Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	N. Nica	NDS 154,1 (2018)	20-Nov-2018

Q(β^-)=−6045 *24*; S(n)=10316 *28*; S(p)=6729 *9*; Q(α)=−175 *3* 2017Wa10

Other experimental papers: 2014Le18 (σ for ^{145}Nd(p,t3n)^{140}Nd), 2009He03 (excitation function for ^{141}Pr(d,3n)^{140}Nd), 2008Na05 (Eγ, Iγ, activation yields for ^{144}Sm(γ,α)^{140}Nd, 2007Qa03, 2007Zh23, 2005Hi24 (measured yields, excitation function and yields for ^{nat}Ce(^{3}He,xn)^{140}Nd and ^{141}Pr(p,2n)^{140}Nd), 2005HiZX (σ for ^{141}Pr(p,2n)^{140}Nd), 2005Ya03, 2003KoZR, 2000KoZQ (Auger electrons), 2002Wa24 (quasi-continuous γ spectrum), 1999GaZX, 1987AlZB (charge radii).

^{140}Nd Levels

Cross Reference (XREF) Flags

A	^{140}Nd IT decay (0.60 ms)	E	^{96}Zr(^{48}Ca,4nγ):SD	I	^{142}Nd(p,t) E=52 MeV
B	^{140}Pm ε decay (9.2 s)	F	^{126}Te(^{18}O,4nγ)	J	Coulomb excitation
C	^{140}Pm ε decay (5.95 min)	G	^{140}Ce(^{3}He,3nγ)		
D	^{96}Zr(^{48}Ca,4nγ)	H	^{142}Nd(p,t) E=35.6 MeV		

E(level)†	Jπ‡	$T_{1/2}$	XREF	Comments
0.0&	0^+	3.37 d *2*	ABCD FGHIJ	%ε=100 $T_{1/2}$: from 1968La17. RMS charge radius <r^2>$^{1/2}$=4.9101 fm *26* (2013An02).
773.65& *6*	2^+	1.40 ps *11*	ABCD FGHIJ	B(E2)↑=0.725 *56* Jπ: γ to 0^+ is E2. B(E2)↑: weighted average (by evaluator) of BE2↑=0.74 *8* and 0.71 *8* with ^{48}Ti and ^{64}Zn targets, respectively. 2013Ba38 (Coulomb excitation dataset) list BE2↑=0.72 *5*. $T_{1/2}$: deduced by evaluator from BE2↑=0.725 *56*.
1413.03 *11*	0^+		B G	Jπ: transition to 0^+ is E0.
1414 *2*	2^+		H	Jπ: from (p,t) E=35.6 MeV measured dσ/dΩ and DWBA calculations.
1489.41 *7*	$(2)^+$		B GHI	Jπ: γ to 2^+ is M1+E2, γ to 0^+ is (E2).
1801.84& *9*	4^+		A CD FGHI	Jπ: γ to 773, 2^+ is ΔJ=2, E2.
1935.16 *12*	3^-		B GH	Jπ: from (p,t) E=35.6 MeV measured dσ/dΩ and DWBA calculations.
2124.0? *8*	$3^{(-)}$		F	Jπ: γ to 2^+ is ΔJ=1, D; γ to 4^+; syst of 3^- levels.
2139.84 *11*	2^+	152 fs *62*	B GH	Jπ: from (p,t) E=35.6 MeV measured dσ/dΩ and DWBA calculations. $T_{1/2}$: effective $T_{1/2}$ from DSAM (2010Gl05, ^{140}Ce(^{3}He,3nγ) dataset).
2221.65 *9*	7^-	0.60 ms *5*	A CD FGHI	%IT=100 $T_{1/2}$: from IT decay data (1962Re04). Jπ: γ to 4^+ is E3; also from (p,t) E=35.6 MeV, measured dσ/dΩ and DWBA calculations.
2275.96 *11*	5^-		C FGH	Jπ: γ to 4^+ is ΔJ=1, E1; γ from 2366, 6^+ is E1.
2330 *10*	0^+		I	Jπ: L=0 in (p,t) E=52 MeV (1971Be29).
2332.28 *12*	2^+		B GH	XREF: H(2336) Jπ: from (p,t) E=35.6 MeV measured dσ/dΩ and DWBA calculations; log *ft*=6.1 via 1^+ parent, M1+E2 γ to 2^+.
2358.76 *12*	0^+		B H	Jπ: from (p,t) E=35.6 MeV measured dσ/dΩ and DWBA calculations.
2366.55 *11*	6^+		C FG	Jπ: γ to 7^- is E1, γ to 5^- is ΔJ=1, E1.
2400.0 *7*	4^+		GH	Jπ: from (p,t) E=35.6 MeV measured dσ/dΩ and DWBA calculations.
2466.97 *11*	2^+		B H	Jπ: from (p,t) E=35.6 MeV measured dσ/dΩ and DWBA calculations.
2514 *3*	5^-		H	Jπ: from (p,t) E=35.6 MeV measured dσ/dΩ and DWBA calculations.
2546.89 *9*	0^+		B H	Jπ: 0^+,1^+,2^+ from log *ft*=5.6 via 1^+ parent; (0^+) from measured dσ/dΩ and DWBA calculation in (p,t) E=35.6 MeV; E2 γ to 2^+.
2575 *3*	$(4^+,5^-)$		H	Jπ: from (p,t) E=35.6 MeV measured dσ/dΩ and DWBA calculations.

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{140}Nd Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$	XREF	Comments
2585.16 *12*	0^+		B	Jπ: 0^+,1^+,2^+ from log *ft*=6.4 via 1^+ parent; 0^+ from E2 γ to 2^+.
2606 *3*	3^-		H	Jπ: from (p,t) E=35.6 MeV measured dσ/dΩ and DWBA calculations.
2611.07 *9*	(2^+)		B	Jπ: 0,1,2 from log *ft*=6.4 via 1^+ parent; $(2^+,4^+)$ supported by γγ(θ) for 1837-774 cascade; (2^+) from γ to 0^+ g.s.
2670 *10*			I	
2686 *3*	4^+		H	Jπ: from (p,t) E=35.6 MeV measured dσ/dΩ and DWBA calculations.
2713.96 *12*	2^+		B H	Jπ: from (p,t) E=35.6 MeV measured dσ/dΩ and DWBA calculations.
2810 *10*			I	
2832.97 *12*	(2^+)		B H	Jπ: from (p,t) E=35.6 MeV measured dσ/dΩ and DWBA calculations.
2842.26 *11*	$7^{(-)}$		C	Jπ: log *ft*=7.4 via 8^- parent, γ to 5^-.
2889 *3*	(5^-)		H	Jπ: from (p,t) E=35.6 MeV measured dσ/dΩ and DWBA calculations.
2908.77 *12*	0^+		B H	Jπ: from (p,t) E=35.6 MeV measured dσ/dΩ and DWBA calculations.
2943.31 *12*	$(6^+,7^-)$		C H	Jπ: (7^-) from 7,8,9 from log *ft*=7.2 via 8^- parent and $(5^-,6,7^-)$ from γ′s to 5^- and 7^-; (6^+) from measured dσ/dΩ and DWBA calculation in (p,t) E=35.6 MeV.
3014 *4*	4^+		HI	Jπ: from (p,t) E=35.6 MeV measured dσ/dΩ and DWBA calculations.
3036.04 *17*	(1,2)		B	Jπ: 0,1,2 from log *ft*=6.9 via 1^+ parent; 0 excluded by γγ(θ) (2009Wi18).
3061 *4*	4^+		H	Jπ: from (p,t) E=35.6 MeV measured dσ/dΩ and DWBA calculations.
3062.24[a] *12*	7^-		CD F	Jπ: γ to 7^- is ΔJ=0, M1+(E2).
3136 *4*	(4^+)		H	Jπ: from (p,t) E=35.6 MeV measured dσ/dΩ and DWBA calculations.
3140.07 *12*	0^+		B	Jπ: 0,1,2 from log *ft*=6.9 via 1^+ parent; stretched E2 γ to 2^+.
3185.3 *8*	8^+		FG	Jπ: γ to 6^+ is E2.
3206 *4*	(2^+)		H	Jπ: from (p,t) E=35.6 MeV measured dσ/dΩ and DWBA calculations.
3239 *4*	(2^+)		H	Jπ: from (p,t) E=35.6 MeV measured dσ/dΩ and DWBA calculations.
3239.65[a] *12*	8^-		CD F	Jπ: 7,8,9 from log *ft*=7.0 via 8^- parent; M1+E2 γ to 7^- in ^{126}Te(^{18}O,4nγ) dataset.
3286 *4*	4^+		H	Jπ: from (p,t) E=35.6 MeV measured dσ/dΩ and DWBA calculations.
3324 *4*	2^+&4^+		H	Jπ: from (p,t) E=35.6 MeV measured dσ/dΩ and DWBA calculations.
3387 *4*	2^+		H	Jπ: from (p,t) E=35.6 MeV measured dσ/dΩ and DWBA calculations.
3419.16 *22*	$7,8,9^{(-)}$		C F	Jπ: log *ft*=6.0 via 8^- parent, γ to 2221, 7^-.
3454.94[a] *12*	9^-		D F	Jπ: γ to 2221, 7^- is ΔJ=2, E2; γ to 8^- is ΔJ=1, M1+E2.
3460 *5*	4^+		H	Jπ: from (p,t) E=35.6 MeV measured dσ/dΩ and DWBA calculations.
3493 *5*	4^+		H	Jπ: from (p,t) E=35.6 MeV measured dσ/dΩ and DWBA calculations.
3506.88 *21*	0^+,1,2		B	Jπ: log *ft*=6.3 via 1^+ parent, γ to 2^+.
3510 *5*			H	
3561 *5*	(2^+)		H	Jπ: from (p,t) E=35.6 MeV measured dσ/dΩ and DWBA calculations.
3574 *5*	3^-		H	Jπ: from (p,t) E=35.6 MeV measured dσ/dΩ and DWBA calculations.
3621 *5*	(4^+)		H	Jπ: from (p,t) E=35.6 MeV measured dσ/dΩ and DWBA calculations.
3621.52 *13*	10^+	27 ns *5*	D F	μ=−1.92 *12* (2014St24) $T_{1/2}$: measured: 22 ns *1* (1981Me09), 32 ns *1* (1980Me11), 25 ns *8* (1987Gu22), 32.9 ns *18* (2006Pe25). The first value of 1980Me11 (32 ns) was subsequently corrected by 1981Me09 (22 ns) but reproduced by 2006Pe25 (33 ns). Adopted is the average of extreme values. μ: based on 1980Me11, by time dependent perturbed angular distribution method; other: −1.64 *22* (1982KaZO). Jπ: γ to 9^- is ΔJ=1, E1.
3650 *10*			I	
3666 *5*	(7^-)		H	Jπ: from (p,t) E=35.6 MeV measured dσ/dΩ and DWBA calculations.
3672.82 *14*	$7^{(-)}$		C	Jπ: log *ft*=6.7 via 8^- parent, γ to 5^-.
3733 *6*			H	
3755 *6*	6^+		H	Jπ: from (p,t) E=35.6 MeV measured dσ/dΩ and DWBA calculations.
3780 *10*			I	
3810 *6*			H	
3844 *6*	(6^+)		H	Jπ: from (p,t) E=35.6 MeV measured dσ/dΩ and DWBA calculations.
3889 *6*	(1^-)		Hi	XREF: i(3902)

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{140}Nd Levels (continued)

E(level)†	Jπ‡	$T_{1/2}$	XREF	Comments
				Jπ: from (p,t) E=35.6 MeV measured dσ/dΩ and DWBA calculations.
3925 *7*			Hi	XREF: i(3920)
3949 *7*			H	
3958.9 *4*	(9⁻)		F	Jπ: γ's to 7⁻ and 8⁻ in ^{126}Te(^{18}O,4nγ) dataset.
4031.15[a] *14*	10⁻		D F	Jπ: γ to 9⁻ is M1+E2.
4157.1 *9*	10⁺		F	Jπ: γ to 8⁺ is E2.
4170 *10*			I	
4175.62 *19*	10⁻		D F	Jπ: γ to 9⁻ is M1+E2.
4323.34[a] *15*	11⁻		D F	Jπ: γ to 9⁻ is E2; γ to 10⁻ is M1+E2.
4350.0 *3*	7,8,9		C	Jπ: log *ft*=6.9 via 8⁻ parent.
4367.1 *8*	7,8,9(⁻)		C	Jπ: log *ft*=6.2 via 8⁻ parent, γ to 7⁻.
4388.7 *13*	11⁻		F	Jπ: γ from 13⁻ is E2.
4514.31[a] *18*	12⁻	0.25 ns	D F	Jπ: γ to 10⁻ is E2. $T_{1/2}$: from (^{16}O,4nγ) (1981Me09).
4703.27[a] *18*	13⁻		D F	Jπ: γ from higher 14⁻ to this level is M1+E2.
4878.5 *4*	11⁻		F	Jπ: γ to 4175, 10⁻ is M1+E2.
4915.34 *22*	11⁺		F	Jπ: γ to 3621, 10⁺ is M1+E2.
5098.94 *21*	12⁻		D F	Jπ: γ to 4175, 10⁻ is E2; γ to 4878, 11⁻ is M1+E2.
5138.84 *21*	12⁻		F	Jπ: γ to 4175, 10⁻ is E2.
5312.03 *18*	13⁻		D F	Jπ: γ to 12⁻ is M1+E2.
5431.96[a] *18*	14⁻		D F	Jπ: γ to 4703, 13⁻ is ΔJ=1, M1+E2.
5613.88[a] *19*	15⁻		D F	Jπ: γ to 14⁻ is M1+E2.
5644.04 *23*	15⁻		D F	Jπ: M1+E2 γ to 14⁻.
5902.57[a] *23*	16⁻		D F	Jπ: M1+E2 γ to 15⁻.
5966.8 *3*	(14⁻)		D	Jπ: (14⁻) assumed in (^{48}Ca,4nγ) but no evidence reported.
5970.58 *24*	15⁻		D F	Jπ: γ to 13⁻ is E2.
5987.6[n] *11*	(15⁻)		D	Jπ: (15⁻) assumed as γ in ΔJ=1 band in (^{48}Ca,4nγ) (no evidence reported).
6158.35 *21*	16⁺		D F	Jπ: γ from 18⁺ is E2; 16⁻ in 2005Pe24 and 2006Pe25 based on M1+E2 γ to 15⁻; 2006Pe25 argue as possible the assignment 16⁺ (not excluded by DCO value), finally adopted by 2013Le22.
6183.4[n] *11*	(16⁻)		D	Jπ: M1+E2 γ to (15⁻) in ΔJ=1 band in (^{48}Ca,4nγ).
6351.8 *3*	15⁺		D	Jπ: γ from 16⁺ is M1+E2 in (^{48}Ca,4nγ).
6407.89 *23*	17⁻		D F	Jπ: γ to 16⁻ is M1+E2.
6410.43 *25*	16		F	Jπ: γ to 15⁻ is D+Q.
6432.4[n] *11*	(17⁻)		D	Jπ: γ to (16⁻) in ΔJ=1 band in (^{48}Ca,4nγ).
6515.5[r] *4*	(14⁺)		D	Jπ: assigned by 2013Le22 in (^{48}Ca,4nγ) based on ΔJ=0, (E1) γ to 14(⁻).
6731.1[r] *3*	(15⁺)		D	Jπ: γ to (15⁺) is ΔJ=0, M1+E2 in (^{48}Ca,4nγ).
6745.7[n] *11*	(18⁻)		D	Jπ: γ to (17⁻) is M1+E2 in (^{48}Ca,4nγ).
6763.7 *5*			F	Jπ: 16⁻ from γ to 15⁻ in (^{18}O,4nγ) not adopted.
6770.4 *3*	16⁺		D	Jπ: γ from 18⁺ is E2 in (^{48}Ca,4nγ).
6807.4 *3*	16⁺		D	Jπ: γ to 15⁺ is M1+E2 in (^{48}Ca,4nγ).
6861.2 *3*	16⁺		D	Jπ: γ from 18⁺ is E2.
6891.9[r] *3*	(16⁺)		D	Jπ: γ to (15⁺) is M1+E2 in (^{48}Ca,4nγ).
6966.7 *3*	17⁻		D F	Jπ: γ to 15⁻ is E2 in (^{18}O,4nγ).
7057.0[o] *4*	17⁻		D F	Jπ: γ to 15⁻ is E2.
7132.7[r] *3*	(17⁺)		D	Jπ: γ to (16⁺) is M1+E2.
7170.2[n] *11*	(19⁻)		D	Jπ: γ to (18⁻) is M1+E2.
7207.5[o] *3*	18⁻		D F	Jπ: γ to 17⁻ is M1+E2 in (^{18}O,4nγ) and (^{48}Ca,4nγ).
7397.9 *3*	(18⁺)		D F	Jπ: assigned by 2006Pe25 (^{18}O,4nγ) by selection from possible J^π values 19⁻, 18⁻, 19⁺, 18⁺ based on internal conversion of 37γ and $T_{1/2}$(7435) arguments.
7435.1 *4*	(20⁺)	1.23 μs *7*	D F	Jπ: γ from 21⁻ is (E1) and γ's to 17⁻, 18⁻ and (18⁺). 2006Pe25

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{140}Nd Levels (continued)

E(level)[†]	Jπ[‡]	XREF	Comments
			(^{18}O,4nγ) argue that based on single-particle Weisskopf estimates for lifetime the best match is (20$^+$).
			$T_{1/2}$: from γ(t), sum of time spectra of 120γ, 182γ, 188γ and 258γ in 2008Fe02 (^{18}O,4nγ). Same result, 1.2 μs *1*, is reported by 2013Va10 from γ(t), 229, 258, 343, 433, 991, 1352, 1442, 1497 γ rays studied for half-life measurement (^{48}Ca,4nγ). Other: >400 ns (from time spectrum of 227.5γ (2006Pe25)).
			Configuration=$\pi[d_{5/2}g_{7/2}^{-4}(10^+)]\otimes\nu[h_{11/2}^{-2}(10^+)]$.
7469.7[f] *4*	16$^-$	D	Jπ: γ from 18$^-$ in E2 band.
7488.4[o] *3*	19$^-$	D F	Jπ: γ to 18$^-$ is M1+E2.
7525.2[r] *3*	18$^+$	D	Jπ: γ to 16$^+$ is E2.
7795.5[q] *5*	18$^-$	D	Jπ: γ from 19$^-$ is M1+E2.
7813.3[b] *3*	18$^+$	D	Jπ: γ to 17$^-$ is E1.
7825.8 *4*	(18$^+$)	D	Jπ: γ's to 16$^+$ and 17$^-$; γ from 20$^+$.
7950.1[q] *4*	19$^-$	D	Jπ: γ to 17$^-$ is E2.
8040.5[o] *4*	(20$^-$)	D	Jπ: γ in dipole band.
8048.5[r] *3*	19$^+$	D	Jπ: γ to 18$^+$ is M1+E2.
8168.8[t] *4*	18$^+$	D	Jπ: γ from 19$^+$ is M1+E2.
8190.6[q] *4*	20$^-$	D	Jπ: γ to 19$^-$ is M1+E2.
8322.9[t] *3*	19$^+$	D	Jπ: γ to 18$^+$ is M1+E2.
8338.7[f] *4*	18$^-$	D	Jπ: γ from 20$^-$ is E2.
8438.5[b] *3*	20$^+$	D	Jπ: γ to 18$^+$ is E2.
8525.0[q] *4*	21$^-$	D	Jπ: γ to 20$^-$ is M1+E2.
8549.1[s] *4*	20$^+$	D	Jπ: γ to 19$^+$ is M1+E2.
8605.0[t] *4*	20$^+$	D	Jπ: γ to 19$^+$ is M1+E2.
8632.7[p] *4*	21$^-$	D	Jπ: γ to 20$^-$ is M1+E2.
8777.2[p] *4*	22$^-$	D	Jπ: γ to 21$^-$ is M1+E2.
8906.1[s] *4*	21$^+$	D	Jπ: γ to 20$^+$ is M1+E2.
8981.5[f] *3*	20$^-$	D	Jπ: J=20 from ΔJ=1, (E1) γ to 19$^+$; π=− from (presumably ΔJ=0) E1 γ to 20$^+$.
9010.6[p] *5*	23$^-$	D	Jπ: γ to 22$^-$ is M1+E2.
9011.2[q] *5*	22$^-$	D	Jπ: γ to 21$^-$ is M1+E2.
9034.9[t] *4*	21$^+$	D	Jπ: γ to 20$^+$ is M1+E2.
9173.2[d] *4*	21$^-$	D	Jπ: γ to 20$^+$ is E1.
9266.7[b] *4*	22$^+$	D	Jπ: γ to 20$^+$ is E2.
9323.3 *5*	23$^-$	D	Jπ: γ to 22$^-$ is M1+E2.
9347.2[s] *4*	22$^+$	D	Jπ: γ to 21$^+$ is M1+E2.
9524.0[q] *5*	23$^-$	D	Jπ: γ to 22$^-$ is M1+E2.
9566.5[t] *4*	22$^+$	D	Jπ: γ to 21$^+$ is M1+E2.
9569.3[f] *4*	22$^-$	D	Jπ: γ to 20$^-$ is E2.
9646.7[c] *4*	22$^+$	D	Jπ: γ to 20$^+$ is E2.
9671.1[u] *4*	22$^{(-)}$	D	Jπ: γ to 21$^+$ is ΔJ=1, (E1).
9771.0 *6*	24$^-$	D	Jπ: γ to 23$^-$ is M1+E2.
9794.3[d] *4*	23$^-$	D	Jπ: γ to 21$^-$ is E2.
9871.7[s] *4*	23$^+$	D	Jπ: γ to 22$^+$ is M1+E2.
9892.4[u] *4*	23$^{(-)}$	D	Jπ: γ to 22$^{(-)}$ is M1+E2.
10001.8[q] *6*	24$^-$	D	Jπ: γ to 23$^-$ is M1+E2.
10126.5[b] *4*	24$^+$	D	Jπ: γ to 22$^+$ is E2.
10128.7 *10*		D	
10255.1 *11*		D	
10263.2[u] *4*	24$^{(-)}$	D	Jπ: γ to 23$^{(-)}$ is M1+E2.
10307.6[f] *4*	24$^-$	D	Jπ: γ to 22$^-$ is E2.

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{140}Nd Levels (continued)

E(level)†	Jπ‡	XREF	Comments
10437.5 *9*		D	
10471.3[s] *5*	24^+	D	Jπ: γ to 23^+ is M1+E2.
10576.2[d] *4*	25^-	D	Jπ: γ to 23^- is E2.
10587.9[c] *5*	24^+	D	Jπ: γ to 22^+ is E2.
10595.1[g] *4*	24^-	D	Jπ: γ to 22^- is E2.
10614.4 *11*		D	
10679.3 *15*		D	
10740.9[u] *5*	$25^{(-)}$	D	Jπ: γ to $24^{(-)}$ is M1+E2.
10949.6[e] *6*	(25^-)	D	Jπ: member in E2 band.
11072.6[f] *4*	26^-	D	Jπ: γ to 24^- is E2.
11173.9[b] *6*	26^+	D	Jπ: γ to 24^+ is E2.
11213.2 *9*	(27^-)	D	Jπ: (E1) γ from 26^+ and consistent with fully aligned state of configuration=$\pi h^1_{11/2}\otimes\nu h^{-2}_{11/2}$ according with shell model calculations (2015Pe10 in (^{48}Ca,4nγ); however cranked Nilsson-Strutinsky (CNS) model calculations suggest that this is the configuration of band D3).
11222.7 *7*	$25^{(-)}$	D	Jπ: (E1) γ from 26^+.
11312.5[u] *5*	$26^{(-)}$	D	Jπ: γ to $25^{(-)}$ is M1+E2.
11365.6[d] *5*	27^-	D	Jπ: γ from 28^+ is E1.
11398.0[g] *5*	$26^{(-)}$	D	Jπ: γ to $26^{(-)}$ is ΔJ=0, M1+E2.
11565.1[c] *6*	26^+	D	Jπ: γ to 24^+ is E2.
11589.0 *8*	26^+	D	Jπ: E2 γ from 28^+.
11601.0[j] *6*	26^+	D	Jπ: γ to 24^+ is E2.
11846.0[h] *6*	27^-	D	Jπ: γ to 26^- is M1+E2.
11944.9[e] *6*	(27^-)	D	Jπ: γ to (25^-) is E2.
11949.3[x] *17*	(25^-)	D	Jπ: γ from (26^-) is M1+E2.
11966.2[u] *6*	$27^{(-)}$	D	Jπ: γ to $26^{(-)}$ is M1+E2.
12124.5[f] *6*	28^-	D	Jπ: γ to 26^- is E2.
12194.5[w] *17*	(26^-)	D	Jπ: γ from (27^-) is (M1+E2).
12236.8 *17*	(26^-)	D	Jπ: γ from (27^-) is M1+E2.
12241.4[j] *5*	28^+	D	Jπ: γ to 26^+ (11565 level) is E2.
12422.3[d] *7*	29^-	D	Jπ: γ to 27^- is E2.
12426.1 *7*	(28^+)	D	Jπ: γ to 26^+ is assumed E2.
12446.0[v] *6*	(28^+)	D	Jπ: γ to 26^+ is assumed E2.
12480.6[m] *9*	(29^+)	D	Jπ: γ to 27^- is assumed Q and Δπ=yes based on asigned configurations.
12525.5[h] *6*	29^-	D	Jπ: γ to 27^- is E2.
12548.9[x] *17*	(27^-)	D	Jπ: γ from (29^-) is E2.
12898.4[v] *6*	(29^+)	D	Jπ: γ to (28^+) is M1+E2.
12918.0[w] *17*	(28^-)	D	Jπ: γ from (29^-) is M1+E2.
12997.5[e] *7*	(29^-)	D	Jπ: γ to (27^-) and member in E2 band.
13051.1[j] *6*	30^+	D	Jπ: γ to 28^+ is E2.
13323.5[v] *6*	(30^+)	D	Jπ: γ to (28^+) is E2.
13336.0[x] *17*	(29^-)	D	Jπ: γ from (31^-) is E2.
13394.7[m] *9*	(31^+)	D	Jπ: γ to (29^+) is assumed E2.
13406.8[f] *12*	30^-	D	Jπ: γ to 28^- is E2.
13479.2[i] *6*	(30^+)	D	Jπ: γ to 29^- is assumed E1.
13583.6[h] *6*	31^-	D	Jπ: γ to 29^- is E2.
13704.0[d] *12*	31^-	D	Jπ: γ to 29^- is E2.
13769.3[w] *17*	(30^-)	D	Jπ: γ to (28^-) is E2.
13915.8[v] *7*	(31^+)	D	Jπ: γ to (30^+) is M1+E2.
13960.2[j] *6*	32^+	D	Jπ: γ to 30^+ is E2.

