγ)

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	M. J. Martin	NDS 114, 1497 (2013)	31-Aug-2013

See ^{108}Pd(^{48}Ca,4nγ):SD for superdeformed band information.

1992No03 studied GDR built on excited states.
1991Ha16 deduced average g-factor.
1990Ma34 studied shape transition features.
1989Ho03 measured quasicontinuum γ spectrum.
1985Az02 measured feeding times of high-spin states.
1987Ho15 measured average multiplicities.
1987No06 measured $T_{1/2}$ of continuum high-spin states (Doppler shift), deduced average Q and deformation.
1985Bo37 1981Ch19, 1981Kh02. Measured feeding of high-spin states.
1985Ho17 1983Ho09. Measured γγ, recoil.
1984Ha37 1983Wa07, 1982Tr01, 1981Ha31, 1979Tr08. measured continuum γ spectrum.
1982Sc07 deduced collective effects.
1981Ch19 measured excit.
1981Ha31 measured γ multiplicity and quasi-continuum γ spectrum.
1980Bo07 measured Eγ, $T_{1/2}$ (recoil).
1979Vi10 measured γ(θ), lin pol of continuum transitions.
1979Ha28 superseded by 1981Ha17.
1978Kh02 superseded by 1981Ha17.

The level scheme is from 1991Be12 with some cascade inversions as determined, as noted, by 2000Sm03. In addition to their own work, the scheme of 1991Be12 makes use of work of 1978Kh02, 1979Ja14, 1979Me01, 1983St03, 1987St15, and 1988StZW. Additional levels have been proposed at 7710 and 8338 (1989Zu01), at 6172 and 7227 (1988StZW, 1989Zu01), and at 6536 and 8186 (2002La02). In addition, the levels at 4495 and 3488 and the bands built on these levels are from 2000Sm03. there is a 274-890-1063 cascade reported only by 1989AlZS connecting the 10110 and 7882 levels. This cascade defines intermediate levels At 8945 and 9836. The evaluator assumes that this work is superseded by 1991Be12 where these levels are not given. They are not included here.

2002La02	^{108}Pd(^{48}Ca,4nγ)	E=191 MeV Measured Eγ Following Decay Out Of SD-1
2000Sm03	^{124}Sn(^{34}S,6nγ) ^{120}Sn(^{36}S,4nγ)	E=182 MeV E=168 MeV Measured Eγ, Iγ, γγ, DCO, $T_{1/2}$ (DSAM)
1991Be12	^{108}Pd(^{48}Ca,4nγ)	E=205 MeV Measured Eγ, Iγ, γγ, γγ(θ)
1989Zu01	^{124}Sn(^{32}S,4nγ)	E=132 MeV Measured Eγ, Iγ, γγ
1988StZW	^{152}Gd(α,4nγ)	E=60 MeV Measured Eγ, Iγ, DCO, Also Reanalyzed Data From 1983St03
1987Ri02	^{144}Nd(^{12}C,4nγ) ^{116}Cd(^{40}Ar,4nγ)	E=82 MeV E=180 MeV Measured Eγ, Iγ, γ(θ), Ice
1987St15	^{152}Gd(α,4nγ)	See 1988StZW
1986Ny02	^{108}Pd(^{48}Ca,4nγ)	E=205 MeV Measured Eγ, Iγ, γγ
1983St03	^{152}Gd(α,4nγ)	E=60 MeV Measured Eγ, Iγ, Ice, γγ, γ(θ)
1981Ha17	^{124}Sn(^{32}S,4nγ) ^{142}Nd(^{12}C,2nγ)	E=129-165 MeV E=56-61 MeV Measured Eγ, Iγ, γγ, γγ(θ), γ(θ), γ(θ,t), Lin pol, $T_{1/2}$ (rd)
1980Na04	^{152}Gd(α,4nγ)	E=60 MeV Measured Eγ, Iγ, I(K x ray), γγ(t)
1979DuZY	^{144}Nd(^{12}C,4nγ)	E=70 MeV

		Measured $T_{1/2}$ (rd)
1979Ja14	$^{144}Nd(^{12}C,4n\gamma)$	E=70, 80, 100 MeV
	$^{146}Nd(^{12}C,6n\gamma)$	E=70, 80, 100 MeV
	$^{154}Gd(\alpha,6n\gamma)$	E=67-100 MeV
		Measured Eγ, Iγ, γγ(t), γ(t), γ(θ), Multiplicity
1979Me01	$^{140}Ce(^{16}O,4n\gamma)$	E=88 MeV
	$^{141}Pr(^{15}N,4n\gamma)$	E=80 MeV
		Measured Eγ, Iγ, γγ, nγ(t), Lin pol, Excit

Others:

^{152}Dy Levels

E(level)[†]	J^{π}[@]	$T_{1/2}$[&]	Comments
0[b]	0^+		
613.90[#b] *10*	2^+	10 ps *5*	J^{π}: From Adopted Levels.
1227.0[#c] *3*	3^-		
1261.21[#b] *15*	4^+	10.6 ps *16*	
1781.84[#c] *17*	5^-		
1944.59[#b] *17*	6^+	5.1 ps *21*	
2342.61[#c] *19*	7^-		
2437.47[#b] *20*	8^+	10 ps *3*	
2703.14[#d] *22*	8^+		
2906.13[#c] *22*	9^-		
3160.7[#] *3*	$(10)^-$	3.9 ns *9*	J^{π}: From 2000Sm03. This assignment leads to J^{π}=12^- for the 3969 level. Earlier works assign 11^- and 13^-, respectively to these two levels. The 11^- assignment was based on mult=E2 for the 254γ to the 2907 *9*- level. 2000Sm03 argue that the 11^- assignment makes the 3160 state far more yrast than their experimental observations suggest, and they reassign mult(254γ) as M1. The lead author of 1983St03 is one of the authors of 2000Sm03. IT should be noted that the 10^- assignment requires mult=M2 for the 660γ from the 12^+ 3820 level, and also for the 461γ from the 14^+ 4430 level feeding the 3969 level. $T_{1/2}$: 1980Na04 report $T_{1/2}$=4.3 ns *9* from γγ(t); however, in later works by the same authors, namely 1983St03, 1987St15, and 1988StZW, the level schemes show the value 3.9 ns. No uncertainty and no source are given. The evaluator assumes that the later value is a revision of that given in 1980Na04 and that the same uncertainty can be assigned.
3173.42[‡b] *25*	10^+		
3173.5[#] *6*	(10^-)		E(level): Reported only by 1983St03. Seen in 50-S ε decay.
3183.87[#] *25*	10^+		
3395.24[#d] *25*	10^+		
3487.1[f] *11*	(11^-)		J^{π}: J=11^- is proposed by 2000Sm03 on the basis of a ΔJ=2 Q transition to the 9^- 2906 level.
3820.26[#b] *25*	12^+		
3969.3[#] *3*	$(12)^-$		J^{π}: See comment on 3160 level.
3992.1[#] *5*	$(12^-,13^-)$		
4016.9[#d] *3*	12^+		E(level): The relative order of the 622-633 cascade feeding the 3395 level, as proposed by 1991Be12, and giving a level at 4029.9 has been reversed by 2000Sm03, giving the level at 4016.9. the corrected sequence is given here.
4125.6[f] *11*	(13^-)		
4135.7?[‡] *8*			E(level): Reported only by 1983St03.
4430.3[#b] *3*	14^+		
4495.0[#e] *9*	(12^-)		J^{π}: Proposed as 12^- by 2000Sm03 on the basis of excitation energy arguments.

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Gd(α,xnγ),(HI,xnγ) (continued)

^{152}Dy Levels (continued)

E(level)[†]	J^{π}[@]	$T_{1/2}$[&]	Comments
			γ(θ)(526γ) suggests stretched Q, however, the data are also consistent with a non-stretched dipole transition.
4650.5[#d] 3	14+		
4659.0 9	(14−)		
4734.6[#] 3	(14−)		
4804.9[#] 3	(13+,14+)		
4817.7[f] 11	(15−)		
5034.9[#] 3	15+		
5088.2[#] 4	17+	51 ns 3	$T_{1/2}$: Weighted average (ns) of 60 10 (1979Ja14), 49.5 14 (1979Me01, and 60 4 (1981Ha17), all from γγ(t).
5177.8[#e] 8	(14−)		
5215.6[#d] 3	16+		E(level): The 565.8-546.5 cascade connecting the 5762 and 4650 levels, as given by 1991Be12, defines a level at 5195.8. The relative order of the cascade has been reversed by 2000Sm03 giving E(level)=5215.6. This reversed order is given here.
5341.8[#] 4	18+		
5531.7[f] 11	(17−)		
5762.2[#d] 4	18+		
5867.1[#] 4	19−		
5884.4[e] 8	(16−)		
6051.7[#] 6	(20+)		
6111.4[#] 4	(20+)		
6129.4[#] 4	21−	9.7 ns 5	g=+0.55 6 (1979Me01) $T_{1/2}$: Weighted average (ns) of 9.9 6 (1979Me01) and 9.5 7 (1981Ha17) from γγ(t). Other 13 2 (1979Ja14).
6171.9[#] 5	20		
6225.5[#] 5	20		
6258.5[f] 11	(19−)		
6370.3[d] 4	20+		
6536.1 11			
6625.2[e] 8	(18−)		
6737.0[#] 5	22+		
7024.5[f] 11	(21−)		
7050.7[d] 4	22+	0.63[a] ps 6	
7120.1[#] 5	(23)−		
7227.0[#] 10	(24+)		
7413.6[e] 8	(20−)		
7661.3[#] 5	(25)−		
7710.0 10	(24+)		
7804.0[d] 4	24+	0.64 ps 6	
7848.6[f] 11	(23−)		
7881.9[#] 6	(27)−	1.6[a] ns 2	$T_{1/2}$: Other: 1.6 ns 4 (1979Me01).
8185.9 12			
8238.8[e] 8	(22−)		
8337.9 12			
8628.9[d] 4	26+	0.173 ps 14	
8735.9[f] 11	(25−)		
8848.8[#] 6	(28)+	24[a] ps 9	
8996.2[#] 6	(29)+	35[a] ps 11	

