Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. Browne, J. K. Tuli	NDS 110,507 (2009)	1-Oct-2008

Q(β^-)=−6.62×10^3 *10*; S(n)=9.24×10^3 *4*; S(p)=4594 *23*; Q(α)=585 *22* 2012Wa38
Note: Current evaluation has used the following Q record −7.05E+3 6 *9.24×10*^{33} *4595* 22586 21 2003Au03.
Hyperfine structure, isotope shifts measurements: 1988Ga17.

^{145}Gd Levels

Cross Reference (XREF) Flags

A	^{145}Gd IT decay (85 s)	D	^{144}Sm(α,3nγ)
B	^{145}Tb ε decay (30.9 s)	E	^{114}Cd(^{36}S,5nγ):SD
C	^{144}Sm(^{3}He,2nγ)	F	^{110}Pd(^{40}Ar,5nγ)

E(level)†	Jπ	$T_{1/2}$	XREF	Comments
0.0	1/2$^+$	23.0 min *4*	ABCD F	%ε+%β^+=100 μ=−0.74 *5* (2005Ba64) $T_{1/2}$: from 1982Fi01. Others: 23.9 min *1* (1977Ho18), 21.8 min *6* (1971Ep01), 23 min *1* (1970Ar04), 22.9 min *1* (1968Ke14), 25 min *2* (1959Gr10), 1959Ol23. Jπ: atomic beam (1972Ek05), log *ft*=5.75 to 1758 level in ^{145}Eu with positive parity (L=2 in (^{3}He,d)). Davsq(^{145}Gd,^{160}Gd)=−1.79 *3* (2005Ba64) measured isotope shift.
27.3 *11*	3/2$^+$	11.5 ns *3*	ABCD F	$T_{1/2}$: from IT decay (1975Fi02). Jπ: M1+E2 γ to 1/2$^+$.
749.1 *2*	11/2$^-$	85 s *3*	ABCD F	%IT=94.3 *5*; %ε+%β^+=5.7 *5* μ=−1.0 *2* (2005Ba64) $T_{1/2}$: from IT decay: unweighted average: 85 s *3* (1970Ep02), 85 s *7* (1969Ja02), 78 s *8* (1970SeZP), 92 s *4* (1974Ko29). Jπ: M4 γ to 3/2$^+$. $\Delta<r^2>$(^{145}Gd,^{160}Gd)=−1.76 *5* (2005Ba64) measured isotope shift.
1015.1 *2*	5/2$^+$		BC F	Jπ: ΔJ=1 M1+E2 γ to 3/2$^+$, E2 γ to 1/2$^+$.
1272.9 *2*	7/2$^-$		BC F	Jπ: E1 γ to 5/2$^+$, E2 γ to 11/2$^-$.
1415.4 *2*	7/2$^+$	<0.3 ns	BC	$T_{1/2}$: from (^{3}He,2nγ) (1982Pa04). Jπ: ΔJ=2 E2 γ to 3/2$^+$.
1498.2 *2*	5/2$^+$		BC	Jπ: M1+E2 γ to 3/2$^+$, ΔJ=1 Dipole γ to 7/2$^-$.
1525.0 *2*	5/2$^-$,7/2$^-$		C	Jπ: E1 γ to 5/2$^+$, γ to 7/2$^+$.
1666.7 *2*	7/2$^{(-)}$		BC	Jπ: ΔJ=0 d+Q γ to 7/2$^-$.
1684.2 *2*	9/2$^-$		BC	Jπ: ΔJ=1, M1+E2 γ to 11/2$^-$, E1 γ to 7/2$^+$.
1809.9 *2*	9/2$^-$		BC	Jπ: ΔJ=1 M1+E2 γ to 7/2$^-$, excit function.
2181.7 *2*	(9/2$^-$)	<0.3 ns	BC	Jπ: γ's to 11/2$^-$ and 7/2$^-$ with comparable Iγ, log *ft*=5.3 via (11/2$^-$) parent. $T_{1/2}$: from (^{3}He,2nγ) (1982Pa04).
2195.7 *3*	11/2$^-$		BC F	Jπ: ΔJ=0, M1+E2 γ to 11/2$^-$.
2200.1 *2*	13/2$^+$	20.4 ns *16*	C F	$T_{1/2}$: from (^{3}He,2nγ) (1982Pa04). Jπ: E3 γ to 7/2$^-$, E1+M2+E3 γ to 11/2$^-$.
2258.5 *3*	11/2$^-$		C	Jπ: ΔJ=1, M1+E2 γ to 9/2$^-$, ΔJ=2 E2 γ to 7/2$^-$.
2301.7 *3*	13/2$^+$		CD F	Jπ: ΔJ=1 E1 γ to 11/2$^-$, excit function.
2382.3 *2*	(9/2$^-$)		BC	Jπ: ΔJ=0 d+Q γ to 9/2$^-$.
2411.4 *2*	15/2$^+$		CD F	Jπ: ΔJ=1 M1+E2 γ to 13/2$^+$, γ from 17/2$^+$.
2432.2 *2*	17/2$^+$	0.37 ns *15*	CD F	$T_{1/2}$: from (^{3}He,2nγ) (1982Pa04). Jπ: ΔJ=3, E3 γ to 11/2$^-$, γ-γ cascade, one member of which is ΔJ=1, to 13/2$^+$.
2442.6 *3*	13/2$^-$		BC F	Jπ: ΔJ=1 M1(+E2) γ to 11/2$^-$.

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Adopted Levels, Gammas (continued)

^{145}Gd Levels (continued)

E(level)[†]	J^π	XREF	Comments
2472.5? *4*		C	E(level): this level is considered as uncertain. A 169.7γ is placed from a 3104 level in (^{40}Ar,5nγ).
2640.8 *3*		F	
2657.8 *3*		F	
2784.0 *3*	$(11/2^+,13/2^+)$	C F	J^π: γ's to $11/2^-$ and $13/2^-$. γ to $11/2^-$ is possibly E1+M2.
2823.2 *4*	$15/2^+$	C	J^π: γ to $13/2^+$ is ΔJ=1 M1+E2, excit.
2872.6 *4*		C	
2885.6 *3*	$(13/2,15/2,17/2)^-$	C	J^π: E1 γ to $15/2^+$.
2935.0 *3*		F	
2974.4 *2*	$(13/2^+,15/2^+)$	C F	J^π: M1(+E2) γ to $(11/2^+,13/2^+)$ and M1(+E2) γ to $15/2^+$.
2987.2 *4*		C	
3105.2 *3*		F	
3175.8 *3*		C F	
3194.4 *2*		C F	
3207.2 *3*	$17/2^+$	CD F	J^π: ΔJ=1 M1+E2 γ to $15/2^+$, excit function.
3285.0 *4*		C	
3353.8 *4*		C	
3356.8 *3*	$19/2^+$	CD F	J^π: ΔJ=1 M1+E2 γ to $17/2^+$, excit function.
3457.9 *3*	$21/2^+$	CD F	J^π: ΔJ=1 γ to $19/2^+$, E2 γ to $17/2^+$, excit function.
3469.3 *3*		C F	
3506.3 *3*		F	
3511.3 *5*		C F	
3558.9 *4*		F	
3573.1 *4*		C	
3585.5? *4*		D	
3602.9? *4*	(19/2)	D	J^π: ΔJ=1 γ to $17/2^+$.
3652.8 *4*		F	
3674.0 *4*		F	
3694.4 *4*		F	
4037.3 *3*		F	
4155.7 *4*		F	
4160.4 *4*		F	
4240.4 *4*		F	
4283.4 *5*		F	
4336.3 *5*		F	
4539.6 *4*		F	
4901.3 *5*		F	
4936.4 *5*		F	
5023.6 *5*		F	
5032.8 *5*		F	
5316.7 *5*		F	
5414.2 *5*		F	
5414.5 *5*		F	
5446.5 *5*		F	
5464.6 *5*		F	
5487.5 *5*		F	
5536.8 *4*		F	
5684.6 *5*		F	
5729.8 *5*		F	
5754.6 *5*		F	
5906.0 *6*		F	
5931.1 *5*		F	
6069.8 *5*		F	
6159.7 *6*		F	
6264.9 *6*		F	
6547.2 *6*		F	

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Adopted Levels, Gammas (continued)