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{140}Nd Levels (continued)

E(level)[†]	Jπ[‡]	XREF	Comments
14238.6[x] 17	(31⁻)	D	Jπ: γ to (29⁻) is E2.
14247.1[k] 17	(31⁻)	D	Jπ: γ from (33⁻) is E2.
14254.9[y] 6	(30⁺)	D	Jπ: γ from (31⁺) and member in M1+E2 band.
14410.6[i] 6	(32⁺)	D	Jπ: γ to (30⁺) and member in E2 band.
14474.2[m] 11	(33⁺)	D	Jπ: γ to (31⁺) is E2.
14540.6[z] 6	(31⁺)	D	Jπ: γ from (32⁺) is M1+E2.
14708.3[v] 7	(32⁺)	D	Jπ: γ to (31⁺) and member in M1+E2 band.
14761.7[w] 17	(32⁻)	D	Jπ: γ to (31⁻) and member in M1+E2 band.
14844.4[f] 16	(32⁻)	D	Jπ: γ to 30⁻ and member E2 band.
14858.2[y] 6	(32⁺)	D	Jπ: γ from (33⁺) and member in M1+E2 band.
14904.3[h] 12	33⁻	D	Jπ: γ to 31⁻ is E2.
15027.3[k] 17	(33⁻)	D	Jπ: γ from (35⁻) is E2.
15042.9[j] 6	34⁺	D	Jπ: γ to 32⁺ is E2.
15141.5[l] 15	(33⁻)	D	Jπ: γ from (35⁻) is E2.
15146.9[d] 15	(33⁻)	D	Jπ: γ to 31(⁻) and member in E2 band.
15315.5[z] 6	(33⁺)	D	Jπ: γ from 35⁺ is (E2).
15339.9[x] 17	(33⁻)	D	Jπ: γ to (32⁻) is (M1+E2).
15605.2[i] 8	(34⁺)	D	Jπ: γ to (32⁺) is (E2).
15726.0[m] 15	(35⁺)	D	Jπ: γ to (33⁺) is E2.
15774.1[y] 6	(34⁺)	D	Jπ: γ to (33⁺) is M1+E2.
15993.6[w] 17	(34⁻)	D	Jπ: γ to (33⁻) is M1+E2.
16036.4[l] 16	(35⁻)	D	Jπ: γ to (33⁻) is assumed E2.
16087.6[k] 17	(35⁻)	D	Jπ: γ to (33⁻) is E2.
16278.5 12	36⁺	D	Jπ: γ to 34⁺ is E2.
16286.5[z] 6	35⁺	D	Jπ: γ to 34⁺ is M1+E2.
16343.9[h] 16	(35⁻)	D	Jπ: γ to 33⁻ and member in E2 band.
16439.8[j] 12	36⁺	D	Jπ: γ to 34⁺ is E2.
16894.7[i] 13	(36⁺)	D	Jπ: γ to (34⁺) and member in E2 band.
16977.1[y] 7	(36⁺)	D	Jπ: γ to 35⁺ is (M1+E2).
17079.6[l] 19	(37⁻)	D	Jπ: γ to (35⁻) is E2.
17153.8[m] 18	(37⁺)	D	Jπ: γ to (35⁺) and member in E2 band.
17407.3[k] 20	(37⁻)	D	Jπ: γ to (35⁻) is E2.
17680.8[z] 6	(37⁺)	D	Jπ: γ to (36⁺) is M1+E2.
17882.0[j] 16	(38⁺)	D	Jπ: γ to 36⁺ and member in E2 band.
18320.2[l] 21	(39⁻)	D	Jπ: γ to (37⁻) is E2.
18474.5[y] 7	(38⁺)	D	Jπ: γ to (36⁺) and member ΔJ=2 branch of M1+E2 band.
18726.7[m] 21	(39⁺)	D	Jπ: γ to (37⁺) and member in E2 band.
18951.3[k] 23	(39⁻)	D	Jπ: γ to (37⁻) is (E2).
19703.3[l] 24	(41⁻)	D	Jπ: γ to (39⁻) and member in E2 band.
20432.3[m] 23	(41⁺)	D	Jπ: γ to (39⁺) and member in E2 band.
21218[l] 3	(43⁻)	D	Jπ: γ to (41⁻) and member in E2 band.
22293.6[m] 25	(43⁺)	D	Jπ: γ to (41⁺) and member in E2 band.
22885[l] 3	(45⁻)	D	Jπ: γ to (43⁻) and member in E2 band.
24306[m] 3	(45⁺)	D	Jπ: γ to (43⁺) and member in E2 band.
24716[l] 3	(47⁻)	D	Jπ: γ to (45⁻) and member in E2 band.
26694[l] 3	(49⁻)	D	Jπ: γ to (47⁻) and member in E2 band.
y[2]	(29)	D	Additional information 1.
y+1023.9[2] 10	(31)	D	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{140}Nd Levels (continued)

E(level)†	Jπ‡	XREF	Comments
y+2167.5[2] *15*	(33)	D	
y+3464.0[2] *18*	(35)	D	
y+4936.0[2] *20*	(37)	D	
y+6607.3[2] *23*	(39)	D	
y+8455.9[2] *25*	(41)	D	
z[3]	(29)	D	Additional information 2.
z+838.7[3] *10*	(31)	D	
z+1811.2[3] *15*	(33)	D	
z+2907.7[3] *18*	(35)	D	
z+4190.5[3] *20*	(37)	D	
z+5669.5[3] *23*	(39)	D	
z+7294.0[3] *25*	(41)	D	
u[1]	(29)	D	Additional information 3.
u+955.3[1] *10*	(31)	D	
u+2069.4[1] *15*	(33)	D	
u+3383.5[1] *18*	(35)	D	
u+4907.8[1] *20*	(37)	D	
u+6614.4[1] *23*	(39)	D	
v[4]	(29)	D	Additional information 4.
v+1026.9[4] *5*	(31)	D	
v+1826.1[4] *7*	(33)	D	
v+2843.3[4] *9*	(35)	D	
v+4087.6[4] *14*	(37)	D	
v+5574.2[4] *17*	(39)	D	
v+7293.4[4] *20*	(41)	D	
v+9221.0[4] *22*	(43)	D	
v+11357.2[4] *24*	(45)	D	
w?[@5]	J≈(34)	E	
w+1069[5]	J+2[#]	E	
w+2195[5]	J+4	E	
w+3379[5]	J+6	E	
w+4625[5]	J+8	E	
w+5930[5]	J+10	E	
w+7295[5]	J+12	E	
w+8720[5]	J+14	E	
w+10203[5]	J+16	E	
w+11731[5]	J+18	E	
w+11767	J+18	E	
w+13284[5]	J+20	E	
w+13529	J+20	E	
w+14887[5]	J+22	E	
w+16548[5]	J+24	E	
w+18272[5]	J+26	E	
w+20060[5]	J+28	E	
w+21914[5]	J+30	E	
w+23833[5]	J+32	E	
w+25818?[5]	J+34	E	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{140}Nd Levels (continued)

† From least-squares fit to Eγ data. Reduced χ^2=1.8 (critical χ^2=1.3).
‡ See J^π comments in this table; spins for floating bands were proposed in (^{48}Ca,4nγ) (2004Pe24) and (^{48}Ca,4nγ):SD (2004Ne13) based on spin-fitting methods.
# Proposed spin of this level is 36±2 ((^{48}Ca,4nγ):SD (2004Ne13)).
@ The level is questionable because the unique γ associated to it (by population from above level) is considered as tentative by 2004Ne13 in ^{96}Zr(^{48}Ca,4nγ):SD.
& Band(a): g.s. band.
a Band(b): γ cascade (from ^{126}Te(^{18}O,4nγ)).
b Band(C): Band Q1,α=0. Configuration=$\pi[(s_{1/2}d_{3/2})^{-2}(h_{11/2})^{-2}\ (h_{9/2}f_{7/2})^2]\otimes\nu[(d_{5/2}g_{7/2})^8(h_{11/2})^2]$.
c Band(D): Band Q2,α=0.
d Band(E): Band Q3,α=1 Configuration=$\pi[(s_{1/2}d_{3/2})^{-2}(h_{11/2})^{-2}\ (h_{9/2}f_{7/2})^1(1/2)(i_{13/2})^1(1/2)]\otimes\ \nu[(d_{5/2}g_{7/2})^8(h_{11/2})^2]$.
e Band(F): Band Q4,α=1.
f Band(G): Band Q5,α=0 Configuration=$\pi[(s_{1/2}d_{3/2})^{-2}(h_{11/2})^{-2}\ (h_{9/2}f_{7/2})^1(-1/2)(i_{13/2})^1(1/2)]\otimes\ \nu[(d_{5/2}g_{7/2})^8(h_{11/2})^2]$.
g Band(B): Band Q6, α=0.
h Band(A): Band Q7, α=1 Configuration=$\pi[(s_{1/2}d_{3/2})^{-2}(h_{11/2})^{-2}\ (h_{9/2}f_{7/2})^2]\otimes\nu[(d_{5/2}g_{7/2})^7(-1/2)\ (h_{11/2})^3(-1/2)]$.
i Band(H): Band Q8, α=1 Configuration=$\pi[(s_{1/2}d_{3/2})^{-2}(h_{11/2})^{-2}\ (h_{9/2}f_{7/2})^1(-1/2)(i_{13/2})^1(1/2)]\otimes\ \nu[(d_{5/2}g_{7/2})^7(1/2)(h_{11/2})^3(-1/2))]$.
j Band(I): Band Q9, α=0 Configuration=$\pi[(s_{1/2}d_{3/2})^{-3}(-1/2)(h_{11/2})^{-2}\ (h_{9/2}f_{7/2})^2(i_{13/2})^1(1/2)]\otimes\nu[(d_{5/2}g_{7/2})^8\ (h_{11/2})^2]$.
k Band(J): Band Q10, α=(1) Configuration=$\pi[(s_{1/2}d_{3/2})^{-3}(1/2)(h_{11/2})^{-2}\ (h_{9/2}f_{7/2})^2(i_{13/2})^1(1/2)]\otimes\ \nu[(d_{5/2}g_{7/2})^7_{1/2}(h_{11/2})^3(-1/2)]$.
l Band(K): Band Q11, α=(1) Configuration=$\pi[(s_{1/2}d_{3/2})^{-3}(-1/2)(h_{11/2})^{-2}\ (h_{9/2}f_{7/2})^2(i_{13/2})^1(1/2)]\otimes\ \nu[(d_{5/2}g_{7/2})^7(-1/2)(h_{11/2})^3(-1/2)]$.
m Band(L): Band Q12, α=(0) Configuration=$\pi[(s_{1/2}d_{3/2})^{-2}(h_{11/2})^{-2}\ (h_{9/2}f_{7/2})^1(-1/2)(i_{13/2})^1(1/2)]\otimes\ \nu[(d_{5/2}g_{7/2})^7(-1/2)(h_{11/2})^3(-1/2))]$.
n Band(M): Band D1. Configuration=π(ABEF)⊗ν(αα−barBG).
o Band(N): Band D2. Configuration=π(αα−barBE)⊗ν(αα−barBC).
p Band(O): Band D3. Configuration=π(ABEH)⊗ν(ABCG).
q Band(P): Band D4. Configuration=π(ABEF)⊗ν(ABCH).
r Band(Q): Band D5. Configuration=π(ABEF)⊗ν(ABGH).
s Band(R): Band D6. Configuration=π(ABEG)⊗ν(ABGH).
t Band(S): Band D7. Configuration=π(ABEH)⊗ν(ABGH).
u Band(T): Band D8. Configuration=π(ABCE)⊗ν(ABGH).
v Band(U): Band D9. Configuration=π(ABCE)⊗ν(ABCG).
w Band(V): Band D10, even spin. Configuration=π(ABEF)⊗ν(ABCI).
x Band(v): Band D10, odd spin. Configuration=π(ABEF)⊗ν(ABCI).
y Band(W): Band D11, even spin. Configuration=π(ABCE)⊗ν(ABCI). Positive parity is taken from figure 1 in 2013Le22 (negative parity listed in authors′ table I is a misprint, as confirmed by e-mail reply of August 19, 2013 from c.m. Petrache to B. Singh).
z Band(w): Band D11, odd spin. Configuration=π(ABCE)⊗ν(ABCI). Positive parity is taken from figure 1 in 2013Le22 (negative parity listed in authors′ table I is a misprint, as confirmed by e-mail reply of August 19, 2013 from c.m. Petrache to B. Singh).
1 Band(h): Rotational band based on (29). Population intensity=1% of ^{140}Nd channel (2005Pe24 only).
2 Band(i): Rotational band based on (29). Population intensity=0.8% of ^{140}Nd channel (2005Pe24 only).
3 Band(j): Rotational band based on (29). Population intensity=0.5% of ^{140}Nd channel (2005Pe24 only).
4 Band(k): Rotational band based on (29). Population intensity=2% of ^{140}Nd channel (2005Pe24 only).
5 Band(X): SD band (2004Ne13). Population intensity=1% of the ^{140}Nd channel. Q(transition)=9.0 *+37−20* (2004Ne13) from analysis of Doppler-shifts. The uncertainty does not include that from the stopping powers. Configuration=$\nu 6^4(\pi 5^6$ or $\pi 5^5 6^1)$; neutrons of $i_{13/2}$ origin and protons of $h_{11/2}/h_{9/2}$ and $i_{13/2}$ origin.

Adopted Levels, Gammas (continued)

γ(^{140}Nd)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[c]	δ[dg]	α[f]	Comments
773.65	2+	773.74[@] 6	100	0.0	0+	E2		0.00396	α(K)=0.00334 5; α(L)=0.000483 7; α(M)=0.0001028 15 α(N)=2.29×10^{-5} 4; α(O)=3.42×10^{-6} 5; α(P)=2.01×10^{-7} 3 B(E2)(W.u.)=33.6 27
1413.03	0+	639.4[#] 1	100[#] 14	773.65	2+	E2		0.00624	α(K)=0.00523 8; α(L)=0.000792 11; α(M)=0.0001694 24 α(N)=3.77×10^{-5} 6; α(O)=5.57×10^{-6} 8; α(P)=3.12×10^{-7} 5
		1412.9[#i]		0.0	0+	E0			I_γ: ≤50.17 limit from 1973VaYZ in ^{140}Pm ε decay (9.2 s).
1489.41	(2)+	716.1[b#] 1	100[#] 16	773.65	2+	M1+E2	−1.22[#] 14	0.00586 19	α(K)=0.00498 17; α(L)=0.000693 19; α(M)=0.000147 4 α(N)=3.29×10^{-5} 9; α(O)=4.95×10^{-6} 14; α(P)=3.07×10^{-7} 11
		1489.2[#] 1	77[#] 7	0.0	0+	(E2)		1.07×10^{-3}	α(K)=0.000860 12; α(L)=0.0001125 16; α(M)=2.37×10^{-5} 4 α(N)=5.30×10^{-6} 8; α(O)=8.05×10^{-7} 12; α(P)=5.22×10^{-8} 8; α(IPF)=7.26×10^{-5} 11
1801.84	4+	1028.19[@] 7	100	773.65	2+	E2		0.00211	α(K)=0.00180 3; α(L)=0.000247 4; α(M)=5.22×10^{-5} 8 α(N)=1.165×10^{-5} 17; α(O)=1.755×10^{-6} 25; α(P)=1.091×10^{-7} 16
1935.16	3−	446		1489.41	(2)+				γ ray observed only by 2010Gl05 (^{140}Ce(^{3}He,3nγ) dataset).
		1161.5[#] 1	100[#] 14	773.65	2+				
		1935[#] 1	71[#] 71	0.0	0+				
2124.0?	3(−)	322.0[&i]		1801.84	4+				
		1350.3[&i]		773.65	2+	D			
2139.84	2+	1366.2[#] 1	100[#] 10	773.65	2+	M1(+E2)	−0.08[a] 8	0.00168 3	α(K)=0.001410 21; α(L)=0.000182 3; α(M)=3.84×10^{-5} 6 α(N)=8.60×10^{-6} 13; α(O)=1.315×10^{-6} 20; α(P)=8.82×10^{-8} 14; α(IPF)=3.72×10^{-5} 6 B(M1)(W.u.)=0.045 +50−20
		2139.2[#] 4	<48[#]	0.0	0+				
2221.65	7−	419.81[@] 1	100	1801.84	4+	E3		0.0598	α(K)=0.0437 7; α(L)=0.01256 18; α(M)=0.00282 4 α(N)=0.000619 9; α(O)=8.54×10^{-5} 12; α(P)=2.64×10^{-6} 4 B(E3)(W.u.)=0.71 6
2275.96	5−	474.01[&] 7	100	1801.84	4+	E1		0.00445	α(K)=0.00382 6; α(L)=0.000499 7; α(M)=0.0001049 15

$^{140}_{60}Nd_{80}$-9

Adopted Levels, Gammas (continued)

γ(^{140}Nd) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[c]	δ[dg]	α[f]	Comments
									α(N)=2.34×10^{-5} *4*; α(O)=3.52×10^{-6} *5*; α(P)=2.21×10^{-7} *3* Mult.: from (^{18}O,4nγ).
2332.28	2$^+$	1558.6[#] *1*	100[#] *10*	773.65	2$^+$	M1+E2	−0.19[a] *9*	1.31×10^{-3} *2*	α(K)=0.001041 *18*; α(L)=0.0001340 *23*; α(M)=2.82×10^{-5} *5* α(N)=6.32×10^{-6} *11*; α(O)=9.67×10^{-7} *17*; α(P)=6.49×10^{-8} *12*; α(IPF)=0.0001027 *15*
		2333.2[#] *6*	81[#] *81*	0.0	0$^+$				
2358.76	0$^+$	1585.1[#] *1*	100[#]	773.65	2$^+$	E2		9.97×10^{-4}	α(K)=0.000764 *11*; α(L)=9.94×10^{-5} *14*; α(M)=2.09×10^{-5} *3* α(N)=4.68×10^{-6} *7*; α(O)=7.11×10^{-7} *10*; α(P)=4.64×10^{-8} *7*; α(IPF)=0.0001072 *15*
2366.55	6$^+$	90.1[@] *2*	54[@] *9*	2275.96	5$^-$	E1		0.345 *6*	α(K)=0.291 *5*; α(L)=0.0422 *7*; α(M)=0.00891 *14* α(N)=0.00196 *3*; α(O)=0.000281 *5*; α(P)=1.430×10^{-5} *22*
		144.9[@] *1*	100[@] *11*	2221.65	7$^-$	E1		0.0940	α(K)=0.0800 *12*; α(L)=0.01107 *16*; α(M)=0.00233 *4* α(N)=0.000516 *8*; α(O)=7.56×10^{-5} *11*; α(P)=4.18×10^{-6} *6*
		564.5[&] *2*	57[@] *29*	1801.84	4$^+$	E2		0.00855	α(K)=0.00713 *10*; α(L)=0.001119 *16*; α(M)=0.000240 *4* α(N)=5.33×10^{-5} *8*; α(O)=7.83×10^{-6} *11*; α(P)=4.22×10^{-7} *6*
2400.0	4$^+$	911		1489.41	(2)$^+$				Eγ: from ^{140}Ce(^{3}He,3nγ).
		1626		773.65	2$^+$				Eγ: from ^{140}Ce(^{3}He,3nγ).
2466.97	2$^+$	977.5[#] *1*	14[#] *3*	1489.41	(2)$^+$				
		1693.5[#] *2*	30[#] *5*	773.65	2$^+$	M1+E2	−0.9[#] *+6−4*	0.00107 *9*	α(K)=0.00078 *8*; α(L)=0.000101 *10*; α(M)=2.12×10^{-5} *20* α(N)=4.8×10^{-6} *5*; α(O)=7.3×10^{-7} *7*; α(P)=4.8×10^{-8} *5*; α(IPF)=0.000157 *5*
		2467.1[#] *6*	<100[#]	0.0	0$^+$				
2546.89	0$^+$	1057.6[#] *1*	100[#] *11*	1489.41	(2)$^+$				
		1773.1[#] *1*	64[#] *8*	773.65	2$^+$	E2		9.06×10^{-4}	α(K)=0.000619 *9*; α(L)=7.98×10^{-5} *12*; α(M)=1.679×10^{-5} *24* α(N)=3.76×10^{-6} *6*; α(O)=5.72×10^{-7} *8*; α(P)=3.76×10^{-8} *6*; α(IPF)=0.000186 *3*
2585.16	0$^+$	1811.5[#] *1*	100[#]	773.65	2$^+$	E2		8.95×10^{-4}	α(K)=0.000595 *9*; α(L)=7.66×10^{-5} *11*; α(M)=1.611×10^{-5} *23* α(N)=3.60×10^{-6} *5*; α(O)=5.49×10^{-7} *8*; α(P)=3.61×10^{-8} *5*; α(IPF)=0.000203 *3*
2611.07	(2$^+$)	1121.7[#] *1*	32[#] *4*	1489.41	(2)$^+$				
		1837.4[#] *1*	100[#] *12*	773.65	2$^+$	(E2)		8.89×10^{-4}	α(K)=0.000579 *9*; α(L)=7.45×10^{-5} *11*; α(M)=1.567×10^{-5}

$^{140}_{60}Nd_{80}$-10

Adopted Levels, Gammas (continued)

γ(^{140}Nd) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[c]	δ[dg]	α[f]	Comments
									22 α(N)=3.51×10^{-6} *5*; α(O)=5.34×10^{-7} *8*; α(P)=3.52×10^{-8} *5*; α(IPF)=0.000215 *3*
2611.07	(2$^+$)	2610.0[#] *5*	<80[#]	0.0	0$^+$				
2713.96	2$^+$	1940.3 *1*	100	773.65	2$^+$	M1+E2	−0.96[#] *+35−26*	0.00096 *4*	α(K)=0.00059 *3*; α(L)=7.5×10^{-5} *4*; α(M)=1.58×10^{-5} *8* α(N)=3.54×10^{-6} *17*; α(O)=5.4×10^{-7} *3*; α(P)=3.62×10^{-8} *19*; α(IPF)=0.000274 *6*
2832.97	(2$^+$)	2059.3[#] *1*	100	773.65	2$^+$				
2842.26	7$^{(-)}$	566.30[@] *3*	100	2275.96	5$^-$				
2908.77	0$^+$	2135.1[#] *1*	100	773.65	2$^+$	E2		8.67×10^{-4}	α(K)=0.000440 *7*; α(L)=5.61×10^{-5} *8*; α(M)=1.179×10^{-5} *17* α(N)=2.64×10^{-6} *4*; α(O)=4.02×10^{-7} *6*; α(P)=2.67×10^{-8} *4*; α(IPF)=0.000356 *5*
2943.31	(6$^+$,7$^-$)	667.3[@] *1*	100[@] *50*	2275.96	5$^-$				
		721.7[@] *1*	100[@] *50*	2221.65	7$^-$				
3036.04	(1,2)	896.1[#] *2*	16[#] *13*	2139.84	2$^+$				
		1623.1[#] *2*	100[#] *3*	1413.03	0$^+$				
3062.24	7$^-$	695.51[&] *9*	52[&] *2*	2366.55	6$^+$	(E1)		0.00192	α(K)=0.001650 *24*; α(L)=0.000212 *3*; α(M)=4.45×10^{-5} *7* α(N)=9.94×10^{-6} *14*; α(O)=1.504×10^{-6} *21*; α(P)=9.69×10^{-8} *14*
		840.4[&] *2*	100[&] *8*	2221.65	7$^-$	M1(+E2)	−0.25 *+25−20*	0.00501 *22*	α(K)=0.00429 *19*; α(L)=0.000565 *22*; α(M)=0.000119 *5* α(N)=2.67×10^{-5} *10*; α(O)=4.08×10^{-6} *16*; α(P)=2.70×10^{-7} *13*
3140.07	0$^+$	2366.4 *1*	100	773.65	2$^+$	E2		8.91×10^{-4}	α(K)=0.000366 *6*; α(L)=4.64×10^{-5} *7*; α(M)=9.74×10^{-6} *14* α(N)=2.18×10^{-6} *3*; α(O)=3.33×10^{-7} *5*; α(P)=2.22×10^{-8} *4*; α(IPF)=0.000466 *7*
3185.3	8$^+$	818.6		2366.55	6$^+$	E2		0.00348	α(K)=0.00295 *5*; α(L)=0.000420 *6*; α(M)=8.94×10^{-5} *13* α(N)=1.99×10^{-5} *3*; α(O)=2.98×10^{-6} *5*; α(P)=1.775×10^{-7} *25*
		963.8		2221.65	7$^-$	(E1)		1.00×10^{-3}	α(K)=0.000864 *12*; α(L)=0.0001095 *16*; α(M)=2.30×10^{-5} *4*