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Gd(α,xnγ),(HI,xnγ) (continued)

^{152}Dy Levels (continued)

E(level)[†]	Jπ[@]	$T_{1/2}$[&]	Comments
9117.6[e] *8*	(24⁻)		
9398.6[#] *6*	(30)⁺	6.9[a] ps *12*	
9523.1[d] *4*	28⁺	0.166 ps *14*	
9687.9[f] *11*	(27⁻)		
10012.3 *9*			
10048.6[e] *9*	(26⁻)		
10110.2[#] *7*	31⁺		
10257.2 *9*			
10484.4[d] *4*	30⁺	0.111 ps *7*	
10541.1[#] *7*	(32⁺)	15[a] ps *5*	
10705.4?[f] *11*	(29⁻)		
10795.1 *7*	33⁺	6.2[a] ps *6*	
10961.0 *9*			
11032.8[e] *9*	(28⁻)		
11209.0 *9*			
11395.4 *10*			
11442.9 *9*			E(level): The 131γ-901γ cascade connecting the 11575 and 10541 levels and defining a level at 11443 in 2000Sm03, is reversed in 1986Ny02 (and in other earlier works), giving the intermediate level at 10673. The order in 2000Sm03 is adopted here.
11512.0[d] *5*	32⁺	0.062 ps *7*	
11574.6 *7*	(34)⁻		
11602.1 *9*			
11788.8[f] *11*	(31⁻)		
11793.0 *11*			
11859.0 *10*			
11963.2 *8*	(35)⁻	1.2[a] ps *4*	
12072.0[e] *9*	(30⁻)		
12178.9 *9*			
12325.1 *10*	(36⁻)		
12428.7 *9*			
12604.4[d] *5*	34⁺	0.055 ps *7*	
12716.9 *10*			
12938.3[f] *11*	(33⁻)		
12946.2 *13*			
13048.9 *11*			
13117.1 *14*			
13169.1[e] *9*	(32⁻)		
13253.4 *15*			
13396.7 *10*			
13493.1 *14*			
13517.1 *14*			
13687.1 *14*			
13721.9 *14*			
13762.8[d] *5*	36⁺	0.035 ps *7*	
14154.2[f] *11*	(35⁻)		
14325.4[e] *9*	(34⁻)		
14484.9 *17*			
14663.2 *17*			
14741.9 *17*			
14984.1[d] *5*	38⁺	0.076 ps *7*	
15435.7[f] *11*	(37⁻)		
15543.1[e] *9*	(36⁻)		

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Gd(α,xnγ),(HI,xnγ) (continued)

^{152}Dy Levels (continued)

E(level)[†]	Jπ[@]	$T_{1/2}$[&]	E(level)[†]	Jπ[@]	$T_{1/2}$[&]	E(level)[†]	Jπ[@]	$T_{1/2}$[&]
16267.1[d] *5*	40$^+$	0.062 ps *14*	17539.0 *23*			19008.5[d] *5*	44$^+$	<0.02 ps
16397.0 *20*			17608.7[d] *5*	42$^+$	<0.02 ps	19590.2[e] *12*	(42$^-$)	
16779.0[f] *11*	(39$^-$)		18172.1[e] *9*	(40$^-$)		20467.4[d] *5*	46$^+$	<0.02 ps
16824.5[e] *9*	(38$^-$)		18179.3[f] *11*	(41$^-$)		21077.8[e] *12*	(44$^-$)	

[†] Except for 3173 and 4136, all levels are seen in (HI,xnγ). Levels also reported in Gd(α,xnγ) are indicated. The energies are from a least-squares fit to the Eγ data. For the least-squares calculation, Eγ data quoted to the nearest tenth of a keV but with no uncertainty, are assigned ΔE=0.5 keV, and values quoted to the nearest keV are assigned ΔE=1 keV.

[‡] Reported only in Gd(α,xnγ).

[#] Seen in Gd(α,xnγ).

[@] From 1991Be12 based on γ(θ), γγ(θ), lin pol, ce data, and excit data from various authors, along with assignment to bands. Exceptions are noted.

[&] Values for E(level)<3000 keV are from 1979DuZY (recoil-distance). values for E(level)>7000 keV are from 2000Sm03 (DSAM), except where noted otherwise. Values for intermediate levels are as noted.

[a] From 1981Ha17 (recoil distance except DSAM for the 11963 level).

[b] Band(A): Quasi-vibrational yrast state.

[c] Band(B): Negative parity yrast band built on the 1228 level.

[d] Band(C): Positive parity ΔJ=2 quasi-rotational band built on the 1944 level.

[e] Band(D): Negative parity ΔJ=2 band built on the 4495 level.

[f] Band(E): Negative parity ΔJ=2 band built on the 3487 level.

Gd(α,xnγ),(HI,xnγ) (continued)

γ(^{152}Dy)

E_γ [‡]	I_γ [&]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [e]	α [†]	$I_{(\gamma+ce)}$ [ao]	Comments
53.3 *2*		5088.2	17$^+$	5034.9	15$^+$	E2	31.3 *8*		α(L)=24.1 *6*; α(M)=5.78 *14*; α(N+..)=1.44 *4* α(N)=1.29 *3*; α(O)=0.152 *4*; α(P)=0.000177 *3* E_γ: Weighted average from 1980Na04, 1981Ha17, and 2000sm0. Mult.: From intensity balance at the 5035 level (1981Ha17, 1980Na04) and from Iγ/I(K x ray) and Iγ/I(L x ray) (1980Na04).
97		10110.2	31$^+$	10012.3					
131		11574.6	(34)$^-$	11442.9					E_γ: See comment on the 11443 level for placement of this transition.
147.4 *1*		8996.2	(29)$^+$	8848.8	(28)$^+$	M1	0.794		α(K)=0.669 *10*; α(L)=0.0980 *14*; α(M)=0.0215 *3*; α(N+..)=0.00575 *9* α(N)=0.00498 *7*; α(O)=0.000728 *11*; α(P)=4.16$\times10^{-5}$ *6* Mult.: From $\gamma(\theta)$ and intensity balance (1981Ha17).
162		1944.59	6$^+$	1781.84	5$^-$				
191		11793.0		11602.1					
203.0 *1*	2	2906.13	9$^-$	2703.14	8$^+$			4 *1*	
220.6 *2*	18 *1*	7881.9	(27)$^-$	7661.3	(25)$^-$	E2 [g]	0.1709	2.7 *5*	ce(K)/(γ+ce)=0.1013 *13*; ce(L)/(γ+ce)=0.0345 *5*; ce(M)/(γ+ce)=0.00807 *12*; ce(N+)/(γ+ce)=0.00206 *3* ce(N)/(γ+ce)=0.00182 *3*; ce(O)/(γ+ce)=0.000233 *4*; ce(P)/(γ+ce)=4.95$\times10^{-6}$ *7* Mult.: A_2=+0.358 *22*, A_4=−0.093 *23*, lin pol=+0.88 *19* (1979Me01). A_2=+0.20 *5*, A_4=0.00 *5* (1981Ha17).
229.9 *3*		5034.9	15$^+$	4804.9	(13$^+$,14$^+$)				
248		11209.0		10961.0					
248 [p]		12428.7		12178.9					E_γ: From 1986Ny02. Not shown in the level scheme of 1991Be12 (same group).
253.6 *1*	47 *1*	5341.8	18$^+$	5088.2	17$^+$	M1 [h]	0.177	17 *3*	ce(K)/(γ+ce)=0.1272 *16*; ce(L)/(γ+ce)=0.0184 *3*; ce(M)/(γ+ce)=0.00404 *6*; ce(N+)/(γ+ce)=0.001079 *16* ce(N)/(γ+ce)=0.000934 *14*; ce(O)/(γ+ce)=0.0001369 *20*; ce(P)/(γ+ce)=7.87$\times10^{-6}$ *12* Mult.: M1 from 1983St03. Lin pol=−0.18 *7* (1979Me01). Other: A_2=−0.270 *15*, A_4=+0.010 *17* (1979Me01).
254.2 *3*		10795.1	33$^+$	10541.1	(32$^+$)				
254.5 *2*	31	3160.7	(10)$^-$	2906.13	9$^-$			29 *3*	Mult.: See comment on J^π(3160 level). 1979Ja14 report A_2=−0.16 *4*, A_4=−0.23 *6* for the unresolved 254γ's from the 3160 and 5342 levels. 1983St03 report mult=E2. B(M1)(W.u.)=0.00029 *+8−6*, B(E2)(W.u.)=2.6 *+7−5*.
257		11859.0		11602.1					
262.4 *1*	29 *1*	6129.4	21$^-$	5867.1	19$^-$	E2 [g]	0.0978	5.9 *5*	ce(K)/(γ+ce)=0.0648 *9*; ce(L)/(γ+ce)=0.0188 *3*; ce(M)/(γ+ce)=0.00435 *6*; ce(N+)/(γ+ce)=0.001117 *16* ce(N)/(γ+ce)=0.000986 *14*; ce(O)/(γ+ce)=0.0001280 *18*; ce(P)/(γ+ce)=3.29$\times10^{-6}$ *5* Mult.: A_2=+0.142 *17*, A_4=−0.005 *20*, lin pol=+0.24 *17* (1979Me01). A_2=−0.09 *8*, A_4=−0.27 *10* (1979Ja14).
267.4		3173.5	(10$^-$)	2906.13	9$^-$	(M1) [m]			E_γ: Reported only by 1983St03. Seen in 50-S ε decay.