^{145}Gd Levels (continued)

E(level)[†]	J^{π}	XREF	Comments
6682.1 *6*		F	
6698.8 *6*		F	
6866.0 *6*		F	
6899.9 *6*		F	
6955.7 *6*		F	
7033.6 *6*		F	
7098.0 *6*		F	
7220.9 *7*		F	
7223.0 *7*		F	
7263.4 *6*		F	
7472.6 *6*		F	
7502.9 *6*		F	
7716.0 *7*		F	
8120.6 *7*		F	
8183.2 *6*		F	
8198.6 *6*		F	
8211.9 *6*		F	
8246.8 *6*		F	
8386.0 *8*		F	
8636.8 *7*		F	
8733.7 *6*		F	
8804.0 *7*		F	
9024.7 *8*		F	
9372.7 *8*		F	
9377.2 *6*		F	
9601.1 *9*		F	
10203.4 *7*		F	
10255.7 *7*		F	
10417.4 *7*		F	
11333.0 *8*		F	
12175.5 *8*		F	
x[‡]	J	E	Additional information 1.
723.2+x[‡] *7*	J+2	E	
1492.8+x[‡] *8*	J+4	E	
2310.9+x[‡] *9*	J+6	E	
3178.9+x[‡] *9*	J+8	E	
4097.7+x[‡] *10*	J+10	E	
5068.5+x[‡] *11*	J+12	E	
6092.3+x[‡] *11*	J+14	E	
7169.4+x[‡] *12*	J+16	E	
8300.4+x[‡] *12*	J+18	E	
9486.3+x[‡] *13*	J+20	E	
10726.5+x[‡] *14*	J+22	E	
12021.8+x[‡] *15*	J+24	E	
13372.4+x[‡] *15*	J+26	E	
14779.3+x[‡] *16*	J+28	E	
16243.3+x[‡] *19*	J+30	E	
17763.4+x[‡] *20*	J+32	E	
19339.6+x[‡] *21*	J+34	E	
y[#]	J1	E	Additional information 2.
792.7+y?[#] *11*	J1+2	E	

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Adopted Levels, Gammas (continued)

^{145}Gd Levels (continued)

E(level)[†]	J^π	XREF	Comments
1602.9+y[#] *12*	J1+4	E	
2446.2+y[#] *12*	J1+6	E	
3338.3+y[#] *13*	J1+8	E	
4285.6+y[#] *13*	J1+10	E	
5289.9+y[#] *13*	J1+12	E	
6351.5+y[#] *14*	J1+14	E	
7471.9+y[#] *14*	J1+16	E	
8647.8+y[#] *14*	J1+18	E	
9876.1+y[#] *15*	J1+20	E	
11152.5+y[#] *15*	J1+22	E	
12471.7+y[#] *15*	J1+24	E	
13834.0+y[#] *16*	J1+26	E	
15241.0+y[#] *17*	J1+28	E	
16696.6+y[#] *18*	J1+30	E	
18206.9+y[#] *21*	J1+32	E	
z[@]	J2	E	Additional information 3.
919.7+z[@] *10*	J2+2	E	
1893.4+z[@] *12*	J2+4	E	
2926.4+z[@] *13*	J2+6	E	
4012.8+z[@] *14*	J2+8	E	
5157.3+z[@] *15*	J2+10	E	
6360.2+z[@] *17*	J2+12	E	
7619.4+z[@] *17*	J2+14	E	
8933.7+z[@] *19*	J2+16	E	
10303.6+z[@] *22*	J2+18	E	
11736+z[@] *3*	J2+20	E	

[†] From least-squares fit to Eγ's, assuming Δ(Eγ)=0.3 keV when no Eγ uncertainty is assigned.

[‡] Band(A): SD-1 band (1995Rz03,2000Rz01). Q(intrinsic)=11.8 *8* (2000Rz01). Configuration=$\pi 6^1 \pi 9/2[404]\nu 9/2[514]\nu 7^0$ (2000Rz01). Percent population ≈1.1 (1995Rz03).

[#] Band(B): SD-2 band (1995Rz03,2000Rz01). Q(intrinsic)=13.2 *10* (2000Rz01). Configuration=$\nu 5/2[642]\nu 7^0 \pi 6^2$. α=−1/2 (2000Rz01). At higher energies the N=6 neutron orbital is 1/2[651]. This band shows two band crossings, the first due to the alignment of i13/2 proton pair and the second due to alignment of i13/2 and i11/2 neutron orbitals percent population ≈0.6 (1995Rz03).

[@] Band(C): SD-3 band (1995Rz03). Configuration=$\nu 5/2[642]\nu 7^0 \pi 6^2$. π=+, α=+1/2 (1995Rz03). At higher energies the N=6 neutron orbital is 1/2[651]. This band is interpreted as signature partner of SD-2 band. Percent population ≈0.2 (1995Rz03).

Adopted Levels, Gammas (continued)

γ(^{145}Gd)

E_i(level)	J_i^π	E_γ	I_γ[&]	E_f	J_f^π	Mult.	δ	α[†]	Comments
27.3	3/2$^+$	27.3 *1*	100	0.0	1/2$^+$	M1+E2	0.09 *2*	20 *3*	B(M1)(W.u.)=0.0044 *7*; B(E2)(W.u.)=27 *13* α(L)=15.4 *22*; α(M)=3.4 *5*; α(N+..)=0.90 *13* α(N)=0.78 *11*; α(O)=0.114 *14*; α(P)=0.00562 *11*
749.1	11/2$^-$	721.8 *1*	100	27.3	3/2$^+$	M4		0.1451	α(K)=0.1147 *16*; α(L)=0.0236 *4*; α(M)=0.00537 *8*; α(N+..)=0.001436 *21* α(N)=0.001239 *18*; α(O)=0.000187 *3*; α(P)=1.075×10^{-5} *15* B(M4)(W.u.)=1.83 *7*
1015.1	5/2$^+$	987.8	100 *6*	27.3	3/2$^+$	M1+E2	+0.20 *5*	0.00464 *8*	α(K)=0.00395 *7*; α(L)=0.000537 *9*; α(M)=0.0001159 *19*; α(N+..)=3.11×10^{-5} *5* α(N)=2.67×10^{-5} *5*; α(O)=4.16×10^{-6} *7*; α(P)=2.85×10^{-7} *5*
		1015.1	9.4 *31*	0.0	1/2$^+$	E2		0.00267 *4*	α(K)=0.00225 *4*; α(L)=0.000325 *5*; α(M)=7.07×10^{-5} *10*; α(N+..)=1.88×10^{-5} *3* α(N)=1.620×10^{-5} *23*; α(O)=2.48×10^{-6} *4*; α(P)=1.560×10^{-7} *22*
1272.9	7/2$^-$	257.8	100 *5*	1015.1	5/2$^+$	E1		0.0234	α(K)=0.0199 *3*; α(L)=0.00278 *4*; α(M)=0.000599 *9*; α(N+..)=0.0001587 *23* α(N)=0.0001368 *20*; α(O)=2.07×10^{-5} *3*; α(P)=1.248×10^{-6} *18*
		524.1	30 *2*	749.1	11/2$^-$	E2		0.01234	α(K)=0.01007 *15*; α(L)=0.001770 *25*; α(M)=0.000392 *6*; α(N+..)=0.0001033 *15* α(N)=8.93×10^{-5} *13*; α(O)=1.325×10^{-5} *19*; α(P)=6.78×10^{-7} *10*
1415.4	7/2$^+$	1388.0	100	27.3	3/2$^+$	E2		0.001463 *21*	B(E2)(W.u.)>0.0081 α(K)=0.001211 *17*; α(L)=0.0001665 *24*; α(M)=3.60×10^{-5} *5*; α(N+..)=4.97×10^{-5} α(N)=8.26×10^{-6} *12*; α(O)=1.277×10^{-6} *18*; α(P)=8.40×10^{-8} *12*; α(IPF)=4.01×10^{-5} *6*
1498.2	5/2$^+$	225.1	10 *4*	1272.9	7/2$^-$	D			
		1471.0	100 *10*	27.3	3/2$^+$	M1+E2		0.0016 *3*	α(K)=0.00133 *25*; α(L)=0.00018 *4*; α(M)=3.9×10^{-5} *7*; α(N+..)=7.9×10^{-5} *6* α(N)=8.9×10^{-6} *16*; α(O)=1.38×10^{-6} *25*; α(P)=9.4×10^{-8} *19*; α(IPF)=6.9×10^{-5} *5*
1525.0	5/2$^-$,7/2$^-$	109.5	8 *4*	1415.4	7/2$^+$				
		509.8	100 *40*	1015.1	5/2$^+$	E1		0.00451 *7*	α(K)=0.00385 *6*; α(L)=0.000519 *8*; α(M)=0.0001118 *16*; α(N+..)=2.98×10^{-5} *5* α(N)=2.56×10^{-5} *4*; α(O)=3.93×10^{-6} *6*; α(P)=2.54×10^{-7} *4*
1666.7	7/2$^{(-)}$	141.6	23 *9*	1525.0	5/2$^-$,7/2$^-$				
		168.3	100 *18*	1498.2	5/2$^+$	D			
		393.9	45 *9*	1272.9	7/2$^-$	D+Q			
		651.7	45 *23*	1015.1	5/2$^+$				
1684.2	9/2$^-$	268.6	63 *13*	1415.4	7/2$^+$	E1		0.0211	α(K)=0.0179 *3*; α(L)=0.00249 *4*; α(M)=0.000538 *8*;

