Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 146, 1 (2017)	30-Sep-2017

Q(β^-)=−7078 *29*; S(n)=10505 *17*; S(p)=6106 *14*; Q(α)=390 *23* 2017Wa10
S(2n)=18962 *17*, S(2p)=10088 *12*, Q(β^+)=1116 *16* (2017Wa10).
First identification of ^{138}Nd nuclide by 1964Gr32.
Mass measurements: 2000Be42, 2000Ra23, 1997Be63.
Nuclear Structure: 2001Ja20, 1999Pr03.
Isotopic shifts, rms radius, moments: 1992Le09, 1987Al25, 1988Al41, 1989Ku17, 1972Ek04.

^{138}Nd Levels

Cross Reference (XREF) Flags

A	^{138}Pm ε decay (3.24 min)	D	^{124}Te(^{19}F,p4nγ)
B	^{94}Zr(^{48}Ca,4nγ)	E	^{140}Ce(α,6nγ),^{141}Pr(p,4nγ)
C	^{123}Sb(^{19}F,4nγ)		

E(level)[†]	J$^\pi$[‡]	$T_{1/2}$	XREF	Comments
0.0[#]	0$^+$	5.04 h *9*	ABCDE	%ε+%β^+=100 $T_{1/2}$: from 1970Ho28. Others: 5.2 h *1* (1966Gr15), 5.7 h *3* (1971Ju01). Evaluated nuclear charge radius <r^2>$^{1/2}$=4.912 fm *3* (2013An02).
520.75[#] *17*	2$^+$		ABCDE	J$^\pi$: 520.7γ E2 to 0$^+$ g.s.
1013.80[@] *19*	2$^+$		A CDE	J$^\pi$: 1013.9γ E2 to 0$^+$ g.s.
1249.70[#] *21*	4$^+$		ABCDE	J$^\pi$: 728.8γ stretched E2 to 2$^+$, band structure.
1451.43[@] *22*	(3)$^+$		A CDE	J$^\pi$: 437.7γ E2(+M1) to 2$^+$, 930.5γ M1(+E2) to 2$^+$, band structure.
1799.77[@] *24*	(4$^+$)		A D	E(level): see comments for 1843 level. J$^\pi$: 786.0γ and 1279.1γ Q to 2$^+$, band structure.
1842.81 *23*	(4$^+$)		A CD	E(level): 1994De11 in ^{123}Sb(^{19}F,4nγ) assign this level as the 4$^+$ member of the γ band, while 2013Li24 in ^{124}Te(^{19}F,p4nγ) assign a level at 1843 as the 4$^+$ member and extend this band. Placements by 2013Li24 is adopted. Note that 2013Li24 also report the 1843 level and assign it as the band head of a new band. J$^\pi$: 829.0γ Q (probable E2) to 2$^+$.
1990.15[&] *24*	5$^-$		ABC E	J$^\pi$: 740.3γ stretched E1 to 4$^+$, band structure.
2133.8[#] *3*	6$^+$		ABCDE	J$^\pi$: 884.1γ stretched E2 to 4$^+$, band structure.
2196.1 *4*			A	
2221.34[c] *25*	5$^{(-)}$		ABC E	J$^\pi$: 230.8γ D to 5$^-$, 971.9γ D to 4$^+$, 469.6γ E2 from 7$^{(-)}$, band structure.
2261.6[@] *3*	(5$^+$)		A D	J$^\pi$: 810.3γ Q to (3)$^+$, 1011.6γ D+Q to 4$^+$. Additional information 1.
2269.5 *11*	(5$^+$)		D	J$^\pi$: 818.1γ Q to (3)$^+$.
2273.0 *4*	(1,2$^+$)		A	J$^\pi$: 2273.0γ to 0$^+$.
2321.3[&] *3*	7$^-$	≈250 ps	BC E	J$^\pi$: 331.2γ E2 to 5$^-$, 186.9γ D to 6$^+$, band structure. $T_{1/2}$: from 1973VaYZ in ^{140}Ce(α,6nγ).
2323.7 *4*			A	
2484.7 *4*			A	
2623.0 *5*			A	
2625.5 *5*			A	
2691.1[c] *3*	7$^{(-)}$		BC E	J$^\pi$: 369.9γ D+Q to 7$^-$, 557.2γ D(+Q) to 6$^+$, 701.2γ Q to 5$^-$, band structure.
2695.2 *3*	(8$^+$)		C	J$^\pi$: 372.8γ D to 7$^-$, 562.2γ (Q) to 6$^+$.
2710.2 *4*			A	
2758.5 *4*			A	

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Adopted Levels, Gammas (continued)

^{138}Nd Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$	XREF	Comments
2934.4 *3*			A	
2940.6 *4*	(6$^+$)		A D	Jπ: 1097.5γ Q to (4$^+$), band structure.
2960.8[@] *3*	(6$^+$)		A D	Jπ: from ^{124}Te(^{19}F,p4nγ) based on band structure.
2980.3 *3*	(8$^-$)		BC	Jπ: 659.0γ D to 7$^-$. Note that 2012Pe15 in ^{94}Zr(^{48}Ca,4nγ) propose 8$^-$ while 1994De11 in ^{123}Sb(^{19}F,4nγ) give 8$^+$.
2998.5[a] *3*	(8$^-$)		B	Jπ: 677.0γ D+Q to 7$^-$, band head.
3107.3[#] *3*	8$^+$		BCDE	Jπ: 973.3γ E2 6$^+$, band structure.
3174.5[i] *4*	10$^+$	370 ns *5*	BC E	μ=−1.74 *4* (1982Ri09) Jπ: 66.6γ E2 to 8$^+$, band structure. $T_{1/2}$: from 2013Va10 in ^{96}Zr(^{48}Ca,6nγ). Other: 0.41 μs *5* from 1975Yo01 in ^{140}Ce(α,6nγ),^{141}Pr(p,4nγ) data set. μ: from 1982Ri09 by TDPAD. Configuration=$\nu h^{-2}_{11/2}$.
3239.8[&] *4*	9$^-$		BC	Jπ: 918.5γ E2 to 7$^-$, band structure.
3247.0[c] *4*	9$^{(-)}$		BC E	Jπ: 556.0γ E2 to 7$^{(-)}$, band structure.
3255.8 *11*			A	
3371.3[b] *3*	9$^{(-)}$		BC	Jπ: 680.4γ Q to 7$^{(-)}$, 391.0γ D to (8$^-$), band structure.
3556.5[a] *4*	(10$^-$)		B	Jπ: 558.0γ E2 to (8$^-$), band structure.
3700.6[d] *4*	(10$^+$)		BC E	Jπ: 453.5γ D to 9$^{(-)}$, 329.3γ D to 9$^{(-)}$,143.7γ D+Q to (10$^-$); Configuration=$\pi h^2_{11/2}$.
3783.9 *4*			A	
3821.4[i] *4*	12$^+$		BC E	Jπ: 646.9γ E2 to 10$^+$, band structure.
3854.8[b] *6*	11$^{(-)}$		B	Jπ: 483.5γ E2 to 9$^{(-)}$, band structure.
3854.8 *4*			A	
3915.2[c] *3*	11$^{(-)}$		BC	Jπ: 668.2γ E2 to 9$^{(-)}$, 543.8γ Q to 9$^{(-)}$, 740.4γ to 10$^+$, band structure.
3981.1 *3*			A	
4136.1 *4*	(11)		BC	Jπ: 961.3γ D to 10$^+$.
4203.3[d] *4*	(12$^+$)		BC E	Jπ: 502.7γ E2 to (10$^+$), band structure.
4205.8 *6*			A	
4210.3 *5*	(11$^-$)		C	Jπ: 839.0γ Q to 9$^{(-)}$.
4212.4 *5*			A	
4218.4[&] *5*	11$^-$		BC	Jπ: 978.6γ E2 to 9$^-$, band structure.
4344.8[o] *7*	10$^{(+)}$		B	Jπ: 1238.0γ Q to 8$^+$, band head.
4381.7 *5*	(11)		B	Jπ: 681.2γ D+Q to (10$^+$).
4395.4[a] *4*	(12$^-$)		B	Jπ: 838.9γ E2 to (10$^-$), band structure.
4545.9[o] *5*	(11$^+$)		B	Jπ: 201.2γ D+Q to 10$^{(+)}$, band structure.
4651.5 *5*	(13$^-$)		B	Jπ: proposed in ^{94}Zr(^{48}Ca,4nγ); 736.4γ to 11$^{(-)}$, 925.6γ from (14$^-$).
4695.4[b] *6*	(13$^-$)		B	Jπ: 840.6γ to 11$^{(-)}$, band structure.
4751.9[c] *4*	13$^{(-)}$		BC	Jπ: 836.8γ E2 to 11$^{(-)}$, band structure.
4779.0[o] *6*	(12$^+$)		B	Jπ: 233.0γ D+Q to (11$^+$), band structure.
4939.4 *4*	(12)		BC	Jπ: 803.2γ D to (11), 1118.1γ D+Q to 12$^+$.
4974.5[j] *4*	(13$^+$)		BC E	Jπ: 1152.8γ D+Q to 12$^+$, band head.
4990.2[g] *6*	(13)		B	Jπ: 786.8γ D+Q to (12$^+$), band head.
4995.5[d] *4*	(14$^+$)		BC E	Jπ: 792.1γ E2 to (12$^+$), band structure.
5028.8[i] *4*	14$^+$		BC E	Jπ: 1207.8γ E2 to 12$^+$, band structure.
5069.4[o] *7*	(13$^+$)		B	Jπ: 290.3γ D+Q to (12$^+$), band structure.
5118.5[&] *6*	(13$^-$)		BC	Jπ: 900.1γ to 11$^-$, band structure.
5232.9 *6*			C	
5253.0 *4*	(13)		BC	Jπ: 313.5γ D to (12), 278.0γ D to (13$^+$).
5349.3[e] *5*	(14$^+$)		BC E	XREF: E(?). Jπ: 1146.3γ Q to (12$^+$), 353.4γ D+Q to (14$^+$), band structure.
5363.2[o] *7*	(14$^+$)		B	Jπ: 293.8γ D+Q to (13$^+$), band structure.