$^{152}_{66}Dy_{86}$-6

γ(^{152}Dy) (continued)

E_γ [‡]	I_γ [&]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [e]	α [†]	$I_{(\gamma+ce)}$ [ao]	Comments
288		12716.9		12428.7					
300.2 *2*		5034.9	15^+	4734.6	(14^-)				
304		8185.9		7881.9	$(27)^-$				
304.8[#] *2*		6171.9	20	5867.1	19^-	D[i]		0.9 *4*	Mult.: DCO=1.12 *12* (1988StZW). Other: A_2=+0.21 *13*, A_4=−0.28 *19* (1979Ja14).
320		12178.9		11859.0					
348		13396.7		13048.9					
358.4[#] *3*		6225.5	20	5867.1	19^-	(D)[i]		1.0 *4*	Mult.: DCO=0.86 *11* (1988StZW).
362		12325.1	(36^-)	11963.2	$(35)^-$				
374.4		4804.9	$(13^+,14^+)$	4430.3	14^+				
382		7120.1	$(23)^-$	6737.0	22^+				
386		12178.9		11793.0					
388.6 *3*		11963.2	$(35)^-$	11574.6	$(34)^-$	M1[g]	0.0570		α(K)=0.0482 *7*; α(L)=0.00688 *10*; α(M)=0.001508 *22*; α(N+..)=0.000403 *6* α(N)=0.000349 *5*; α(O)=5.12×10^{-5} *8*; α(P)=2.96×10^{-6} *5* Mult.: A_2=−0.16 *11*, A_4=0.00 *14*, lin pol=−0.8 *5* (1981Ha17).
398.0 *1*	16	2342.61	7^-	1944.59	6^+	E1[ff]	0.00867	19 *1*	ce(K)/(γ+ce)=0.00730 *11*; ce(L)/(γ+ce)=0.001015 *15*; ce(M)/(γ+ce)=0.000221 *3*; ce(N+)/(γ+ce)=5.86×10^{-5} *9* ce(N)/(γ+ce)=5.09×10^{-5} *8*; ce(O)/(γ+ce)=7.31×10^{-6} *11*; ce(P)/(γ+ce)=3.93×10^{-7} *6* Mult.: α(K)exp<0.016 (1979Ja14). E1 from 1983St03. Other: A_2=−0.35 *14*, A_4=−0.10 *17* (1979Ja14).
402.3 *2*	6 *2*	9398.6	$(30)^+$	8996.2	$(29)^+$	M1[g]	0.0521		α(K)=0.0440 *7*; α(L)=0.00628 *9*; α(M)=0.001376 *20*; α(N+..)=0.000368 *6* α(N)=0.000318 *5*; α(O)=4.67×10^{-5} *7*; α(P)=2.70×10^{-6} *4* Mult.: A_2=−0.28 *3*, A_4=+0.03 *8*, lin pol=−0.4 *2* (1981Ha17).
431.0 *3*		10541.1	(32^+)	10110.2	31^+	(M1)[g]	0.0435		α(K)=0.0368 *6*; α(L)=0.00524 *8*; α(M)=0.001147 *17*; α(N+..)=0.000306 *5* α(N)=0.000265 *4*; α(O)=3.89×10^{-5} *6*; α(P)=2.25×10^{-6} *4* Mult.: A_2=−0.19 *6*, A_4=0.00 *7*, lin pol=−0.1 *3* (1981Ha17).
456[@]		8337.9		7881.9	$(27)^-$				
461.2		4430.3	14^+	3969.3	$(12)^-$				
483[@]		7710.0	(24^+)	7227.0	(24^+)				
490.0 *10*		7227.0	(24^+)	6737.0	22^+	Q[k]			Mult.: DCO=0.72 *14* (1988StZW).
492.9 *1*	45	2437.47	8^+	1944.59	6^+	E2[fn]	0.01573	37 *2*	ce(K)/(γ+ce)=0.01245 *18*; ce(L)/(γ+ce)=0.00236 *4*; ce(M)/(γ+ce)=0.000533 *8*; ce(N+)/(γ+ce)=0.0001393 *20* ce(N)/(γ+ce)=0.0001218 *17*; ce(O)/(γ+ce)=1.678×10^{-5} *24*; ce(P)/(γ+ce)=6.96×10^{-7} *10* Mult.: α(K)exp=0.0115 *10* (1979Ja14). E2 from 1983St03. Other: A_2=+0.25 *5*, A_4=−0.09 *7* (1979Ja14).
518[p]		12946.2		12428.7					

$^{152}_{66}$Dy$_{86}$-7

Gd(α,xnγ),(HI,xnγ) (continued)

γ(^{152}Dy) (continued)

E_γ[‡]	I_γ[&]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[e]	α[†]	$I_{(\gamma+ce)}$[ao]	Comments
519	16[d] *8*	5177.8	(14−)	4659.0	(14−)				
520		11963.2	(35)−	11442.9					
520.6 *1*	12	1781.84	5−	1261.21	4+	E1[fn]	0.00470	9 *2*	ce(K)/(γ+ce)=0.00398 *6*; ce(L)/(γ+ce)=0.000545 *8*; ce(M)/(γ+ce)=0.0001187 *17*; ce(N+)/(γ+ce)=3.15×10^{-5} *5* ce(N)/(γ+ce)=2.73×10^{-5} *4*; ce(O)/(γ+ce)=3.95×10^{-6} *6*; ce(P)/(γ+ce)=2.17×10^{-7} *3* Mult.: Other: A_2=−0.33 *18*, A_4=−0.11 *20* (1979Ja14).
525.3 *2*	40 *1*	5867.1	19−	5341.8	18+	E1[g]	0.00460	11 *1*	ce(K)/(γ+ce)=0.00390 *6*; ce(L)/(γ+ce)=0.000534 *8*; ce(M)/(γ+ce)=0.0001164 *17*; ce(N+)/(γ+ce)=3.09×10^{-5} *5* ce(N)/(γ+ce)=2.68×10^{-5} *4*; ce(O)/(γ+ce)=3.87×10^{-6} *6*; ce(P)/(γ+ce)=2.13×10^{-7} *3* Mult.: A_2=+0.13 *6*, A_4=−0.12 *9* (1979Ja14). A_2=−0.078 *14*, A_4=−0.009 *20*, lin pol=+0.10 *4* (1979Me01).
526	0.50[d] *5*	4495.0	(12−)	3969.3	(12)−				
538		12716.9		12178.9					
541.2 *2*	23 *1*	7661.3	(25)−	7120.1	(23)−	E2[g]	0.01237	4.8 *7*	ce(K)/(γ+ce)=0.00991 *14*; ce(L)/(γ+ce)=0.00180 *3*; ce(M)/(γ+ce)=0.000404 *6*; ce(N+)/(γ+ce)=0.0001059 *15* ce(N)/(γ+ce)=9.25×10^{-5} *13*; ce(O)/(γ+ce)=1.284×10^{-5} *18*; ce(P)/(γ+ce)=5.58×10^{-7} *8* Mult.: A_2=+0.31 *7*, A_4=−0.19 *10* (1979Ja14). A_2=+0.295 *17*, A_4=−0.05 *3*, lin pol=+0.51 *11* (1979Me01). A_2=+0.20 *4*, A_4=+0.02 *5*, lin pol=+0.42 *12* (1981Ha17).
546.6 *1*	0.89[b] *1*	5762.2	18+	5215.6	16+	Q[lj]			Mult.: DCO=1.07 *13* (2000Sm03). E_γ: See comment on the 5215 level for placement of this transition.
554.9 *2*		1781.84	5−	1227.0	3−	E2[m]	0.01166	7.6 *7*	ce(K)/(γ+ce)=0.00936 *13*; ce(L)/(γ+ce)=0.001683 *24*; ce(M)/(γ+ce)=0.000377 *6*; ce(N+)/(γ+ce)=9.90×10^{-5} *14* ce(N)/(γ+ce)=8.64×10^{-5} *13*; ce(O)/(γ+ce)=1.202×10^{-5} *17*; ce(P)/(γ+ce)=5.28×10^{-7} *8* Mult.: Other: A_2=+0.42 *15*, A_4=+0.11 *19* (1979Ja14).
560.7 *2*	19	2342.61	7−	1781.84	5−	E2[fn]	0.01131	17 *1*	ce(K)/(γ+ce)=0.00910 *13*; ce(L)/(γ+ce)=0.001627 *23*; ce(M)/(γ+ce)=0.000364 *6*; ce(N+)/(γ+ce)=9.57×10^{-5} *14* ce(N)/(γ+ce)=8.35×10^{-5} *12*; ce(O)/(γ+ce)=1.163×10^{-5} *17*; ce(P)/(γ+ce)=5.14×10^{-7} *8* Mult.: α(K)exp=0.099 *10* (1979Ja14). E2 from 1983St03. Other: A_2=+0.46 *9*, A_4=−0.09 *12* (1979Ja14).
563.4 *2*	33	2906.13	9−	2342.61	7−	E2[fn]	0.01118	32 *2*	ce(K)/(γ+ce)=0.00900 *13*; ce(L)/(γ+ce)=0.001605 *23*; ce(M)/(γ+ce)=0.000360 *5*; ce(N+)/(γ+ce)=9.44×10^{-5} *14* ce(N)/(γ+ce)=8.24×10^{-5} *12*; ce(O)/(γ+ce)=1.148×10^{-5} *16*; ce(P)/(γ+ce)=5.08×10^{-7} *8* Mult.: α(K)exp=0.0087 *10* (1979Ja14). E2 from 1983St03. Other: A_2=+0.37 *5*, A_4=−0.12 *8* (1979Ja14).