From ENSDF

$^{145}_{64}Gd_{81}$-5

Adopted Levels, Gammas (continued)

γ(^{145}Gd) (continued)

E_i(level)	J_i^π	E_γ	I_γ [&]	E_f	J_f^π	Mult.	δ	α [†]	Comments
									α(N+..)=0.0001427 *20* α(N)=0.0001229 *18*; α(O)=1.86×10^{-5} *3*; α(P)=1.129×10^{-6} *16*
1684.2	9/2$^-$	935.1	100 *10*	749.1	11/2$^-$	M1+E2		0.0043 *11*	α(K)=0.0036 *10*; α(L)=0.00051 *12*; α(M)=0.000110 *25*; α(N+..)=2.9×10^{-5} *7* α(N)=2.5×10^{-5} *6*; α(O)=3.9×10^{-6} *10*; α(P)=2.6×10^{-7} *8*
1809.9	9/2$^-$	537.0	100	1272.9	7/2$^-$	M1+E2	+0.8 *2*	0.0174 *13*	α(K)=0.0146 *11*; α(L)=0.00216 *11*; α(M)=0.000470 *23*; α(N+..)=0.000126 *7* α(N)=0.000108 *6*; α(O)=1.66×10^{-5} *9*; α(P)=1.05×10^{-6} *9*
2181.7	(9/2$^-$)	371.9	15 *3*	1809.9	9/2$^-$				
		908.9	76 *8*	1272.9	7/2$^-$				
		1432.5	100 *9*	749.1	11/2$^-$				E_γ: from ^{145}Tb ε decay.
2195.7	11/2$^-$	1446.8	100	749.1	11/2$^-$	M1+E2		0.0017 *3*	B(M1)(W.u.)>1.2×10^{-5}; B(E2)(W.u.)>0.0033 α(K)=0.0014 *3*; α(L)=0.00019 *4*; α(M)=4.0×10^{-5} *8*; α(N+..)=7.1×10^{-5} *6* α(N)=9.2×10^{-6} *17*; α(O)=1.4×10^{-6} *3*; α(P)=9.8×10^{-8} *20*; α(IPF)=6.1×10^{-5} *4*
2200.1	13/2$^+$	927.2	100 *8*	1272.9	7/2$^-$	E3		0.00711 *10*	B(E3)(W.u.)=52 *7* α(K)=0.00579 *9*; α(L)=0.001031 *15*; α(M)=0.000229 *4*; α(N+..)=6.06×10^{-5} *9* α(N)=5.24×10^{-5} *8*; α(O)=7.85×10^{-6} *11*; α(P)=4.23×10^{-7} *6*
		1451.3	56 *4*	749.1	11/2$^-$	E1+M2+E3		0.0026 *19*	B(E1)(W.u.)=6.E−10; B(M2)(W.u.)=0.0018; B(E3)(W.u.)=1.3 α(K)=0.0021 *16*; α(L)=0.00029 *23*; α(M)=6.E−5 *5*; α(N+..)=0.00011 *6* α(N)=1.5×10^{-5} *12*; α(O)=2.3×10^{-6} *18*; α(P)=1.6×10^{-7} *13*; α(IPF)=0.00010 *8* Mult.: 30% E1+40% M2+30% E3 from α(K)exp and γ(θ) in (^{3}He,2nγ) (1982Pa04).
2258.5	11/2$^-$	448.6	40 *7*	1809.9	9/2$^-$	M1+E2	+0.3 *1*	0.0322 *10*	α(K)=0.0272 *9*; α(L)=0.00386 *9*; α(M)=0.000837 *17*; α(N+..)=0.000224 *5* α(N)=0.000193 *4*; α(O)=2.98×10^{-5} *7*; α(P)=1.99×10^{-6} *7*
		985.6	100 *7*	1272.9	7/2$^-$	E2		0.00284 *4*	α(K)=0.00239 *4*; α(L)=0.000348 *5*; α(M)=7.56×10^{-5} *11*; α(N+..)=2.01×10^{-5} *3* α(N)=1.732×10^{-5} *25*; α(O)=2.65×10^{-6} *4*; α(P)=1.658×10^{-7} *24*
2301.7	13/2$^+$	1552.8	100	749.1	11/2$^-$	E1		0.000764 *11*	α(K)=0.000448 *7*; α(L)=5.75×10^{-5} *8*; α(M)=1.233×10^{-5} *18*; α(N+..)=0.000247 *4* α(N)=2.83×10^{-6} *4*; α(O)=4.41×10^{-7} *7*; α(P)=3.02×10^{-8} *5*; α(IPF)=0.000243 *4*
2382.3	(9/2$^-$)	200.6	51 *5*	2181.7	(9/2$^-$)				
		572.4	100 *14*	1809.9	9/2$^-$	D+Q			
		698.0	39 *4*	1684.2	9/2$^-$				

From ENSDF

$^{145}_{64}Gd_{81}$-6

Adopted Levels, Gammas (continued)

γ(^{145}Gd) (continued)

E_i(level)	J_i^π	E_γ	I_γ[&]	E_f	J_f^π	Mult.	δ	α[†]	Comments
2382.3	(9/2$^-$)	1109.4	100 *14*	1272.9	7/2$^-$				
2411.4	15/2$^+$	109.8	100 *8*	2301.7	13/2$^+$	M1+E2		1.66 *13*	α(K)=1.10 *20*; α(L)=0.44 *25*; α(M)=0.10 *6*; α(N+..)=0.026 *15* α(N)=0.023 *14*; α(O)=0.0031 *17*; α(P)=7.E−5 *3*
		211.7	14 *5*	2200.1	13/2$^+$	M1+(E2)		0.21 *3*	α(K)=0.17 *4*; α(L)=0.036 *6*; α(M)=0.0080 *16*; α(N+..)=0.0021 *4* α(N)=0.0018 *4*; α(O)=0.00026 *4*; α(P)=1.1×10^{-5} *4*
2432.2	17/2$^+$	20.7	62 *3*	2411.4	15/2$^+$	[M1+E2]	<0.7	5.×10^2 *5*	α(L)=4.E2 4; α(M)=9.E1 9; α(N+..)=22 *21* α(N)=20 *19*; α(O)=2.5 *24*; α(P)=0.0114 *15* B(E2)(W.u.)<1.6×10^4 δ: from RUL. Mult.: α for δ=0.
		1683.6	100 *8*	749.1	11/2$^-$	E3		0.00192 *3*	α(K)=0.001556 *22*; α(L)=0.000226 *4*; α(M)=4.92×10^{-5} *7*; α(N+..)=8.35×10^{-5} *12* α(N)=1.130×10^{-5} *16*; α(O)=1.740×10^{-6} *25*; α(P)=1.117×10^{-7} *16*; α(IPF)=7.04×10^{-5} *10* B(E3)(W.u.)=0.22 *+24−22*
2442.6	13/2$^-$	247.1	100	2195.7	11/2$^-$	M1(+E2)	+0.1 *1*	0.160 *3*	α(K)=0.1356 *25*; α(L)=0.0194 *3*; α(M)=0.00421 *7*; α(N+..)=0.001128 *17* α(N)=0.000968 *15*; α(O)=0.0001502 *22*; α(P)=1.003×10^{-5} *21*
2472.5?		170.8	100	2301.7	13/2$^+$				
2640.8		1891.3		749.1	11/2$^-$				
2657.8		1909.0		749.1	11/2$^-$				
2784.0	(11/2$^+$,13/2$^+$)	341.4	17 *6*	2442.6	13/2$^-$				
		2035.3	100 *9*	749.1	11/2$^-$				Mult.: (E3) (1982Pa04) or E1+M2 (1983Ba10) from α(K)exp and γ(θ).
2823.2	15/2$^+$	623.1	100	2200.1	13/2$^+$	M1+E2	+0.8 *3*	0.0120 *13*	α(K)=0.0101 *11*; α(L)=0.00146 *12*; α(M)=0.00032 *3*; α(N+..)=8.5×10^{-5} *7* α(N)=7.3×10^{-5} *6*; α(O)=1.12×10^{-5} *10*; α(P)=7.2×10^{-7} *9*
2872.6		1062.7	100	1809.9	9/2$^-$				
2885.6	(13/2,15/2,17/2)$^-$	474.6	100	2411.4	15/2$^+$	E1		0.00530 *8*	α(K)=0.00452 *7*; α(L)=0.000612 *9*; α(M)=0.0001318 *19*; α(N+..)=3.51×10^{-5} *5* α(N)=3.02×10^{-5} *5*; α(O)=4.63×10^{-6} *7*; α(P)=2.97×10^{-7} *5*
2935.0		2185.4		749.1	11/2$^-$				
2974.4	(13/2$^+$,15/2$^+$)	190.7	100 *20*	2784.0	(11/2$^+$,13/2$^+$)	M1(+E2)		0.29 *4*	α(K)=0.23 *5*; α(L)=0.051 *12*; α(M)=0.012 *3*; α(N+..)=0.0030 *8* α(N)=0.0026 *7*; α(O)=0.00038 *8*; α(P)=1.5×10^{-5} *6*