$^{140}_{60}Nd_{80}$-11

Adopted Levels, Gammas (continued)

γ(^{140}Nd) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[c]	δ[dg]	α[f]	Comments
									α(N)=5.14×10^{-6} *8*; α(O)=7.80×10^{-7} *11*; α(P)=5.11×10^{-8} *8*
3239.65	8$^-$	177.38[&] *4*	33[&] *1*	3062.24	7$^-$	M1(+E2)	−0.4 *+4−3*	0.284 *5*	α(K)=0.236 *7*; α(L)=0.037 *6*; α(M)=0.0081 *15* α(N)=0.0018 *3*; α(O)=0.00026 *4*; α(P)=1.48×10^{-5} *10*
		1018.2[&] *1*	100[&] *3*	2221.65	7$^-$	M1+E2		0.0027 *6*	α(K)=0.0023 *5*; α(L)=0.00031 *6*; α(M)=6.5×10^{-5} *12* α(N)=1.5×10^{-5} *3*; α(O)=2.2×10^{-6} *5*; α(P)=1.4×10^{-7} *4*
3419.16	7,8,9$^{(-)}$	1197.5[&] *2*	100	2221.65	7$^-$				
3454.94	9$^-$	215.28[&] *3*	100[&] *2*	3239.65	8$^-$	M1+E2	−0.25 *+25−10*	0.1654 *25*	α(K)=0.140 *3*; α(L)=0.0200 *7*; α(M)=0.00426 *16* α(N)=0.00095 *4*; α(O)=0.000144 *4*; α(P)=8.94×10^{-6} *23*
		1233.5[&] *2*	14.3[&] *7*	2221.65	7$^-$	E2		1.46×10^{-3}	α(K)=0.001242 *18*; α(L)=0.0001658 *24*; α(M)=3.50×10^{-5} *5* α(N)=7.83×10^{-6} *11*; α(O)=1.184×10^{-6} *17*; α(P)=7.54×10^{-8} *11*; α(IPF)=1.014×10^{-5} *15*
3506.88	0$^+$,1,2	2733.2[#] *2*	100	773.65	2$^+$				
3621.52	10$^+$	166.57[&] *4*	100	3454.94	9$^-$	E1		0.0643	α(K)=0.0548 *8*; α(L)=0.00751 *11*; α(M)=0.001584 *23* α(N)=0.000351 *5*; α(O)=5.16×10^{-5} *8*; α(P)=2.92×10^{-6} *4* B(E1)(W.u.)=1.89×10^{-6} *+43−30*
3672.82	7$^{(-)}$	1306.4[@] *2*	46[@] *13*	2366.55	6$^+$				
		1396.8[@] *1*	54[@] *13*	2275.96	5$^-$				
		1451.6[@] *5*	100[@] *21*	2221.65	7$^-$				
3958.9	(9$^-$)	719.1[&] *5*	100[&]	3239.65	8$^-$				
		896.3[&] *5*	24[&]	3062.24	7$^-$				
4031.15	10$^-$	576.17[&] *8*	100[&]	3454.94	9$^-$	M1+E2	−1.9 *+11−21*	0.0091 *19*	α(K)=0.0077 *17*; α(L)=0.00114 *16*; α(M)=0.00024 *4* α(N)=5.4×10^{-5} *8*; α(O)=8.1×10^{-6} *13*; α(P)=4.7×10^{-7} *12*
		791.8[&] *2*	85[&]	3239.65	8$^-$				
4157.1	10$^+$	971.8[&] *5*	100	3185.3	8$^+$	E2		0.00238	α(K)=0.00203 *3*; α(L)=0.000280 *4*; α(M)=5.94×10^{-5} *9* α(N)=1.325×10^{-5} *19*; α(O)=1.99×10^{-6} *3*; α(P)=1.227×10^{-7} *18*

$^{140}_{60}Nd_{80}$-12

Adopted Levels, Gammas (continued)

γ(^{140}Nd) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[c]	δ[dg]	α[f]	Comments
4175.62	10⁻	216.3[&] *5*	8[&]	3958.9	(9⁻)				
		554.6[@&] *5*	15[&]	3621.52	10⁺				
		720.8[&] *2*	100[&]	3454.94	9⁻	M1+E2		0.0060 *14*	α(K)=0.0051 *12*; α(L)=0.00071 *13*; α(M)=0.00015 *3* α(N)=3.4×10⁻⁵ *7*; α(O)=5.1×10⁻⁶ *10*; α(P)=3.19×10⁻⁷ *83* δ: δ=−4 *+1*−∞ (^{126}Te(^{18}O,4nγ, 1989Gu22).
4323.34	11⁻	292.0 *5*	14.3[&] *7*	4031.15	10⁻	M1+E2		0.065 *9*	α(K)=0.054 *9*; α(L)=0.0090 *5*; α(M)=0.00194 *14* α(N)=0.00043 *3*; α(O)=6.27×10⁻⁵ *16*; α(P)=3.2×10⁻⁶ *8* Eγ: from (^{48}Ca,4nγ); the more precise value in (^{18}O,4nγ) is discrepant (GTOL). δ: δ=−0.8 *+5*−∞ (^{126}Te(^{18}O,4nγ, 1989Gu22).
		701.5 *5*		3621.52	10⁺				
		868.4[&] *1*	100[&] *3*	3454.94	9⁻	E2		0.00305	α(K)=0.00258 *4*; α(L)=0.000364 *6*; α(M)=7.74×10⁻⁵ *11* α(N)=1.725×10⁻⁵ *25*; α(O)=2.58×10⁻⁶ *4*; α(P)=1.560×10⁻⁷ *22*
4350.0	7,8,9	930.8[@] *2*	100	3419.16	7,8,9⁽⁻⁾				
4367.1	7,8,9⁽⁻⁾	2145.4[@] *8*	100	2221.65	7⁻				
4514.31	12⁻	190.9 *2*	100[&] *3*	4323.34	11⁻	M1+E2		0.230	α(K)=0.182 *15*; α(L)=0.038 *11*; α(M)=0.0082 *25* α(N)=0.00181 *53*; α(O)=0.00026 *6*; α(P)=1.06×10⁻⁵ *22* B(M1)(W.u.)=0.0046; B(E2)(W.u.)=7×10¹ Eγ: from (^{48}Ca,4nγ); the more precise value in (^{18}O,4nγ) is discrepant (GTOL).
		483.3 *2*	15.7[&] *11*	4031.15	10⁻	E2		0.01291	B(E2)(W.u.)=0.225 α(K)=0.01066 *15*; α(L)=0.001766 *25*; α(M)=0.000381 *6* α(N)=8.43×10⁻⁵ *12*; α(O)=1.227×10⁻⁵ *18*; α(P)=6.23×10⁻⁷ *9* Eγ: from (^{48}Ca,4nγ); the more precise value in (^{18}O,4nγ) is discrepant (GTOL).
4703.27	13⁻	188.95[&] *4*	100	4514.31	12⁻	(M1+E2)	−5.0 *15*	0.237	α(K)=0.174 *3*; α(L)=0.0492 *11*; α(M)=0.01096 *25* α(N)=0.00239 *6*; α(O)=0.000325 *7*; α(P)=8.87×10⁻⁶ *21*
4878.5	11⁻	702.7[&] *5*	100[&] *12*	4175.62	10⁻	M1+E2		0.0064 *15*	α(K)=0.0055 *13*; α(L)=0.00075 *14*; α(M)=0.00016 *3* α(N)=3.6×10⁻⁵ *7*; α(O)=5.4×10⁻⁶ *11*; α(P)=3.39×10⁻⁷ *89*
		1257.1[&] *10*	100[&] *8*	3621.52	10⁺				
4915.34	11⁺	1293.6[&] *2*	100	3621.52	10⁺	M1(+E2)	−0.4 *4*	0.00181 *14*	α(K)=0.00154 *12*; α(L)=0.000199 *15*; α(M)=4.2×10⁻⁵ *3* α(N)=9.4×10⁻⁶ *7*; α(O)=1.44×10⁻⁶ *11*; α(P)=9.6×10⁻⁸ *8*; α(IPF)=2.03×10⁻⁵ *4*

$^{140}_{60}Nd_{80}$-13

Adopted Levels, Gammas (continued)

γ(^{140}Nd) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[c]	δ[dg]	α[f]	Comments
5098.94	12⁻	183.4[&] *5*	15[&]	4915.34	11⁺	[E1]		0.0495 *8*	α(K)=0.0422 *7*; α(L)=0.00576 *10*; α(M)=0.001215 *20* α(N)=0.000269 *5*; α(O)=3.97×10^{-5} *7*; α(P)=2.27×10^{-6} *4* Mult.: contradictory arguments in (^{48}Ca,4nγ): M1+E2 in 2006PeZZ (based on DCO), while 12⁻ to 11⁺ transition in 2005Pe24 (Fig. 1).
		220.2[&] *5*	23[&]	4878.5	11⁻	M1+E2		0.149 *8*	α(K)=0.120 *13*; α(L)=0.023 *5*; α(M)=0.0050 *11* α(N)=0.00109 *23*; α(O)=0.000157 *25*; α(P)=7.1×10^{-6} *16*
		923.2[&] *2*	100[&]	4175.62	10⁻	E2		0.00266	α(K)=0.00226 *4*; α(L)=0.000315 *5*; α(M)=6.69×10^{-5} *10* α(N)=1.492×10^{-5} *21*; α(O)=2.24×10^{-6} *4*; α(P)=1.368×10^{-7} *20* γ measured in (^{18}O,4nγ) (1987Gu22) and (^{48}Ca,4nγ) (2005Pe24) from different parent levels; this placement is from (^{48}Ca,4nγ).
5138.84	12⁻	222.4[&] *5*	20[&]	4915.34	11⁺				
		436.2[&] *5*	20[&]	4703.27	13⁻				
		963.5[&] *2*	100[&]	4175.62	10⁻	E2		0.00243	α(K)=0.00207 *3*; α(L)=0.000286 *4*; α(M)=6.06×10^{-5} *9* α(N)=1.351×10^{-5} *19*; α(O)=2.03×10^{-6} *3*; α(P)=1.249×10^{-7} *18*
5312.03	13⁻	173.4[&] *2*	4[&]	5138.84	12⁻	M1+E2	−5	0.317	α(K)=0.228 *4*; α(L)=0.0697 *11*; α(M)=0.01556 *23* α(N)=0.00339 *5*; α(O)=0.000457 *7*; α(P)=1.139×10^{-5} *17* γ measured in (^{18}O,4nγ) (1987Gu22) and (^{48}Ca,4nγ) (2005Pe24) from different parent levels; this placement is from (^{48}Ca,4nγ).
		212.9[&] *2*	4[&]	5098.94	12⁻				γ measured in (^{18}O,4nγ) (1987Gu22) and (^{48}Ca,4nγ) (2005Pe24) from different parent levels; this placement is from (^{48}Ca,4nγ).
		608.6[&] *5*	1.5[&]	4703.27	13⁻	M1+E2		0.0091 *21*	α(K)=0.0078 *19*; α(L)=0.00109 *19*; α(M)=0.00023 *4* α(N)=5.2×10^{-5} *9*; α(O)=7.8×10^{-6} *15*; α(P)=4.8×10^{-7} *13* Mult.: ΔJ=0 transition.
		797.8[&] *1*	48[&] *2*	4514.31	12⁻	M1(+E2)	−0.3 *+3−5*	0.0056 *7*	α(K)=0.0048 *6*; α(L)=0.00064 *7*; α(M)=0.000134 *14* α(N)=3.0×10^{-5} *3*; α(O)=4.6×10^{-6} *5*; α(P)=3.0×10^{-7} *4*
		923.3[&] *12*	100[&] *3*	4388.7	11⁻	E2		0.00266	α(K)=0.00226 *4*; α(L)=0.000315 *5*; α(M)=6.69×10^{-5} *10* α(N)=1.492×10^{-5} *22*; α(O)=2.24×10^{-6} *4*; α(P)=1.368×10^{-7} *20*
5431.96	14⁻	119.95[&] *4*	50[&] *3*	5312.03	13⁻				
		728.60[&] *8*	100[&] *3*	4703.27	13⁻	M1+E2		0.0059 *14*	α(K)=0.0050 *12*; α(L)=0.00069 *13*; α(M)=0.00015 *3* α(N)=3.3×10^{-5} *6*; α(O)=4.9×10^{-6} *10*; α(P)=3.11×10^{-7} *81* δ: δ=−3.0 *+16*−∞ in (^{18}O,4nγ).
5613.88	15⁻	181.91[&] *4*	100	5431.96	14⁻	M1+E2		0.267 *5*	α(K)=0.210 *15*; α(L)=0.045 *14*; α(M)=0.0098 *33* α(N)=0.00215 *69*; α(O)=3.03×10^{-4} *81*; α(P)=1.21×10^{-5} *24*

$^{140}_{60}Nd_{80}$-14

Adopted Levels, Gammas (continued)

γ(^{140}Nd) (continued)

E_i(level)	J_i^π	E_γ [†]	I_γ [‡]	E_f	J_f^π	Mult.[c]	α[f]	Comments
5644.04	15⁻	29.8[&]		5613.88	15⁻			
		212.3[&] *5*	100	5431.96	14⁻	M1+E2	0.167 *7*	α(K)=0.134 *14*; α(L)=0.026 *6*; α(M)=0.0056 *14* α(N)=0.0012 *3*; α(O)=0.00018 *4*; α(P)=7.8×10^{-6} *17*
5902.57	16⁻	258.53[&] *4*	100[&] *4*	5644.04	15⁻	M1+E2	0.093 *9*	α(K)=0.076 *11*; α(L)=0.0133 *15*; α(M)=0.0029 *4* α(N)=0.00064 *8*; α(O)=9.2×10^{-5} *7*; α(P)=4.5×10^{-6} *11*
		287.7[&] *5*	21[&]	5613.88	15⁻			
5966.8	(14⁻)	867.9 *5*	100	5098.94	12⁻	[E2]	0.00305	α(K)=0.00259 *4*; α(L)=0.000365 *6*; α(M)=7.75×10^{-5} *11* α(N)=1.728×10^{-5} *25*; α(O)=2.59×10^{-6} *4*; α(P)=1.562×10^{-7} *22* Mult.: assumed by 2013Le22 (^{48}Ca,4nγ).
5970.58	15⁻	1267.5[&] *2*	100	4703.27	13⁻	E2	1.39×10^{-3}	α(K)=0.001177 *17*; α(L)=0.0001566 *22*; α(M)=3.31×10^{-5} *5* α(N)=7.39×10^{-6} *11*; α(O)=1.118×10^{-6} *16*; α(P)=7.14×10^{-8} *10*; α(IPF)=1.527×10^{-5} *22*
5987.6	(15⁻)	1284.3 *10*	100	4703.27	13⁻	[E2]	1.36×10^{-3}	α(K)=0.001147 *17*; α(L)=0.0001523 *22*; α(M)=3.22×10^{-5} *5* α(N)=7.19×10^{-6} *11*; α(O)=1.088×10^{-6} *16*; α(P)=6.96×10^{-8} *10*; α(IPF)=1.81×10^{-5} *3* Mult.: assumed by 2013Le22 (^{48}Ca,4nγ).
6158.35	16⁺	514.3 *2*		5644.04	15⁻			
		544.44[&] *9*	100[&]	5613.88	15⁻	[E1]	0.00325	α(K)=0.00279 *4*; α(L)=0.000362 *5*; α(M)=7.62×10^{-5} *11* α(N)=1.700×10^{-5} *24*; α(O)=2.56×10^{-6} *4*; α(P)=1.627×10^{-7} *23* Mult.: M1+E2 based on DCO (2005Pe24) also compatible with E1 − the latter better supported by theory (2006Pe25, 2013Le22). δ: −0.2 *+2−14* if M1+E2.
6183.4	(16⁻)	195.8 *2*	100	5987.6	(15⁻)	M1+E2	0.213 *4*	α(K)=0.169 *15*; α(L)=0.0343 *91*; α(M)=0.0075 *22* α(N)=0.00165 *46*; α(O)=0.00023 *6*; α(P)=9.8×10^{-6} *20*
6351.8	15⁺	385.4 *2*	100	5966.8	(14⁻)	(E1)	0.00727	α(K)=0.00623 *9*; α(L)=0.000820 *12*; α(M)=0.0001728 *25* α(N)=3.85×10^{-5} *6*; α(O)=5.77×10^{-6} *9*; α(P)=3.57×10^{-7} *5*
6407.89	17⁻	437.5[&] *2*	82[&]	5970.58	15⁻			
		505.27[&] *8*	100[&] *8*	5902.57	16⁻	M1+E2	0.015 *4*	α(K)=0.012 *3*; α(L)=0.00179 *25*; α(M)=0.00038 *5* α(N)=8.5×10^{-5} *12*; α(O)=1.27×10^{-5} *20*; α(P)=7.6×10^{-7} *21*
6410.43	16	439.85[&] *6*	100	5970.58	15⁻	D+Q		
6432.4	(17⁻)	249.0 *2*	100	6183.4	(16⁻)			
6515.5	(14⁺)	548.3 *2*	100	5966.8	(14⁻)	(E1)	0.00320	α(K)=0.00275 *4*; α(L)=0.000356 *5*; α(M)=7.50×10^{-5} *11* α(N)=1.673×10^{-5} *24*; α(O)=2.52×10^{-6} *4*; α(P)=1.602×10^{-7} *23* Mult.: (M1+E2) adopted 2013Le22 in (^{48}Ca,4nγ) should be (E1) according to their level scheme (2013Le22, Fig. 1).

$^{140}_{60}Nd_{80}$-15

Adopted Levels, Gammas (continued)

γ(^{140}Nd) (continued)

E_i(level)	J_i^π	E_γ †	I_γ ‡	E_f	J_f^π	Mult.[c]	α[f]	Comments
6731.1	(15$^+$)	215.3 *2*		6515.5	(14$^+$)			
		379.3 *2*		6351.8	15$^+$	M1+E2	0.031 *6*	α(K)=0.026 *6*; α(L)=0.00404 *24*; α(M)=0.00087 *4* α(N)=0.000192 *10*; α(O)=2.85×10^{-5} *24*; α(P)=1.60×10^{-6} *42*
6745.7	(18$^-$)	313.3 *2*	100	6432.4	(17$^-$)	M1+E2	0.053 *8*	α(K)=0.044 *8*; α(L)=0.00720 *18*; α(M)=0.00155 *6* α(N)=0.000344 *11*; α(O)=5.04×10^{-5} *9*; α(P)=2.7×10^{-6} *7*
6763.7		1149.2& *10*	100	5613.88	15$^-$			
6770.4	16$^+$	418.4 *2*		6351.8	15$^+$	M1+E2	0.024 *5*	α(K)=0.020 *5*; α(L)=0.0030 *3*; α(M)=0.00065 *5* α(N)=0.000144 *13*; α(O)=2.15×10^{-5} *24*; α(P)=1.24×10^{-6} *33*
		1156.6 *5*		5613.88	15$^-$			
		1339.4 *10*		5431.96	14$^-$			
6807.4	16$^+$	455.7 *2*	100	6351.8	15$^+$	M1+E2	0.019 *4*	α(K)=0.016 *4*; α(L)=0.0024 *3*; α(M)=0.00051 *6* α(N)=0.000113 *13*; α(O)=1.69×10^{-5} *23*; α(P)=9.9×10^{-7} *27*
6861.2	16$^+$	509.7 *2*		6351.8	15$^+$	M1+E2	0.014 *4*	α(K)=0.012 *3*; α(L)=0.00175 *25*; α(M)=0.00037 *5* α(N)=8.3×10^{-5} *12*; α(O)=1.24×10^{-5} *20*; α(P)=7.5×10^{-7} *21*
		1218.2 *10*		5644.04	15$^-$			
		1247.4 *10*		5613.88	15$^-$			
6891.9	(16$^+$)	160.4 *2*		6731.1	(15$^+$)	M1+E2	0.394 *22*	α(K)=0.304 *15*; α(L)=0.071 *28*; α(M)=0.0156 *64* α(N)=0.0034 *14*; α(O)=4.8×10^{-4} *17*; α(P)=1.7×10^{-5} *4*
		540.3 *2*		6351.8	15$^+$	M1+E2	0.012 *3*	α(K)=0.0104 *25*; α(L)=0.00149 *23*; α(M)=0.00032 *5* α(N)=7.1×10^{-5} *11*; α(O)=1.06×10^{-5} *18*; α(P)=6.4×10^{-7} *18*
6966.7	17$^-$	202.9& *5*	9&	6763.7				
		807.6& *5*	9&	6158.35	16$^+$			
		1064.9& *10*	<9&	5902.57	16$^-$			
		1322.2& *10*	18&	5644.04	15$^-$	E2	1.29×10^{-3}	α(K)=0.001083 *16*; α(L)=0.0001434 *21*; α(M)=3.03×10^{-5} *5* α(N)=6.76×10^{-6} *10*; α(O)=1.024×10^{-6} *15*; α(P)=6.57×10^{-8} *10*; α(IPF)=2.53×10^{-5} *5*
		1353.4& *10*	100&	5613.88	15$^-$	E2	1.24×10^{-3}	α(K)=0.001034 *15*; α(L)=0.0001366 *20*; α(M)=2.88×10^{-5} *4* α(N)=6.44×10^{-6} *9*; α(O)=9.76×10^{-7} *14*; α(P)=6.28×10^{-8} *9*; α(IPF)=3.25×10^{-5} *6*
7057.0	17$^-$	1413.3& *10*	<11&	5644.04	15$^-$			
		1443.5& *10*	100&	5613.88	15$^-$	E2	1.12×10^{-3}	α(K)=0.000913 *13*; α(L)=0.0001198 *17*; α(M)=2.53×10^{-5} *4* α(N)=5.65×10^{-6} *8*; α(O)=8.57×10^{-7} *12*; α(P)=5.54×10^{-8} *8*; α(IPF)=5.79×10^{-5} *9*
7132.7	(17$^+$)	240.6 *2*		6891.9	(16$^+$)	M1+E2	0.115 *9*	α(K)=0.093 *12*; α(L)=0.017 *3*; α(M)=0.0037 *7* α(N)=0.00081 *13*; α(O)=0.000117 *14*; α(P)=5.5×10^{-6} *13*

$^{140}_{60}Nd_{80}$-16

Adopted Levels, Gammas (continued)

γ(^{140}Nd) (continued)

E_i(level)	J_i^π	E_γ [†]	I_γ [‡]	E_f	J_f^π	Mult.[c]	α[f]	Comments
7132.7	(17$^+$)	271.6 *2*		6861.2	16$^+$			
		325.4 *2*		6807.4	16$^+$	M1+E2	0.048 *8*	α(K)=0.040 *8*; α(L)=0.00640 *10*; α(M)=0.00138 *4* α(N)=0.000306 *6*; α(O)=4.49×10^{-5} *14*; α(P)=2.41×10^{-6} *61*
		362.2 *2*		6770.4	16$^+$	M1+E2	0.036 *7*	α(K)=0.030 *6*; α(L)=0.00463 *20*; α(M)=0.00099 *3* α(N)=0.000221 *8*; α(O)=3.26×10^{-5} *22*; α(P)=1.81×10^{-6} *47*
7170.2	(19$^-$)	424.5 *2*	100	6745.7	(18$^-$)	M1+E2	0.023 *5*	α(K)=0.019 *5*; α(L)=0.0029 *3*; α(M)=0.00062 *6* α(N)=0.000139 *13*; α(O)=2.06×10^{-5} *24*; α(P)=1.19×10^{-6} *32*
7207.5	18$^-$	149.6[&] *5*	25[&]	7057.0	17$^-$	M1+E2	0.49 *4*	α(K)=0.373 *15*; α(L)=0.092 *39*; α(M)=0.0204 *92* α(N)=0.0045 *20*; α(O)=6.2×10^{-4} *24*; α(P)=2.1×10^{-5} *4*
		240.6[&] *5*	100[&]	6966.7	17$^-$	M1+E2	0.115 *9*	α(K)=0.093 *12*; α(L)=0.017 *3*; α(M)=0.0037 *7* α(N)=0.00081 *13*; α(O)=0.000117 *14*; α(P)=5.5×10^{-6} *13*
		798.6[&] *5*	75[&]	6407.89	17$^-$			
		1048.9[&] *5*	51[&]	6158.35	16$^+$			
7397.9	(18$^+$)	341.1[&] *5*	20[&]	7057.0	17$^-$			
		431.2[&] *2*	100[&]	6966.7	17$^-$			
		989.8[&] *2*	80[&]	6407.89	17$^-$			
		1496.4[&] *10*	70[&]	5902.57	16$^-$			
7435.1	(20$^+$)	36.8[&]		7397.9	(18$^+$)	[E2]	113.5	α(L)=88.4 *13*; α(M)=20.2 *3* α(N)=4.34 *6*; α(O)=0.541 *8*; α(P)=0.000422 *6*
		227.5[&] *2*	77[&]	7207.5	18$^-$	[M2]	0.735	α(K)=0.599 *9*; α(L)=0.1068 *16*; α(M)=0.0234 *4* α(N)=0.00524 *8*; α(O)=0.000784 *12*; α(P)=4.72×10^{-5} *7* B(M2)(W.u.)=0.50 *8* B(M2)(W.u.): calculated value is 0.505 *+35−31* but significatly converted 37γ would make this a limit even for a relatively small intensity.
		1028.0[&] *5*	100[&]	6407.89	17$^-$	[E3]	0.00446	α(K)=0.00372 *6*; α(L)=0.000583 *9*; α(M)=0.0001252 *18* α(N)=2.79×10^{-5} *4*; α(O)=4.14×10^{-6} *6*; α(P)=2.34×10^{-7} *4* B(E3)(W.u.)=0.299 *38*
7469.7	16$^-$	1567.9 *10*	100	5902.57	16$^-$			
7488.4	19$^-$	280.6 *2*	100	7207.5	18$^-$	M1+E2	0.073 *9*	α(K)=0.060 *10*; α(L)=0.0102 *8*; α(M)=0.00220 *20* α(N)=0.00049 *4*; α(O)=7.1×10^{-5} *3*; α(P)=3.6×10^{-6} *9*
7525.2	18$^+$	392.3 *2*		7132.7	(17$^+$)	M1+E2	0.029 *6*	α(K)=0.024 *5*; α(L)=0.0037 *3*; α(M)=0.00078 *5* α(N)=0.000174 *11*; α(O)=2.58×10^{-5} *24*; α(P)=1.47×10^{-6} *39*
		558.4 *2*		6966.7	17$^-$			
		1118.1 *5*		6407.89	17$^-$			
		1367.5 *10*		6158.35	16$^+$	E2	1.22×10^{-3}	α(K)=0.001014 *15*; α(L)=0.0001337 *19*; α(M)=2.82×10^{-5} *4*