Gd(α,xnγ),(HI,xnγ) (continued)

γ(^{152}Dy) (continued)

E_γ[‡]	I_γ[&]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[e]	α[†]	$I_{(\gamma+ce)}$[ao]	Comments
565.1 *1*	0.87[b] *1*	5215.6	16⁺	4650.5	14⁺	Q[lj]			E_γ: See comment on the 5215 level for placement of this transition. Mult.: DCO=1.02 *7* (2000Sm03).
581	0.50[c] *3*	3487.1	(11⁻)	2906.13	9⁻	(Q)			Mult.: DCO=0.86 *23* (2000Sm03).
600		11395.4		10795.1	33⁺				
604.6 *1*	45	5034.9	15⁺	4430.3	14⁺	M1[f]	0.0183	26 *4*	ce(K)/(γ+ce)=0.01527 *21*; ce(L)/(γ+ce)=0.00215 *3*; ce(M)/(γ+ce)=0.000470 *7*; ce(N+)/(γ+ce)=0.0001256 *18* ce(N)/(γ+ce)=0.0001087 *16*; ce(O)/(γ+ce)=1.598×10^{-5} *23*; ce(P)/(γ+ce)=9.30×10^{-7} *13* Mult.: In 1979Ja14, the 604γ is unresolved from an impurity component. 1983St03 report mult=M1 from α(K)exp, and 1981Ha17 report mult=D from γ(θ).
608.1 *1*	0.99[b] *2*	6370.3	20⁺	5762.2	18⁺	Q[j]			Mult.: DCO=1.06 *6* (2000Sm03).
609.0[#p] *10*		6737.0	22⁺	6129.4	21⁻				E_γ: From 1987St15 but not confirmed by 1989Zu01 even though the 625γ is 3 to 4 times stronger than in the work of 1987St15.
610.0 *1*	49	4430.3	14⁺	3820.26	12⁺	E2[f]	0.00919	30 *2*	ce(K)/(γ+ce)=0.00746 *11*; ce(L)/(γ+ce)=0.001287 *18*; ce(M)/(γ+ce)=0.000288 *4*; ce(N+)/(γ+ce)=7.56×10^{-5} *11* ce(N)/(γ+ce)=6.59×10^{-5} *10*; ce(O)/(γ+ce)=9.24×10^{-6} *13*; ce(P)/(γ+ce)=4.24×10^{-7} *6* Mult.: α(K)exp=0.0090 *15* (1979Ja14). E2 from 1983St03. Other: A_2=+0.54 *11*, A_4=−0.17 *15* (1979Ja14).
613		10012.3		9398.6	(30)⁺				
613		11574.6	(34)⁻	10961.0					
613.9 *1*	100	613.90	2⁺	0	0⁺	E2[fn]	0.00905	100	ce(K)/(γ+ce)=0.00735 *11*; ce(L)/(γ+ce)=0.001266 *18*; ce(M)/(γ+ce)=0.000283 *4*; ce(N+)/(γ+ce)=7.43×10^{-5} *11* ce(N)/(γ+ce)=6.48×10^{-5} *9*; ce(O)/(γ+ce)=9.08×10^{-6} *13*; ce(P)/(γ+ce)=4.18×10^{-7} *6*
614		1227.0	3⁻	613.90	2⁺			8	
621.7 *1*	0.74[b] *2*	4016.9	12⁺	3395.24	10⁺	Q[lj]			E_γ: See comment on the 4017 level for placement of this transition. Mult.: DCO=1.18 *20* (2000Sm03).
625.5 *3*		6737.0	22⁺	6111.4	(20⁺)	Q[k]		2.7 *5*	Mult.: DCO=0.53 *10* (1988StZW).
633.6 *1*	0.86[b] *2*	4650.5	14⁺	4016.9	12⁺	Q[lj]			E_γ: See comment on the 4017 level for placement of this transition. Mult.: DCO=1.18 *23* (2000Sm03).
636.5 *2*	22	3820.26	12⁺	3183.87	10⁺	E2[f]	0.00830	16 *2*	ce(K)/(γ+ce)=0.00676 *10*; ce(L)/(γ+ce)=0.001147 *16*; ce(M)/(γ+ce)=0.000256 *4*; ce(N+)/(γ+ce)=6.73×10^{-5} *10* ce(N)/(γ+ce)=5.87×10^{-5} *9*; ce(O)/(γ+ce)=8.25×10^{-6} *12*; ce(P)/(γ+ce)=3.85×10^{-7} *6*
638.5 *1*	0.64[c] *1*	4125.6	(13⁻)	3487.1	(11⁻)	Q[j]			Mult.: DCO=0.98 *18* (2000Sm03).

$^{152}_{66}Dy_{86}$-9

Gd(α,xnγ),(HI,xnγ) (continued)

γ(^{152}Dy) (continued)

E_γ[‡]	I_γ[&]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[e]	α[†]	$I_{(\gamma+ce)}$[ao]	Comments
646.8 2	22	3820.26	12^+	3173.42	10^+			17 3	
647.3 1	96	1261.21	4^+	613.90	2^+	E2[fn]	0.00797	91 6	ce(K)/(γ+ce)=0.00650 9; ce(L)/(γ+ce)=0.001097 16; ce(M)/(γ+ce)=0.000244 4; ce(N+)/(γ+ce)=6.44×10^{-5} 9 ce(N)/(γ+ce)=5.61×10^{-5} 8; ce(O)/(γ+ce)=7.89×10^{-6} 11; ce(P)/(γ+ce)=3.71×10^{-7} 6 Mult.: α(K)exp=0.0066 6 (1979Ja14). Other: A_2=+0.22 5, A_4=−0.10 6 for the unresolved 646.8γ+647.35γ.
659.5 2	10	3820.26	12^+	3160.7	$(10)^-$			9 1	
668		11209.0		10541.1	(32^+)				
669		6536.1		5867.1	19^-				
680.3 1	1.00[b] 2	7050.7	22^+	6370.3	20^+	Q[j]			Mult.: DCO=0.91 28 (2000Sm03).
683		5177.8	(14^-)	4495.0	(12^-)				I_γ: Doublet.
683.4 1	84	1944.59	6^+	1261.21	4^+	E2[fn]	0.00702	81 3	ce(K)/(γ+ce)=0.00575 8; ce(L)/(γ+ce)=0.000951 14; ce(M)/(γ+ce)=0.000212 3; ce(N+)/(γ+ce)=5.58×10^{-5} 8 ce(N)/(γ+ce)=4.86×10^{-5} 7; ce(O)/(γ+ce)=6.86×10^{-6} 10; ce(P)/(γ+ce)=3.29×10^{-7} 5 Mult.: α(K)exp=0.0056 8 (1979Ja14). Other: A_2=+0.32 5, A_4=−0.10 7.
684.9 3		10795.1	33^+	10110.2	31^+	E2	0.00698		α(K)=0.00576 8; α(L)=0.000952 14; α(M)=0.000212 3; α(N+..)=5.58×10^{-5} 8 α(N)=4.86×10^{-5} 7; α(O)=6.87×10^{-6} 10; α(P)=3.29×10^{-7} 5 Mult.: From γ(θ) and RUL (1981Ha17). Mult.: A_2=+0.40 13, A_4=−0.00 16 (1981Ha17). B(E2)(W.u.)≈290.
690		4659.0	(14^-)	3969.3	$(12)^-$				
692.1 1	0.69[b] 1	3395.24	10^+	2703.14	8^+	Q[lj]			Mult.: DCO=1.3 5 (2000Sm03).
692.1 1	0.92[c] 2	4817.7	(15^-)	4125.6	(13^-)	Q[j]			Mult.: DCO=1.29 26 (2000Sm03).
703		10961.0		10257.2					
706.6 1	0.94[d] 6	5884.4	(16^-)	5177.8	(14^-)	Q[j]			Mult.: DCO=0.98 9 (2000Sm03).
709.9 5		6051.7	(20^+)	5341.8	18^+	Q[k]			Mult.: DCO=0.65 18 (1988StZW).
711.5 3		10110.2	31^+	9398.6	$(30)^+$	M1[g]	0.01221		α(K)=0.01036 15; α(L)=0.001450 21; α(M)=0.000317 5; α(N+..)=8.47×10^{-5} 12 α(N)=7.33×10^{-5} 11; α(O)=1.078×10^{-5} 16; α(P)=6.29×10^{-7} 9 Mult.: A_2=−0.34 12, A_4=0.00 18, lin pol=−0.1 3 (1981Ha17).
714.0 1	0.79[c] 4	5531.7	(17^-)	4817.7	(15^-)	Q[j]			Mult.: DCO=0.86 10 (2000Sm03).
726.8 1	0.83[c] 3	6258.5	(19^-)	5531.7	(17^-)	Q[j]			Mult.: DCO=0.94 26 (2000Sm03).
735.9 2	27	3173.42	10^+	2437.47	8^+	E2[fn]	0.00592	15 2	ce(K)/(γ+ce)=0.00487 7; ce(L)/(γ+ce)=0.000787 11; ce(M)/(γ+ce)=0.0001745 25; ce(N+)/(γ+ce)=4.61×10^{-5} 7 ce(N)/(γ+ce)=4.01×10^{-5} 6; ce(O)/(γ+ce)=5.69×10^{-6} 8; ce(P)/(γ+ce)=2.79×10^{-7} 4 Mult.: α(K)exp=0.0062 5 (1979Ja14). E2 from 1983St03. Other: A_2=+0.21 7, A_4=−0.21 10 (1979Ja14).