From ENSDF

$^{145}_{64}Gd_{81}$-7

Adopted Levels, Gammas (continued)

γ(^{145}Gd) (continued)

E_i(level)	J_i^π	E_γ	I_γ[&]	E_f	J_f^π	Mult.	δ	α[†]	Comments
2974.4	(13/2$^+$,15/2$^+$)	315.0[‡]		2657.8					
		532.1	32 *8*	2442.6	13/2$^-$				
		563.4[#]	32 *8*	2411.4	15/2$^+$	M1(+E2)		0.014 *5*	α(K)=0.012 *4*; α(L)=0.0018 *4*; α(M)=0.00040 *8*; α(N+..)=0.000106 *22* α(N)=9.1×10^{-5} *19*; α(O)=1.4×10^{-5} *4*; α(P)=9.E−7 *3*
2987.2		544.6	100	2442.6	13/2$^-$				
3105.2		169.7		2935.0					
		662.7		2442.6	13/2$^-$				
		693.9		2411.4	15/2$^+$				
3175.8		201.4	100 *30*	2974.4	(13/2$^+$,15/2$^+$)	D			
		290.2[#]	80 *20*	2885.6	(13/2,15/2,17/2)$^-$	M1+(E2)		0.086 *19*	α(K)=0.070 *19*; α(L)=0.01248 *18*; α(M)=0.00277 *7*; α(N+..)=0.000730 *11* α(N)=0.000631 *12*; α(O)=9.4×10^{-5} *4*; α(P)=4.8×10^{-6} *17*
3194.4		220.3	100 *43*	2974.4	(13/2$^+$,15/2$^+$)	D			
		309.1[#]	57 *29*	2885.6	(13/2,15/2,17/2)$^-$				
		535.5[‡]		2657.8					
		553.3[‡]		2640.8					
3207.2	17/2$^+$	101.5[‡]		3105.2					
		775.5[#]	19 *10*	2432.2	17/2$^+$				
		795.9	100 *6*	2411.4	15/2$^+$	M1+E2	−0.13 *4*	0.00788 *12*	α(K)=0.00671 *10*; α(L)=0.000918 *14*; α(M)=0.000198 *3*; α(N+..)=5.33×10^{-5} *8* α(N)=4.57×10^{-5} *7*; α(O)=7.12×10^{-6} *11*; α(P)=4.87×10^{-7} *8*
3285.0		77.8	100	3207.2	17/2$^+$				
3353.8		379.4	100	2974.4	(13/2$^+$,15/2$^+$)				
3356.8	19/2$^+$	149.8	30 *3*	3207.2	17/2$^+$	D			
		924.7	100 *6*	2432.2	17/2$^+$	M1		0.00552 *8*	α(K)=0.00470 *7*; α(L)=0.000639 *9*; α(M)=0.0001381 *20*; α(N+..)=3.71×10^{-5} *6* α(N)=3.18×10^{-5} *5*; α(O)=4.95×10^{-6} *7*; α(P)=3.40×10^{-7} *5*
		945.2[‡]		2411.4	15/2$^+$				
3457.9	21/2$^+$	101.3	100 *20*	3356.8	19/2$^+$	D			
		263.5[‡]		3194.4					
		1025.3	40 *20*	2432.2	17/2$^+$	E2		0.00261 *4*	α(K)=0.00221 *3*; α(L)=0.000318 *5*; α(M)=6.91×10^{-5} *10*; α(N+..)=1.84×10^{-5} *3* α(N)=1.584×10^{-5} *23*; α(O)=2.43×10^{-6} *4*;

From ENSDF

$^{145}_{64}Gd_{81}$-8

Adopted Levels, Gammas (continued)

γ(^{145}Gd) (continued)

E_i(level)	J_i^π	E_γ	I_γ[&]	E_f	J_f^π	Mult.	Comments
							α(P)=1.529×10^{-7} *22* E_γ: from (^{40}Ar,5nγ).
3469.3		112.5	100	3356.8	19/2$^+$		
3506.3		37.0		3469.3			
		48.4		3457.9	21/2$^+$		
3511.3		335.5	100	3175.8			
3558.9		52.5		3506.3			
3573.1		115.2	100	3457.9	21/2$^+$		
3585.5?		378.3	100	3207.2	17/2$^+$		
3602.9?	(19/2)	395.7	100	3207.2	17/2$^+$	D	
3652.8		93.7		3558.9			
3674.0		115.1		3558.9			
3694.4		1392.7		2301.7	13/2$^+$		
4037.3		478.3		3558.9			
		530.9		3506.3			
		568.0		3469.3			
		579.3		3457.9	21/2$^+$		
		843.0		3194.4			
4155.7		118.4		4037.3			
		502.8		3652.8			
		596.7		3558.9			
		649.5		3506.3			
4160.4		4.7		4155.7			
		507.5		3652.8			
4240.4		84.7		4155.7			
		587.7		3652.8			
		681.6		3558.9			
4283.4		609.4		3674.0			
4336.3		96.0		4240.4			
4539.6		379.1		4160.4			
4901.3		1227.4		3674.0			
4936.4		396.8		4539.6			
		653.0		4283.4			
5023.6		122.4		4901.3			
		483.8		4539.6			
		740.0		4283.4			
5032.8		872.4		4160.4			
5316.7		777.1		4539.6			
5414.2		477.7		4936.4			
5414.5		390.7		5023.6			
5446.5		1772.3		3674.0			
5464.6		563.3		4901.3			

From ENSDF

$^{145}_{64}Gd_{81}$-9

Adopted Levels, Gammas (continued)

γ(^{145}Gd) (continued)