$^{140}_{60}Nd_{80}$-17

Adopted Levels, Gammas (continued)

γ(^{140}Nd) (continued)

E_i(level)	J_i^π	E_γ †	I_γ ‡	E_f	J_f^π	Mult. [c]	α [f]	Comments
								α(N)=6.31×10^{-6} *9*; α(O)=9.56×10^{-7} *14*; α(P)=6.15×10^{-8} *9*; α(IPF)=3.60×10^{-5} *6*
7795.5	18$^-$	1387.8 *10*	100	6407.89	17$^-$			
7813.3	18$^+$	324.7 *2*		7488.4	19$^-$	E1	0.01110	α(K)=0.00950 *14*; α(L)=0.001260 *18*; α(M)=0.000266 *4* α(N)=5.91×10^{-5} *9*; α(O)=8.84×10^{-6} *13*; α(P)=5.38×10^{-7} *8*
		606.0 *10*	5	7207.5	18$^-$	E1	0.00257	α(K)=0.00221 *4*; α(L)=0.000285 *5*; α(M)=6.00×10^{-5} *9* α(N)=1.338×10^{-5} *20*; α(O)=2.02×10^{-6} *3*; α(P)=1.292×10^{-7} *19*
		756.4 *5*	28	7057.0	17$^-$	(E1)	1.61×10^{-3}	α(K)=0.001389 *20*; α(L)=0.0001777 *25*; α(M)=3.73×10^{-5} *6* α(N)=8.34×10^{-6} *12*; α(O)=1.263×10^{-6} *18*; α(P)=8.18×10^{-8} *12*
		846.5 *2*	63	6966.7	17$^-$	E1	1.29×10^{-3}	α(K)=0.001110 *16*; α(L)=0.0001413 *20*; α(M)=2.97×10^{-5} *5* α(N)=6.63×10^{-6} *10*; α(O)=1.006×10^{-6} *14*; α(P)=6.55×10^{-8} *10*
		952.4 *2*		6861.2	16$^+$	E2	0.00249	α(K)=0.00212 *3*; α(L)=0.000293 *5*; α(M)=6.22×10^{-5} *9* α(N)=1.388×10^{-5} *20*; α(O)=2.09×10^{-6} *3*; α(P)=1.280×10^{-7} *18*
		1042.8 *5*		6770.4	16$^+$	E2	0.00205	α(K)=0.001749 *25*; α(L)=0.000239 *4*; α(M)=5.06×10^{-5} *8* α(N)=1.129×10^{-5} *16*; α(O)=1.701×10^{-6} *24*; α(P)=1.059×10^{-7} *15*
		1405.4 *10*	20	6407.89	17$^-$	(E1)	6.51×10^{-4}	α(K)=0.000438 *7*; α(L)=5.48×10^{-5} *8*; α(M)=1.148×10^{-5} *17* α(N)=2.57×10^{-6} *4*; α(O)=3.91×10^{-7} *6*; α(P)=2.60×10^{-8} *4*; α(IPF)=0.0001438 *22*
		1655.3 *10*	100	6158.35	16$^+$	E2	9.54×10^{-4}	α(K)=0.000704 *10*; α(L)=9.12×10^{-5} *13*; α(M)=1.92×10^{-5} *3* α(N)=4.30×10^{-6} *6*; α(O)=6.53×10^{-7} *10*; α(P)=4.27×10^{-8} *6*; α(IPF)=0.0001352 *20*
7825.8	(18$^+$)	769.0 *2*		7057.0	17$^-$			
		1417.1 *10*		6407.89	17$^-$			
		1666.6 *10*		6158.35	16$^+$			
7950.1	19$^-$	154.6 *2*		7795.5	18$^-$	M1+E2	0.44 *3*	α(K)=0.338 *15*; α(L)=0.082 *33*; α(M)=0.0180 *77* α(N)=0.0039 *17*; α(O)=5.5×10^{-4} *20*; α(P)=1.9×10^{-5} *4*
		1542.6 *10*		6407.89	17$^-$	E2	1.03×10^{-3}	α(K)=0.000804 *12*; α(L)=0.0001049 *15*; α(M)=2.21×10^{-5} *4* α(N)=4.94×10^{-6} *7*; α(O)=7.50×10^{-7} *11*; α(P)=4.88×10^{-8} *7*; α(IPF)=9.13×10^{-5} *14*
8040.5	(20$^-$)	552.1 *2*	100	7488.4	19$^-$			
8048.5	19$^+$	523.3 *2*	100	7525.2	18$^+$	M1+E2	0.013 *3*	α(K)=0.011 *3*; α(L)=0.00163 *24*; α(M)=0.00035 *5* α(N)=7.7×10^{-5} *11*; α(O)=1.16×10^{-5} *19*; α(P)=7.0×10^{-7} *19*
8168.8	18$^+$	1036.2 *5*	100	7132.7	(17$^+$)			
8190.6	20$^-$	240.6 *2*		7950.1	19$^-$	M1+E2	0.115 *9*	α(K)=0.093 *12*; α(L)=0.017 *3*; α(M)=0.0037 *7* α(N)=0.00081 *13*; α(O)=0.000117 *14*; α(P)=5.5×10^{-6} *13*
		755.7 *2*		7435.1	(20$^+$)	(E1)	1.62×10^{-3}	α(K)=0.001392 *20*; α(L)=0.0001780 *25*; α(M)=3.74×10^{-5} *6* α(N)=8.35×10^{-6} *12*; α(O)=1.265×10^{-6} *18*; α(P)=8.19×10^{-8} *12*

$^{140}_{60}Nd_{80}$-18

Adopted Levels, Gammas (continued)

γ(^{140}Nd) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[c]	α[f]	Comments
8322.9	19$^+$	154.1 *2*		8168.8	18$^+$	M1+E2	0.45 *3*	α(K)=0.342 *15*; α(L)=0.083 *34*; α(M)=0.0182 *79* α(N)=0.0040 *17*; α(O)=5.5×10^{-4} *20*; α(P)=1.9×10^{-5} *4*
		797.7 *2*		7525.2	18$^+$	M1+E2	0.0047 *11*	α(K)=0.0040 *10*; α(L)=0.00055 *11*; α(M)=0.000117 *22* α(N)=2.6×10^{-5} *5*; α(O)=3.9×10^{-6} *8*; α(P)=2.51×10^{-7} *63*
8338.7	18$^-$	869.1 *2*	100	7469.7	16$^-$			
8438.5	20$^+$	613.1 *5*	13	7825.8	(18$^+$)			
		625.0 *2*	100	7813.3	18$^+$	E2	0.00660	α(K)=0.00553 *8*; α(L)=0.000843 *12*; α(M)=0.000180 *3* α(N)=4.01×10^{-5} *6*; α(O)=5.92×10^{-6} *9*; α(P)=3.30×10^{-7} *5*
8525.0	21$^-$	334.4 *2*	100	8190.6	20$^-$	M1+E2	0.044 *7*	α(K)=0.037 *7*; α(L)=0.00589 *10*; α(M)=0.001266 *21* α(N)=0.000281 *4*; α(O)=4.13×10^{-5} *17*; α(P)=2.24×10^{-6} *57*
8549.1	20$^+$	500.7 *2*		8048.5	19$^+$	M1+E2	0.015 *4*	α(K)=0.013 *3*; α(L)=0.00184 *25*; α(M)=0.00039 *5* α(N)=8.7×10^{-5} *12*; α(O)=1.30×10^{-5} *20*; α(P)=7.8×10^{-7} *22*
		1024.4 *5*		7525.2	18$^+$			
8605.0	20$^+$	282.0 *2*		8322.9	19$^+$	M1+E2	0.072 *9*	α(K)=0.059 *10*; α(L)=0.0100 *7*; α(M)=0.00217 *19* α(N)=0.00048 *4*; α(O)=7.0×10^{-5} *3*; α(P)=3.6×10^{-6} *9*
		556.2 *2*		8048.5	19$^+$	M1+E2	0.011 *3*	α(K)=0.0097 *23*; α(L)=0.00138 *22*; α(M)=0.00029 *5* α(N)=6.6×10^{-5} *10*; α(O)=9.8×10^{-6} *17*; α(P)=6.0×10^{-7} *17*
8632.7	21$^-$	442.2 *2*		8190.6	20$^-$	M1+E2	0.021 *5*	α(K)=0.017 *4*; α(L)=0.0026 *3*; α(M)=0.00055 *6* α(N)=0.000123 *13*; α(O)=1.84×10^{-5} *24*; α(P)=1.07×10^{-6} *29*
		1196.8 *5*		7435.1	(20$^+$)	(E1)	6.98×10^{-4}	α(K)=0.000580 *9*; α(L)=7.29×10^{-5} *11*; α(M)=1.530×10^{-5} *22* α(N)=3.42×10^{-6} *5*; α(O)=5.20×10^{-7} *8*; α(P)=3.44×10^{-8} *5*; α(IPF)=2.59×10^{-5} *5*
8777.2	22$^-$	144.6 *2*		8632.7	21$^-$	M1+E2	0.55 *5*	α(K)=0.412 *14*; α(L)=0.105 *47*; α(M)=0.023 *11* α(N)=0.0051 *24*; α(O)=7.0×10^{-4} *28*; α(P)=2.3×10^{-5} *5*
		252.2 *2*		8525.0	21$^-$	M1+E2	0.100 *9*	α(K)=0.081 *11*; α(L)=0.0144 *19*; α(M)=0.0031 *5* α(N)=0.00069 *10*; α(O)=0.000100 *9*; α(P)=4.8×10^{-6} *11*
8906.1	21$^+$	356.7 *2*	100	8549.1	20$^+$	M1+E2	0.037 *7*	α(K)=0.031 *7*; α(L)=0.00485 *18*; α(M)=0.001040 *25* α(N)=0.000231 *7*; α(O)=3.41×10^{-5} *21*; α(P)=1.89×10^{-6} *49*
8981.5	20$^-$	543.0 *2*		8438.5	20$^+$	E1	0.00327	α(K)=0.00281 *4*; α(L)=0.000364 *6*; α(M)=7.67×10^{-5} *11* α(N)=1.710×10^{-5} *24*; α(O)=2.58×10^{-6} *4*; α(P)=1.637×10^{-7} *23* Mult.: presumably ΔJ=0 transition.
		642.8 *2*		8338.7	18$^-$	E2	0.00616	α(K)=0.00517 *8*; α(L)=0.000781 *11*; α(M)=0.0001670 *24* α(N)=3.71×10^{-5} *6*; α(O)=5.49×10^{-6} *8*; α(P)=3.08×10^{-7} *5*
		933.0 *2*		8048.5	19$^+$	(E1)	1.07×10^{-3}	α(K)=0.000919 *13*; α(L)=0.0001166 *17*; α(M)=2.45×10^{-5} *4* α(N)=5.47×10^{-6} *8*; α(O)=8.30×10^{-7} *12*; α(P)=5.43×10^{-8} *8*

$^{140}_{60}Nd_{80}$-19

Adopted Levels, Gammas (continued)

γ(^{140}Nd) (continued)

E_i(level)	J_i^π	E_γ [†]	I_γ [‡]	E_f	J_f^π	Mult. [c]	α [f]	Comments
9010.6	23⁻	233.4 *2*	100	8777.2	22⁻	M1+E2	0.125 *9*	α(K)=0.102 *13*; α(L)=0.019 *4*; α(M)=0.0041 *8* α(N)=0.00090 *16*; α(O)=0.000129 *17*; α(P)=6.0×10^{-6} *14*
9011.2	22⁻	486.2 *2*	100	8525.0	21⁻	M1+E2	0.016 *4*	α(K)=0.014 *4*; α(L)=0.0020 *3*; α(M)=0.00042 *5* α(N)=9.5×10^{-5} *12*; α(O)=1.41×10^{-5} *21*; α(P)=8.4×10^{-7} *23*
9034.9	21⁺	429.7 *2*		8605.0	20⁺	M1+E2	0.022 *5*	α(K)=0.019 *5*; α(L)=0.0028 *3*; α(M)=0.00060 *6* α(N)=0.000134 *13*; α(O)=1.99×10^{-5} *24*; α(P)=1.16×10^{-6} *31*
		486.2 *2*		8549.1	20⁺	M1+E2	0.016 *4*	α(K)=0.014 *4*; α(L)=0.0020 *3*; α(M)=0.00042 *5* α(N)=9.5×10^{-5} *12*; α(O)=1.41×10^{-5} *21*; α(P)=8.4×10^{-7} *23*
9173.2	21⁻	734.7 *2*	100	8438.5	20⁺	E1	1.71×10^{-3}	α(K)=0.001474 *21*; α(L)=0.000189 *3*; α(M)=3.97×10^{-5} *6* α(N)=8.86×10^{-6} *13*; α(O)=1.341×10^{-6} *19*; α(P)=8.67×10^{-8} *13*
9266.7	22⁺	828.2 *2*	100	8438.5	20⁺	E2	0.00339	α(K)=0.00287 *4*; α(L)=0.000408 *6*; α(M)=8.68×10^{-5} *13* α(N)=1.94×10^{-5} *3*; α(O)=2.89×10^{-6} *4*; α(P)=1.730×10^{-7} *25*
9323.3	23⁻	312.1 *2*	100	9011.2	22⁻	M1+E2	0.054 *8*	α(K)=0.045 *8*; α(L)=0.00729 *19*; α(M)=0.00157 *7* α(N)=0.000348 *12*; α(O)=5.10×10^{-5} *9*; α(P)=2.7×10^{-6} *7*
9347.2	22⁺	441.0 *2*	100	8906.1	21⁺	M1+E2	0.021 *5*	α(K)=0.018 *4*; α(L)=0.0026 *3*; α(M)=0.00056 *6* α(N)=0.000124 *13*; α(O)=1.85×10^{-5} *24*; α(P)=1.08×10^{-6} *29*
9524.0	23⁻	512.8 *2*	100	9011.2	22⁻	M1+E2	0.014 *3*	α(K)=0.012 *3*; α(L)=0.00172 *25*; α(M)=0.00037 *5* α(N)=8.2×10^{-5} *12*; α(O)=1.22×10^{-5} *20*; α(P)=7.3×10^{-7} *20*
9566.5	22⁺	531.6 *2*		9034.9	21⁺	M1+E2	0.013 *3*	α(K)=0.011 *3*; α(L)=0.00156 *23*; α(M)=0.00033 *5* α(N)=7.4×10^{-5} *11*; α(O)=1.11×10^{-5} *19*; α(P)=6.7×10^{-7} *19*
		660.4 *2*		8906.1	21⁺			
9569.3	22⁻	533.9 *5*	100	9034.9	21⁺	E1	0.00340	α(K)=0.00292 *5*; α(L)=0.000379 *6*; α(M)=7.97×10^{-5} *12* α(N)=1.78×10^{-5} *3*; α(O)=2.68×10^{-6} *4*; α(P)=1.698×10^{-7} *24*
		588.0 *5*	54	8981.5	20⁻	E2	0.00770	α(K)=0.00643 *10*; α(L)=0.000998 *15*; α(M)=0.000214 *3* α(N)=4.75×10^{-5} *7*; α(O)=6.99×10^{-6} *10*; α(P)=3.82×10^{-7} *6*
9646.7	22⁺	380.0 *2*		9266.7	22⁺	M1+E2	0.031 *6*	α(K)=0.026 *6*; α(L)=0.00402 *24*; α(M)=0.00086 *4* α(N)=0.000191 *10*; α(O)=2.83×10^{-5} *24*; α(P)=1.59×10^{-6} *42*
		1208.2 *10*		8438.5	20⁺	E2	1.52×10^{-3}	α(K)=0.001295 *19*; α(L)=0.0001733 *25*; α(M)=3.66×10^{-5} *6* α(N)=8.18×10^{-6} *12*; α(O)=1.237×10^{-6} *18*; α(P)=7.86×10^{-8} *11*; α(IPF)=6.85×10^{-6} *16*
9671.1	22$^{(-)}$	636.4 *2*	100	9034.9	21⁺	(E1)	0.00231	α(K)=0.00199 *3*; α(L)=0.000256 *4*; α(M)=5.39×10^{-5} *8* α(N)=1.203×10^{-5} *17*; α(O)=1.82×10^{-6} *3*; α(P)=1.165×10^{-7} *17*
9771.0	24⁻	447.7 *2*	100	9323.3	23⁻	M1+E2	0.020 *5*	α(K)=0.017 *4*; α(L)=0.0025 *3*; α(M)=0.00053 *6* α(N)=0.000119 *13*; α(O)=1.77×10^{-5} *23*; α(P)=1.04×10^{-6} *28*

$^{140}_{60}Nd_{80}$-20

Adopted Levels, Gammas (continued)

γ(^{140}Nd) (continued)

E_i(level)	J_i^π	E_γ [†]	I_γ [‡]	E_f	J_f^π	Mult.[c]	α[f]	Comments
9794.3	23$^-$	527.6 *2*	100	9266.7	22$^+$	E1	0.00349	α(K)=0.00300 *5*; α(L)=0.000389 *6*; α(M)=8.18×10^{-5} *12* α(N)=1.83×10^{-5} *3*; α(O)=2.75×10^{-6} *4*; α(P)=1.743×10^{-7} *25*
		621.1 *2*	67	9173.2	21$^-$	E2	0.00671	α(K)=0.00562 *8*; α(L)=0.000857 *12*; α(M)=0.000183 *3* α(N)=4.08×10^{-5} *6*; α(O)=6.02×10^{-6} *9*; α(P)=3.35×10^{-7} *5*
9871.7	23$^+$	524.4 *2*	100	9347.2	22$^+$	M1+E2	0.013 *3*	α(K)=0.011 *3*; α(L)=0.00162 *24*; α(M)=0.00034 *5* α(N)=7.7×10^{-5} *11*; α(O)=1.15×10^{-5} *19*; α(P)=6.9×10^{-7} *19*
9892.4	23$^{(-)}$	221.6 *2*		9671.1	22$^{(-)}$	M1+E2	0.146 *8*	α(K)=0.118 *13*; α(L)=0.022 *5*; α(M)=0.0049 *11* α(N)=0.00107 *22*; α(O)=0.000153 *24*; α(P)=6.9×10^{-6} *15*
		325.8 *2*		9566.5	22$^+$	(E1)	0.01100	α(K)=0.00942 *14*; α(L)=0.001250 *18*; α(M)=0.000263 *4* α(N)=5.86×10^{-5} *9*; α(O)=8.76×10^{-6} *13*; α(P)=5.34×10^{-7} *8*
		545.0 *2*		9347.2	22$^+$	(E1)	0.00324	α(K)=0.00279 *4*; α(L)=0.000361 *5*; α(M)=7.60×10^{-5} *11* α(N)=1.696×10^{-5} *24*; α(O)=2.56×10^{-6} *4*; α(P)=1.623×10^{-7} *23*
10001.8	24$^-$	477.8 *2*	100	9524.0	23$^-$	M1+E2	0.017 *4*	α(K)=0.014 *4*; α(L)=0.0021 *3*; α(M)=0.00045 *6* α(N)=9.9×10^{-5} *12*; α(O)=1.48×10^{-5} *22*; α(P)=8.8×10^{-7} *24*
10126.5	24$^+$	859.8 *2*	100	9266.7	22$^+$	E2	0.00311	α(K)=0.00264 *4*; α(L)=0.000373 *6*; α(M)=7.93×10^{-5} *12* α(N)=1.767×10^{-5} *25*; α(O)=2.65×10^{-6} *4*; α(P)=1.595×10^{-7} *23*
10128.7		605.4	100	9524.0	23$^-$			
10255.1		931.8	100	9323.3	23$^-$			
10263.2	24$^{(-)}$	370.8 *2*	100	9892.4	23$^{(-)}$	M1+E2	0.033 *6*	α(K)=0.028 *6*; α(L)=0.00432 *22*; α(M)=0.00093 *4* α(N)=0.000206 *9*; α(O)=3.04×10^{-5} *23*; α(P)=1.70×10^{-6} *45*
10307.6	24$^-$	415.3 *2*		9892.4	23$^{(-)}$	(M1+E2)	0.025 *5*	α(K)=0.021 *5*; α(L)=0.0031 *3*; α(M)=0.00066 *5* α(N)=0.000148 *13*; α(O)=2.19×10^{-5} *24*; α(P)=1.26×10^{-6} *34*
		738.0 *2*	100	9569.3	22$^-$	E2	0.00442	α(K)=0.00373 *6*; α(L)=0.000544 *8*; α(M)=0.0001159 *17* α(N)=2.58×10^{-5} *4*; α(O)=3.84×10^{-6} *6*; α(P)=2.24×10^{-7} *4*
10437.5		1427.3	100	9010.6	23$^-$			
10471.3	24$^+$	599.6 *2*	100	9871.7	23$^+$	M1+E2	0.0095 *22*	α(K)=0.0080 *20*; α(L)=0.00113 *19*; α(M)=0.00024 *4* α(N)=5.4×10^{-5} *9*; α(O)=8.1×10^{-6} *15*; α(P)=5.0×10^{-7} *14*
10576.2	25$^-$	449.7 *5*	23	10126.5	24$^+$	E1	0.00503	α(K)=0.00432 *7*; α(L)=0.000565 *8*; α(M)=0.0001189 *17* α(N)=2.65×10^{-5} *4*; α(O)=3.99×10^{-6} *6*; α(P)=2.49×10^{-7} *4*
		781.9 *2*	100	9794.3	23$^-$	E2	0.00386	α(K)=0.00327 *5*; α(L)=0.000470 *7*; α(M)=0.0001001 *14* α(N)=2.23×10^{-5} *4*; α(O)=3.33×10^{-6} *5*; α(P)=1.97×10^{-7} *3*
10587.9	24$^+$	941.2 *2*		9646.7	22$^+$	E2	0.00255	α(K)=0.00217 *3*; α(L)=0.000302 *5*; α(M)=6.40×10^{-5} *9* α(N)=1.427×10^{-5} *20*; α(O)=2.14×10^{-6} *3*; α(P)=1.313×10^{-7} *19*
		1321.1 *10*		9266.7	22$^+$	E2	1.29×10^{-3}	α(K)=0.001084 *16*; α(L)=0.0001436 *21*; α(M)=3.03×10^{-5} *5*

$^{140}_{60}Nd_{80}$-21

Adopted Levels, Gammas (continued)