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Adopted Levels, Gammas (continued)

^{138}Nd Levels (continued)

E(level)[†]	Jπ[‡]	XREF	Comments
5417.6[a] 7	(14⁻)	B	Jπ: 1022.2γ E2 to (12⁻), band structure.
5430.2 8	(14⁺)	B	Jπ: 1608.7γ Q to 12⁺.
5436.1 6	(13)	C	Jπ: 1614.7γ D to 12⁺.
5469.1[j] 4	(15⁺)	BC	Jπ: 494.7γ Q to (13⁺), 440.2γ D+Q to 14⁺, band structure.
5493.1[l] 7	(13⁻)	B	Jπ: proposed in ^{94}Zr(^{48}Ca,4nγ) as band head; 1670.9γ (D) to 12⁺, 277.0γ from 15$^{(-)}$.
5527.5[f] 6	(14⁺)	B	Jπ: proposed in ^{94}Zr(^{48}Ca,4nγ) as band head; 532.1γ D+Q to (14⁺), 537.3γ D+Q to (13), 1323.7γ to (12⁺).
5576.9[l] 4	(14⁻)	BC	Jπ: 323.7γ D+Q to (13), 602.6γ D to (13⁺), 83.6γ to (13⁻), band structure.
5591.1 7	(14)	B	Jπ: 838.8γ to 13$^{(-)}$, 939.5γ to (13⁻).
5614.3 5	(14)	BC	Jπ: 639.5γ D to (13⁺).
5656.3[b] 8	(15⁻)	B	Jπ: 960.9γ to (13⁻), band structure.
5678.2[o] 6	(15⁺)	B	Jπ: 314.9γ D+Q to (14⁺), band structure.
5742.7[g] 5	(15)	BC	Jπ: 747.4γ D+Q to (14⁺), 752.3γ to (13), band structure.
5747.9[k] 5	(16)	BC	Jπ: 278.5γ D+Q to (15⁺), band head.
5759.5[c] 5	15$^{(-)}$	BC	Jπ: 1007.6γ E2 to 13$^{(-)}$, band structure.
5770.6[l] 4	15$^{(-)}$	BC	Jπ: 1019.1γ Q to 13$^{(-)}$, 193.6γ D+Q to (14⁻), 179.0γ D+Q to (14), band structure.
5781.1[n] 7	(14)	B	Jπ: 288.0γ (D+Q) to (13⁻), 528.2γ (D+Q) to (13), band head.
5842.3[d] 5	(16⁺)	BC E	Jπ: 846.8γ E2 to (14⁺), band structure.
5901.4[n] 13	(15)	B	Jπ: 120.3γ D+Q to (14), band structure.
6001.4[l] 4	(16⁻)	BC	Jπ: 230.7γ D+Q to 15$^{(-)}$, 252.0γ D to (16), 424.0γ to (14), band structure.
6017.5[m] 7	(15)	B	Jπ: 403.5γ D+Q to (14), 440.1γ D+Q to (14⁻), band head.
6071.1[&] 9	(15⁻)	B	Jπ: 952.6γ to (13⁻), band structure.
6071.8[h] 6	(15)	B	Jπ: 708.4γ (D) to (14⁺), 722.4γ (D+Q) to (14⁺), band head.
6088.2[n] 14	(16)	B	Jπ: 186.8γ D+Q to (15), band structure.
6152.1[e] 5	(16⁺)	BC	Jπ: 1156.6γ Q to (14⁺), 803.0γ to (14⁺), band structure.
6179.9[o] 8	(16⁺)	B	Jπ: 501.6γ to (15⁺), band structure.
6233.4[f] 6	(16⁺)	B	Jπ: 705.8γ E2 to (14⁺), 390.9γ to (16⁺), band structure.
6241.9[j] 5	(17⁺)	BC	Jπ: 772.9γ E2 to (15⁺), band structure.
6285.2[m] 6	(16)	B	Jπ: 514.6γ D+Q to 15$^{(-)}$, 267.5γ to (15), band structure.
6287.6[l] 5	(17⁻)	BC	Jπ: 286.2γ D+Q to (16⁻), 516.7γ to 15$^{(-)}$, band structure.
6395.5 6	(16⁺)	B	Jπ: 653.1γ D+Q to (15), 867.8γ to (14⁺).
6409.5[a] 12	(16⁻)	B	Jπ: 991.9γ to (14⁻), band structure.
6465.8[n] 15	(17)	B	Jπ: 377.6γ D+Q to (16), band structure.
6470.2 6	(17)	C	Jπ: 627.9γ D to (16⁺).
6556.2[p] 10	(16)	B	Jπ: proposed in ^{94}Zr(^{48}Ca,4nγ) as band head; 376.1γ (D+Q) to (16⁺).
6560.4[m] 7	(17)	B	Jπ: 275.2γ D+Q to (16), 559.2γ D+Q to (16⁻), band structure.
6566.8[k] 5	(18)	BC	Jπ: 818.8γ E2 to (16), 325.1γ to (17⁺), band structure.
6627.8[h] 5	(17)	B	Jπ: 556.6γ D+Q to (15), 785.4γ D+Q to (16⁺), band structure.
6668.3[l] 5	(18⁻)	BC	Jπ: 380.7γ D+Q to (17⁻), 667.0γ to (16⁻), band structure.
6706.8 6	(16⁺)	B	Jπ: 864.5γ to (16⁺), 1711.4γ to (14⁺).
6760.5[o] 13	(17⁺)	B	Jπ: 580.6γ to (16⁺), band structure.
6780.7[p] 10	(17)	B	Jπ: 224.4γ to (16), band structure.
6810.8 5	(17)	B	Jπ: 968.5γ (D) to (16⁺), 738.9γ to (15).
6825.5 6	(17)	B E	XREF: E(?). Jπ: proposed in ^{94}Zr(^{48}Ca,4nγ); 983.1γ to (16⁺).
6829.2[d] 5	(18⁺)	BC	Jπ: 986.8γ E2 to (16⁺), band structure.
6865.2 6	(17)	B	Jπ: 1117.4γ D+Q to (16).
6909.4[m] 7	(18)	B	Jπ: 349.0γ D+Q to (17), band structure.
6937.6[n] 18	(18)	B	Jπ: 471.8γ D+Q to (17), band structure.
6997.9[e] 5	(18⁺)	B	Jπ: 1155.5γ (E2) to (16⁺), band structure.

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Adopted Levels, Gammas (continued)

^{138}Nd Levels (continued)