E_i(level)	E_γ	E_f	E_i(level)	J_i^π	E_γ	I_γ[&]	E_f	J_f^π
5487.5	1151.3	4336.3	8386.0		1163.0		7223.0	
5536.8	503.9	5032.8	8636.8		920.2		7716.0	
	997.2	4539.6	8733.7		486.9		8246.8	
	1376.5	4160.4			521.7		8211.9	
5684.6	238.0	5446.5			535.2		8198.6	
	1401.3	4283.4			550.6		8183.2	
5729.8	193.1	5536.8	8804.0		1087.4		7716.0	
	265.2	5464.6	9024.7		387.9		8636.8	
	315.5	5414.2	9372.7		986.7		8386.0	
	793.3	4936.4	9377.2		643.5		8733.7	
	1190.3	4539.6	9601.1		576.4		9024.7	
5754.6	25.0	5729.8	10203.4		826.2		9377.2	
	339.9	5414.5	10255.7		878.5		9377.2	
5906.0	491.5	5414.5	10417.4		1040.2		9377.2	
5931.1	176.4	5754.6	11333.0		1077.3		10255.7	
6069.8	138.7	5931.1	12175.5		842.5		11333.0	
6159.7	475.1	5684.6	723.2+x	J+2	723.2 *7*	100[@]	x	J
6264.9	777.4	5487.5	1492.8+x	J+4	769.6 *3*	100[@]	723.2+x	J+2
6547.2	1059.7	5487.5	2310.9+x	J+6	818.1 *3*	100[@]	1492.8+x	J+4
6682.1	612.3	6069.8	3178.9+x	J+8	868.0 *3*	100[@]	2310.9+x	J+6
6698.8	767.7	5931.1	4097.7+x	J+10	918.8 *5*	100[@]	3178.9+x	J+8
6866.0	318.8	6547.2	5068.5+x	J+12	970.8 *3*	100[@]	4097.7+x	J+10
6899.9	968.8	5931.1	6092.3+x	J+14	1023.8 *3*	100[@]	5068.5+x	J+12
6955.7	1468.2	5487.5	7169.4+x	J+16	1077.1 *3*	100[@]	6092.3+x	J+14
7033.6	1102.5	5931.1	8300.4+x	J+18	1131.0 *3*	100[@]	7169.4+x	J+16
7098.0	64.3	7033.6	9486.3+x	J+20	1185.9 *4*	100[@]	8300.4+x	J+18
	198.1	6899.9	10726.5+x	J+22	1240.2 *6*	100[@]	9486.3+x	J+20
	399.1	6698.8	12021.8+x	J+24	1295.3 *4*	100[@]	10726.5+x	J+22
7220.9	538.8	6682.1	13372.4+x	J+26	1350.6 *4*	100[@]	12021.8+x	J+24
7223.0	357.0	6866.0	14779.3+x	J+28	1406.8 *4*	100[@]	13372.4+x	J+26
7263.4	716.2	6547.2	16243.3+x	J+30	1464.0 *10*	100[@]	14779.3+x	J+28
7472.6	374.6	7098.0	17763.4+x	J+32	1520.1 *7*	100[@]	16243.3+x	J+30
	790.6	6682.1	19339.6+x	J+34	1576.2 *7*	100[@]	17763.4+x	J+32
7502.9	955.7	6547.2	792.7+y?	J1+2	792.7[a] *11*	100[@]	y	J1
7716.0	244.0	7472.6	1602.9+y	J1+4	810.2 *3*	100[@]	792.7+y?	J1+2
8120.6	617.7	7502.9	2446.2+y	J1+6	843.3 *3*	100[@]	1602.9+y	J1+4
8183.2	1227.4	6955.7	3338.3+y	J1+8	892.1 *3*	100[@]	2446.2+y	J1+6
	1636.2	6547.2	4285.6+y	J1+10	947.3 *3*	100[@]	3338.3+y	J1+8
8198.6	2128.8	6069.8	5289.9+y	J1+12	1004.3 *3*	100[@]	4285.6+y	J1+10
8211.9	1256.2	6955.7	6351.5+y	J1+14	1061.6 *3*	100[@]	5289.9+y	J1+12

From ENSDF

$^{145}_{64}Gd_{81}$-10

Adopted Levels, Gammas (continued)

γ(^{145}Gd) (continued)

E_i(level)	E_γ	E_f	E_i(level)	J_i^π	E_γ	I_γ[&]	E_f	J_f^π
	1664.6	6547.2	7471.9+y	J1+16	1120.4 *3*	100[@]	6351.5+y	J1+14
	2141.9	6069.8	8647.8+y	J1+18	1175.9 *3*	100[@]	7471.9+y	J1+16
8246.8	1699.7	6547.2	9876.1+y	J1+20	1228.3 *3*	100[@]	8647.8+y	J1+18

From ENSDF

$^{145}_{64}Gd_{81}$-11

Adopted Levels, Gammas (continued)

γ(^{145}Gd) (continued)

E_i(level)	J_i^π	E_γ	I_γ &	E_f	J_f^π	E_i(level)	J_i^π	E_γ	I_γ &	E_f	J_f^π
11152.5+y	J1+22	1276.4 *3*	100@	9876.1+y	J1+20	2926.4+z	J2+6	1033.0 *5*	100@	1893.4+z	J2+4
12471.7+y	J1+24	1319.2 *4*	100@	11152.5+y	J1+22	4012.8+z	J2+8	1086.4 *5*	100@	2926.4+z	J2+6
13834.0+y	J1+26	1362.3 *4*	100@	12471.7+y	J1+24	5157.3+z	J2+10	1144.5 *5*	100@	4012.8+z	J2+8
15241.0+y	J1+28	1407.0 *5*	100@	13834.0+y	J1+26	6360.2+z	J2+12	1202.9 *8*	100@	5157.3+z	J2+10
16696.6+y	J1+30	1455.6 *7*	100@	15241.0+y	J1+28	7619.4+z	J2+14	1259.2 *5*	100@	6360.2+z	J2+12
18206.9+y	J1+32	1510.3 *10*	100@	16696.6+y	J1+30	8933.7+z	J2+16	1314.3 *7*	100@	7619.4+z	J2+14
919.7+z	J2+2	919.7 *10*	100@	z	J2	10303.6+z	J2+18	1369.9 *12*	100@	8933.7+z	J2+16
1893.4+z	J2+4	973.7 *5*	100@	919.7+z	J2+2	11736+z	J2+20	1432.1 *18*	100@	10303.6+z	J2+18

† Additional information 4.
‡ From (^{40}Ar,5nγ) only.
# Reported in (^{40}Ar,5nγ) and in other reactions.
@ Relative intensity within each SD band.
& Photon branching ratios. But for SD bands, values are relative intensities normalized to 1.0 for 769.6γ in SD-1 band.
a Placement of transition in the level scheme is uncertain.

From ENSDF

$^{145}_{64}Gd_{81}$-12

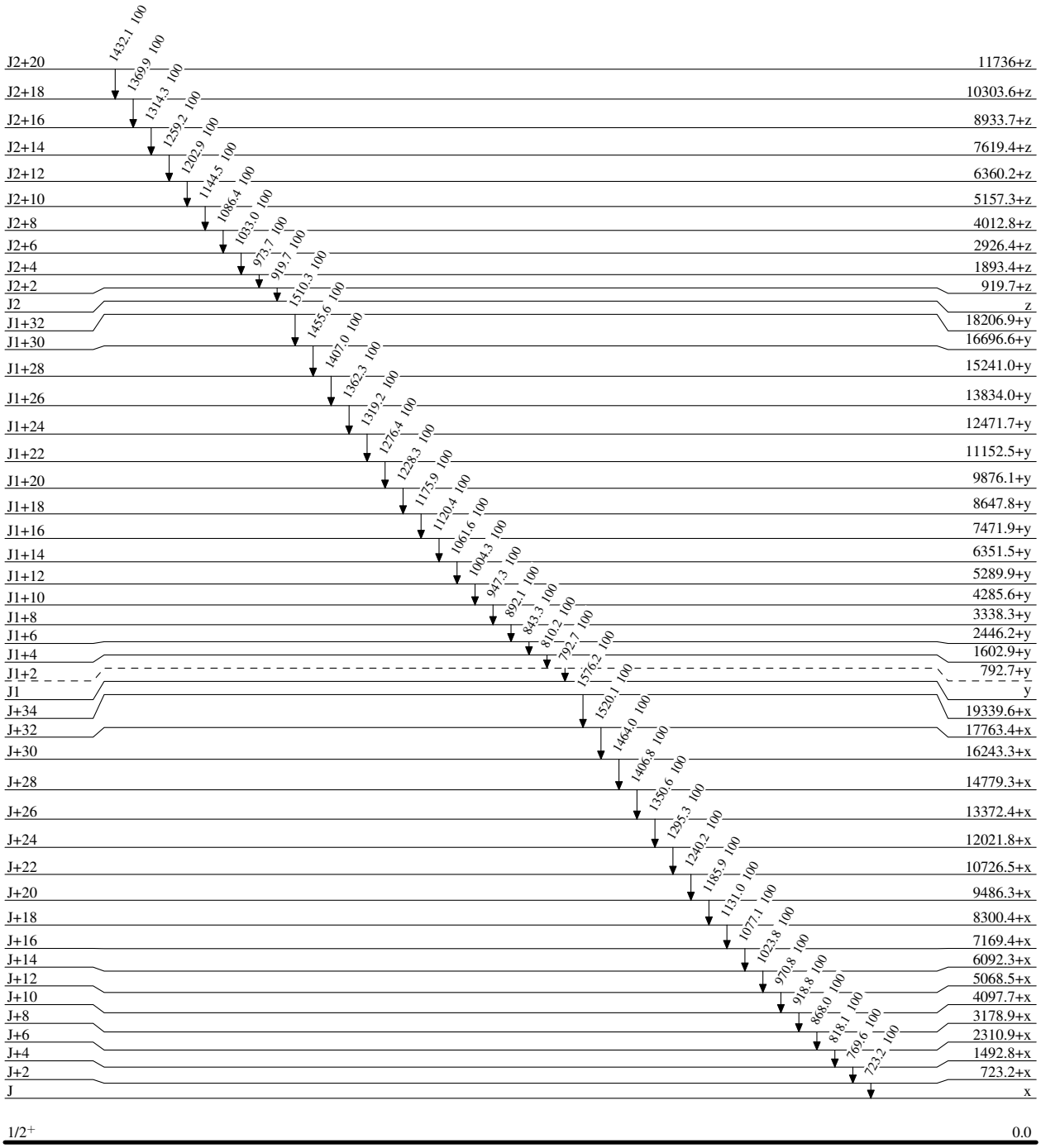
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