$^{152}_{66}Dy_{86}$-10

γ(^{152}Dy) (continued)

E_γ[‡]	I_γ[&]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[e]	α[†]	$I_{(\gamma+ce)}$[ao]	Comments
740.8 *1*	0.86[d] *5*	6625.2	(18^-)	5884.4	(16^-)	Q[j]			Mult.: DCO=1.14 *23* (2000Sm03).
742.4		4734.6	(14^-)	3992.1	$(12^-,13^-)$				
746.5 *2*	20	3183.87	10^+	2437.47	8^+	E2[f]	0.00573	19 *1*	ce(K)/(γ+ce)=0.00472 *7*; ce(L)/(γ+ce)=0.000759 *11*; ce(M)/(γ+ce)=0.0001683 *24*; ce(N+)/(γ+ce)=4.45×10^{-5} *7* ce(N)/(γ+ce)=3.87×10^{-5} *6*; ce(O)/(γ+ce)=5.49×10^{-6} *8*; ce(P)/(γ+ce)=2.71×10^{-7} *4* Mult.: α(K)exp=0.0035 *8* (1979Ja14). E2 from 1983St03. Other: A_2=+0.21 *8*, A_4=−0.17 *11* (1979Ja14).
750		12325.1	(36^-)	11574.6	$(34)^-$				
753.3 *1*	1.05[b] *1*	7804.0	24^+	7050.7	22^+	Q[j]			Mult.: DCO=1.17 *7* (2000Sm03).
754		12716.9		11963.2	$(35)^-$				
758.6 *2*	0.67[b] *1*	2703.14	8^+	1944.59	6^+	E2[fjn]	0.00553	11 *2*	ce(K)/(γ+ce)=0.00456 *7*; ce(L)/(γ+ce)=0.000730 *11*; ce(M)/(γ+ce)=0.0001617 *23*; ce(N+)/(γ+ce)=4.27×10^{-5} *6* ce(N)/(γ+ce)=3.72×10^{-5} *6*; ce(O)/(γ+ce)=5.28×10^{-6} *8*; ce(P)/(γ+ce)=2.62×10^{-7} *4* Mult.: α(K)exp=0.0059 *15* (1979Ja14). DCO=1.10 *7* (2000Sm03). Other: A_2=+0.33 *9*, A_4=−0.30 *12* (1979Ja14).
763		14484.9		13721.9					
765.2 *3*		4734.6	(14^-)	3969.3	$(12)^-$				
766.0 *1*	1.00[c] *3*	7024.5	(21^-)	6258.5	(19^-)	Q[j]			Mult.: DCO=1.26 *18* (2000Sm03).
769.6 *2*		6111.4	(20^+)	5341.8	18^+	Q		5.9 *5*	Mult.: DCO=0.44 *6* (1988StZW).
779.6 *3*		11574.6	$(34)^-$	10795.1	33^+	E1[g]	0.00201		α(K)=0.001720 *25*; α(L)=0.000231 *4*; α(M)=5.02×10^{-5} *7*; α(N+..)=1.334×10^{-5} *19* α(N)=1.156×10^{-5} *17*; α(O)=1.683×10^{-6} *24*; α(P)=9.54×10^{-8} *14* Mult.: A_2=−0.21 *13*, A_4=0.00 *16*, lin pol=+0.2 *3* (1981Ha17).
788.4 *1*	0.79[d] *6*	7413.6	(20^-)	6625.2	(18^-)	Q[j]			Mult.: DCO=0.86 *13* (2000Sm03).
792		13117.1		12325.1	(36^-)				
808.6 *2*	17	3969.3	$(12)^-$	3160.7	$(10)^-$	E2[f]	0.00479	19 *2*	ce(K)/(γ+ce)=0.00397 *6*; ce(L)/(γ+ce)=0.000623 *9*; ce(M)/(γ+ce)=0.0001378 *20*; ce(N+)/(γ+ce)=3.64×10^{-5} *6* ce(N)/(γ+ce)=3.17×10^{-5} *5*; ce(O)/(γ+ce)=4.52×10^{-6} *7*; ce(P)/(γ+ce)=2.28×10^{-7} *4* Mult.: α(K)exp=0.0031 *5* (1979Ja14). E2 from 1983St03. Other: A_2=+0.30 *7*, A_4=+0.03 *10* (1979Ja14).
824.1 *1*	0.96[c] *4*	7848.6	(23^-)	7024.5	(21^-)	Q[j]			Mult.: DCO=0.97 *19* (2000Sm03).
824.9 *1*	1.04[b] *2*	8628.9	26^+	7804.0	24^+	Q[j]			Mult.: DCO=1.14 *6* (2000Sm03).
825.2 *2*	0.84[d] *6*	8238.8	(22^-)	7413.6	(20^-)	Q[j]			Mult.: DCO=1.00 *18* (2000Sm03).
831.3		3992.1	$(12^-,13^-)$	3160.7	$(10)^-$				
851		10961.0		10110.2	31^+				
854		12428.7		11574.6	$(34)^-$				

γ(^{152}Dy) (continued)

E_γ[‡]	I_γ[&]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[e]	α[†]	$I_{(\gamma+ce)}$[ao]	Comments
858		10257.2		9398.6	$(30)^+$				
878.8 *1*	1.00[d] *6*	9117.6	(24^-)	8238.8	(22^-)	Q[j]			Mult.: DCO=0.96 *17* (2000Sm03).
887.3 *1*	1.06 *4*	8735.9	(25^-)	7848.6	(23^-)	Q[j]			Mult.: DCO=0.79 *14* (2000Sm03).
894.2 *1*	0.93[b] *2*	9523.1	28^+	8628.9	26^+	Q[j]			Mult.: DCO=1.11 *5* (2000Sm03).
901		11442.9		10541.1	(32^+)				E_γ: See comment on the 11443 level for placement of this transition.
931.0 *1*	0.92[d] *7*	10048.6	(26^-)	9117.6	(24^-)	Q[j]			Mult.: DCO=1.07 *13* (2000Sm03).
952.0 *1*	1.03[c] *4*	9687.9	(27^-)	8735.9	(25^-)	Q[j]			Mult.: DCO=0.83 *14* (2000Sm03).
952		11209.0		10257.2					
961.3 *1*	0.99[b] *3*	10484.4	30^+	9523.1	28^+	Q[j]			Mult.: DCO=0.95 *11* (2000Sm03).
962.2		4135.7?		3173.5	(10^-)				
966.9 *2*	13 *1*	8848.8	$(28)^+$	7881.9	$(27)^-$	E1[g]	1.33×10^{-3}	2 *1*	ce(K)/(γ+ce)=0.001135 *16*; ce(L)/(γ+ce)=0.0001508 *22*; ce(M)/(γ+ce)=3.27×10^{-5} *5*; ce(N+)/(γ+ce)=8.71×10^{-6} *13* ce(N)/(γ+ce)=7.55×10^{-6} *11*; ce(O)/(γ+ce)=1.102×10^{-6} *16*; ce(P)/(γ+ce)=6.33×10^{-8} *9* Mult.: A_2=−0.22 *5*, A_4=+0.02 *5*, lin pol=+0.32 *14* (1979Me01). A_2=−0.36 *3*, A_4=+0.07 *6*, lin pol=+0.30 *11* (1981Ha17).
970		12178.9		11209.0					
973[@]		7710.0	(24^+)	6737.0	22^+				
976		14663.2		13687.1					
983		12946.2		11963.2	$(35)^-$				
984.2 *1*	1.12[d] *8*	11032.8	(28^-)	10048.6	(26^-)	Q[j]			Mult.: DCO=1.12 *13* (2000Sm03).
984.7 *2*		4804.9	$(13^+,14^+)$	3820.26	12^+			5 *1*	E_γ: Placement from 1981Ha17 and 1983St03 replaces that of 1979Me01.
990.7 *2*	27 *1*	7120.1	$(23)^-$	6129.4	21^-	E2[g]	0.00310	8 *2*	ce(K)/(γ+ce)=0.00260 *4*; ce(L)/(γ+ce)=0.000387 *6*; ce(M)/(γ+ce)=8.52×10^{-5} *12*; ce(N+)/(γ+ce)=2.26×10^{-5} *4* ce(N)/(γ+ce)=1.96×10^{-5} *3*; ce(O)/(γ+ce)=2.83×10^{-6} *4*; ce(P)/(γ+ce)=1.499×10^{-7} *21* Mult.: A_2=+0.08 *4*, A_4=+0.02 *4*, lin pol=+0.31 *9* (1979Me01), A_2=+0.19 *4*, A_4=0.00 *4*, lin pol=+0.40 *12* (1971Ha17). E2 from α(K)exp (1987Ri02).
1005		13721.9		12716.9					
1016		10012.3		8996.2	$(29)^+$				
1017.4 *1*	0.97[c] *4*	10705.4?	(29^-)	9687.9	(27^-)	Q[j]			Mult.: DCO=0.97 *16* (2000Sm03).
1020		14741.9		13721.9					
1027.6 *1*	0.97[b] *1*	11512.0	32^+	10484.4	30^+	Q[j]			Mult.: DCO=1.16 *10* (2000Sm03).
1033		12428.7		11395.4					

$^{152}_{66}Dy_{86}$-12

γ(152Dy) (continued)