γ(^{140}Nd) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[c]	α[f]	Comments
								α(N)=6.77×10^{-6} *10*; α(O)=1.026×10^{-6} *15*; α(P)=6.58×10^{-8} *10*; α(IPF)=2.51×10^{-5} *5*
10595.1	24$^-$	287.1 *2*		10307.6	24$^-$			
		1027.4[b] *5*		9569.3	22$^-$	E2	0.00212	α(K)=0.00180 *3*; α(L)=0.000247 *4*; α(M)=5.23×10^{-5} *8* α(N)=1.167×10^{-5} *17*; α(O)=1.758×10^{-6} *25*; α(P)=1.092×10^{-7} *16*
10614.4		486.3	100	10128.7				
10679.3		424.2	100	10255.1				
10740.9	25$^{(-)}$	477.7 *2*	100	10263.2	24$^{(-)}$	M1+E2	0.017 *4*	α(K)=0.014 *4*; α(L)=0.0021 *3*; α(M)=0.00045 *6* α(N)=9.9×10^{-5} *12*; α(O)=1.48×10^{-5} *22*; α(P)=8.8×10^{-7} *24*
10949.6	(25$^-$)	1155.5 *5*	100	9794.3	23$^-$			
11072.6	26$^-$	765.0 *2*	100	10307.6	24$^-$	E2	0.00406	α(K)=0.00343 *5*; α(L)=0.000497 *7*; α(M)=0.0001058 *15* α(N)=2.36×10^{-5} *4*; α(O)=3.51×10^{-6} *5*; α(P)=2.06×10^{-7} *3*
11173.9	26$^+$	1047.6 *5*	100	10126.5	24$^+$	E2	0.00203	α(K)=0.001732 *25*; α(L)=0.000236 *4*; α(M)=5.01×10^{-5} *7* α(N)=1.117×10^{-5} *16*; α(O)=1.684×10^{-6} *24*; α(P)=1.049×10^{-7} *15*
11213.2	(27$^-$)	599.4	100	10614.4				
11222.7	25$^{(-)}$	785.6	100	10437.5				
		1350.2		9871.7	23$^+$			
11312.5	26$^{(-)}$	571.6 *2*	100	10740.9	25$^{(-)}$	M1+E2	0.0107 *25*	α(K)=0.0091 *22*; α(L)=0.00129 *21*; α(M)=0.00027 *5* α(N)=6.1×10^{-5} *10*; α(O)=9.2×10^{-6} *16*; α(P)=5.6×10^{-7} *16*
11365.6	27$^-$	789.3 *2*	100	10576.2	25$^-$	E2	0.00378	α(K)=0.00320 *5*; α(L)=0.000460 *7*; α(M)=9.78×10^{-5} *14* α(N)=2.18×10^{-5} *3*; α(O)=3.25×10^{-6} *5*; α(P)=1.92×10^{-7} *3*
11398.0	26$^{(-)}$	325.5 *2*		11072.6	26$^-$	M1+E2	0.048 *8*	α(K)=0.040 *8*; α(L)=0.00640 *10*; α(M)=0.00138 *4* α(N)=0.000305 *6*; α(O)=4.49×10^{-5} *14*; α(P)=2.41×10^{-6} *61*
		802.8 *2*		10595.1	24$^-$			
11565.1	26$^+$	977.3 *5*	100	10587.9	24$^+$	E2	0.00235	α(K)=0.00200 *3*; α(L)=0.000277 *4*; α(M)=5.86×10^{-5} *9* α(N)=1.308×10^{-5} *19*; α(O)=1.97×10^{-6} *3*; α(P)=1.213×10^{-7} *17*
11589.0	26$^+$	366.1		11222.7	25$^{(-)}$	(E1)[e]	0.00824	α(K)=0.00706 *10*; α(L)=0.000932 *13*; α(M)=0.000196 *3* α(N)=4.37×10^{-5} *7*; α(O)=6.55×10^{-6} *10*; α(P)=4.03×10^{-7} *6*
		376.1		11213.2	(27$^-$)	(E1)[e]	0.00771	α(K)=0.00661 *10*; α(L)=0.000871 *13*; α(M)=0.000184 *3* α(N)=4.09×10^{-5} *6*; α(O)=6.13×10^{-6} *9*; α(P)=3.78×10^{-7} *6*
11601.0	26$^+$	378.1		11222.7	25$^{(-)}$	(E1)[e]	0.00761	α(K)=0.00653 *10*; α(L)=0.000860 *12*; α(M)=0.000181 *3* α(N)=4.03×10^{-5} *6*; α(O)=6.05×10^{-6} *9*; α(P)=3.73×10^{-7} *6*
		388.2		11213.2	(27$^-$)	(E1)[e]	0.00714	α(K)=0.00612 *9*; α(L)=0.000806 *12*; α(M)=0.0001697 *24* α(N)=3.78×10^{-5} *6*; α(O)=5.67×10^{-6} *8*; α(P)=3.51×10^{-7} *5*
		1012.9		10587.9	24$^+$	E2	0.00218	α(K)=0.00186 *3*; α(L)=0.000255 *4*; α(M)=5.40×10^{-5} *8* α(N)=1.205×10^{-5} *17*; α(O)=1.81×10^{-6} *3*; α(P)=1.125×10^{-7} *16*

$^{140}_{60}Nd_{80}$-22

Adopted Levels, Gammas (continued)

γ(^{140}Nd) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[c]	α[f]	Comments
11601.0	26$^+$	1024.9		10576.2	25$^-$	(E1)[e]	8.93×10^{-4}	α(K)=0.000770 *11*; α(L)=9.73×10^{-5} *14*; α(M)=2.04×10^{-5} *3* α(N)=4.56×10^{-6} *7*; α(O)=6.94×10^{-7} *10*; α(P)=4.56×10^{-8} *7*
11846.0	27$^-$	447.4 *10*	11	11398.0	26$^{(-)}$	M1+E2	0.020 *5*	α(K)=0.017 *4*; α(L)=0.0025 *3*; α(M)=0.00054 *6* α(N)=0.000119 *13*; α(O)=1.78×10^{-5} *23*; α(P)=1.04×10^{-6} *28*
		773.5 *5*	100	11072.6	26$^-$	M1+E2	0.0051 *12*	α(K)=0.0044 *10*; α(L)=0.00059 *11*; α(M)=0.000126 *23* α(N)=2.8×10^{-5} *6*; α(O)=4.3×10^{-6} *9*; α(P)=2.70×10^{-7} *69*
11944.9	(27$^-$)	995.3 *2*		10949.6	(25$^-$)	E2	0.00226	α(K)=0.00193 *3*; α(L)=0.000265 *4*; α(M)=5.62×10^{-5} *8* α(N)=1.254×10^{-5} *18*; α(O)=1.89×10^{-6} *3*; α(P)=1.167×10^{-7} *17*
		1368.9 *10*		10576.2	25$^-$			
11966.2	27$^{(-)}$	653.7 *2*	100	11312.5	26$^{(-)}$	M1+E2	0.0077 *18*	α(K)=0.0065 *16*; α(L)=0.00091 *16*; α(M)=0.00019 *4* α(N)=4.3×10^{-5} *8*; α(O)=6.5×10^{-6} *13*; α(P)=4.0×10^{-7} *11*
12124.5	28$^-$	1051.9 *5*	100	11072.6	26$^-$	E2	0.00201	α(K)=0.001717 *25*; α(L)=0.000234 *4*; α(M)=4.96×10^{-5} *7* α(N)=1.107×10^{-5} *16*; α(O)=1.668×10^{-6} *24*; α(P)=1.040×10^{-7} *15*
12194.5	(26$^-$)	245.4 *2*	100	11949.3	(25$^-$)	M1+E2	0.108 *9*	α(K)=0.088 *12*; α(L)=0.0158 *22*; α(M)=0.0034 *6* α(N)=0.00076 *12*; α(O)=0.000109 *12*; α(P)=5.2×10^{-6} *12*
12236.8	(26$^-$)	287.4 *2*	100	11949.3	(25$^-$)			
12241.4	28$^+$	640.4		11601.0	26$^+$	E2	0.00622	α(K)=0.00521 *8*; α(L)=0.000789 *11*; α(M)=0.0001687 *24* α(N)=3.75×10^{-5} *6*; α(O)=5.55×10^{-6} *8*; α(P)=3.11×10^{-7} *5*
		652.5		11589.0	26$^+$	E2	0.00594	α(K)=0.00498 *7*; α(L)=0.000750 *11*; α(M)=0.0001604 *23* α(N)=3.57×10^{-5} *5*; α(O)=5.28×10^{-6} *8*; α(P)=2.98×10^{-7} *5*
		676.3 *5*	46	11565.1	26$^+$	E2	0.00544	α(K)=0.00457 *7*; α(L)=0.000682 *10*; α(M)=0.0001457 *21* α(N)=3.24×10^{-5} *5*; α(O)=4.81×10^{-6} *7*; α(P)=2.74×10^{-7} *4*
		875.7 *5*	100	11365.6	27$^-$	E1	1.21×10^{-3}	α(K)=0.001038 *15*; α(L)=0.0001320 *19*; α(M)=2.77×10^{-5} *4* α(N)=6.20×10^{-6} *9*; α(O)=9.40×10^{-7} *14*; α(P)=6.13×10^{-8} *9*
12422.3	29$^-$	1056.7 *5*	100	11365.6	27$^-$	E2	0.00200	α(K)=0.001701 *24*; α(L)=0.000232 *4*; α(M)=4.91×10^{-5} *7* α(N)=1.096×10^{-5} *16*; α(O)=1.652×10^{-6} *24*; α(P)=1.031×10^{-7} *15*
12426.1	(28$^+$)	1252.8 *10*	100	11173.9	26$^+$	[E2]	1.42×10^{-3}	α(K)=0.001204 *17*; α(L)=0.0001605 *23*; α(M)=3.39×10^{-5} *5* α(N)=7.57×10^{-6} *11*; α(O)=1.146×10^{-6} *17*; α(P)=7.31×10^{-8} *11*; α(IPF)=1.296×10^{-5} *24*
12446.0	(28$^+$)	1271.9 *10*	100	11173.9	26$^+$	[E2]	1.38×10^{-3}	α(K)=0.001169 *17*; α(L)=0.0001555 *22*; α(M)=3.28×10^{-5} *5* α(N)=7.33×10^{-6} *11*; α(O)=1.110×10^{-6} *16*; α(P)=7.09×10^{-8} *10*; α(IPF)=1.60×10^{-5} *3*
12480.6	(29$^+$)	1115.4 *10*	100	11365.6	27$^-$	[M2]	0.00634	α(K)=0.00540 *8*; α(L)=0.000742 *11*; α(M)=0.0001574 *23* α(N)=3.53×10^{-5} *5*; α(O)=5.38×10^{-6} *8*; α(P)=3.53×10^{-7} *5*; α(IPF)=9.7×10^{-8} *5*

$^{140}_{60}Nd_{80}$-23

Adopted Levels, Gammas (continued)

γ(^{140}Nd) (continued)

E_i(level)	J_i^π	E_γ [†]	I_γ [‡]	E_f	J_f^π	Mult.[c]	α[f]	Comments
12525.5	29⁻	401.1 *10*	8	12124.5	28⁻			
		679.5 *5*	100	11846.0	27⁻	E2	0.00538	α(K)=0.00452 *7*; α(L)=0.000674 *10*; α(M)=0.0001439 *21* α(N)=3.20×10^{-5} *5*; α(O)=4.75×10^{-6} *7*; α(P)=2.71×10^{-7} *4*
12548.9	(27⁻)	312.3 *2*		12236.8	(26⁻)	M1+E2	0.054 *8*	α(K)=0.045 *8*; α(L)=0.00727 *19*; α(M)=0.00157 *7* α(N)=0.000347 *12*; α(O)=5.09×10^{-5} *9*; α(P)=2.7×10^{-6} *7*
		354.4 *2*		12194.5	(26⁻)	(M1+E2)	0.038 *7*	α(K)=0.032 *7*; α(L)=0.00494 *17*; α(M)=0.001060 *24* α(N)=0.000236 *7*; α(O)=3.48×10^{-5} *21*; α(P)=1.92×10^{-6} *50*
		599.5 *2*		11949.3	(25⁻)			
12898.4	(29⁺)	452.1 *2*		12446.0	(28⁺)	M1+E2	0.020 *4*	α(K)=0.016 *4*; α(L)=0.0024 *3*; α(M)=0.00052 *6* α(N)=0.000116 *13*; α(O)=1.73×10^{-5} *23*; α(P)=1.01×10^{-6} *28*
		472.3 *2*		12426.1	(28⁺)	M1+E2	0.017 *4*	α(K)=0.015 *4*; α(L)=0.0022 *3*; α(M)=0.00046 *6* α(N)=0.000102 *13*; α(O)=1.53×10^{-5} *22*; α(P)=9.1×10^{-7} *25*
12918.0	(28⁻)	369.0 *2*		12548.9	(27⁻)	M1+E2	0.034 *6*	α(K)=0.028 *6*; α(L)=0.00438 *21*; α(M)=0.00094 *4* α(N)=0.000209 *9*; α(O)=3.09×10^{-5} *23*; α(P)=1.72×10^{-6} *45*
		680.8 *2*		12236.8	(26⁻)			
		723.8 *2*		12194.5	(26⁻)			
12997.5	(29⁻)	1052.8 *5*		11944.9	(27⁻)			
		1631.2 *10*		11365.6	27⁻			
13051.1	30⁺	809.7 *2*	100	12241.4	28⁺	E2	0.00357	α(K)=0.00302 *5*; α(L)=0.000432 *6*; α(M)=9.18×10^{-5} *13* α(N)=2.05×10^{-5} *3*; α(O)=3.06×10^{-6} *5*; α(P)=1.82×10^{-7} *3*
13323.5	(30⁺)	424.9 *2*		12898.4	(29⁺)	M1+E2	0.023 *5*	α(K)=0.019 *5*; α(L)=0.0029 *3*; α(M)=0.00062 *6* α(N)=0.000138 *13*; α(O)=2.06×10^{-5} *24*; α(P)=1.19×10^{-6} *32*
		877.7 *2*		12446.0	(28⁺)	E2	0.00298	α(K)=0.00253 *4*; α(L)=0.000355 *5*; α(M)=7.54×10^{-5} *11* α(N)=1.682×10^{-5} *24*; α(O)=2.52×10^{-6} *4*; α(P)=1.525×10^{-7} *22*
13336.0	(29⁻)	417.7 *2*		12918.0	(28⁻)	M1+E2	0.024 *5*	α(K)=0.020 *5*; α(L)=0.0031 *3*; α(M)=0.00065 *5* α(N)=0.000145 *13*; α(O)=2.16×10^{-5} *24*; α(P)=1.24×10^{-6} *34*
		787.4 *2*		12548.9	(27⁻)	E2	0.00380	α(K)=0.00321 *5*; α(L)=0.000462 *7*; α(M)=9.84×10^{-5} *14* α(N)=2.19×10^{-5} *3*; α(O)=3.27×10^{-6} *5*; α(P)=1.94×10^{-7} *3*
13394.7	(31⁺)	914.1 *5*	100	12480.6	(29⁺)	[E2]	0.00272	α(K)=0.00231 *4*; α(L)=0.000323 *5*; α(M)=6.85×10^{-5} *10* α(N)=1.528×10^{-5} *22*; α(O)=2.29×10^{-6} *4*; α(P)=1.397×10^{-7} *20*
		972.0 *10*	80	12422.3	29⁻			
13406.8	30⁻	1282.3 *10*	100	12124.5	28⁻	E2	1.36×10^{-3}	α(K)=0.001150 *17*; α(L)=0.0001528 *22*; α(M)=3.23×10^{-5} *5* α(N)=7.21×10^{-6} *11*; α(O)=1.091×10^{-6} *16*; α(P)=6.98×10^{-8} *10*; α(IPF)=1.77×10^{-5} *3*
13479.2	(30⁺)	953.7 *2*	100	12525.5	29⁻	[E1]	1.02×10^{-3}	α(K)=0.000881 *13*; α(L)=0.0001117 *16*; α(M)=2.34×10^{-5} *4* α(N)=5.24×10^{-6} *8*; α(O)=7.96×10^{-7} *12*; α(P)=5.21×10^{-8} *8*

$^{140}_{60}Nd_{80}$-24

Adopted Levels, Gammas (continued)

γ(^{140}Nd) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[c]	α[f]	Comments
13583.6	31⁻	1058.1 *5*	100	12525.5	29⁻	E2	0.00199	α(K)=0.001697 *24*; α(L)=0.000231 *4*; α(M)=4.89×10^{-5} *7* α(N)=1.093×10^{-5} *16*; α(O)=1.647×10^{-6} *24*; α(P)=1.028×10^{-7} *15*
13704.0	31⁻	1281.6 *10*	100	12422.3	29⁻	E2	1.36×10^{-3}	α(K)=0.001151 *17*; α(L)=0.0001530 *22*; α(M)=3.23×10^{-5} *5* α(N)=7.22×10^{-6} *11*; α(O)=1.093×10^{-6} *16*; α(P)=6.99×10^{-8} *10*; α(IPF)=1.76×10^{-5} *3*
13769.3	(30⁻)	433.5 *2*		13336.0	(29⁻)	M1+E2	0.022 *5*	α(K)=0.018 *4*; α(L)=0.0027 *3*; α(M)=0.00059 *6* α(N)=0.000131 *13*; α(O)=1.94×10^{-5} *24*; α(P)=1.13×10^{-6} *31*
		851.2 *2*		12918.0	(28⁻)	E2	0.00319	α(K)=0.00270 *4*; α(L)=0.000382 *6*; α(M)=8.12×10^{-5} *12* α(N)=1.81×10^{-5} *3*; α(O)=2.71×10^{-6} *4*; α(P)=1.630×10^{-7} *23*
13915.8	(31⁺)	592.3 *2*	100	13323.5	(30⁺)	M1+E2	0.0098 *23*	α(K)=0.0083 *20*; α(L)=0.00117 *20*; α(M)=0.00025 *4* α(N)=5.6×10^{-5} *9*; α(O)=8.3×10^{-6} *15*; α(P)=5.1×10^{-7} *14*
13960.2	32⁺	909.1 *2*	100	13051.1	30⁺	E2	0.00275	α(K)=0.00234 *4*; α(L)=0.000327 *5*; α(M)=6.94×10^{-5} *10* α(N)=1.547×10^{-5} *22*; α(O)=2.32×10^{-6} *4*; α(P)=1.414×10^{-7} *20*
14238.6	(31⁻)	469.1 *2*		13769.3	(30⁻)	M1+E2	0.018 *4*	α(K)=0.015 *4*; α(L)=0.0022 *3*; α(M)=0.00047 *6* α(N)=0.000104 *13*; α(O)=1.56×10^{-5} *22*; α(P)=9.2×10^{-7} *25*
		902.6 *2*		13336.0	(29⁻)	E2	0.00280	α(K)=0.00238 *4*; α(L)=0.000333 *5*; α(M)=7.06×10^{-5} *10* α(N)=1.574×10^{-5} *22*; α(O)=2.36×10^{-6} *4*; α(P)=1.436×10^{-7} *21*
14247.1	(31⁻)	477.2 *2*		13769.3	(30⁻)			
		911.2 *2*		13336.0	(29⁻)	E2	0.00274	α(K)=0.00233 *4*; α(L)=0.000325 *5*; α(M)=6.90×10^{-5} *10* α(N)=1.539×10^{-5} *22*; α(O)=2.31×10^{-6} *4*; α(P)=1.407×10^{-7} *20*
14254.9	(30⁺)	1204.2 *10*	100	13051.1	30⁺			
14410.6	(32⁺)	827.0 *2*		13583.6	31⁻			
		931.3 *2*		13479.2	(30⁺)			
		1087.1 *2*		13323.5	(30⁺)			
14474.2	(33⁺)	1079.5 *5*	100	13394.7	(31⁺)	E2	0.00191	α(K)=0.001628 *23*; α(L)=0.000221 *4*; α(M)=4.68×10^{-5} *7* α(N)=1.045×10^{-5} *15*; α(O)=1.576×10^{-6} *23*; α(P)=9.87×10^{-8} *14*
14540.6	(31⁺)	285.5 *2*		14254.9	(30⁺)			
		1489.4[i] *1*		13051.1	30⁺			
14708.3	(32⁺)	792.5 *2*	100	13915.8	(31⁺)			
14761.7	(32⁻)	514.4 *2*		14247.1	(31⁻)			
		522.6 *2*		14238.6	(31⁻)			
		993.1[b] *2*		13769.3	(30⁻)			
14844.4	(32⁻)	1437.6 *10*	100	13406.8	30⁻			
14858.2	(32⁺)	317.3 *2*		14540.6	(31⁺)	M1+E2	0.051 *8*	α(K)=0.043 *8*; α(L)=0.00692 *14*; α(M)=0.00149 *5* α(N)=0.000331 *9*; α(O)=4.85×10^{-5} *11*; α(P)=2.6×10^{-6} *7*
		603.4 *2*		14254.9	(30⁺)			
		898.0 *2*		13960.2	32⁺			
		1274.9 *10*		13583.6	31⁻			

$^{140}_{60}Nd_{80}$-25

Adopted Levels, Gammas (continued)

γ(^{140}Nd) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[c]	α[f]	Comments
14904.3	33⁻	1320.7 *10*	100	13583.6	31⁻	E2	1.29×10^{-3}	α(K)=0.001085 *16*; α(L)=0.0001437 *21*; α(M)=3.03×10^{-5} *5* α(N)=6.78×10^{-6} *10*; α(O)=1.027×10^{-6} *15*; α(P)=6.59×10^{-8} *10*; α(IPF)=2.50×10^{-5} *4*
15027.3	(33⁻)	779.7 *2*		14247.1	(31⁻)	E2	0.00389	α(K)=0.00329 *5*; α(L)=0.000474 *7*; α(M)=0.0001008 *15* α(N)=2.25×10^{-5} *4*; α(O)=3.35×10^{-6} *5*; α(P)=1.98×10^{-7} *3*
		789.1 *2*		14238.6	(31⁻)	E2	0.00378	α(K)=0.00320 *5*; α(L)=0.000460 *7*; α(M)=9.79×10^{-5} *14* α(N)=2.18×10^{-5} *3*; α(O)=3.25×10^{-6} *5*; α(P)=1.93×10^{-7} *3*
15042.9	34⁺	1082.0 *5*	100	13960.2	32⁺	E2	0.00190	α(K)=0.001620 *23*; α(L)=0.000220 *3*; α(M)=4.66×10^{-5} *7* α(N)=1.040×10^{-5} *15*; α(O)=1.568×10^{-6} *22*; α(P)=9.82×10^{-8} *14*
15141.5	(33⁻)	1437.5 *10*	100	13704.0	31⁻			
15146.9	(33⁻)	1442.9 *10*	100	13704.0	31⁻			
15315.5	(33⁺)	457.4 *2*		14858.2	(32⁺)			
		775.0 *2*		14540.6	(31⁺)			
		1355.2 *10*		13960.2	32⁺			
15339.9	(33⁻)	578.1 *2*		14761.7	(32⁻)	(M1+E2)	0.0104 *24*	α(K)=0.0088 *21*; α(L)=0.00125 *21*; α(M)=0.00027 *4* α(N)=5.9×10^{-5} *10*; α(O)=8.9×10^{-6} *16*; α(P)=5.4×10^{-7} *15*
		1101.3 *5*		14238.6	(31⁻)			
15605.2	(34⁺)	1194.6 *5*	100	14410.6	(32⁺)	(E2)	1.55×10^{-3}	α(K)=0.001325 *19*; α(L)=0.0001775 *25*; α(M)=3.75×10^{-5} *6* α(N)=8.38×10^{-6} *12*; α(O)=1.267×10^{-6} *18*; α(P)=8.04×10^{-8} *12*; α(IPF)=5.33×10^{-6} *10*
15726.0	(35⁺)	1251.8 *10*	100	14474.2	(33⁺)	E2	1.42×10^{-3}	α(K)=0.001206 *17*; α(L)=0.0001608 *23*; α(M)=3.39×10^{-5} *5* α(N)=7.59×10^{-6} *11*; α(O)=1.148×10^{-6} *17*; α(P)=7.32×10^{-8} *11*; α(IPF)=1.281×10^{-5} *24*
15774.1	(34⁺)	458.4 *2*		15315.5	(33⁺)	M1+E2	0.019 *4*	α(K)=0.016 *4*; α(L)=0.0023 *3*; α(M)=0.00050 *6* α(N)=0.000111 *13*; α(O)=1.66×10^{-5} *23*; α(P)=9.8×10^{-7} *27*
		731.1 *2*		15042.9	34⁺			
		915.9 *2*		14858.2	(32⁺)			
15993.6	(34⁻)	653.7 *2*		15339.9	(33⁻)	M1+E2	0.0077 *18*	α(K)=0.0065 *16*; α(L)=0.00091 *16*; α(M)=0.00019 *4* α(N)=4.3×10^{-5} *8*; α(O)=6.5×10^{-6} *13*; α(P)=4.0×10^{-7} *11*
		1232.8 *10*		14761.7	(32⁻)			
16036.4	(35⁻)	889.5 *10*	88	15146.9	(33⁻)	[E2]	0.00289	α(K)=0.00245 *4*; α(L)=0.000344 *5*; α(M)=7.31×10^{-5} *11* α(N)=1.629×10^{-5} *24*; α(O)=2.44×10^{-6} *4*; α(P)=1.482×10^{-7} *21*
		894.9 *10*	100	15141.5	(33⁻)	E2	0.00285	α(K)=0.00242 *4*; α(L)=0.000339 *5*; α(M)=7.20×10^{-5} *11* α(N)=1.606×10^{-5} *23*; α(O)=2.41×10^{-6} *4*; α(P)=1.462×10^{-7} *21*
		1009.1 *5*		15027.3	(33⁻)	E2	0.00220	α(K)=0.00187 *3*; α(L)=0.000257 *4*; α(M)=5.45×10^{-5} *8* α(N)=1.216×10^{-5} *17*; α(O)=1.83×10^{-6} *3*; α(P)=1.134×10^{-7} *16*

$^{140}_{60}Nd_{80}$-26

Adopted Levels, Gammas (continued)