γ Decay (Uncertain)

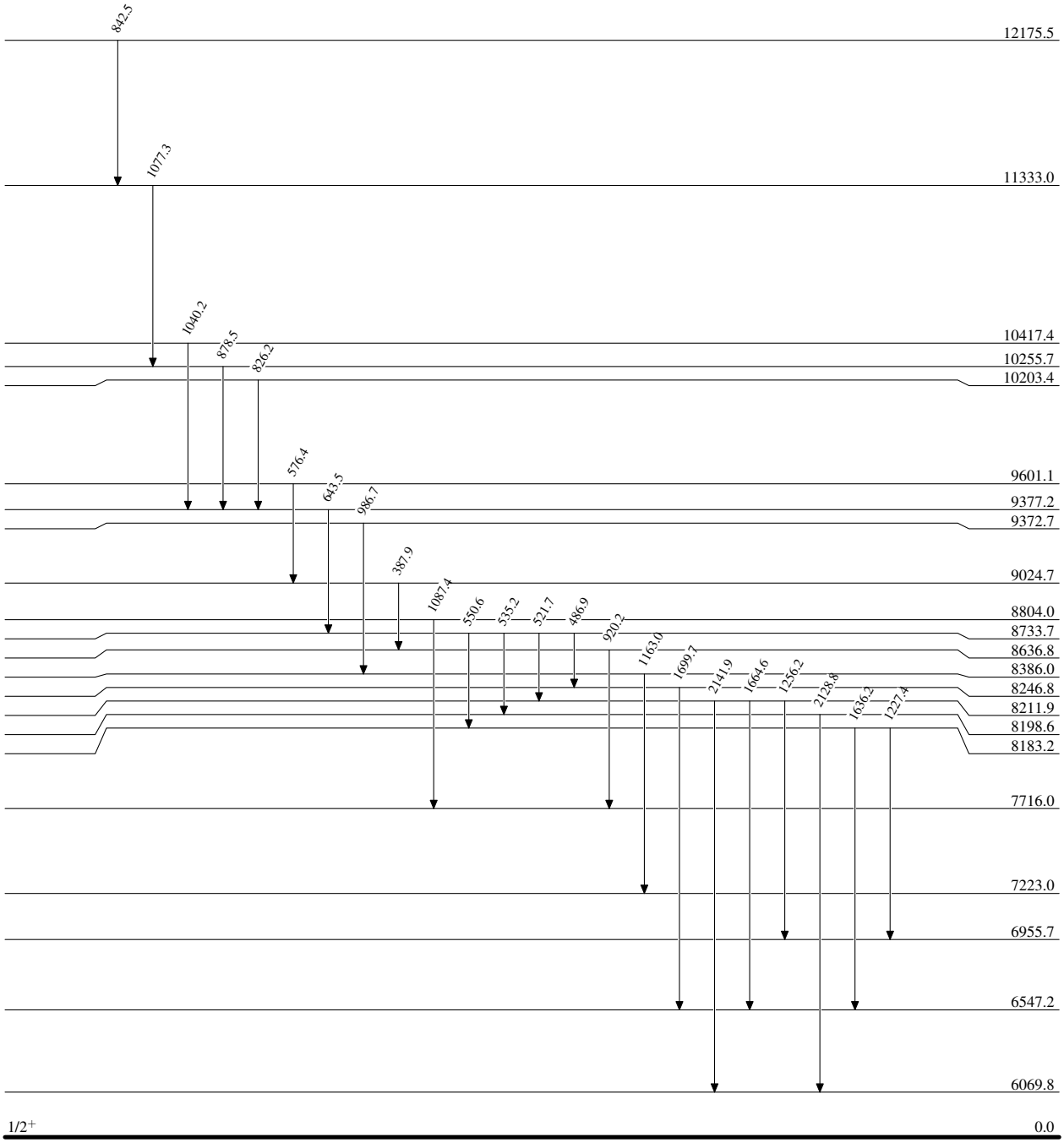


$^{145}_{64}Gd_{81}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

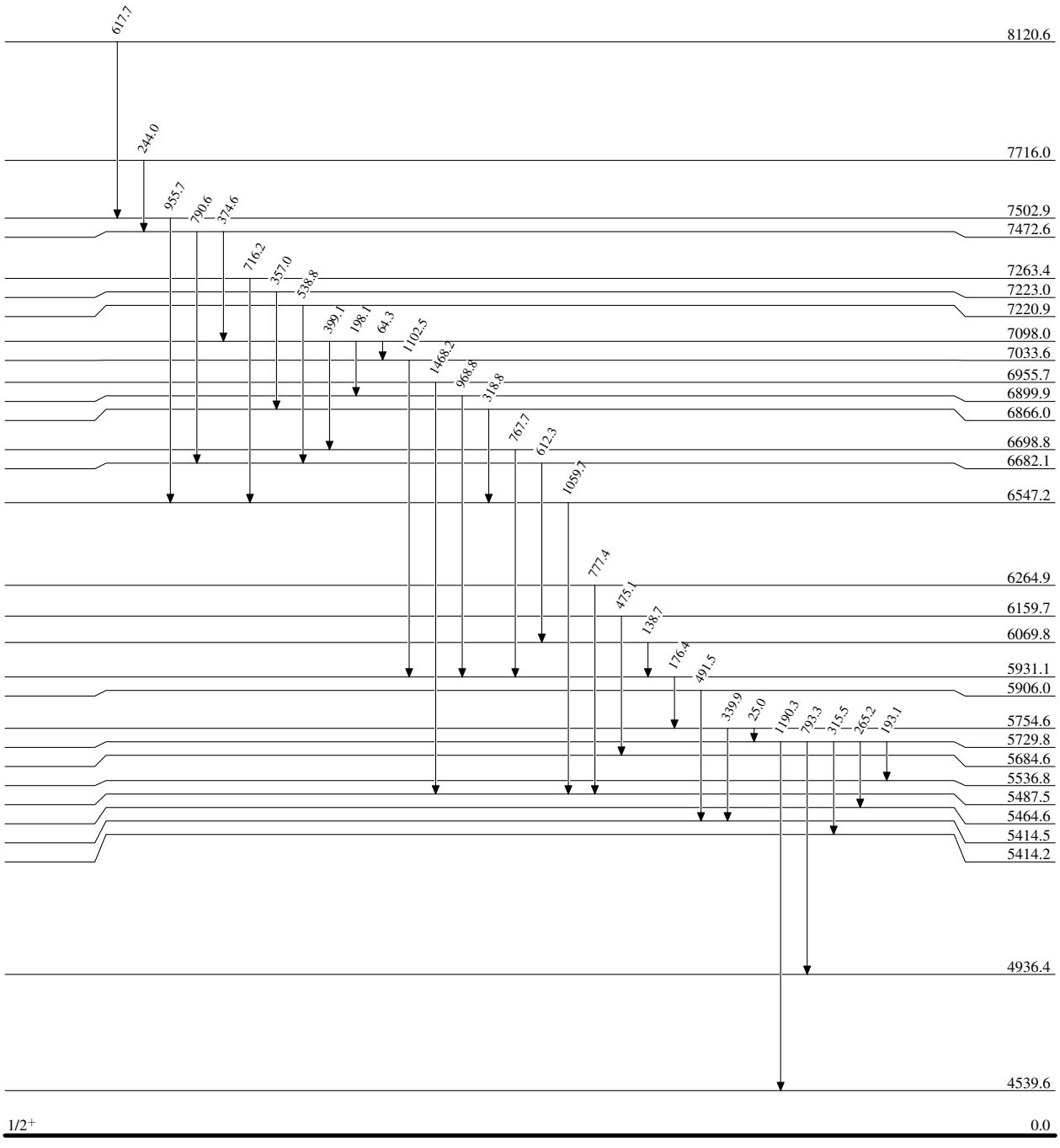


$^{145}_{64}Gd_{81}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