E_γ ‡	I_γ &	E_i(level)	J^π_i	E_f	J^π_f	Mult.[e]	α †	Comments
1039.2 *1*	1.01[d] *8*	12072.0	(30^-)	11032.8	(28^-)	Q[j]		Mult.: DCO=0.95 *14* (2000Sm03).
1061		11602.1		10541.1	(32^+)			
1064		11859.0		10795.1	33^+			
1071		13396.7		12325.1	(36^-)			
1083.4 *1*	0.99[c] *5*	11788.8	(31^-)	10705.4?	(29^-)	Q[j]		Mult.: DCO=0.89 *16* (2000Sm03).
1086		13048.9		11963.2	$(35)^-$			
1092.4 *1*	0.74[b] *2*	12604.4	34^+	11512.0	32^+	Q[j]		Mult.: DCO=1.16 *12* (2000Sm03).
1097.1 *1*	0.80[d] *10*	13169.1	(32^-)	12072.0	(30^-)	Q[j]		Mult.: DCO=0.94 *13* (2000Sm03).
1114.2 *3*		10110.2	31^+	8996.2	$(29)^+$	E2[g]	0.00244	α(K)=0.00206 *3*; α(L)=0.000299 *5*; α(M)=6.57×10^{-5} *10*; α(N+..)=1.79×10^{-5} *3* α(N)=1.514×10^{-5} *22*; α(O)=2.19×10^{-6} *3*; α(P)=1.188×10^{-7} *17*; α(IPF)=4.76×10^{-7} *9* Mult.: A_2=+0.23 *10*, A_4=−0.08 *13*, lin pol=+0.4 *3* (1981Ha17).
1142		10541.1	(32^+)	9398.6	$(30)^+$			
1142		17539.0		16397.0				
1149.5 *1*	0.98[c] *5*	12938.3	(33^-)	11788.8	(31^-)	Q[j]		Mult.: DCO=1.17 *33* (2000Sm03).
1156.3 *1*	0.86[d] *7*	14325.4	(34^-)	13169.1	(32^-)	Q[j]		Mult.: DCO=0.24 *20* (2000Sm03).
1158.4 *1*	0.68[b] *1*	13762.8	36^+	12604.4	34^+	Q[j]		Mult.: DCO=1.28 *20* (2000Sm03).
1168		13493.1		12325.1	(36^-)			
1192		13517.1		12325.1	(36^-)			
1215.9 *1*	0.90[c] *5*	14154.2	(35^-)	12938.3	(33^-)	Q[j]		Mult.: DCO=1.01 *20* (2000Sm03).
1217.7 *1*	0.84[d] *7*	15543.1	(36^-)	14325.4	(34^-)	Q[j]		Mult.: DCO=0.94 *16* (2000Sm03).
1218		13396.7		12178.9				
1220		12428.7		11209.0				
1221.3 *1*	0.65[b] *2*	14984.1	38^+	13762.8	36^+	Q[j]		Mult.: DCO=1.10 *14* (2000Sm03).
1281.4 *1*	0.78[d] *8*	16824.5	(38^-)	15543.1	(36^-)	Q[j]		Mult.: DCO=1.41 *35* (2000Sm03).
1281.5 *1*	0.87[c] *4*	15435.7	(37^-)	14154.2	(35^-)	Q[j]		Mult.: DCO=1.23 *29* (2000Sm03).
1283.0 *1*	0.54[b] *1*	16267.1	40^+	14984.1	38^+	Q[j]		Mult.: DCO=0.88 *15* (2000Sm03).
1341.6 *1*	0.37[b] *1*	17608.7	42^+	16267.1	40^+			
1343.3 *1*	0.64[c] *3*	16779.0	(39^-)	15435.7	(37^-)			
1345		11602.1		10257.2				
1347.6 *2*	0.55[d] *8*	18172.1	(40^-)	16824.5	(38^-)			
1362		13687.1		12325.1	(36^-)			
1399.8 *1*	0.27[b] *1*	19008.5	44^+	17608.7	42^+			
1400.3 *2*	0.40[c] *5*	18179.3	(41^-)	16779.0	(39^-)			
1418.1 *7*	0.46[d] *7*	19590.2	(42^-)	18172.1	(40^-)			
1458.9 *1*	0.14[b] *1*	20467.4	46^+	19008.5	44^+			
1487.6 *3*	0.28[d] *7*	21077.8	(44^-)	19590.2	(42^-)			
1546	0.26[d] *6*	7413.6	(20^-)	5867.1	19^-			

$^{152}_{66}Dy_{86}$-13

γ(^{152}Dy) (continued)

E_γ[‡]	E_i(level)	E_f
1858	13253.4	11395.4
1912	16397.0	14484.9

† Additional information 1.

‡ Values quoted with uncertainties are weighted averages of data of 2000Sm03, 1981Ha17, 1979Me01, and 1979Ja14. Data of these authors are quoted to tenths of keV, and the evaluator has rounded off the weighted averages to this accuracy. Values quoted to tenths of keV but without uncertainties are from 1983St03. values quoted to the nearest keV are from 2000Sm03 for levels below 6000 keV and from 1991Be12 for higher levels. IT should be noted that values for some of the transitions in the latter group are also given in 1983St03 and 1986Ny02. Exceptions are noted. In the case of 1981Ha17, the authors show several transitions in their table 2 that are assigned uncertainties of 0.3 keV. The evaluator assumes that the other transitions given in the authors′ level scheme, and quoted to the nearest 0.1 keV, but without an uncertainty, can also be assigned an uncertainty of 0.3 keV.

From 1987St15.

@ From 1989Zu01.

& For the transitions within the bands, the Iγ are from 2000Sm03 normalized separately for each band, as noted. Other Iγ values are from 1970Me01 normalized to Iγ=100 for the 613.85γ. Others: relative intensities are given for a few selected transitions by 1981Ha17 and 1989Zu01.

[a] Relative intensities from ^{154}Gd(α,6nγ) at 125° (1979Ja14) normalized to Iγ=100 for the 613.85γ.

[b] From 2000Sm03 for the band built on the 1944 level and normalized to Iγ=100 for the 680γ.

[c] From 2000Sm03 for the band built on the 3487 level and normalized to Iγ=100 for the 766γ.

[d] From 2000Sm03 for the band built on the 4495 level and normalized to Iγ=100 for the 879γ.

[e] 1983St03 give mult assignments on their level scheme and state that these assignments are based on α(K)exp; however, no data are given. Also these authors state that transitions in the ΔJ=2 band from 2703 to 5762 are stretched Q from $\gamma(\theta)$ but again, no data are given.

[f] From α(K)exp of 1979Ja14 and/or 1983St03.

[g] From $\gamma(\theta)$ and lin pol of 1979Me01 and/or 1981Ha17.

[h] From α(K)exp of 1979Ja14 and/or 1983St03. Also $\gamma(\theta)$ and lin pol of 1981Ha17.

[i] Stretched dipole from DCO (1988StZW). DCO=1 for stretched D, 0.62 *8* for stretched Q.

[j] Stretched quadrupole from DCO (2000Sm03). Average DCO for transitions with known mult gives 1.08 *5* for stretched Q and 0.58 *1* for stretched D.

[k] Stretched quadrupole from DCO (1988StZW). DCO=0.62 *8* for stretched Q, 1 for stretched D.

[l] Q from $\gamma(\theta)$ (1983St03).

[m] From α(K)exp in 50-S and/or 162-S Ho ε decay.

[n] Mult confirmed in 50-S and/or 162-S Ho ε decay.

[o] Label=Iγ.

[p] Placement of transition in the level scheme is uncertain.

$^{152}_{66}Dy_{86}$-14

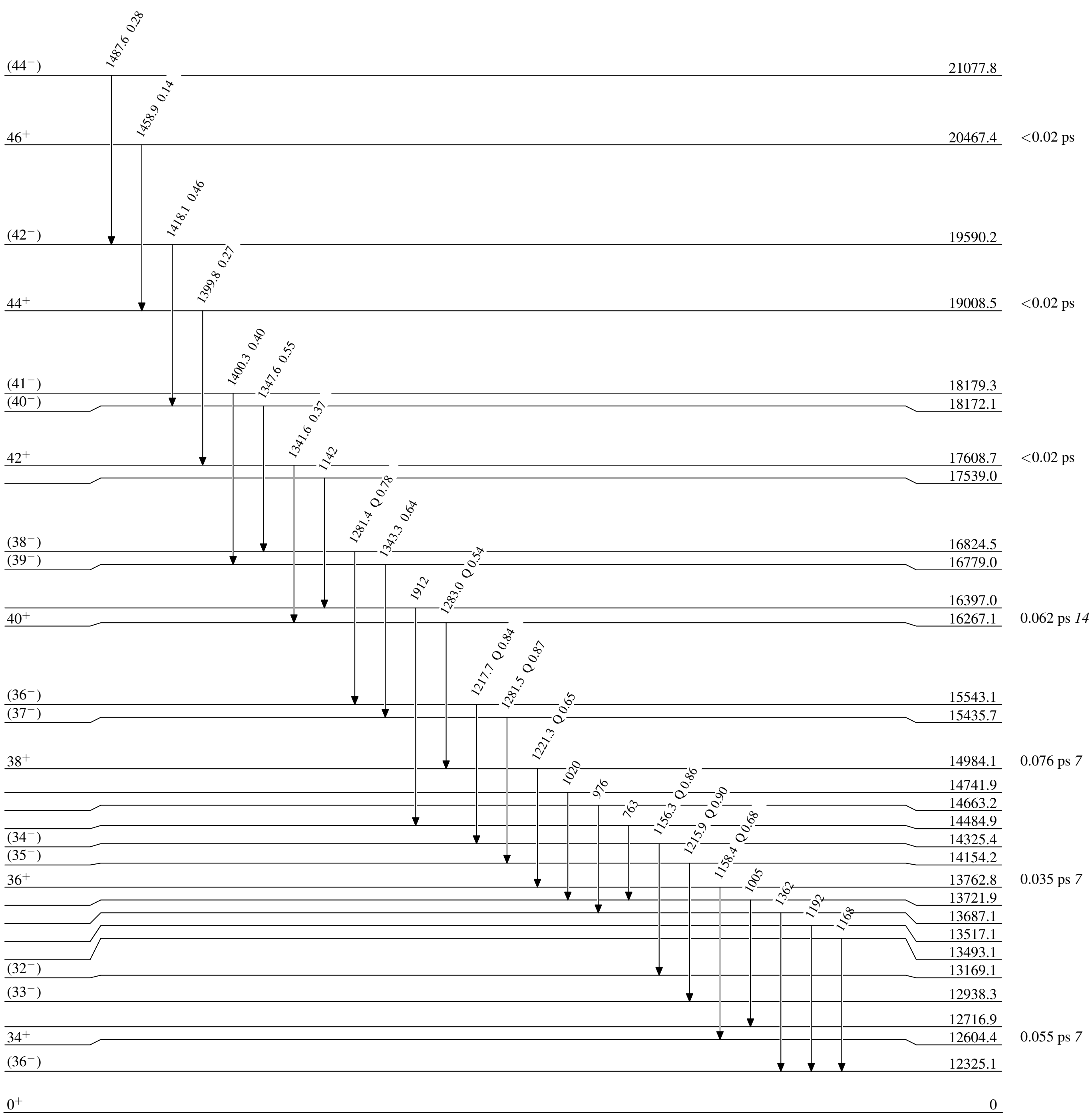
Gd(α,xnγ),(HI,xnγ)