γ(^{140}Nd) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[c]	α[f]	Comments
16087.6	(35$^-$)	1060.3 *5*	100	15027.3	(33$^-$)	E2	0.00198	α(K)=0.001689 *24*; α(L)=0.000230 *4*; α(M)=4.87×10^{-5} *7* α(N)=1.088×10^{-5} *16*; α(O)=1.639×10^{-6} *23*; α(P)=1.024×10^{-7} *15*
16278.5	36$^+$	1235.6 *10*	100	15042.9	34$^+$	E2	1.46×10^{-3}	α(K)=0.001238 *18*; α(L)=0.0001652 *24*; α(M)=3.49×10^{-5} *5* α(N)=7.80×10^{-6} *11*; α(O)=1.180×10^{-6} *17*; α(P)=7.51×10^{-8} *11*; α(IPF)=1.044×10^{-5} *21*
16286.5	35$^+$	512.0 *2*		15774.1	(34$^+$)	M1+E2	0.014 *4*	α(K)=0.012 *3*; α(L)=0.00173 *25*; α(M)=0.00037 *5* α(N)=8.2×10^{-5} *12*; α(O)=1.23×10^{-5} *20*; α(P)=7.4×10^{-7} *20*
		971.4 *2*		15315.5	(33$^+$)	(E2)	0.00239	α(K)=0.00203 *3*; α(L)=0.000280 *4*; α(M)=5.94×10^{-5} *9* α(N)=1.326×10^{-5} *19*; α(O)=1.99×10^{-6} *3*; α(P)=1.228×10^{-7} *18*
		1244.6 *10*	100	15042.9	34$^+$	M1+E2	0.0017 *3*	α(K)=0.0015 *3*; α(L)=0.00019 *4*; α(M)=4.1×10^{-5} *7* α(N)=9.2×10^{-6} *16*; α(O)=1.40×10^{-6} *24*; α(P)=9.2×10^{-8} *18*; α(IPF)=1.19×10^{-5} *3*
16343.9	(35$^-$)	1439.6 *10*	100	14904.3	33$^-$			
16439.8	36$^+$	1396.9 *10*	100	15042.9	34$^+$	E2	1.18×10^{-3}	α(K)=0.000972 *14*; α(L)=0.0001280 *18*; α(M)=2.70×10^{-5} *4* α(N)=6.04×10^{-6} *9*; α(O)=9.15×10^{-7} *13*; α(P)=5.90×10^{-8} *9*; α(IPF)=4.40×10^{-5} *7*
16894.7	(36$^+$)	1289.5 *10*	100	15605.2	(34$^+$)			
16977.1	(36$^+$)	536.3[i] *1*		16439.8	36$^+$			
		690.6 *2*		16286.5	35$^+$	(M1+E2)	0.0067 *16*	α(K)=0.0057 *14*; α(L)=0.00079 *15*; α(M)=0.00017 *3* α(N)=3.7×10^{-5} *7*; α(O)=5.6×10^{-6} *11*; α(P)=3.53×10^{-7} *93*
		1202.4 *10*		15774.1	(34$^+$)			
17079.6	(37$^-$)	1043.2 *10*	100	16036.4	(35$^-$)	E2	0.00205	α(K)=0.001747 *25*; α(L)=0.000239 *4*; α(M)=5.05×10^{-5} *8* α(N)=1.128×10^{-5} *16*; α(O)=1.699×10^{-6} *24*; α(P)=1.058×10^{-7} *15*
17153.8	(37$^+$)	1427.8 *10*	100	15726.0	(35$^+$)			
17407.3	(37$^-$)	1319.7 *10*	100	16087.6	(35$^-$)	E2	1.29×10^{-3}	α(K)=0.001087 *16*; α(L)=0.0001439 *21*; α(M)=3.04×10^{-5} *5* α(N)=6.79×10^{-6} *10*; α(O)=1.028×10^{-6} *15*; α(P)=6.60×10^{-8} *10*; α(IPF)=2.48×10^{-5} *4*
17680.8	(37$^+$)	703.3 *10*	43	16977.1	(36$^+$)	M1+E2	0.0064 *15*	α(K)=0.0055 *13*; α(L)=0.00075 *14*; α(M)=0.00016 *3* α(N)=3.6×10^{-5} *7*; α(O)=5.4×10^{-6} *11*; α(P)=3.38×10^{-7} *89*
		1239.1[i] *1*		16439.8	36$^+$			
		1394.3 *1*	100	16286.5	35$^+$	E2	1.18×10^{-3}	α(K)=0.000976 *14*; α(L)=0.0001285 *18*; α(M)=2.71×10^{-5} *4* α(N)=6.06×10^{-6} *9*; α(O)=9.19×10^{-7} *13*; α(P)=5.92×10^{-8} *9*; α(IPF)=4.33×10^{-5} *6*
17882.0	(38$^+$)	1442.2 *10*	100	16439.8	36$^+$			
18320.2	(39$^-$)	1240.6 *10*	100	17079.6	(37$^-$)	E2	1.45×10^{-3}	α(K)=0.001228 *18*; α(L)=0.0001638 *24*; α(M)=3.46×10^{-5} *5*

$^{140}_{60}Nd_{80}$-27

Adopted Levels, Gammas (continued)

γ(^{140}Nd) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[c]	α[f]	Comments
								α(N)=7.73×10^{-6} *11*; α(O)=1.170×10^{-6} *17*; α(P)=7.45×10^{-8} *11*; α(IPF)=1.115×10^{-5} *22*
18474.5	(38$^+$)	793.6[i] *1*		17680.8	(37$^+$)			
		1497.4 *1*		16977.1	(36$^+$)			
18726.7	(39$^+$)	1572.9 *10*	100	17153.8	(37$^+$)			
18951.3	(39$^-$)	1544.0 *10*	100	17407.3	(37$^-$)	(E2)	1.03×10^{-3}	α(K)=0.000803 *12*; α(L)=0.0001047 *15*; α(M)=2.21×10^{-5} *4* α(N)=4.93×10^{-6} *7*; α(O)=7.49×10^{-7} *11*; α(P)=4.87×10^{-8} *7*; α(IPF)=9.18×10^{-5} *14*
19703.3	(41$^-$)	1383.1 *10*	100	18320.2	(39$^-$)			
20432.3	(41$^+$)	1705.6 *10*	100	18726.7	(39$^+$)			
21218	(43$^-$)	1514.8 *10*	100	19703.3	(41$^-$)			
22293.6	(43$^+$)	1861.3 *10*	100	20432.3	(41$^+$)			
22885	(45$^-$)	1667.2 *10*	100	21218	(43$^-$)			
24306	(45$^+$)	2012.2 *10*	100	22293.6	(43$^+$)			
24716	(47$^-$)	1831.1 *10*	100	22885	(45$^-$)			
26694	(49$^-$)	1977.3 *10*	100	24716	(47$^-$)			
y+1023.9	(31)	1023.9 *10*	100	y	(29)			
y+2167.5	(33)	1143.6 *10*	100	y+1023.9	(31)			
y+3464.0	(35)	1296.5 *10*	100	y+2167.5	(33)			
y+4936.0	(37)	1472.0 *10*	100	y+3464.0	(35)			
y+6607.3	(39)	1671.3 *10*	100	y+4936.0	(37)			
y+8455.9	(41)	1848.6 *10*	100	y+6607.3	(39)			
z+838.7	(31)	838.7 *10*	100	z	(29)			
z+1811.2	(33)	972.5 *10*	100	z+838.7	(31)			
z+2907.7	(35)	1096.5 *10*	100	z+1811.2	(33)			
z+4190.5	(37)	1282.8 *10*	100	z+2907.7	(35)			
z+5669.5	(39)	1479.0 *10*	100	z+4190.5	(37)			
z+7294.0	(41)	1624.5 *10*	100	z+5669.5	(39)			
u+955.3	(31)	955.3 *10*	100	u	(29)			
u+2069.4	(33)	1114.1[h] *10*	100[h]	u+955.3	(31)			
u+3383.5	(35)	1314.1 *10*	100	u+2069.4	(33)			
u+4907.8	(37)	1524.3 *10*	100	u+3383.5	(35)			
u+6614.4	(39)	1706.6 *10*	100	u+4907.8	(37)			
v+1026.9	(31)	1026.9 *5*	100	v	(29)			
v+1826.1	(33)	799.2 *5*	100	v+1026.9	(31)			
v+2843.3	(35)	1017.2 *5*	100	v+1826.1	(33)			
v+4087.6	(37)	1244.3 *10*	100	v+2843.3	(35)			
v+5574.2	(39)	1486.6 *10*	100	v+4087.6	(37)			
v+7293.4	(41)	1719.2 *10*	100	v+5574.2	(39)			
v+9221.0	(43)	1927.5 *10*	100	v+7293.4	(41)			
v+11357.2	(45)	2136.2 *10*	100	v+9221.0	(43)			

$^{140}_{60}Nd_{80}$-28

Adopted Levels, Gammas (continued)

γ(^{140}Nd) (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
w+1069	J+2	1069[i]	100	w?	J≈(34)	w+13284	J+20	1517[i]		w+11767	J+18
w+2195	J+4	1126	100	w+1069	J+2			1553	100	w+11731	J+18
w+3379	J+6	1184	100	w+2195	J+4	w+13529	J+20	1762	100	w+11767	J+18
w+4625	J+8	1246	100	w+3379	J+6	w+14887	J+22	1603	100	w+13284	J+20
w+5930	J+10	1305	100	w+4625	J+8	w+16548	J+24	1661	100	w+14887	J+22
w+7295	J+12	1365	100	w+5930	J+10	w+18272	J+26	1724	100	w+16548	J+24
w+8720	J+14	1425	100	w+7295	J+12	w+20060	J+28	1788	100	w+18272	J+26
w+10203	J+16	1483	100	w+8720	J+14	w+21914	J+30	1854	100	w+20060	J+28
w+11731	J+18	1528	100	w+10203	J+16	w+23833	J+32	1919	100	w+21914	J+30
w+11767	J+18	1564	100	w+10203	J+16	w+25818?	J+34	1985[i]	100	w+23833	J+32

† From (^{48}Ca,4nγ) (normal deformation) and (^{48}Ca,4nγ):SD (superdeformation), except where noted.
‡ From (^{48}Ca,4nγ), except where noted; no Iγ′s were reported for (^{48}Ca,4nγ):SD.
# From ^{140}Pm ε (9.2 s).
@ From ^{140}Pm ε (5.95 min).
& From ^{126}Te(^{18}O,4nγ).
a From ^{140}Ce($^{3+He,enγ)}$.
b Differ by 3σ or more from calculated value.
c From α(K)exp (^{140}Pm ε (9.2 s), also K/L ratios, and ^{140}Pm ε (5.95 min)), angular distributions and linear pol (^{126}Te(^{18}O,4nγ)), anisotropy ratios and DCO ((^{48}Ca,4nγ) and (^{48}Ca,4nγ):SD). Above 6407 keV, 17$^-$ data are only from (^{48}Ca,4nγ) and (^{48}Ca,4nγ):SD, which considered pure Q as ΔJ=2, E2, and mixed D+Q as ΔJ=1, M1+E2, consistent with rotational character.
d From ^{126}Te(^{18}O,4nγ) by angular distributions.
e Pure D adopted as E1 by 2015Pe10 ((^{48}Ca,4nγ) dataset) based on anisotropy measurement plus rather weak (or implicit) level scheme and theoretical arguments is tentatively adopted by evaluator.
f Additional information 5.
g If no value given it was assumed δ=1.00 for E2/M1, δ=1.00 for E3/M2 and δ=0.10 for the other multipolarities.
h Multiply placed with intensity suitably divided.
i Placement of transition in the level scheme is uncertain.

$^{140}_{60}Nd_{80}$-29

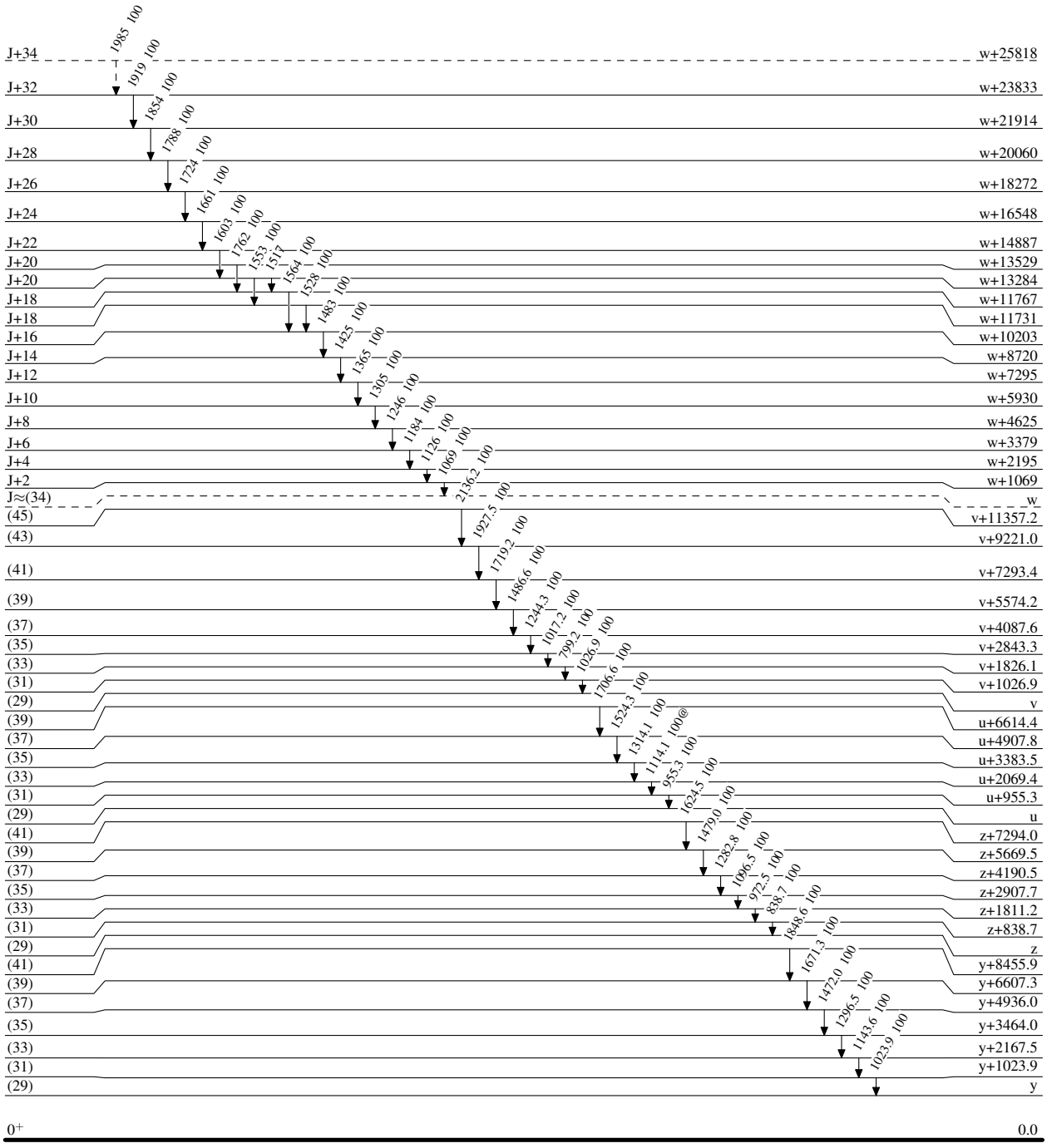
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided

γ Decay (Uncertain)



$^{140}_{60}Nd_{80}$

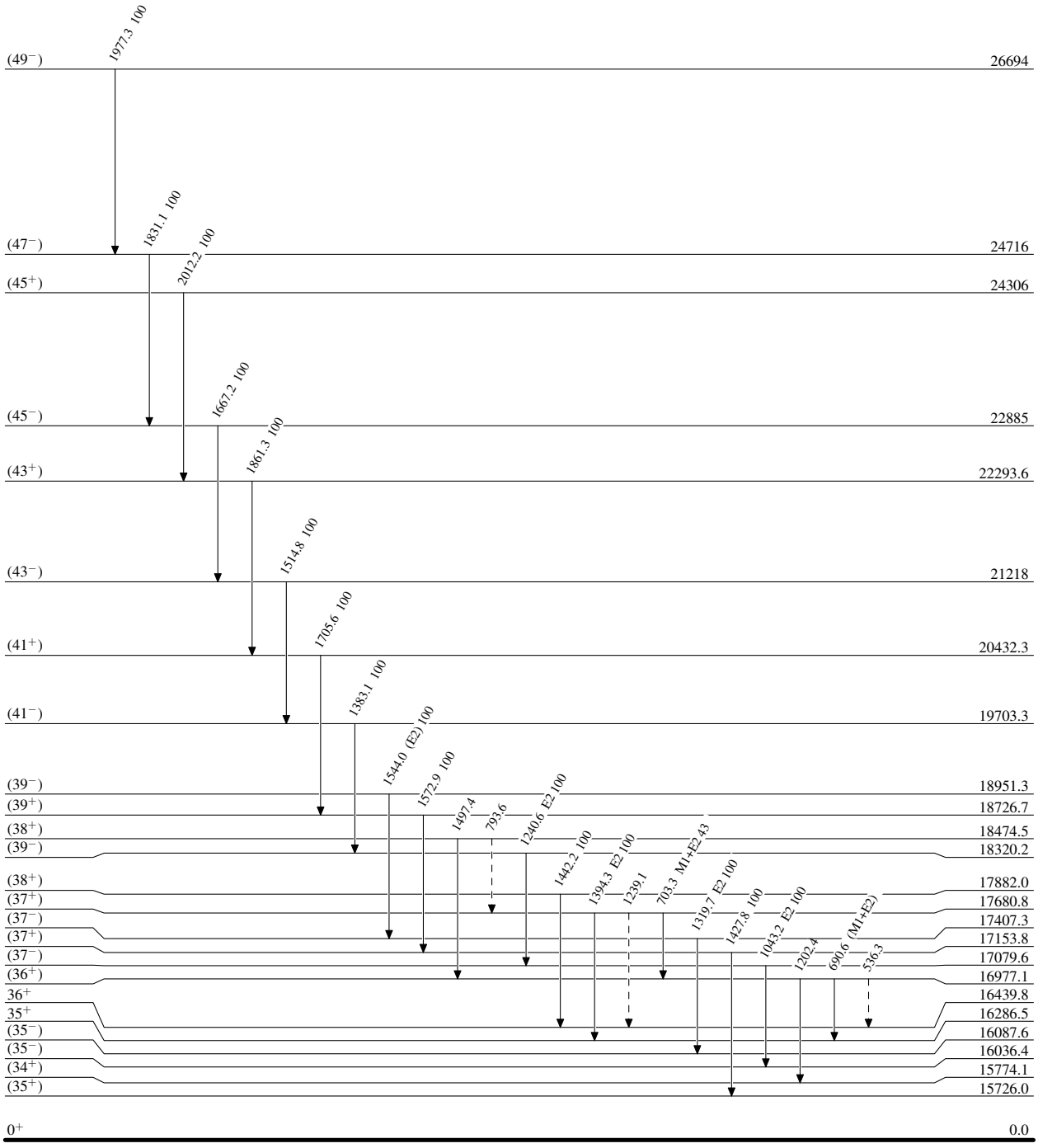
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided

- - - - - - ► γ Decay (Uncertain)



$^{140}_{60}Nd_{80}$

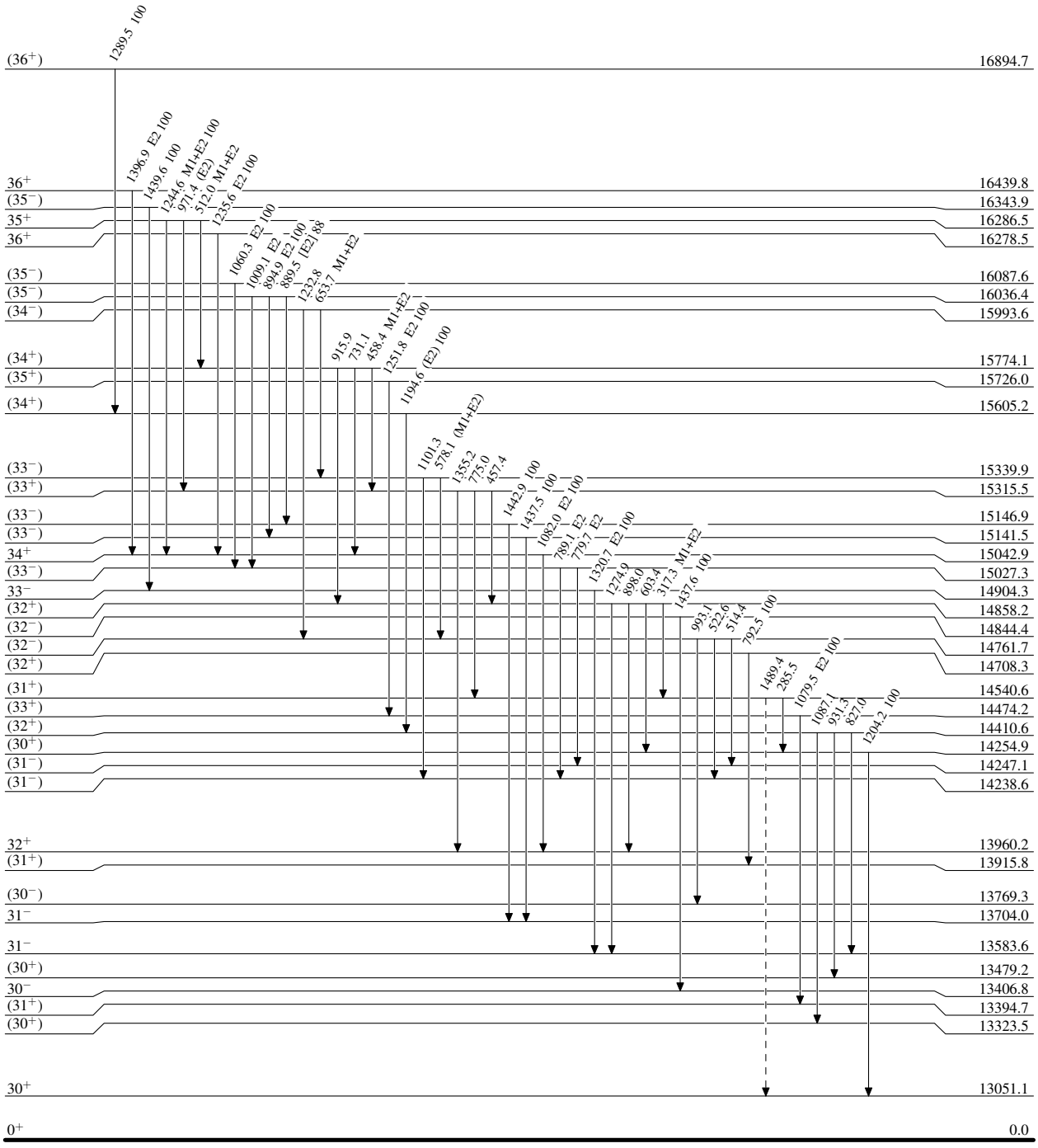
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided

- - - - - - ► γ Decay (Uncertain)