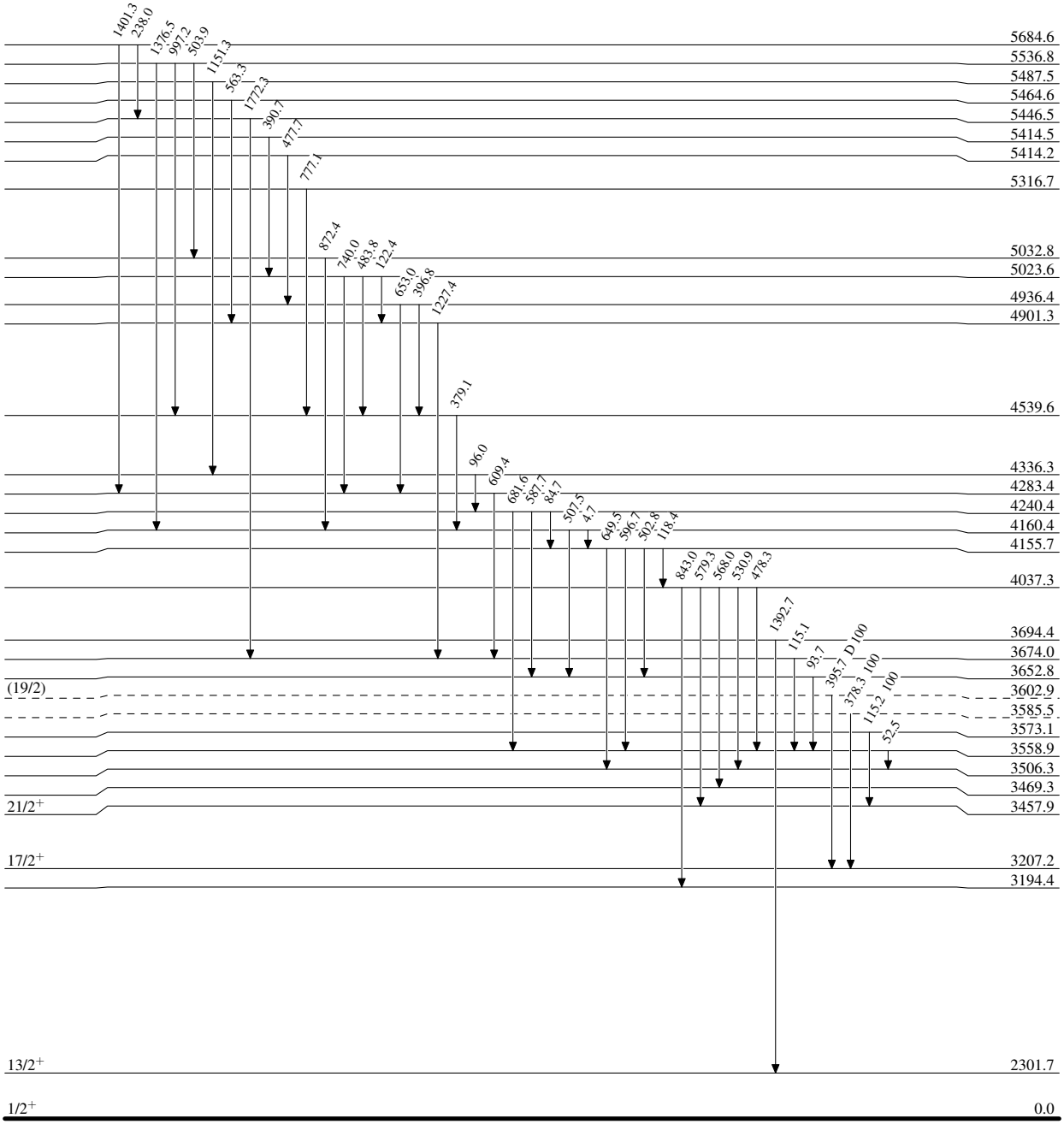


$^{145}_{64}Gd_{81}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

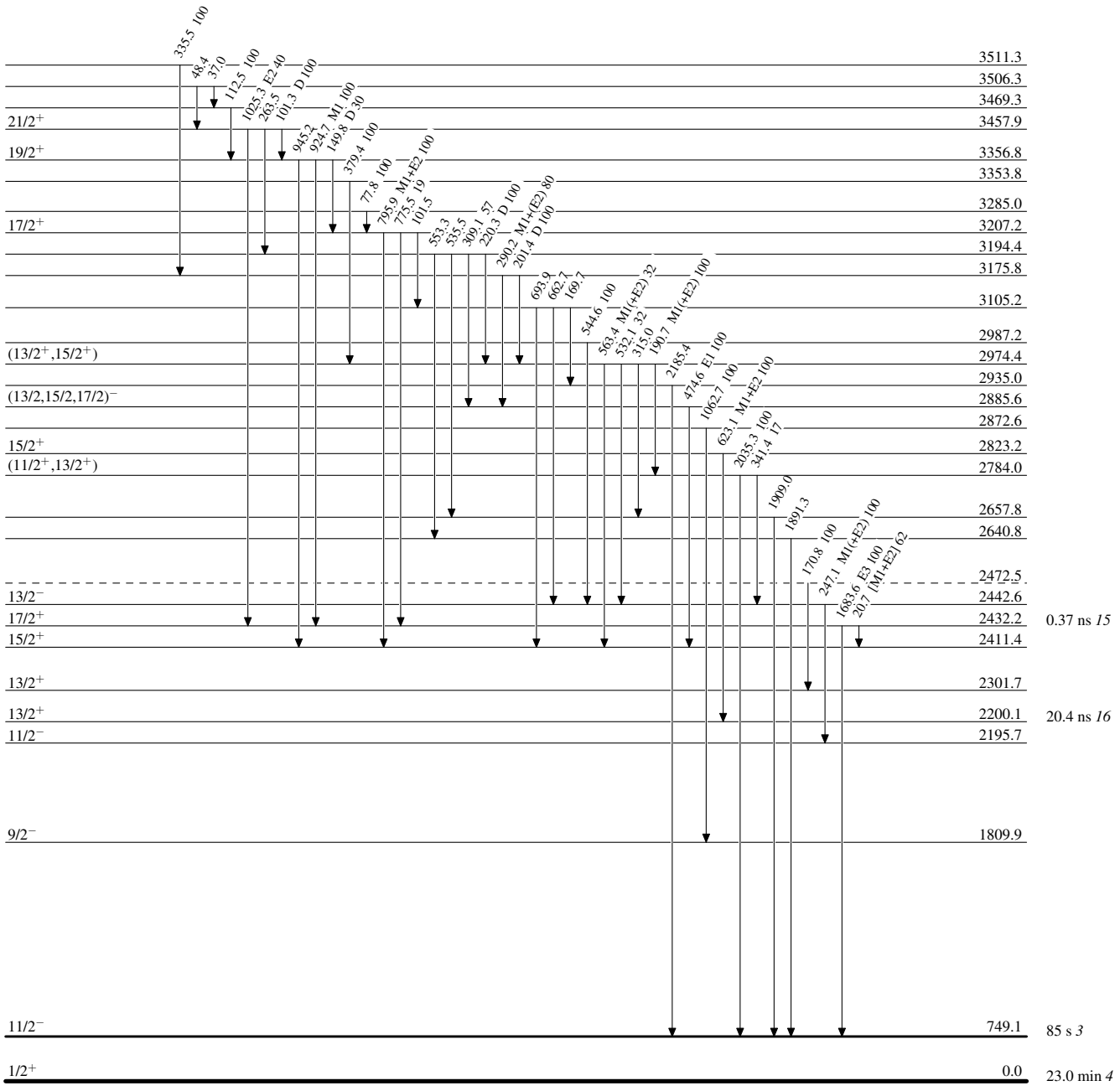


$^{145}_{64}Gd_{81}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