E(level)[†]	J$^{\pi}$[‡]	XREF	Comments
7047.2[l] 5	(19$^-$)	BC	J$^{\pi}$: 378.9γ D+Q to (18$^-$), 759.6γ to (17$^-$), band structure.
7091.4[p] 10	(18)	B	J$^{\pi}$: 310.6γ D+Q to (17), 280.9γ to (17), band structure.
7125.6 6	(18)	B	J$^{\pi}$: 315.2γ D+Q to (17), 300.0γ D+Q to (17).
7201.4[f] 5	(18$^+$)	B	J$^{\pi}$: 494.6γ Q to (16$^+$), 806.2γ Q to (16$^+$), 1358.6γ Q to (16$^+$), band structure.
7369.7 6	(20)	B	J$^{\pi}$: 322.4γ to (19$^-$), 193.6γ from (20$^-$), 643.6γ D+Q from (21$^-$).
7414.9[m] 10	(19)	B	J$^{\pi}$: 505.6γ D+Q to (18), band structure.
7422.4[h] 5	(19)	B	J$^{\pi}$: 794.6γ (E2) to (17), band structure.
7427.0[k] 6	(20)	BC	J$^{\pi}$: 860.2γ (E2) to (18), band structure.
7484.8[p] 11	(19)	B	J$^{\pi}$: 393.4γ D+Q to (18), band structure.
7503.6 6	(19)	B	J$^{\pi}$: 378.0γ D+Q to (18), band structure.
7564.3[l] 6	(20$^-$)	BC	J$^{\pi}$: 517.1γ D+Q to (19$^-$), 896.3γ to (18$^-$), band structure.
7601.1 6	(19)	B	J$^{\pi}$: 399.5γ D+Q to (18$^+$).
7689.9 8	(20)	B	J$^{\pi}$: 275.1γ to (19), 323.2γ from (21$^-$).
7764.6 5	(20$^+$)	B	J$^{\pi}$: 563.2γ Q to (18$^+$), 935.0γ to (18$^+$).
7777.1 9		B	J$^{\pi}$: 730.3γ to (19$^-$), 281.4γ from (20).
7830.1 8	(19)	B	J$^{\pi}$: 1262.8γ (D+Q) to (18), 228.0γ D+Q from (20).
7888.5[q] 8	(19)	B	J$^{\pi}$: 1322.4γ (D+Q) to (18), band head.
7933.8 6	(20)	B	J$^{\pi}$: 430.4γ D+Q to (19).
7962.8[p] 15	(20)	B	J$^{\pi}$: 478.0γ D+Q to (19), band structure.
7983.3[e] 5	(20$^+$)	B	J$^{\pi}$: 985.4γ to (18$^+$), 1154.2γ to (18$^+$), band structure.
8013.1[l] 6	(21$^-$)	B	J$^{\pi}$: 448.7γ D+Q to (20$^-$), 966.2γ to (19$^-$), band structure.
8049.7 9	(21)	B	J$^{\pi}$: 485.4γ to (20), 431.5γ D+Q from (22).
8058.2[q] 7	(20)	B	J$^{\pi}$: 169.9γ (D+Q) to (19), band structure.
8080.0[d] 8	(20$^+$)	B	J$^{\pi}$: 1251.0γ E2 to (18$^+$), band structure.
8091.8 9	(20)	B	J$^{\pi}$: 1044.7γ to (19$^-$), 493.8γ from (21).
8115.5 8	(20)	B	J$^{\pi}$: 514.4γ D+Q to (19).
8249.4 9	(20)	B	J$^{\pi}$: 826.7γ D+Q to (19).
8328.9[h] 7	(21)	B	J$^{\pi}$: 906.4γ (E2) to (19), band structure.
8351.6[q] 8	(21)	B	J$^{\pi}$: 293.4γ D+Q to (20), band structure.
8395.9[k] 8	(22)	B	J$^{\pi}$: 968.9γ (E2) to (20), band structure.
8396.3 7	(21)	B	J$^{\pi}$: 462.5γ D+Q to (20).
8438.0 7	(21)	B	J$^{\pi}$: 934.3γ to (19), 1015.2γ to (19), 504γ to (20), 483.1γ (D+Q) from (22).
8453.0[r] 6	(22)	B	J$^{\pi}$: 439.9γ D+Q to (21), band head.
8481.4[1] 8	(22)	B	J$^{\pi}$: 917.1γ Q to (20), band head.
8484.1[p] 18	(21)	B	J$^{\pi}$: 521.3γ to (20), band structure.
8489.0 7	(21)	C	J$^{\pi}$: 924.7γ D to (20).
8585.5 7	(21)	B	J$^{\pi}$: 335.9γ D+Q to (20), 651.9γ D+Q to (20).
8611.5[u] 5	(21)	B	J$^{\pi}$: 628.2γ (D) to (20$^+$), 846.9γ (D) to (20$^+$), band head.
8708.3[q] 10	(22)	B	J$^{\pi}$: 356.7γ D+Q to (21), band structure.
8837.6[z] 8	(22)	B	J$^{\pi}$: 757.7γ Q to (20$^+$), 508.7γ (D) to (21), band structure.
8878.5[p] 21	(22)	B	J$^{\pi}$: 394.4γ (D+Q) to (21), band structure.
8891.5 9		B	J$^{\pi}$: 410.4γ D+Q to (22), 841.8γ to (21).
8897.3[r] 8	(23)	B	J$^{\pi}$: 444.4γ D+Q to (22), band structure.
8921.2[3] 7	(22)	B	J$^{\pi}$: 524.9γ (D) to (21), 335.7γ (D) to (21), band structure.
9132.7[q] 11	(23)	B	J$^{\pi}$: 424.4γ D+Q to (22), band structure.
9261.1[1] 9	(24)	B	J$^{\pi}$: 779.5γ E2 to (22), band structure.
9348.7[h] 9	(23)	B	J$^{\pi}$: 1019.8γ to (21), band structure.
9351.8[u] 6	(23)	B	J$^{\pi}$: 740.3γ E2 to (21), band structure.
9356.4[p] 23	(23)	B	J$^{\pi}$: 477.9γ (D+Q) to (22), band structure.
9384.6[s] 8	(24)	B	J$^{\pi}$: 487.8γ D+Q to (23), 931.5γ to (22), band head.
9401.9[r] 9	(24)	B	J$^{\pi}$: 504.6γ D+Q to (23), band structure.

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Adopted Levels, Gammas (continued)

^{138}Nd Levels (continued)

E(level)[†]	Jπ[‡]	XREF	Comments
9513.6[t] 6	(22)	B	Jπ: 902.1γ (D+Q) to (21), band head.
9596.4[3] 7	(24)	B	Jπ: 675.2γ E2 to (22), band structure.
9620.6[q] 12	(24)	B	Jπ: 487.9γ D+Q to (23), band structure.
9685.8[z] 9	(24)	B	Jπ: 848.2γ E2 to (22), band structure.
9808.0[s] 9	(25)	B	Jπ: 423.4γ D+Q to (24), band structure.
9989.6[r] 11	(25)	B	Jπ: 587.7γ D+Q to (24), band structure.
10038.3[t] 6	(24)	B	Jπ: 524.8γ E2 to (22), band structure.
10232.2[q] 13	(25)	B	Jπ: 611.6γ to (24), band structure.
10243.3[u] 6	(25)	B	Jπ: 891.6γ E2 to (23), band structure.
10262.4[s] 14	(26)	B	Jπ: 454.4γ D+Q to (25), band structure.
10341.8[1] 10	(26)	B	Jπ: 1080.7γ E2 to (24), band structure.
10363.4 11	(25)	B	Jπ: 767.1γ (D) to (24).
10413.9[3] 7	(26)	B	Jπ: 817.5γ E2 to (24), band structure.
10648.9[r] 15	(26)	B	Jπ: 659.3γ to (25), band structure.
10688.6[z] 11	(26)	B	Jπ: 1002.8γ E2 to (24), band structure.
10724.2[t] 6	(26)	B	Jπ: 685.8γ E2 to (24), band structure.
10741.8 12	(26)	B	Jπ: 378.4γ D+Q to (25).
10798.4[s] 17	(27)	B	Jπ: 536.0γ to (26).
11284.2[4] 11	(27)	B	Jπ: 870.3γ (D) to (26), 542.4γ D+Q to (26), band head.
11286.2[u] 8	(27)	B	Jπ: 1042.9γ E2 to (25), band structure.
11368.5[2] 11	(28)	B	Jπ: 1026.7γ (E2) to (26), band head.
11404.3[3] 8	(28)	B	Jπ: 990.4γ E2 to (26), band structure.
11563.8[1] 14	(28)	B	Jπ: 1222.0γ to (26), band structure.
11725.4 10	(28)	B	Jπ: 1001.9γ (E2) to (26).
11741.2[t] 8	(28)	B	Jπ: 1016.8γ E2 to (26), band structure.
11904.7[z] 15	(28)	B	Jπ: 1216.1γ E2 to (26), band structure.
11941.6[4] 12	(29)	B	Jπ: 657.4γ E2 to (27), band structure.
11962.3[x] 12	(28)	B	Jπ: 1238.1γ (E2) to (26), band head.
12184.9[w] 18	(29)	B	Jπ: 989.5γ E2 from (31), band head.
12490.2[u] 9	(29)	B	Jπ: 1204.0γ E2 to (27), band structure.
12580.4[y] 13	(29)	B	Jπ: 1294.2γ (E2) to (27), band head.
12584.7[3] 9	(30)	B	Jπ: 1180.4γ E2 to (28), band structure.
12668.0[v] 11	(30)	B	Jπ: 943.4γ (E2) to (28), band head.
12723.4[2] 15	(30)	B	Jπ: 1354.9γ to (28), band structure.
12852.7[4] 13	(31)	B	Jπ: 911.1γ E2 to (29), band structure.
12915.4[x] 16	(30)	B	Jπ: 953.1γ E2 to (28), band structure.
12944.4[t] 9	(30)	B	Jπ: 1203.2γ E2 to (28), band structure.
12970.8[1] 17	(30)	B	Jπ: 1407.0γ to (28), band structure.
13174.4[w] 15	(31)	B	Jπ: proposed in ^{94}Zr(^{48}Ca,4nγ); 506.4γ to (30).
13304.7[z] 18	(30)	B	Jπ: 1400.0γ to (28), band structure.
13514.7[y] 14	(31)	B	Jπ: 934.2γ E2 to (29), band structure.
13558.2[v] 12	(32)	B	Jπ: 890.1γ E2 to (30), band structure.
13846.4[u] 14	(31)	B	Jπ: 1356.1γ E2 to (29), band structure.
13936.1[3] 14	(32)	B	Jπ: 1351.4γ E2 to (30), band structure.
13991.3[4] 17	(33)	B	Jπ: 1138.6γ E2 to (31), band structure.
14012.7 14		B	Jπ: 1428γ to (30).
14055.9[x] 19	(32)	B	Jπ: 1140.5γ E2 to (30), band structure.
14294.2[w] 18	(33)	B	Jπ: 1119.7γ E2 to (31), band structure.
14306.7[2] 18	(32)	B	Jπ: 1583.3γ to (30), band structure.
14335.0[t] 14	(32)	B	Jπ: 1390.6γ E2 to (30), band structure.
14609.5[v] 16	(34)	B	Jπ: 1051.3γ E2 to (32), band structure.