Level Scheme

Intensities: Type not specified

Legend

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



$^{152}_{66}Dy_{86}$

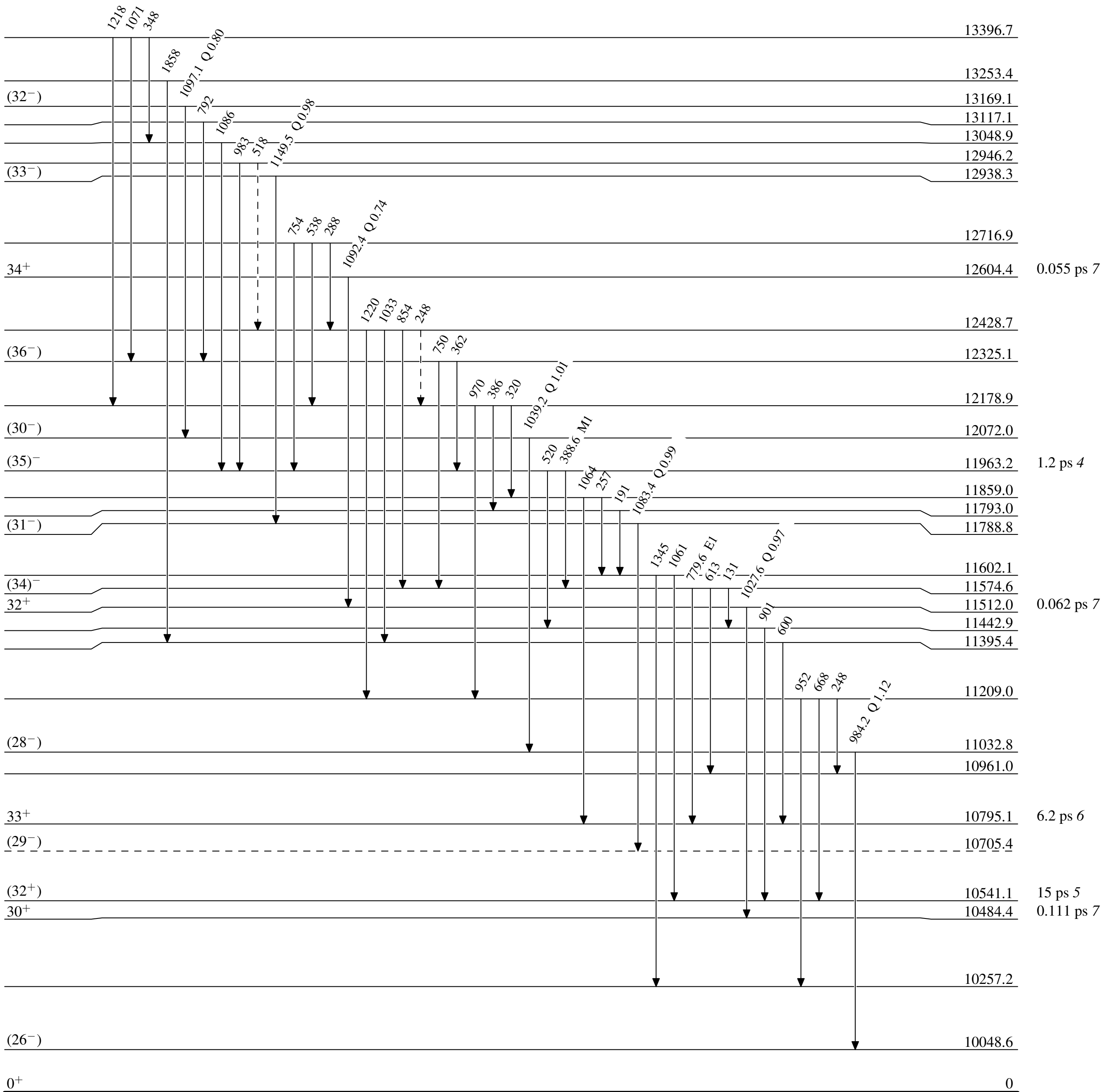
Gd(α,xnγ),(HI,xnγ)

Level Scheme (continued)

Intensities: Type not specified

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)

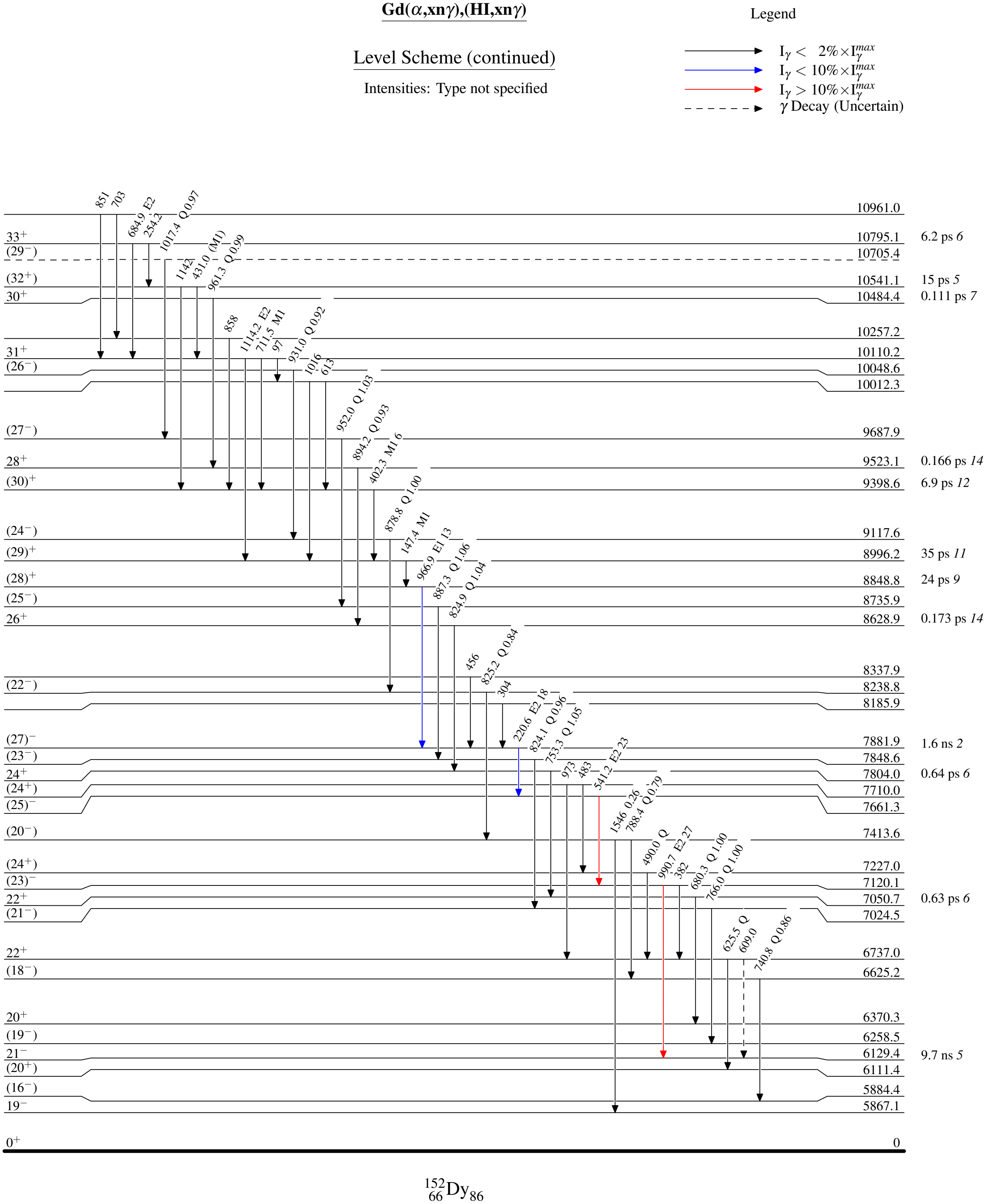


$^{152}_{66}Dy_{86}$

Gd(α,xnγ),(HI,xnγ)

Level Scheme (continued)