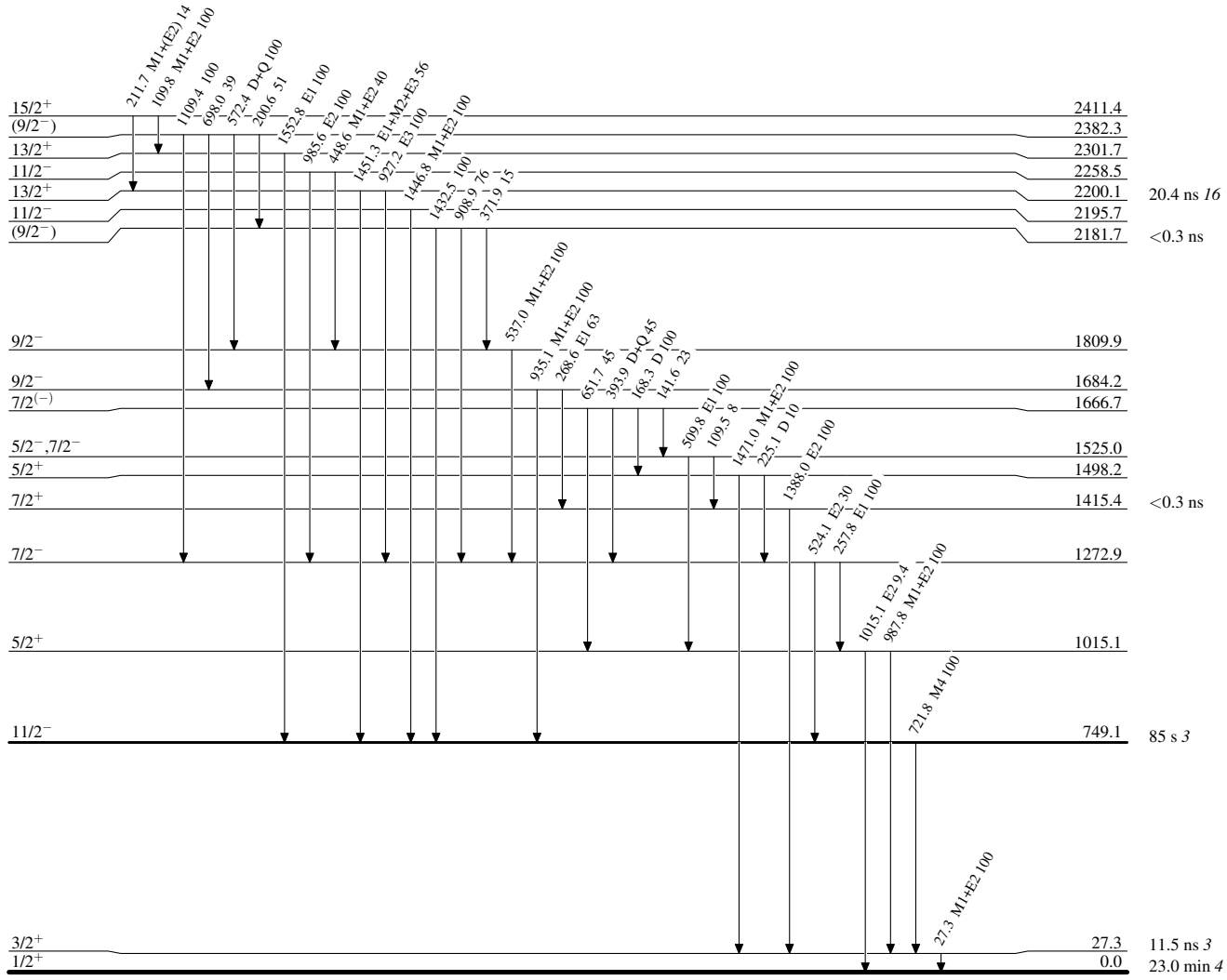


$^{145}_{64}Gd_{81}$

Adopted Levels, Gammas

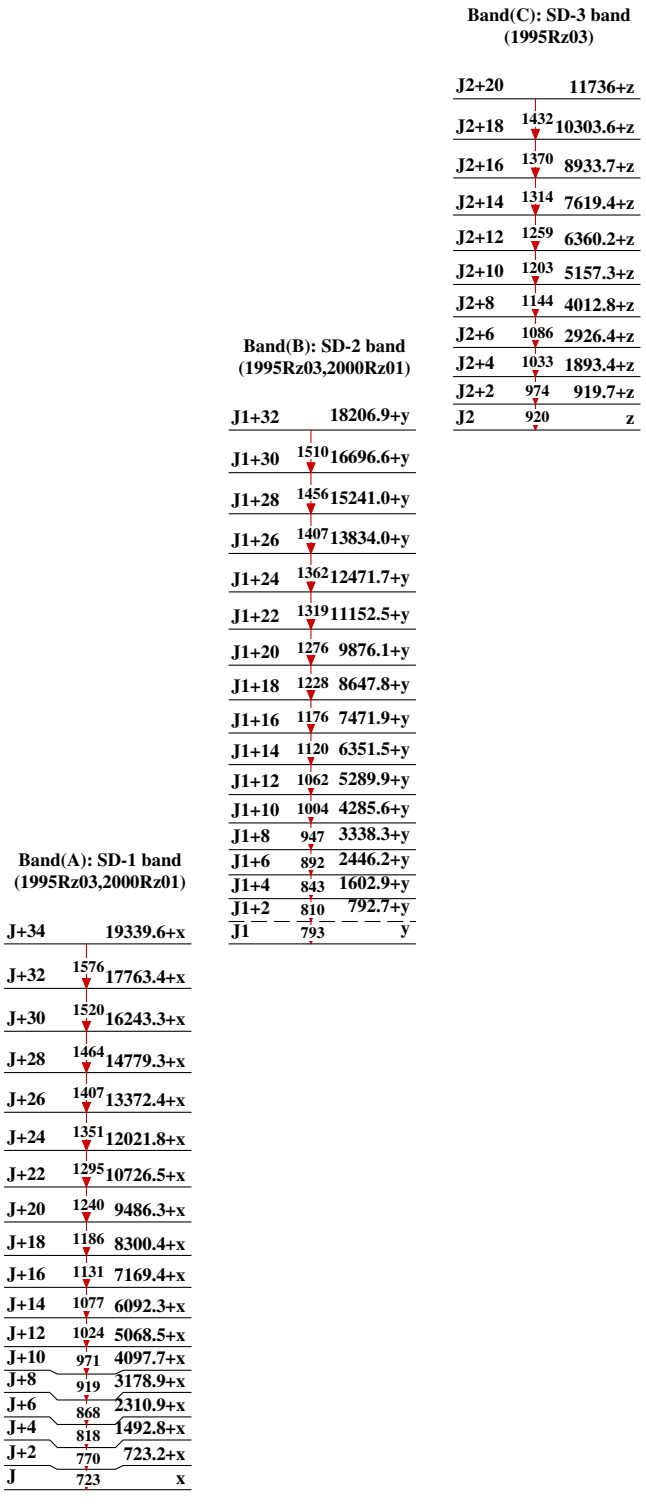
Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{145}_{64}Gd_{81}$

Adopted Levels, Gammas



$^{145}_{64}Gd_{81}$