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{138}Nd Levels (continued)

E(level)[†]	Jπ[‡]	XREF	Comments
14678.8[y] *17*	(33)	B	Jπ: 1164.1γ to (31), band structure.
14885[z] *3*	(32)	B	Jπ: 1580.3γ to (30), band structure.
15261.4[u] *17*	(33)	B	Jπ: 1415.0γ (E2) to (31), band structure.
15354.9[4] *20*	(35)	B	Jπ: 1363.6γ E2 to (33), band structure.
15367.1[x] *21*	(34)	B	Jπ: 1311.2γ E2 to (32), band structure.
15480.8[3] *17*	(34)	B	Jπ: 1544.7γ to (32), band structure.
15552.0[w] *21*	(35)	B	Jπ: 1257.8γ E2 to (33), band structure.
15796.9[v] *19*	(36)	B	Jπ: 1187.4γ E2 to (34), band structure.
15877.2[t] *17*	(34)	B	Jπ: 1542.2γ to (32), band structure.
16059.7[y] *20*	(35)	B	Jπ: 1380.9γ to (33), band structure.
16694.6[u] *20*	(35)	B	Jπ: 1433.2γ to (33), band structure.
16789.2[x] *23*	(36)	B	Jπ: 1422.1γ E2 to (34), band structure.
16914.7[4] *22*	(37)	B	Jπ: 1559.8γ to (35), band structure.
16954.7[w] *23*	(37)	B	Jπ: band structure.
17064.0[3] *20*	(36)	B	Jπ: 1583.2γ to (34), band structure.
17132.1[v] *21*	(38)	B	Jπ: 1335.2γ to (36), band structure.
17451.6[t] *20*	(36)	B	Jπ: 1356.1γ to (34), band structure.
18160.7[u] *22*	(37)	B	Jπ: 1466.1γ to (35), band structure.
18292[x] *3*	(38)	B	Jπ: 1503.2γ to (36), band structure.
18495.5[w] *25*	(39)	B	Jπ: 1540.8γ to (37), band structure.
18613.1[v] *23*	(40)	B	Jπ: 1481.0γ to (38), band structure.
18628.8[4] *24*	(39)	B	Jπ: 1714.1γ to (37), band structure.
18672.0[3] *22*	(38)	B	Jπ: 1608.0γ to (36), band structure.
18978.5[t] *22*	(38)	B	Jπ: 1526.9γ to (36), band structure.
19686.3[u] *24*	(39)	B	Jπ: 1525.6γ to (37), band structure.
20163[w] *3*	(41)	B	Jπ: 1667.5γ to (39), band structure.
20231[v] *3*	(42)	B	Jπ: 1618.4γ to (40), band structure.
20340.1[3] *24*	(40)	B	Jπ: 1668.1γ to (38), band structure.
20422[4] *3*	(41)	B	Jπ: 1793.5γ to (39), band structure.
20483.8[t] *24*	(40)	B	Jπ: 1505.2γ to (38), band structure.
21294[u] *3*	(41)	B	Jπ: 1607.4γ to (39), band structure.
21946[w] *3*	(43)	B	Jπ: 1783γ to (41), band structure.
21991[v] *3*	(44)	B	Jπ: 1759.9γ to (42), band structure.
22135[t] *3*	(42)	B	Jπ: 1651.2γ to (40), band structure.
22260[4] *3*	(43)	B	Jπ: 1837.5γ to (41), band structure.
23008[u] *3*	(43)	B	Jπ: 1714.4γ to (41), band structure.
23853[v] *3*	(46)	B	Jπ: 1861.7γ to (44), band structure.
24133[4] *3*	(45)	B	Jπ: 1873γ to (43), band structure.
x[5]		B	Additional information 2.
894.4+x[5] *10*		B	
1976.7+x[5] *12*		B	
3239.9+x[5] *15*		B	
4674.6+x[5] *18*		B	
6294.6+x[5] *21*		B	
8111.6+x[5] *23*		B	
y[6]		B	Additional information 3.
842.1+y[6] *5*		B	
1833.3+y[6] *7*		B	
2983.0+y[6] *9*		B	
4290.0+y[6] *14*		B	
5751.0+y[6] *17*		B	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{138}Nd Levels (continued)

E(level)†	Jπ‡	XREF	Comments
7374.8+y[6] *20*		B	
z[7]		B	Additional information 4.
814.9+z[7] *10*		B	
1791.8+z[7] *15*		B	
2958.8+z[7] *18*		B	
4330.1+z[7] *20*		B	
5907.2+z[7] *23*		B	
u[8]	(26+)	B	Additional information 5.
968.9+u[8] *4*	(28+)	B	
2005.3+u[8] *6*	(30+)	B	
3074.3+u[8] *6*	(32+)	B	
4201.5+u[8] *7*	(34+)	B	
5405.5+u[8] *7*	(36+)	B	
6679.0+u[8] *8*	(38+)	B	
8012.4+u[8] *8*	(40+)	B	
9413.3+u[8] *8*		B	
10880.8+u[8] *8*		B	
12421.0+u[8] *9*		B	
14040.6+u[8] *10*		B	
15748.5+u[8] *10*		B	
17546.8+u[8] *12*		B	
19444.7+u[8] *19*		B	
21438.8+u[8] *23*		B	

† From a least-squares fit to γ-ray energies, assuming ΔEγ=1 keV when unknown.
‡ Deduced from γ-ray multipolarities, cascade patterns, band structures, unless otherwise noted.
# Band(A): Ground state band.
@ Band(B): γ-band.
& Band(C): Band N1 based on 5^-, 1990 level.
a Band(D): Band N2 based on (8^-), 2999 level.
b Band(E): Band N3 based on $9^{(-)}$, 3371 level.
c Band(F): Band N4 based on $5^{(-)}$, 2221 level.
d Band(G): Band L1 based on (10^+), 3701 level.
e Band(H): Band L2 based on (14^+), 5349 level.
f Band(I): Band L3 based on (14^+), 5527 level.
g Band(J): Band L4 based on (13), 4990 level.
h Band(K): Band L5 based on (15), 6072 level.
i Band(L): Band L6 based on 10^+, 3175 level.
j Band(M): Band L7 based on (13^+), 4974 level.
k Band(N): Band L8 based on (16), 5748 level.
l Band(O): Band D1 based on (13^-), 5493 level. Bands D1 and D2 are possible chiral partners.
m Band(P): Band D2 based on (15), 6017 level. Bands D1 and D2 are possible chiral partners.
n Band(Q): Band D3 based on (14), 5781 level.
o Band(R): Band D4 based on $10^{(+)}$, 4345 level.
p Band(S): Band D5 based on (16), 6556 level.
q Band(T): Band D6 based on (19), 7888 level.
r Band(U): Band D7 based on (22), 8453 level.

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Adopted Levels, Gammas (continued)

^{138}Nd Levels (continued)

[s] Band(V): Band D8 based on (24), 9384 level.
[t] Band(a): Band T1 based on (22), 9514 level; α=0. Bands T1 and T2 are signature partners.
[u] Band(b): Band T2 based on (21), 8611 level; α=1. Bands T1 and T2 are signature partners.
[v] Band(c): Band T3 based on (30), 12668 level.
[w] Band(d): Band T4 based on (29), 12185 level.
[x] Band(e): Band T5 based on (28), 11962 level.
[y] Band(f): Band T6 based on (29), 12580 level.
[z] Band(g): Band T9 based on (22), 8838 level.
[1] Band(h): Band T10 based on (22), 8481 level.
[2] Band(i): Band T11 based on (28), 11368 level.
[3] Band(j): Band T7 based on (22), 8921 level.
[4] Band(k): Band T8 based on (27), 11284 level.
[5] Band(l): Band T12 based on X level.
[6] Band(m): Band T13 based on Y level.
[7] Band(n): Band T14 based on Z level.
[8] Band(o): Highly-deformed (HD) band.

$\gamma(^{138}Nd)$

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[#]	Comments
520.75	2^+	520.7 *2*	100	0.0	0^+	E2	0.0107	α(K)=0.0088 *3*; α(L)=0.00141 *5* E_γ: weighted average of 520.9 *2* from ^{138}Pm ε decay, 520.8 *2* from ^{94}Zr(^{48}Ca,4nγ), 520.8 *2* from ^{123}Sb(^{19}F,4nγ), and 520.1 *3* from ^{140}Ce(α,6nγ),^{141}Pr(p,4nγ). Mult.: also from ce data in ^{138}Pm ε decay, $\gamma\gamma$(DCO) in ^{123}Sb(^{19}F,4nγ) and ^{124}Te(^{19}F,p4nγ), $\gamma(\theta)$ in ^{140}Ce(α,6nγ),^{141}Pr(p,4nγ).
1013.80	2^+	493.1 *2*	100 *6*	520.75	2^+	E2(+M1)	0.0123	α(K)=0.0101 *3*; α(L)=0.00166 *5*; α(M)=0.00036 *1* E_γ: weighted average of 493.1 *2* from ^{138}Pm ε decay, 493.1 *2* from ^{123}Sb(^{19}F,4nγ), and 492.8 *5* from ^{140}Ce(α,6nγ),^{141}Pr(p,4nγ). I_γ: from ^{138}Pm ε decay. Other: 100 *1* from ^{124}Te(^{19}F,p4nγ). Mult.: E2 from ^{138}Pm ε decay based on ce data, M1+E2 from ^{124}Te(^{19}F,p4nγ) based on $\gamma\gamma$(DCO); E2(+M1) is adopted.
		1013.9 *3*	34 *3*	0.0	0^+	E2	0.00219	α=0.00219; α(K)=0.00185 *6*; α(L)=0.00025 *1* E_γ: weighted average of 1014.0 *3* from ^{138}Pm ε decay, 1014.0 *3* from ^{123}Sb(^{19}F,4nγ), and 1013.3 *5* from ^{140}Ce(α,6nγ),^{141}Pr(p,4nγ). I_γ: from ^{138}Pm ε decay. Other: 63 *8* from ^{124}Te(^{19}F,p4nγ). Mult.: from ce data in ^{138}Pm ε decay.
1249.70	4^+	728.8 *2*	100	520.75	2^+	E2	0.00458	α=0.00458; α(K)=0.00383 *12*; α(L)=0.00056 *2* E_γ: weighted average of 729.0 *2* from ^{138}Pm ε decay, 728.7 *2* from ^{94}Zr(^{48}Ca,4nγ), 729.0 *2* from ^{123}Sb(^{19}F,4nγ), and 728.3 *3* from ^{140}Ce(α,6nγ),^{141}Pr(p,4nγ). Mult.: also from ce data in ^{138}Pm ε decay, $\gamma\gamma$(DCO) in ^{123}Sb(^{19}F,4nγ) and ^{124}Te(^{19}F,p4nγ), ce data and $\gamma(\theta)$ in ^{140}Ce(α,6nγ),^{141}Pr(p,4nγ).