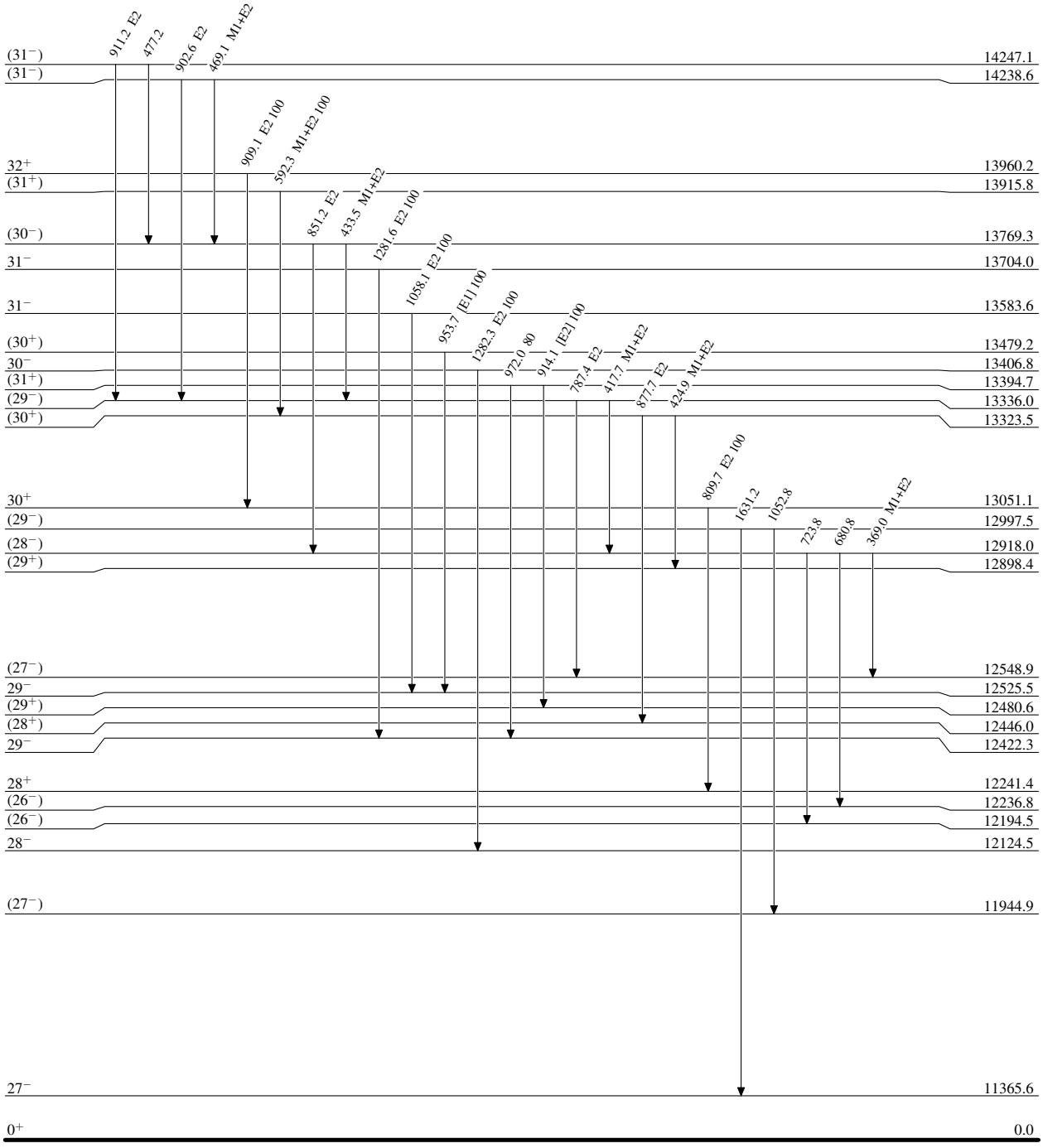


$^{140}_{60}Nd_{80}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided

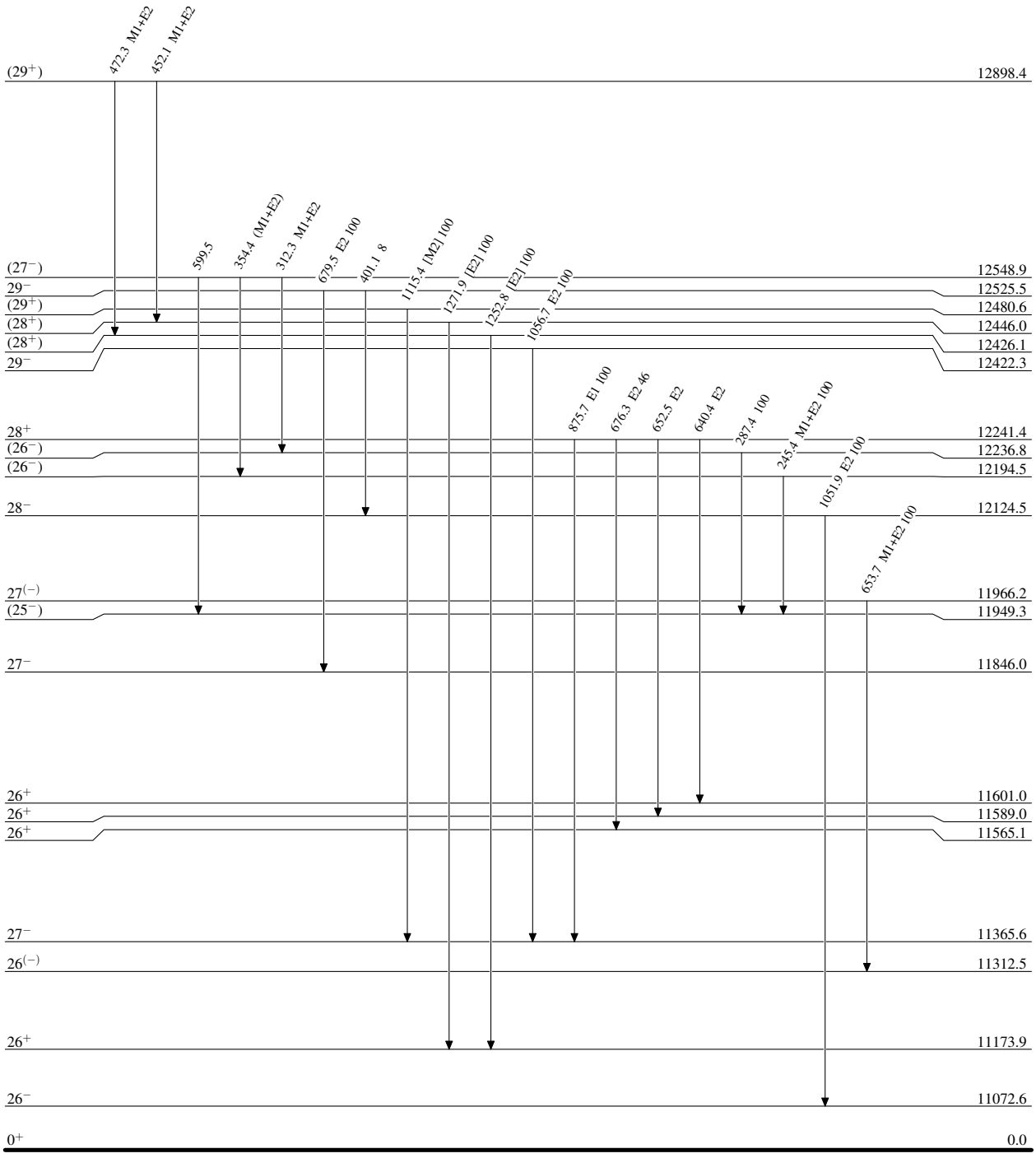


$^{140}_{60}Nd_{80}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided



$^{140}_{60}Nd_{80}$

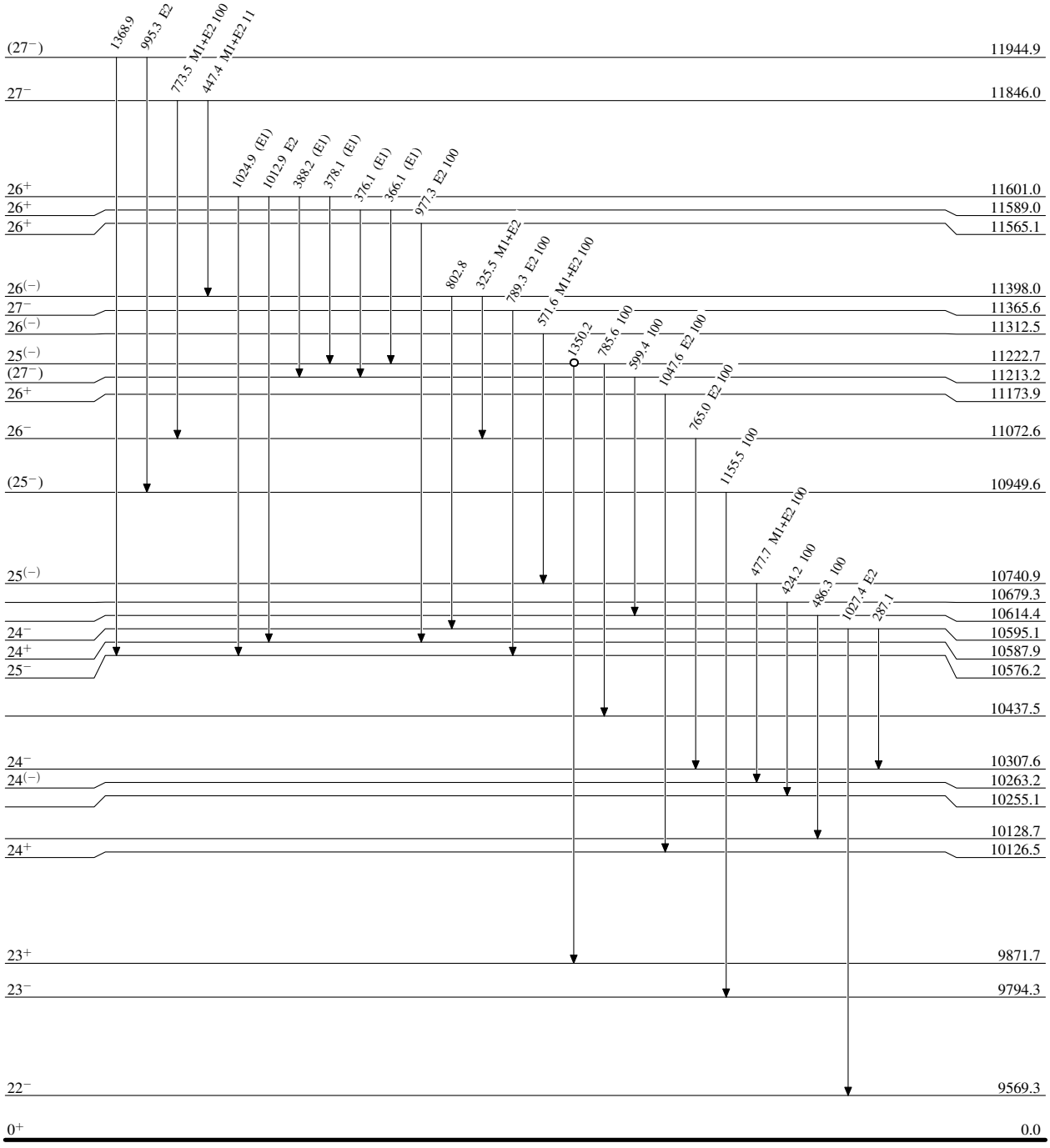
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided

● Coincidence
○ Coincidence (Uncertain)

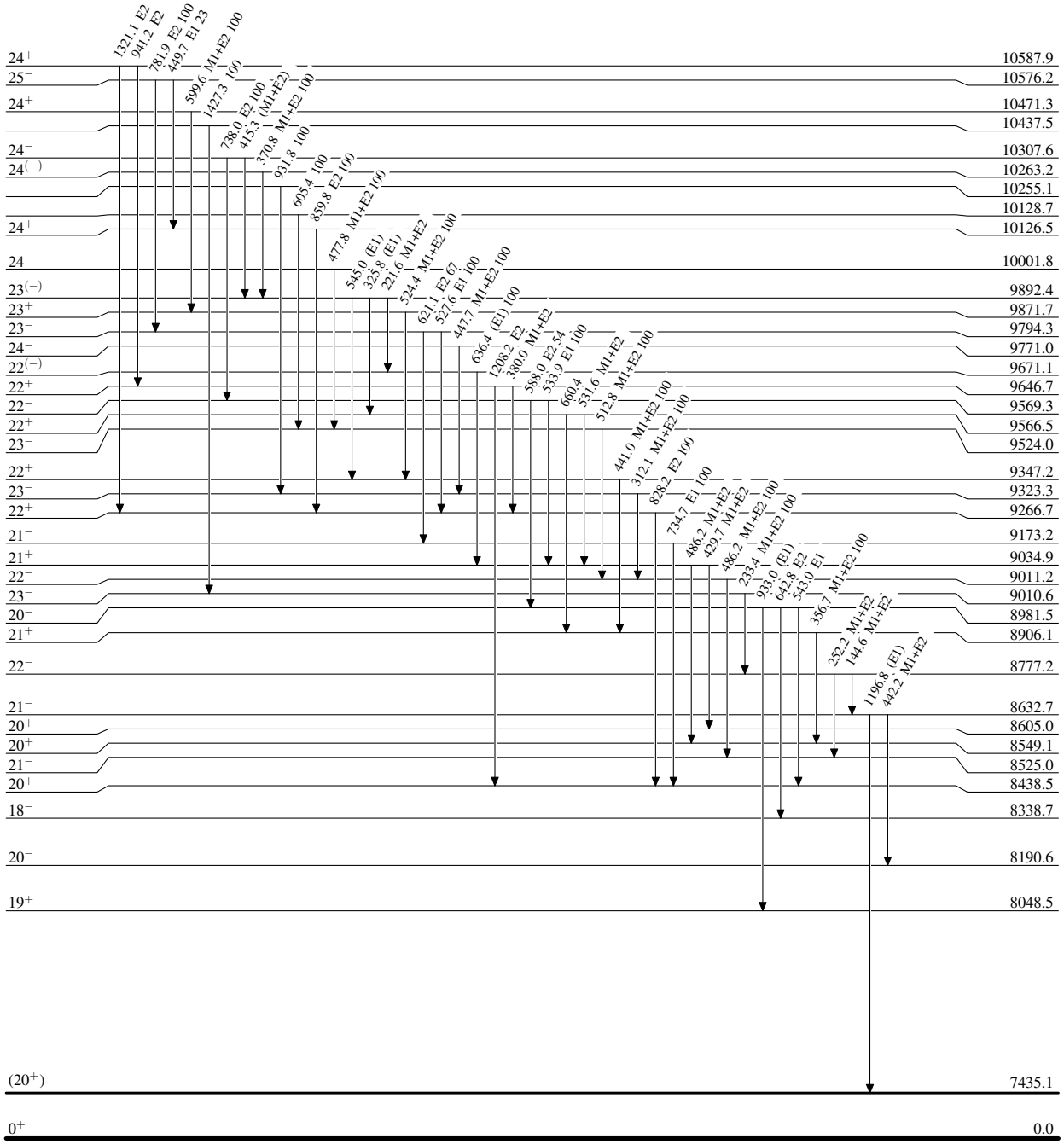


$^{140}_{60}Nd_{80}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided

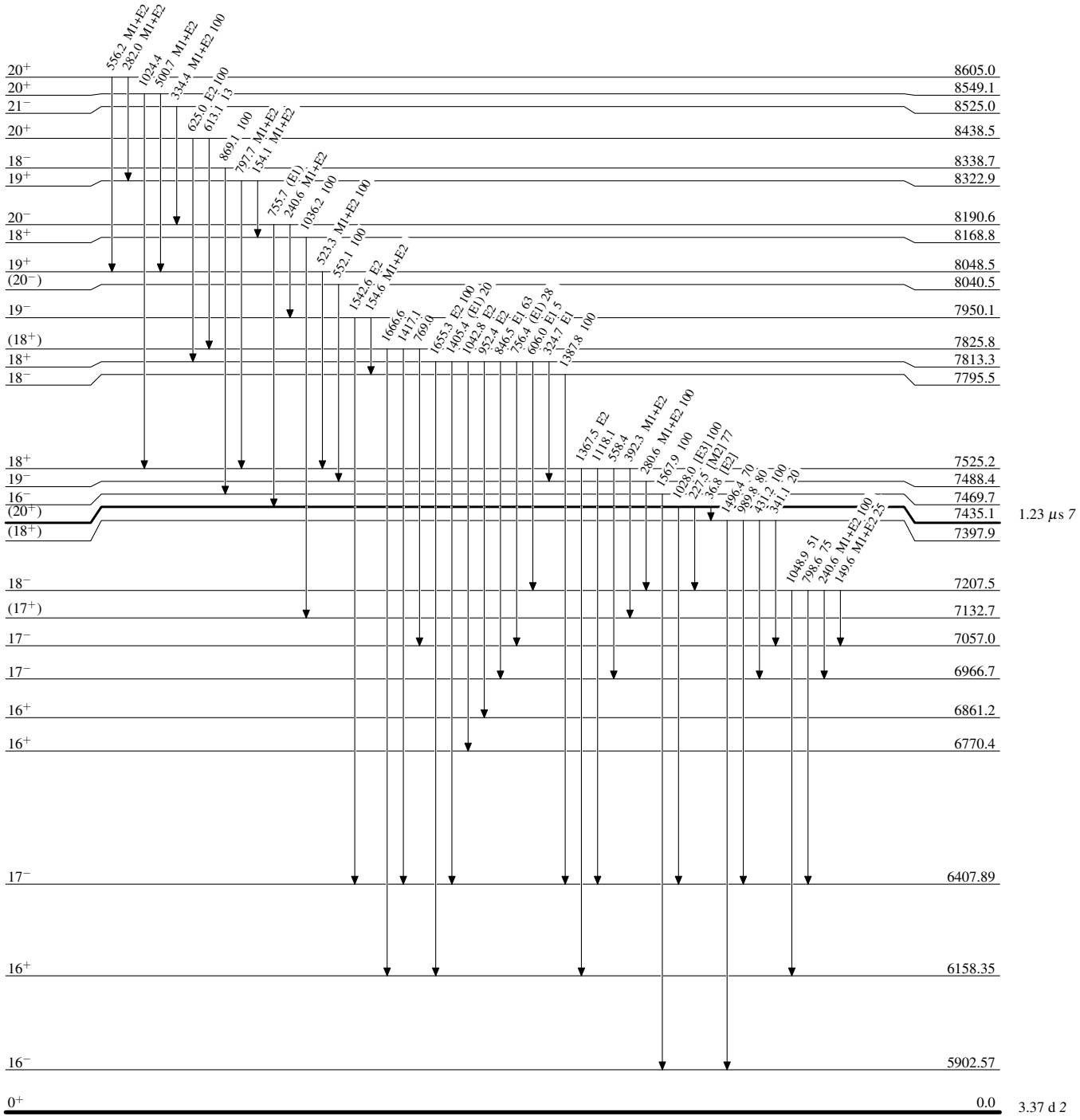


$^{140}_{60}Nd_{80}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided

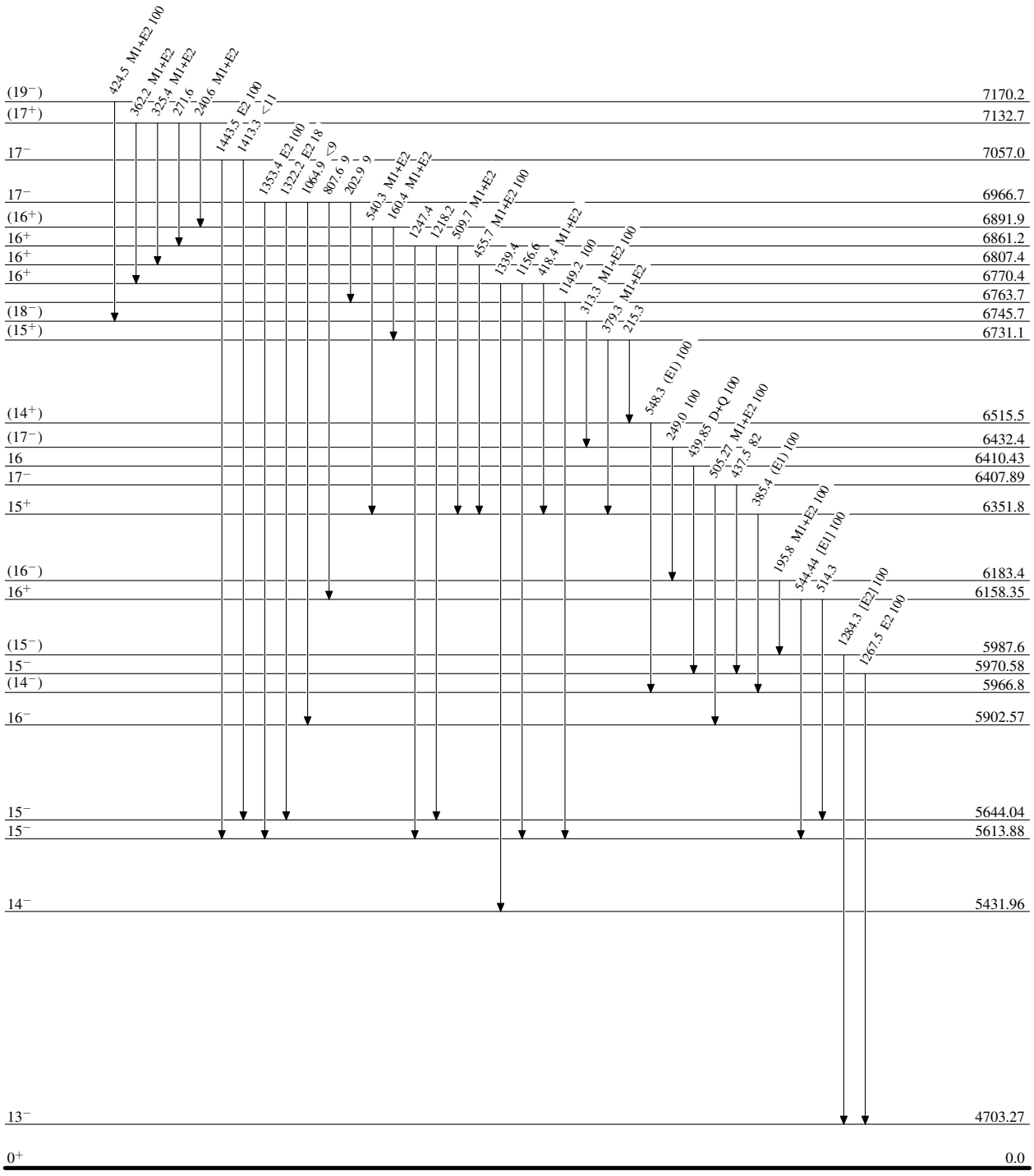


$^{140}_{60}Nd_{80}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided

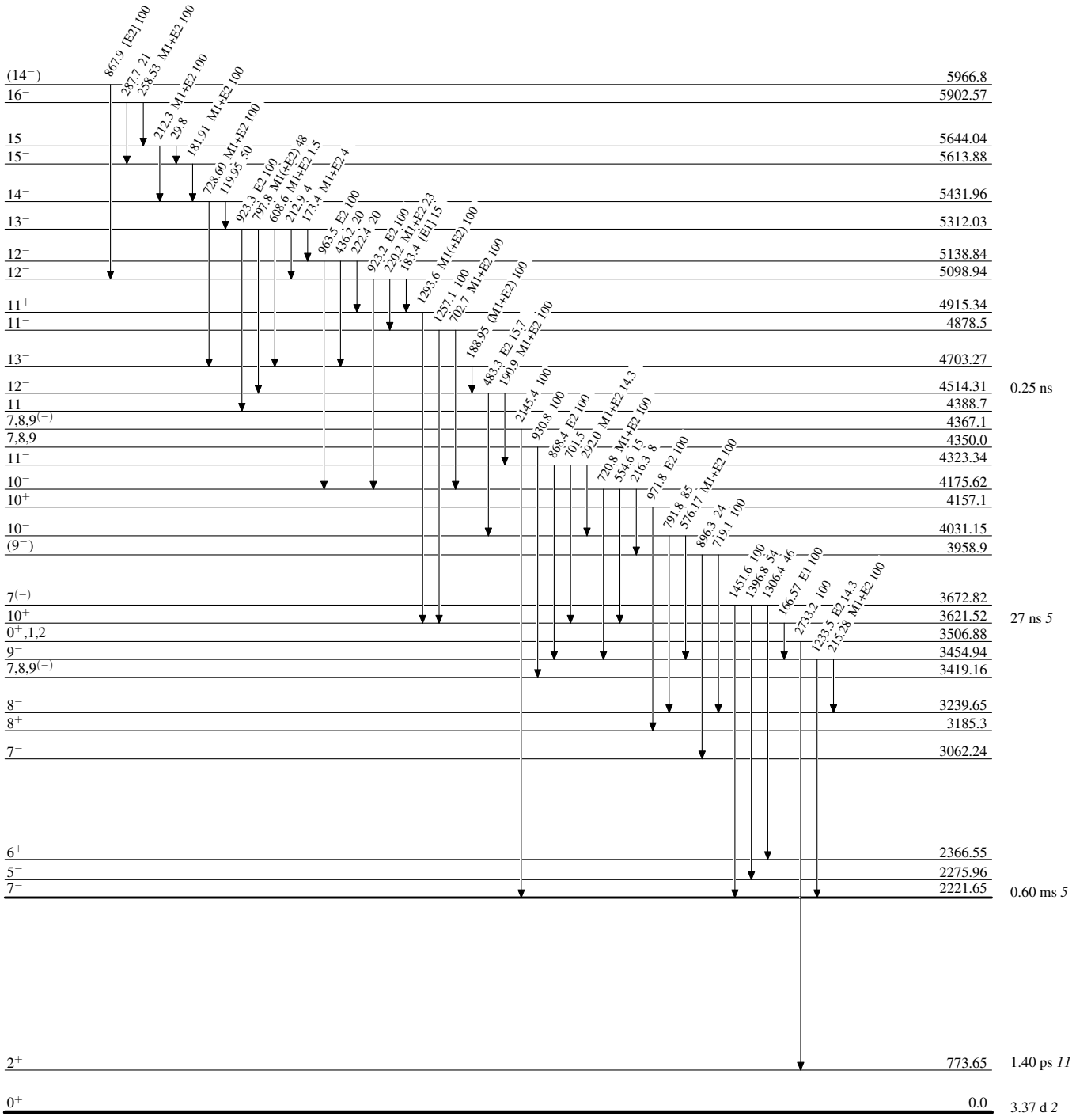


$^{140}_{60}Nd_{80}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided



$^{140}_{60}Nd_{80}$

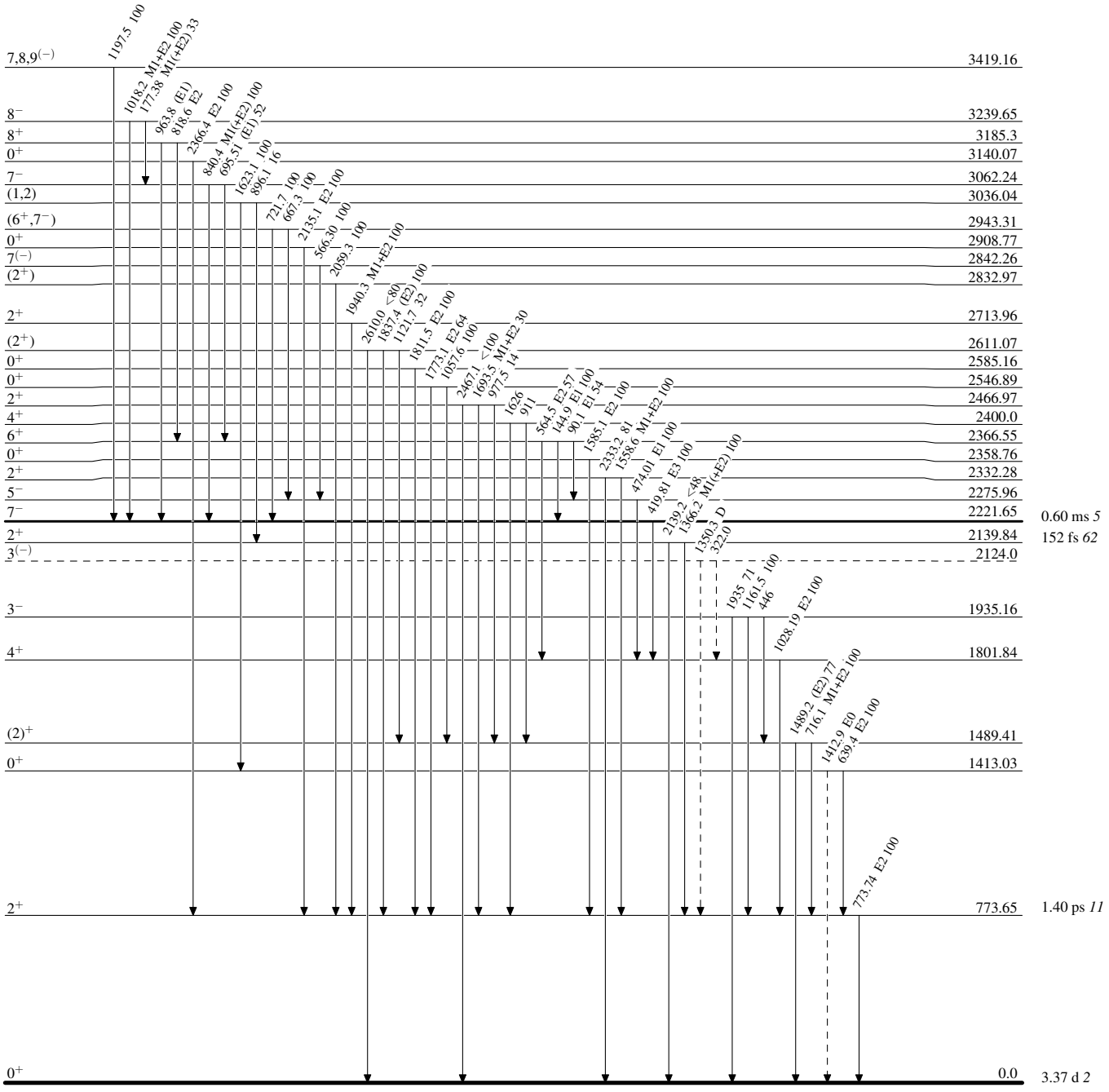
Adopted Levels, Gammas

Legend

Level Scheme (continued)