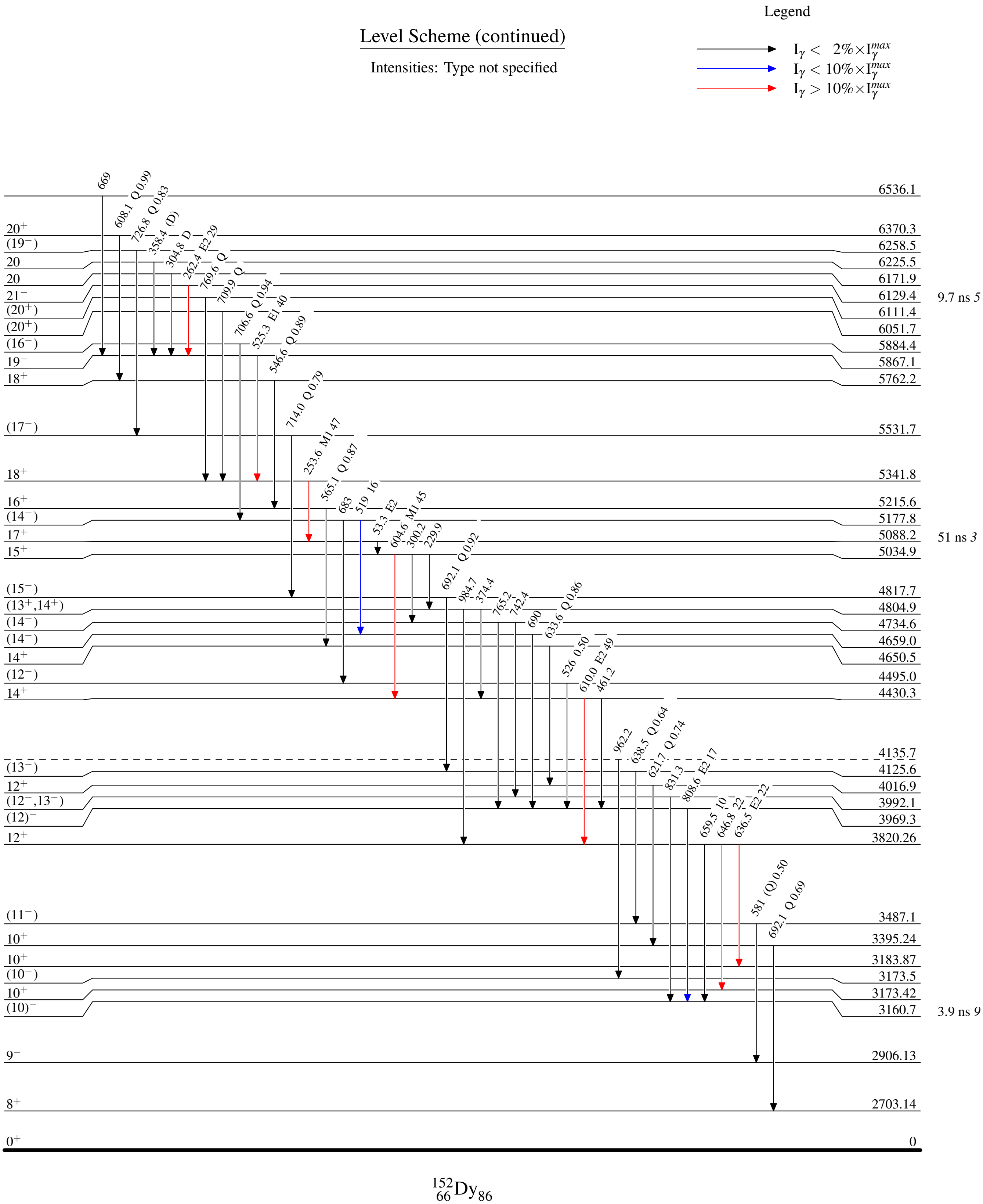
Intensities: Type not specified



Gd(α,xnγ),(HI,xnγ)

Level Scheme (continued)

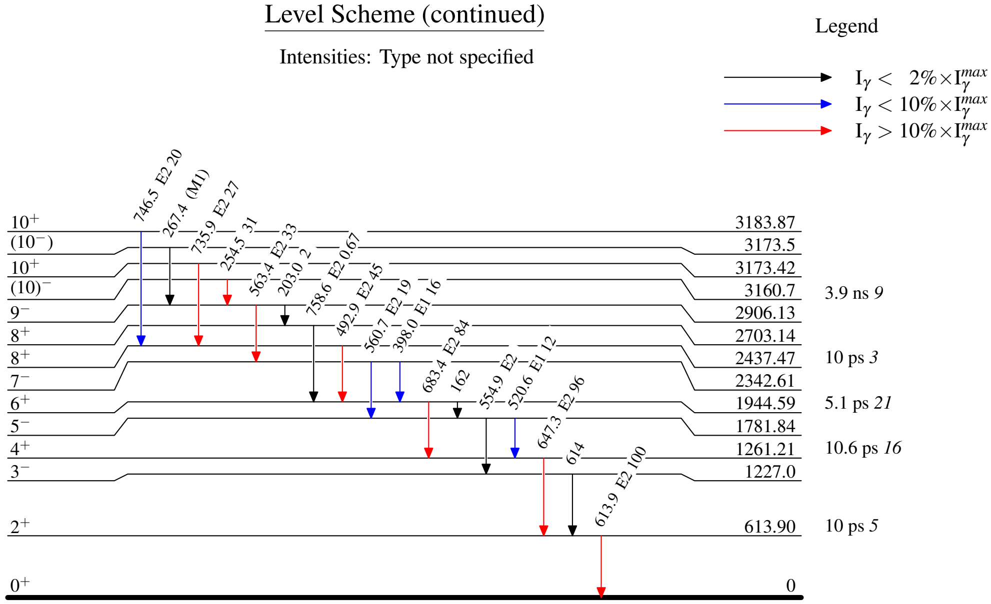
Intensities: Type not specified



Gd(α,xnγ),(HI,xnγ)

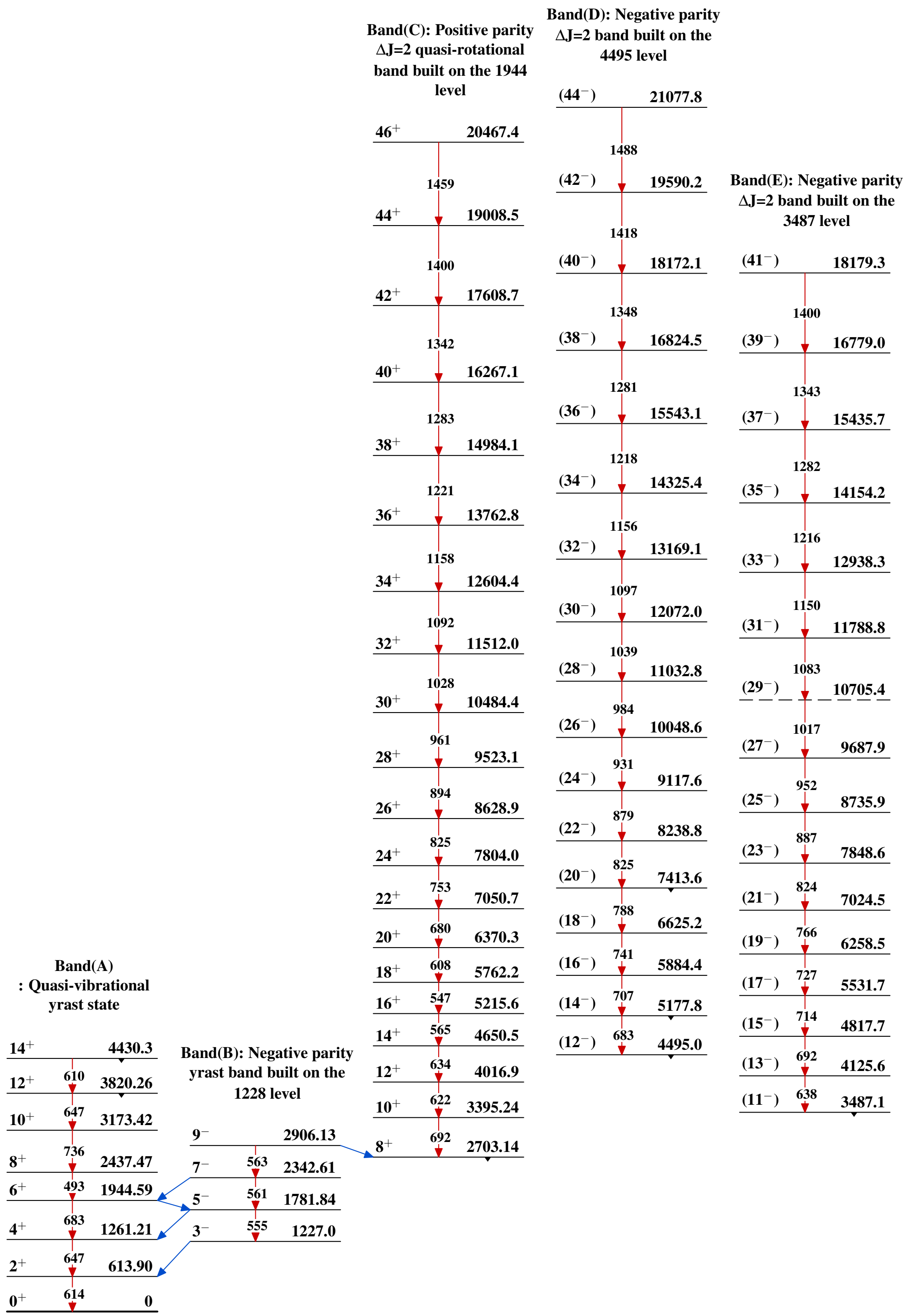
Level Scheme (continued)

Intensities: Type not specified



$^{152}_{66}Dy_{86}$

Gd(α,xnγ),(HI,xnγ)



$^{152}_{66}Dy_{86}$