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Adopted Levels, Gammas (continued)

$\gamma(^{138}Nd)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[#]	Comments
1451.43	$(3)^+$	437.7 *2*	100 *6*	1013.80	2^+	E2(+M1)	0.021 *5*	α(K)=0.018 *4*; α(L)=0.0027 *3*; α(M)=0.00057 *6*; α(N+..)=0.00016 *2* E_γ: weighted average of 437.4 *2* from ^{138}Pm ε decay, 438.0 *2* from ^{123}Sb(^{19}F,4nγ), and 437.3 *5* from ^{140}Ce(α,6nγ),^{141}Pr(p,4nγ). I_γ: from ^{138}Pm ε decay. Other: 100 *4* from ^{124}Te(^{19}F,p4nγ). Mult.: E2(+M1) from ^{138}Pm ε decay based on ce data, M1+E2 from ^{124}Te(^{19}F,p4nγ) based on $\gamma\gamma$(DCO); E2(+M1) is adopted.
		930.5 *4*	49 *3*	520.75	2^+	M1(+E2)	0.0034 *8*	α=0.0034 *8*; α(K)=0.0029 *7*; α(L)=0.00038 *8* E_γ: weighted average of 930.6 *2* from ^{138}Pm ε decay and 929.6 *5* from ^{140}Ce(α,6nγ),^{141}Pr(p,4nγ). I_γ: from from ^{138}Pm ε decay. Other: 27.8 *6* from ^{124}Te(^{19}F,p4nγ). Mult.: M1(+E2) from ^{138}Pm ε decay based on ce data, M1+E2 from ^{124}Te(^{19}F,p4nγ) based on $\gamma\gamma$(DCO); M1(+E2) is adopted.
1799.77	(4^+)	786.0 *3*	8.2 *18*	1013.80	2^+	Q		E_γ,I_γ: from ^{138}Pm ε decay. Other: Iγ=100 *15* from. Mult.: E2 from ^{124}Te(^{19}F,p4nγ) based on $\gamma\gamma$(DCO); Q is adopted.
		1279.1 *3*	100 *7*	520.75	2^+	Q		E_γ,I_γ: from ^{138}Pm ε decay. Other: Iγ=100 *2* from ^{124}Te(^{19}F,p4nγ). Mult.: E2 from ^{124}Te(^{19}F,p4nγ) based on $\gamma\gamma$(DCO); Q is adopted.
1842.81	(4^+)	592.9 *3*	12.7 *14*	1249.70	4^+			E_γ,I_γ: seen only in ^{138}Pm ε decay.
		829.0 *2*	100 *7*	1013.80	2^+	Q		E_γ,I_γ: from ^{138}Pm ε decay. Other: 100 *10* in ^{124}Te(^{19}F,p4nγ). Mult.: M1 from ^{138}Pm ε decay based on ce data, E2 from ^{124}Te(^{19}F,p4nγ) based on $\gamma\gamma$(DCO); Q is adopted.
1990.15	5^-	740.3 *2*	100	1249.70	4^+	E1	0.00170	α=0.00170; α(K)=0.00145 *5*; α(L)=0.00019 *1* E_γ: weighted average of 740.6 *3* from ^{138}Pm ε decay, 740.2 *2* from ^{94}Zr(^{48}Ca,4nγ), 740.6 *3* from ^{123}Sb(^{19}F,4nγ), and 740.0 *3* from ^{140}Ce(α,6nγ),^{141}Pr(p,4nγ). Mult.: also from ce data in ^{138}Pm ε decay, $\gamma\gamma$(DCO) in ^{123}Sb(^{19}F,4nγ), ce data and $\gamma(\theta)$ in ^{140}Ce(α,6nγ),^{141}Pr(p,4nγ).
2133.8	6^+	884.1 *2*		1249.70	4^+	E2	0.00294	α=0.00294; α(K)=0.00248 *8*; α(L)=0.00035 *1* E_γ: weighted average of 884.4 *4* from ^{138}Pm ε decay, 883.9 *2* from ^{94}Zr(^{48}Ca,4nγ), 884.4 *2* from ^{123}Sb(^{19}F,4nγ), and 883.7 *3* from ^{140}Ce(α,6nγ),^{141}Pr(p,4nγ). Mult.: also from $\gamma\gamma$(DCO) in ^{123}Sb(^{19}F,4nγ) and ^{124}Te(^{19}F,p4nγ), ce data and $\gamma(\theta)$ in ^{140}Ce(α,6nγ),^{141}Pr(p,4nγ).
2196.1		1675.3 *3*	100	520.75	2^+			
2221.34	$5^{(-)}$	230.8 *2*	48 *5*	1990.15	5^-	D		E_γ: weighted average of 230.7 *2* from ^{94}Zr(^{48}Ca,4nγ) and 231.0 *3* from

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

$\gamma(^{138}Nd)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[#]	Comments
								^{123}Sb(^{19}F,4nγ).
								I_γ: other: 29 from ^{123}Sb(^{19}F,4nγ).
								Mult.: from $\gamma\gamma$(DCO) in ^{123}Sb(^{19}F,4nγ).
2221.34	5$^{(-)}$	971.9 *2*	100 *12*	1249.70	4$^+$	D		E_γ: weighted average of 972.1 *3* from ^{138}Pm ε decay, 971.7 *2* from ^{94}Zr(^{48}Ca,4nγ), 972.4 *3* from ^{123}Sb(^{19}F,4nγ), and 971.7 *3* from ^{140}Ce(α,6nγ),^{141}Pr(p,4nγ).
								Mult.: M1(+E2) in ^{140}Ce(α,6nγ), ^{141}Pr(p,4nγ). The results of 1994De11 in ^{123}Sb(^{19}F,4nγ) confirm a dipole nature, but it is interpreted as E1; ce data in ^{138}Pm ε decay support dipole.
2261.6	(5$^+$)	810.3 *3*	82 *8*	1451.43	(3)$^+$	Q	0.00570	α=0.00570; α(K)=0.00486 *15*; α(L)=0.00064 *2*
								E_γ,I_γ: from ^{138}Pm ε decay.
								Mult.: (M1) from ^{138}Pm ε decay based on ce data, E2 from ^{124}Te(^{19}F,p4nγ) based on $\gamma\gamma$(DCO); Q is adopted.
		1011.6 *3*	100 *13*	1249.70	4$^+$	D+Q		E_γ,I_γ: from ^{138}Pm ε decay.
								Mult.: M1+E2 from ^{124}Te(^{19}F,p4nγ) based on $\gamma\gamma$(DCO); D+Q is adopted.
2269.5	(5$^+$)	818.1	100	1451.43	(3)$^+$	Q		E_γ,I_γ: from ^{124}Te(^{19}F,p4nγ) only.
								Mult.: E2 from ^{124}Te(^{19}F,p4nγ) based on $\gamma\gamma$(DCO); Q is adopted.
2273.0	(1,2$^+$)	1259.2 *5*	83 *33*	1013.80	2$^+$			E_γ,I_γ: from ^{138}Pm ε decay only.
		2273.0 *4*	100 *33*	0.0	0$^+$			E_γ,I_γ: from ^{138}Pm ε decay only.
2321.3	7$^-$	186.9 *2*	9.1 *18*	2133.8	6$^+$	D		E_γ: weighted average of 186.5 *5* from ^{94}Zr(^{48}Ca,4nγ) and 187.0 *2* from ^{123}Sb(^{19}F,4nγ).
								I_γ: other: 4 from ^{123}Sb(^{19}F,4nγ).
								Mult.: from ^{123}Sb(^{19}F,4nγ) based on $\gamma\gamma$(DCO).
		331.2 *4*	100 *10*	1990.15	5$^-$	E2	0.0387	B(E2)(W.u.)≈12
								α(K)=0.0309 *10*; α(L)=0.00606 *19*; α(M)=0.00132 *4*; α(N+..)=0.00035 *1*
								E_γ: weighted average of 331.5 *2* from ^{94}Zr(^{48}Ca,4nγ), 331.4 *3* from ^{123}Sb(^{19}F,4nγ), and 330.3 *3* from ^{140}Ce(α,6nγ),^{141}Pr(p,4nγ).
								Mult.: also from $\gamma\gamma$(DCO) in ^{123}Sb(^{19}F,4nγ), ce data and $\gamma(\theta)$ in ^{140}Ce(α,6nγ),^{141}Pr(p,4nγ); RUL.
2323.7		1802.9 *3*	100	520.75	2$^+$			E_γ: from ^{138}Pm ε decay only.
2484.7		1033.2 *4*	38 *13*	1451.43	(3)$^+$			E_γ,I_γ: from ^{138}Pm ε decay only.
		1470.9 *4*	100 *25*	1013.80	2$^+$			E_γ,I_γ: from ^{138}Pm ε decay only.
2623.0		1373.3 *4*	100	1249.70	4$^+$			E_γ: from ^{138}Pm ε decay only.
2625.5		1375.8 *4*	100	1249.70	4$^+$			E_γ: from ^{138}Pm ε decay only.
2691.1	7$^{(-)}$	369.9 *3*	10.5 *16*	2321.3	7$^-$	D+Q		E_γ: weighted average of 369.8 *2* from ^{94}Zr(^{48}Ca,4nγ), 369.3 *3* from ^{123}Sb(^{19}F,4nγ), and 370.6 *3* from ^{140}Ce(α,6nγ),^{141}Pr(p,4nγ).
								I_γ: others: 12 *8* from ^{140}Ce(α,6nγ),^{141}Pr(p,4nγ), 5 from ^{123}Sb(^{19}F,4nγ).
								Mult.: M1+E2 from ^{94}Zr(^{48}Ca,4nγ) based on $\gamma\gamma$(DCO), (Q) from ^{123}Sb(^{19}F,4nγ) based on $\gamma\gamma$(DCO); D+Q is adopted.