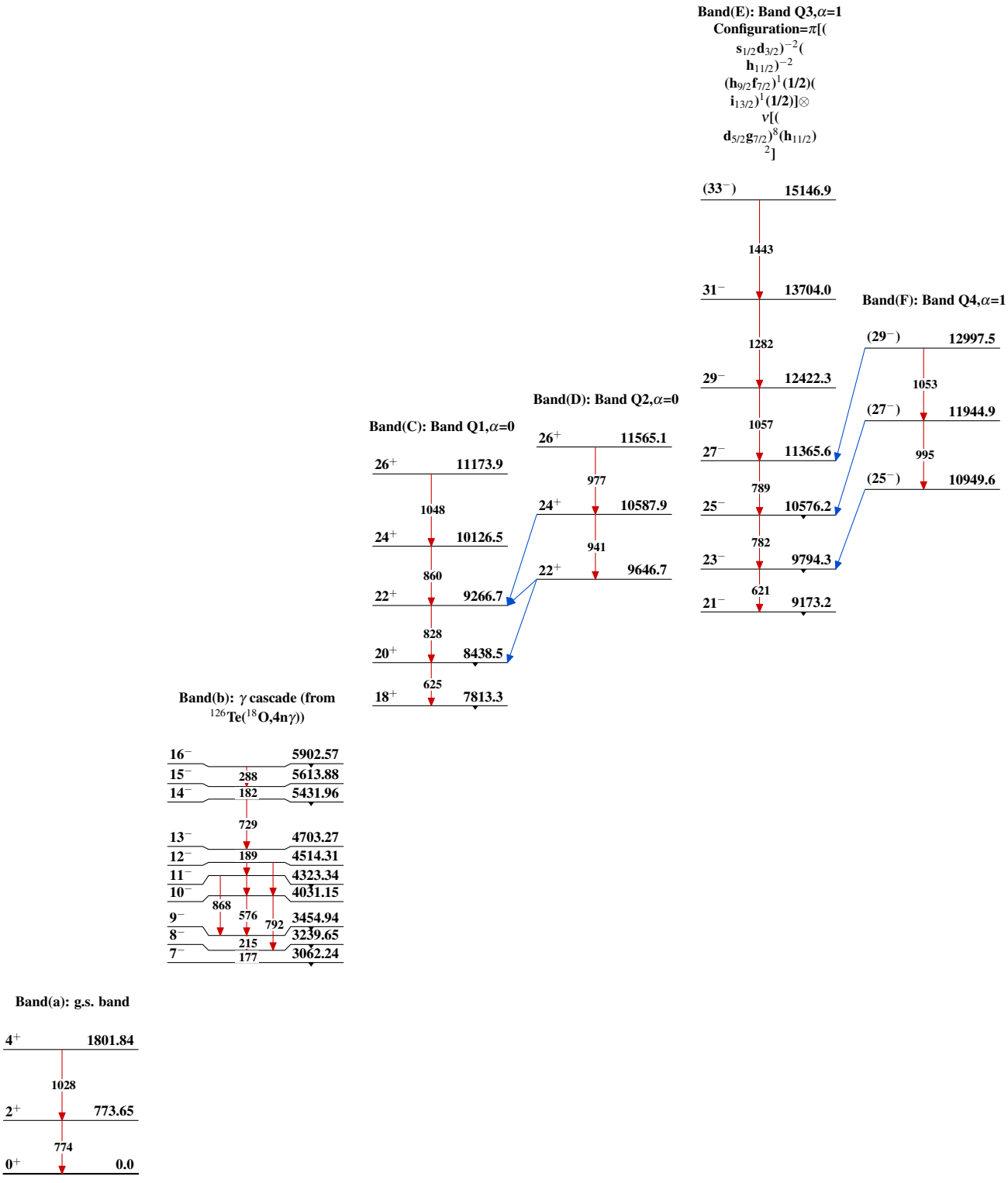
Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided

γ Decay (Uncertain)

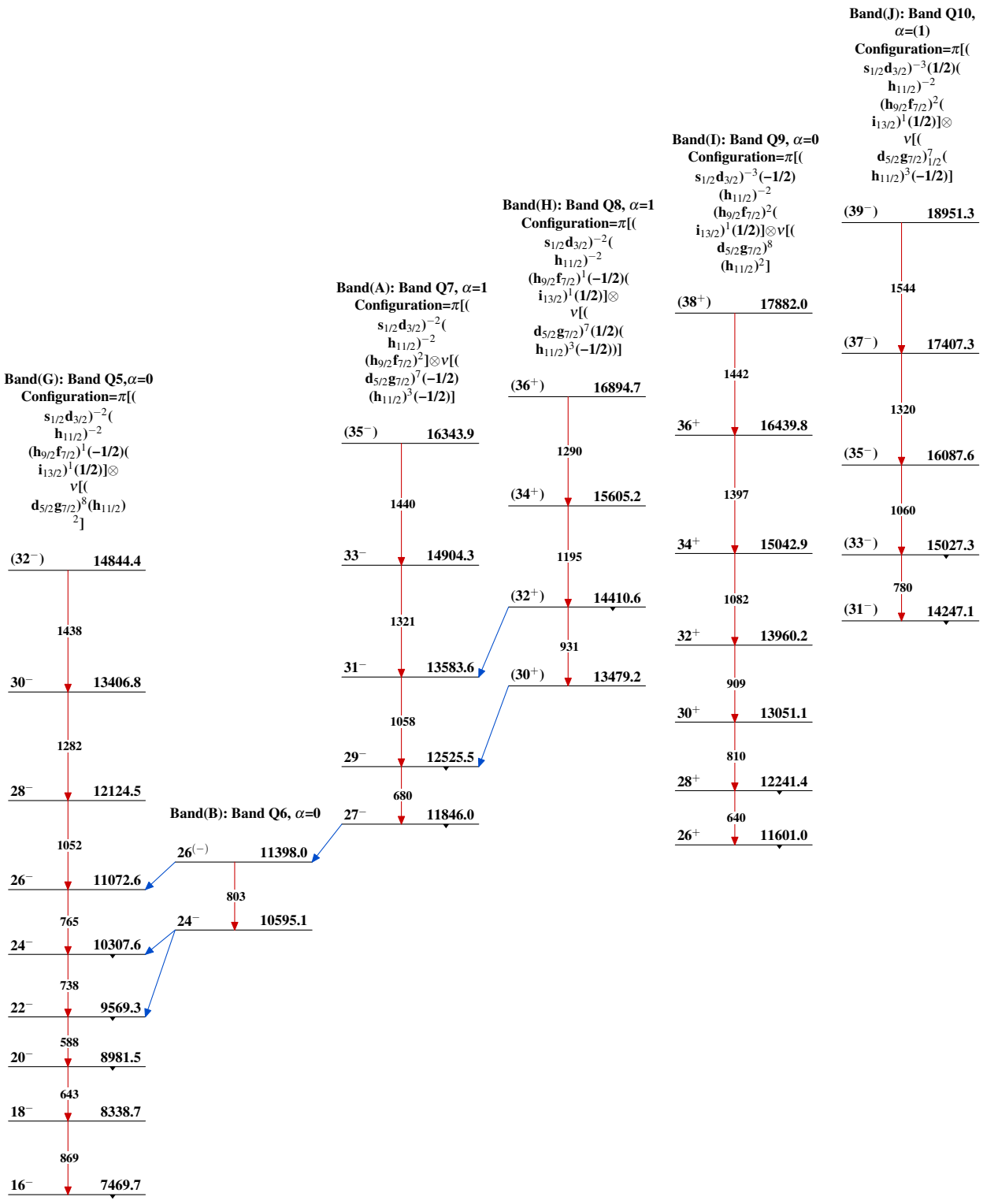


$^{140}_{60}Nd_{80}$

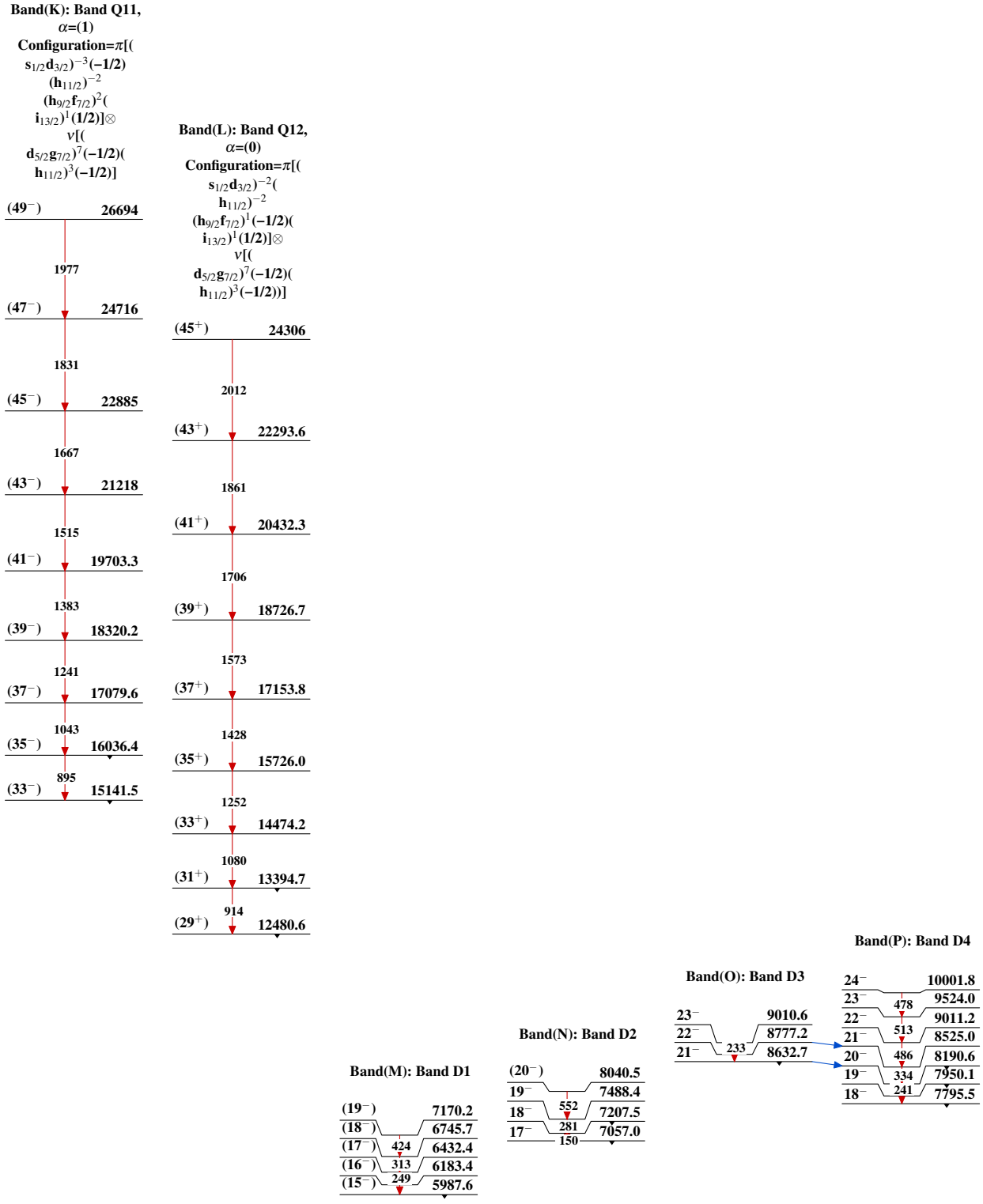
Adopted Levels, Gammas



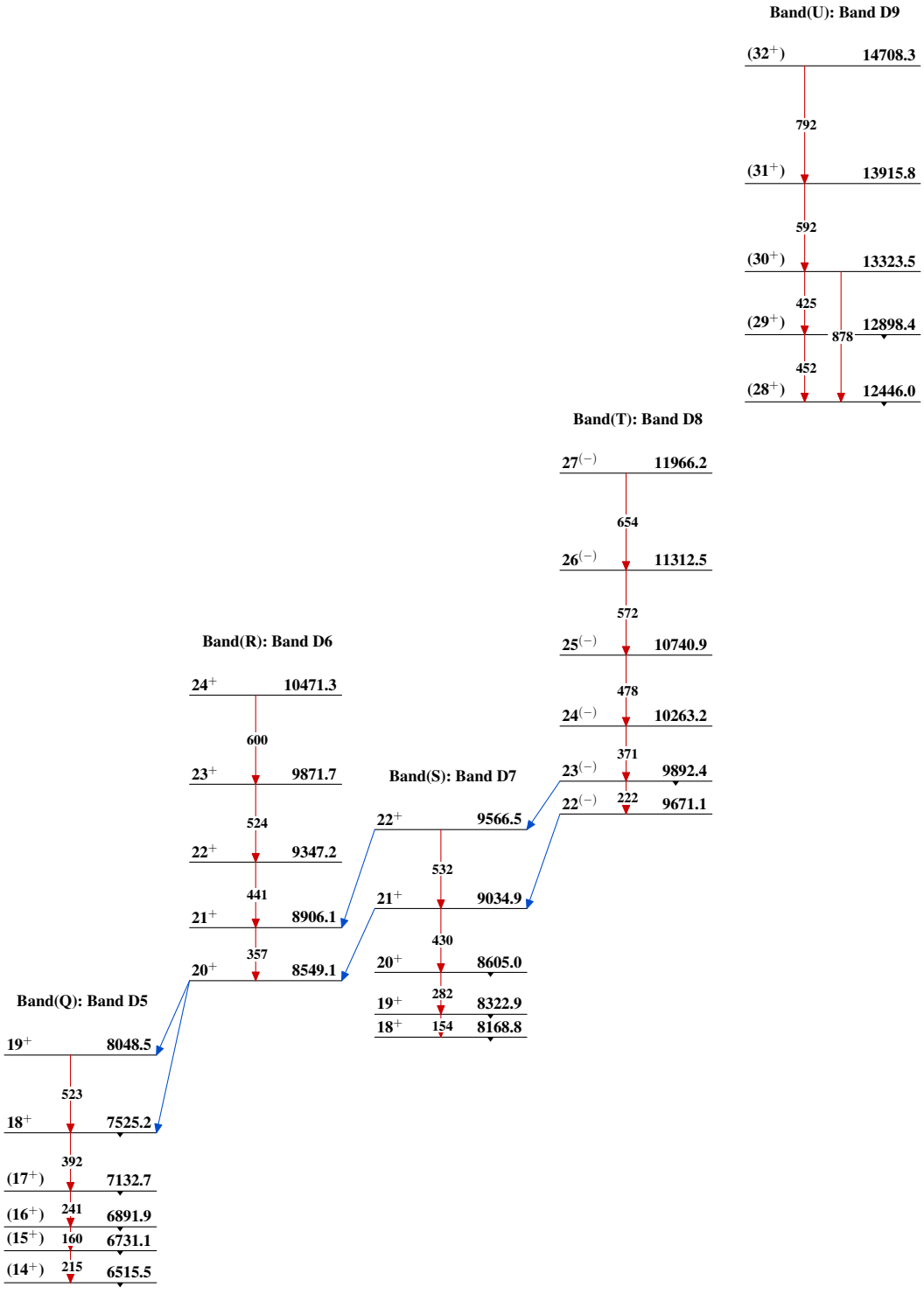
Adopted Levels, Gammas (continued)



Adopted Levels, Gammas (continued)

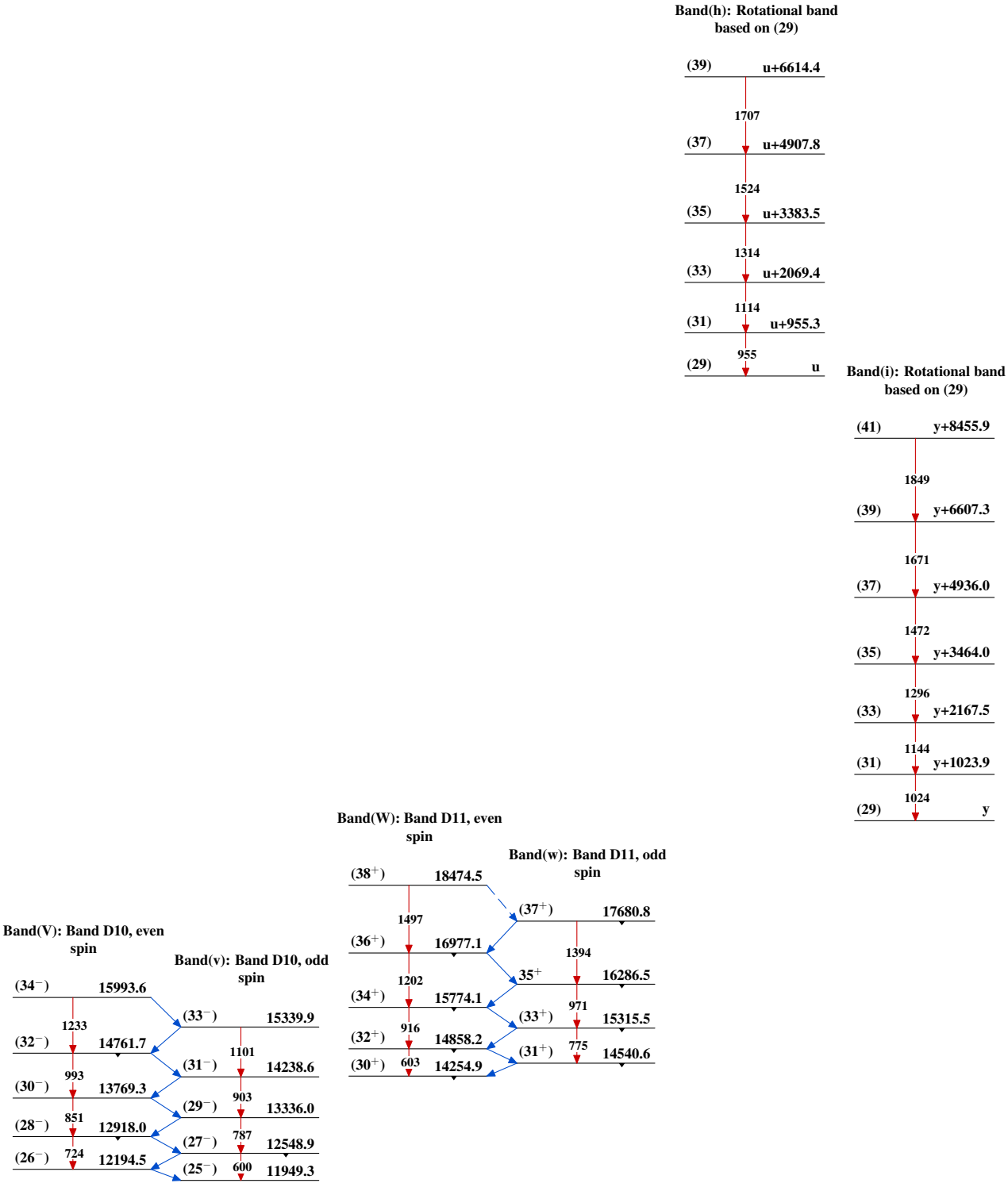


Adopted Levels, Gammas (continued)

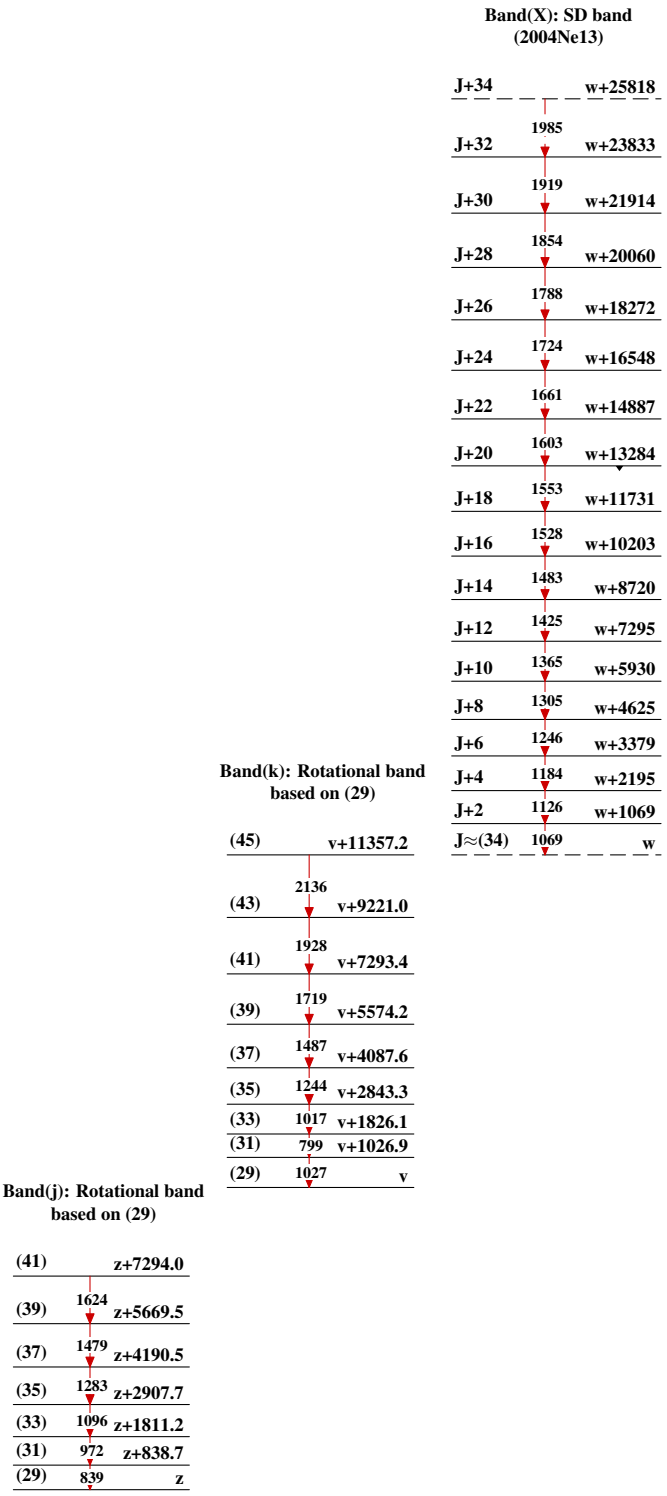


$^{140}_{60}Nd_{80}$

Adopted Levels, Gammas (continued)



Adopted Levels, Gammas (continued)



$^{140}_{60}Nd_{80}$