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Adopted Levels, Gammas (continued)

$\gamma(^{138}Nd)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[#]	Comments
2691.1	$7^{(-)}$	469.6 *2*	37 *4*	2221.34	$5^{(-)}$	E2		E_γ: weighted average of 469.8 *2* from ^{94}Zr(^{48}Ca,4nγ), 469.6 *2* from ^{123}Sb(^{19}F,4nγ), and 469.0 *3* from ^{140}Ce(α,6nγ),^{141}Pr(p,4nγ). I_γ: others: 29 *5* from ^{140}Ce(α,6nγ),^{141}Pr(p,4nγ), 32 from ^{123}Sb(^{19}F,4nγ). Mult.: Other: Q from $\gamma\gamma$(DCO) in ^{123}Sb(^{19}F,4nγ), $\gamma(\theta)$ in ^{140}Ce(α,6nγ),^{141}Pr(p,4nγ).
		557.2 *2*	100 *10*	2133.8	6^+	D(+Q)		E_γ: weighted average of 557.3 *2* from ^{94}Zr(^{48}Ca,4nγ), 556.9 *3* from ^{123}Sb(^{19}F,4nγ), and 557.2 *3* from ^{140}Ce(α,6nγ),^{141}Pr(p,4nγ). I_γ: others: 100 *5* from ^{140}Ce(α,6nγ),^{141}Pr(p,4nγ), 100 from ^{123}Sb(^{19}F,4nγ). Mult.: E1+M2 from ^{94}Zr(^{48}Ca,4nγ) based on $\gamma\gamma$(DCO), D(+Q) from ^{140}Ce(α,6nγ),^{141}Pr(p,4nγ) based on $\gamma(\theta)$; D(+Q) is adopted.
		701.2 *3*	4.1 *8*	1990.15	5^-	Q		E_γ: weighted average of 701.2 *5* from ^{94}Zr(^{48}Ca,4nγ) and 701.2 *3* from ^{123}Sb(^{19}F,4nγ). Other: 5 from ^{123}Sb(^{19}F,4nγ). Mult.: from $\gamma\gamma$(DCO) in ^{123}Sb(^{19}F,4nγ).
2695.2	(8^+)	372.8 *3*	100	2321.3	7^-	D		E_γ,I_γ,Mult.: from ^{123}Sb(^{19}F,4nγ) only.
		562.2 *2*	24	2133.8	6^+	(Q)		E_γ,I_γ,Mult.: from ^{123}Sb(^{19}F,4nγ) only.
2710.2		1258.8 *5*	50 *17*	1451.43	$(3)^+$			E_γ,I_γ: from ^{138}Pm ε decay only.
		1460.4 *5*	100 *50*	1249.70	4^+			E_γ,I_γ: from ^{138}Pm ε decay only.
2758.5		1508.7 *4*	36 *18*	1249.70	4^+			E_γ,I_γ: from ^{138}Pm ε decay only.
		1744.8 *4*	100 *18*	1013.80	2^+			E_γ,I_γ: from ^{138}Pm ε decay only.
2934.4		944.5 *3*	32 *8*	1990.15	5^-			E_γ,I_γ: from ^{138}Pm ε decay only.
		1091.9 *6*	32 *16*	1842.81	(4^+)			E_γ,I_γ: from ^{138}Pm ε decay only.
		1134.6 *3*	100 *12*	1799.77	(4^+)			E_γ,I_γ: from ^{138}Pm ε decay only.
		1482.8 *3*	100 *12*	1451.43	$(3)^+$			
2940.6	(6^+)	1097.5 *6*	100 *33*	1842.81	(4^+)	Q		E_γ,I_γ: from ^{138}Pm ε decay. Other: Iγ=68 *21* from ^{124}Te(^{19}F,p4nγ). Mult.: E2 from ^{124}Te(^{19}F,p4nγ) based on $\gamma\gamma$(DCO); Q is adopted.
		1140.9 *3*	67 *17*	1799.77	(4^+)			E_γ,I_γ: from ^{138}Pm ε decay. Other: Iγ=100 *47* from ^{124}Te(^{19}F,p4nγ).
2960.8	(6^+)	699.0 *6*	33 *7*	2261.6	(5^+)			E_γ,I_γ: from ^{138}Pm ε decay only.
		970.7 *4*	53 *20*	1990.15	5^-			E_γ,I_γ: from ^{138}Pm ε decay only.
		1117.8 *4*	47 *14*	1842.81	(4^+)			E_γ,I_γ: from ^{138}Pm ε decay only.
		1161.4 *4*	47 *14*	1799.77	(4^+)			E_γ,I_γ: from ^{138}Pm ε decay. Other: Iγ=55 *35* from ^{124}Te(^{19}F,p4nγ).
		1509.3 *4*	53 *27*	1451.43	$(3)^+$			E_γ,I_γ: from ^{138}Pm ε decay only.
		1711.1 *4*	100 *20*	1249.70	4^+			E_γ,I_γ: from ^{138}Pm ε decay. Other: Iγ=100 *25* from ^{124}Te(^{19}F,p4nγ).
2980.3	(8^-)	659.0 *2*	100	2321.3	7^-	D		E_γ: weighted average of 658.8 *2* from ^{94}Zr(^{48}Ca,4nγ) and 659.1 *2* from ^{123}Sb(^{19}F,4nγ). Mult.: from $\gamma\gamma$(DCO) in ^{94}Zr(^{48}Ca,4nγ) and ^{123}Sb(^{19}F,4nγ).
2998.5	(8^-)	677.0 *2*	100	2321.3	7^-	D+Q		
3107.3	8^+	973.2 *2*	100	2133.8	6^+	E2	0.00239	α=0.00239; α(K)=0.00202 *6*; α(L)=0.00028 *1* E_γ: weighted average of 972.9 *2* from

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Adopted Levels, Gammas (continued)

γ(^{138}Nd) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[#]	Comments
								^{94}Zr(^{48}Ca,4nγ), 973.5 *2* from ^{123}Sb(^{19}F,4nγ), and 972.9 *3* from ^{140}Ce(α,6nγ),^{141}Pr(p,4nγ). Mult.: also from γγ(DCO) in ^{124}Te(^{19}F,p4nγ), ce data and γ(θ) in ^{140}Ce(α,6nγ),^{141}Pr(p,4nγ).
3174.5	10^+	66.6 *3*	100	3107.3	8^+	E2	10.0	B(E2)(W.u.)=2.3 *3* E_γ: from ^{140}Ce(α,6nγ), ^{141}Pr(p,4nγ) data set, also observed in ^{94}Zr(^{48}Ca,4nγ). Mult.: from ce data and γ(θ) in ^{140}Ce(α,6nγ),^{141}Pr(p,4nγ).
3239.8	9^-	918.5 *3*	100	2321.3	7^-	E2		E_γ: weighted average of 918.1 *5* from ^{94}Zr(^{48}Ca,4nγ) and 918.6 *3* from ^{123}Sb(^{19}F,4nγ). Mult.: E2 from ^{94}Zr(^{48}Ca,4nγ) and Q from ^{123}Sb(^{19}F,4nγ) based on γγ(DCO); E2 is adopted based on band structure.
3247.0	$9^{(-)}$	556.0 *4*	100	2691.1	$7^{(-)}$	E2	0.0090	α=0.0090; α(K)=0.00742 *23*; α(L)=0.00117 *4* E_γ: unweighted average of 556.7 *2* from ^{94}Zr(^{48}Ca,4nγ), 555.8 *3* from ^{123}Sb(^{19}F,4nγ), 555.5 *3* from ^{140}Ce(α,6nγ),^{141}Pr(p,4nγ). Mult.: from ^{140}Ce(α,6nγ),^{141}Pr(p,4nγ) based on γ(θ) and RUL; E2 from ^{94}Zr(^{48}Ca,4nγ) based on γγ(θ); E2 is adopted.
3255.8		2242.0 *10*	100	1013.80	2^+			E_γ: from ^{138}Pm ε decay.
3371.3	$9^{(-)}$	372.7 *2*	100 *10*	2998.5	(8^-)	D+Q		
		391.0 *2*	44 *7*	2980.3	(8^-)	D		E_γ: weighted average of 391.0 *2* from ^{94}Zr(^{48}Ca,4nγ) and 390.9 *2* from ^{123}Sb(^{19}F,4nγ). I_γ: other: I(391.0γ)/I(676.9γ)=21/100 from ^{123}Sb(^{19}F,4nγ). Mult.: from γγ(DCO) in ^{94}Zr(^{48}Ca,4nγ) and ^{123}Sb(^{19}F,4nγ).
		676.9 *3*		2695.2	(8^+)	D		E_γ: from ^{123}Sb(^{19}F,4nγ) only. I_γ: I(391.0γ)/I(676.9γ)=21/100 from ^{123}Sb(^{19}F,4nγ). Mult.: from γγ(DCO) in ^{123}Sb(^{19}F,4nγ).
		680.4 *4*	93 *9*	2691.1	$7^{(-)}$	Q		E_γ: unweighted average of 680.0 *2* from ^{94}Zr(^{48}Ca,4nγ) and 680.8 *3* from ^{123}Sb(^{19}F,4nγ). I_γ: I(680.4γ)/I(676.9γ)=91/100 from ^{123}Sb(^{19}F,4nγ). Mult.: from γγ(DCO) in ^{123}Sb(^{19}F,4nγ).
3556.5	(10^-)	186.7 *5*	12 *6*	3371.3	$9^{(-)}$			
		558.0 *2*	100 *10*	2998.5	(8^-)	E2		
		576.9 *5*	15 *7*	2980.3	(8^-)			
3700.6	(10^+)	143.7 *10*	1.7 *7*	3556.5	(10^-)	D+Q		E_γ: from ^{94}Zr(^{48}Ca,4nγ) only.
		329.3 *2*	76 *7*	3371.3	$9^{(-)}$	D		E_γ: weighted average of 329.1 *2* from ^{94}Zr(^{48}Ca,4nγ) and 329.6 *3* from ^{123}Sb(^{19}F,4nγ). I_γ: other: 31 from ^{123}Sb(^{19}F,4nγ). Mult.: from γγ(DCO) in ^{94}Zr(^{48}Ca,4nγ) and ^{123}Sb(^{19}F,4nγ).

Adopted Levels, Gammas (continued)

$\gamma(^{138}Nd)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[#]	Comments
		453.5 *2*	100 *10*	3247.0	$9^{(-)}$	D		E_γ: weighted average of 453.6 *2* from

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Adopted Levels, Gammas (continued)

$\gamma(^{138}Nd)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[#]	Comments
								^{94}Zr(^{48}Ca,4nγ), 453.6 *2* from ^{123}Sb(^{19}F,4nγ), and 452.9 *3* from ^{140}Ce(α,6nγ),^{141}Pr(p,4nγ). Mult.: from $\gamma\gamma$(DCO) in ^{94}Zr(^{48}Ca,4nγ) and ^{123}Sb(^{19}F,4nγ), $\gamma(\theta)$ in ^{140}Ce(α,6nγ),^{141}Pr(p,4nγ).
3783.9		1984.0 *4*	100 *33*	1799.77	(4^+)			E_γ,I_γ: from ^{138}Pm ε decay.
		2332.8 *6*	50 *17*	1451.43	$(3)^+$			E_γ,I_γ: from ^{138}Pm ε decay.
3821.4	12^+	646.9 *2*	100	3174.5	10^+	E2	0.00611	α=0.00611; α(K)=0.00509 *16*; α(L)=0.00077 *2* E_γ: weighted average of 646.9 *2* from ^{94}Zr(^{48}Ca,4nγ), 647.1 *2* from ^{123}Sb(^{19}F,4nγ), and 646.4 *3* from ^{140}Ce(α,6nγ),^{141}Pr(p,4nγ). Mult.: from $\gamma\gamma$(DCO) in ^{94}Zr(^{48}Ca,4nγ) and ^{123}Sb(^{19}F,4nγ), $\gamma(\theta)$ and RUL in ^{140}Ce(α,6nγ),^{141}Pr(p,4nγ).
3854.8	$11^{(-)}$	483.5 *5*	100	3371.3	$9^{(-)}$	E2		
3854.8		2403.6 *6*	43 *13*	1451.43	$(3)^+$			E_γ,I_γ: from ^{138}Pm ε decay.
		2605.0 *4*	100 *17*	1249.70	4^+			E_γ,I_γ: from ^{138}Pm ε decay.
		2841.0 *4*	17 *7*	1013.80	2^+			E_γ,I_γ: from ^{138}Pm ε decay.
3915.2	$11^{(-)}$	359.0 *2*	38 *6*	3556.5	(10^-)	D+Q		E_γ: from ^{94}Zr(^{48}Ca,4nγ) only.
		543.8 *2*	39 *6*	3371.3	$9^{(-)}$	Q		E_γ: weighted average of 543.9 *2* from ^{94}Zr(^{48}Ca,4nγ) and 543.6 *2* from ^{123}Sb(^{19}F,4nγ). I_γ: other: I(543.8γ/740.4γ)>6/100 from ^{123}Sb(^{19}F,4nγ). Mult.: also from $\gamma\gamma$(DCO) in ^{123}Sb(^{19}F,4nγ).
		668.2 *2*	100 *13*	3247.0	$9^{(-)}$	E2		E_γ: weighted average of 668.0 *2* from ^{94}Zr(^{48}Ca,4nγ) and 668.3 *2* from ^{123}Sb(^{19}F,4nγ). I_γ: other: I(668.2γ/740.4γ)>23/100 from ^{123}Sb(^{19}F,4nγ).
		740.4 *2*	44 *6*	3174.5	10^+			E_γ: weighted average of 740.4 *2* from ^{94}Zr(^{48}Ca,4nγ) and 740.4 *3* from ^{123}Sb(^{19}F,4nγ).
3981.1		2138.0 *6*	10 *4*	1842.81	(4^+)			E_γ,I_γ: from ^{138}Pm ε decay.
		2731.3 *4*	38 *10*	1249.70	4^+			E_γ,I_γ: from ^{138}Pm ε decay.
		3460.5 *4*	100 *14*	520.75	2^+			E_γ,I_γ: from ^{138}Pm ε decay.
4136.1	(11)	961.3 *3*	100	3174.5	10^+	D		E_γ: weighted average of 961.1 *2* from ^{94}Zr(^{48}Ca,4nγ) and 961.7 *3* from ^{123}Sb(^{19}F,4nγ). Mult.: D+Q from ^{94}Zr(^{48}Ca,4nγ) and D from $\gamma\gamma$(DCO) in ^{123}Sb(^{19}F,4nγ).
4203.3	(12^+)	502.7 *2*	100	3700.6	(10^+)	E2	0.0117	E_γ: weighted average of 502.8 *2* from ^{94}Zr(^{48}Ca,4nγ), 502.8 *2* from ^{123}Sb(^{19}F,4nγ), and 502.2 *3* from ^{140}Ce(α,6nγ),^{141}Pr(p,4nγ). Mult.: from $\gamma\gamma$(DCO) in ^{94}Zr(^{48}Ca,4nγ) and ^{123}Sb(^{19}F,4nγ), $\gamma(\theta)$ and RUL in ^{140}Ce(α,6nγ),^{141}Pr(p,4nγ).
4205.8		2754.3 *5*	100	1451.43	$(3)^+$			E_γ: from ^{138}Pm ε decay.
4210.3	(11^-)	839.0 *3*	100	3371.3	$9^{(-)}$	Q		E_γ: from ^{123}Sb(^{19}F,4nγ). Mult.: from $\gamma\gamma$(DCO) in ^{123}Sb(^{19}F,4nγ).
4212.4		2369.3 *6*	78 *33*	1842.81	(4^+)			E_γ,I_γ: from ^{138}Pm ε decay.
		2962.9 *6*	100 *33*	1249.70	4^+			E_γ,I_γ: from ^{138}Pm ε decay.
4218.4	11^-	978.6 *3*	100	3239.8	9^-	E2		E_γ: weighted average of 978.2 *2* from

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Adopted Levels, Gammas (continued)

$\gamma(^{138}Nd)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	Comments
							^{94}Zr(^{48}Ca,4nγ) and 978.8 *3* from ^{123}Sb(^{19}F,4nγ). Mult.: other: Q from $\gamma\gamma$(DCO) in ^{123}Sb(^{19}F,4nγ).
4344.8	$10^{(+)}$	1238.0 *10*	100	3107.3	8^+	Q	
4381.7	(11)	681.2 *5*	100	3700.6	(10^+)	D+Q	
4395.4	(12^-)	838.9 *2*	100	3556.5	(10^-)	E2	
4545.9	(11^+)	164.1 *10*	8 *4*	4381.7	(11)	D+Q	
		201.2 *5*	100 *20*	4344.8	$10^{(+)}$	D+Q	
		845.0 *5*	76 *36*	3700.6	(10^+)		
4651.5	(13^-)	736.4 *5*	100	3915.2	$11^{(-)}$		
4695.4	(13^-)	840.6 *5*	100	3854.8	$11^{(-)}$		
4751.9	$13^{(-)}$	836.8 *2*	100	3915.2	$11^{(-)}$	E2	E_γ: weighted average of 836.7 *2* from ^{94}Zr(^{48}Ca,4nγ) and 836.9 *3* from ^{123}Sb(^{19}F,4nγ). Mult.: other: Q from $\gamma\gamma$(DCO) in ^{123}Sb(^{19}F,4nγ).
4779.0	(12^+)	233.0 *5*	100 *21*	4545.9	(11^+)	D+Q	
		397.3 *5*	57 *12*	4381.7	(11)	D+Q	
4939.4	(12)	803.2 *2*	100 *13*	4136.1	(11)	D	E_γ: weighted average of 803.1 *2* from ^{94}Zr(^{48}Ca,4nγ) and 803.4 *3* from ^{123}Sb(^{19}F,4nγ). Mult.: also from $\gamma\gamma$(DCO) in ^{123}Sb(^{19}F,4nγ).
		1118.1 *5*	17 *3*	3821.4	12^+	D+Q	E_γ: weighted average of 1117.3 *5* from ^{94}Zr(^{48}Ca,4nγ) and 1118.4 *3* from ^{123}Sb(^{19}F,4nγ).
4974.5	(13^+)	1152.8 *4*	100	3821.4	12^+	D+Q	E_γ: weighted average of 1152.3 *5* from ^{94}Zr(^{48}Ca,4nγ), 1153.2 *4* from ^{123}Sb(^{19}F,4nγ), and 1152.7 *5* from ^{140}Ce(α,6nγ),^{141}Pr(p,4nγ).
4990.2	(13)	786.8 *5*	100	4203.3	(12^+)	D+Q	
4995.5	(14^+)	792.1 *2*	100	4203.3	(12^+)	E2	E_γ: weighted average of 792.1 *2* from ^{94}Zr(^{48}Ca,4nγ), 792.5 *3* from ^{123}Sb(^{19}F,4nγ), and 791.6 *3* from ^{140}Ce(α,6nγ),^{141}Pr(p,4nγ). Mult.: from $\gamma\gamma$(DCO) in ^{94}Zr(^{48}Ca,4nγ) and ^{123}Sb(^{19}F,4nγ), $\gamma(\theta)$ and RUL in ^{140}Ce(α,6nγ),^{141}Pr(p,4nγ).
5028.8	14^+	1207.8 *3*	100	3821.4	12^+	E2	E_γ: weighted average of 1206.7 *10* from ^{94}Zr(^{48}Ca,4nγ), 1208.0 *3* from ^{123}Sb(^{19}F,4nγ), and 1207.6 *5* from ^{140}Ce(α,6nγ),^{141}Pr(p,4nγ). Mult.: from $\gamma\gamma$(DCO) in ^{94}Zr(^{48}Ca,4nγ) and ^{123}Sb(^{19}F,4nγ), $\gamma(\theta)$ and RUL in ^{140}Ce(α,6nγ),^{141}Pr(p,4nγ).
5069.4	(13^+)	290.3 *5*	100	4779.0	(12^+)	D+Q	
5118.5	(13^-)	900.1 *3*	100	4218.4	11^-		E_γ: weighted average of 900.0 *5* from ^{94}Zr(^{48}Ca,4nγ) and 900.1 *3* from ^{123}Sb(^{19}F,4nγ).
5232.9		1022.6 *4*	100	4210.3	(11^-)		E_γ: from ^{123}Sb(^{19}F,4nγ).
5253.0	(13)	278.0 *4*	4.5 *20*	4974.5	(13^+)	D	E_γ: weighted average of 278.0 *10* from ^{94}Zr(^{48}Ca,4nγ) and 278.0 *4* from ^{123}Sb(^{19}F,4nγ). Mult.: from $\gamma\gamma$(DCO) in ^{123}Sb(^{19}F,4nγ).
		313.5 *2*	100 *10*	4939.4	(12)	D	E_γ: weighted average of 313.4 *2* from ^{94}Zr(^{48}Ca,4nγ) and 313.5 *2* from ^{123}Sb(^{19}F,4nγ).
		1430.9 *10*	6 *3*	3821.4	12^+		
5349.3	(14^+)	353.4 *5*	72 *16*	4995.5	(14^+)	D+Q	
		1146.3 *5*	100 *19*	4203.3	(12^+)	Q	E_γ: weighted average of 1145.4 *5* from ^{94}Zr(^{48}Ca,4nγ) and 1146.6 *3* from ^{123}Sb(^{19}F,4nγ).
5363.2	(14^+)	293.8 *5*	100	5069.4	(13^+)	D+Q	
5417.6	(14^-)	1022.2 *5*	100	4395.4	(12^-)	E2	
5430.2	(14^+)	1608.7 *10*	100	3821.4	12^+	Q	
5436.1	(13)	1614.7 *4*	100	3821.4	12^+	D	E_γ,Mult.: from ^{123}Sb(^{19}F,4nγ).

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Adopted Levels, Gammas (continued)

γ(^{138}Nd) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult. ‡	Comments
5469.1	(15$^+$)	38.7 *10*	<16	5430.2	(14$^+$)		
		440.2 *2*	100 *16*	5028.8	14$^+$	D+Q	E_γ: weighted average of 440.2 *2* from ^{94}Zr(^{48}Ca,4nγ) and 440.1 *2* from ^{123}Sb(^{19}F,4nγ). Mult.: D+Q from ^{94}Zr(^{48}Ca,4nγ) and D from γγ(DCO) in ^{123}Sb(^{19}F,4nγ).
		494.7 *2*	34 *6*	4974.5	(13$^+$)	E2	E_γ: weighted average of 494.7 *5* from ^{94}Zr(^{48}Ca,4nγ) and 494.7 *2* from ^{123}Sb(^{19}F,4nγ). Mult.: other: Q from γγ(DCO) in ^{123}Sb(^{19}F,4nγ).
5493.1	(13$^-$)	1670.9 *10*	100	3821.4	12$^+$	(D)	
5527.5	(14$^+$)	532.1 *10*	100 *50*	4995.5	(14$^+$)	D+Q	
		537.3 *10*	83 *33*	4990.2	(13)	D+Q	
		1323.7 *10*	67 *33*	4203.3	(12$^+$)		
5576.9	(14$^-$)	83.6 *10*	1.0 *5*	5493.1	(13$^-$)		
		323.7 *2*	100 *10*	5253.0	(13)	D+Q	E_γ: weighted average of 323.7 *2* from ^{94}Zr(^{48}Ca,4nγ) and 323.7 *3* from ^{123}Sb(^{19}F,4nγ). Mult.: D+Q from ^{94}Zr(^{48}Ca,4nγ) and D from γγ(DCO) in ^{123}Sb(^{19}F,4nγ).
		602.6 *2*	31 *6*	4974.5	(13$^+$)	D	E_γ: weighted average of 602.2 *5* from ^{94}Zr(^{48}Ca,4nγ) and 602.6 *2* from ^{123}Sb(^{19}F,4nγ).
		925.6 *5*	8 *4*	4651.5	(13$^-$)		
5591.1	(14)	838.8 *10*	100 *50*	4751.9	13$^{(-)}$		
		939.5 *10*	100 *50*	4651.5	(13$^-$)		
5614.3	(14)	639.5 *3*	100	4974.5	(13$^+$)	D	E_γ: weighted average of 639.3 *5* from ^{94}Zr(^{48}Ca,4nγ) and 639.5 *3* from ^{123}Sb(^{19}F,4nγ). Mult.: Other: Q from ^{123}Sb(^{19}F,4nγ).
5656.3	(15$^-$)	960.9 *5*	100	4695.4	(13$^-$)		
5678.2	(15$^+$)	314.9 *5*	100 *50*	5363.2	(14$^+$)	D+Q	
		328.9 *5*	56 *28*	5349.3	(14$^+$)		
5742.7	(15)	747.4 *3*	100 *50*	4995.5	(14$^+$)	D+Q	E_γ: weighted average of 747.0 *5* from ^{94}Zr(^{48}Ca,4nγ) and 747.5 *3* from ^{123}Sb(^{19}F,4nγ). Mult.: D+Q from ^{94}Zr(^{48}Ca,4nγ) and D from γγ(DCO) in ^{123}Sb(^{19}F,4nγ).
		752.3 *10*	42 *17*	4990.2	(13)		
5747.9	(16)	278.5 *4*	100	5469.1	(15$^+$)	D+Q	E_γ: weighted average of 278.4 *5* from ^{94}Zr(^{48}Ca,4nγ) and 278.6 *4* from ^{123}Sb(^{19}F,4nγ). Mult.: D+Q from ^{94}Zr(^{48}Ca,4nγ) and D from γγ(DCO) in ^{123}Sb(^{19}F,4nγ).
5759.5	15$^{(-)}$	1007.6 *3*	100	4751.9	13$^{(-)}$	E2	E_γ: weighted average of 1007.1 *5* from ^{94}Zr(^{48}Ca,4nγ) and 1007.8 *3* from ^{123}Sb(^{19}F,4nγ). Mult.: other: Q from ^{123}Sb(^{19}F,4nγ).
5770.6	15$^{(-)}$	156.1 *2*	12 *6*	5614.3	(14)	D+Q	E_γ: weighted average of 156.4 *5* from ^{94}Zr(^{48}Ca,4nγ) and 156.0 *2* from ^{123}Sb(^{19}F,4nγ).
		179.0 *10*	2.4 *8*	5591.1	(14)	D+Q	
		193.6 *2*	100 *10*	5576.9	(14$^-$)	D+Q	E_γ: weighted average of 193.4 *2* from ^{94}Zr(^{48}Ca,4nγ) and 193.8 *2* from ^{123}Sb(^{19}F,4nγ). Mult.: D+Q from ^{94}Zr(^{48}Ca,4nγ) and D from γγ(DCO) in ^{123}Sb(^{19}F,4nγ).
		277.0 *10*	2.4 *8*	5493.1	(13$^-$)		
		1019.1 *5*	48 *7*	4751.9	13$^{(-)}$	Q	E_γ: weighted average of 1018.3 *5* from ^{94}Zr(^{48}Ca,4nγ) and 1019.4 *3* from ^{123}Sb(^{19}F,4nγ).
5781.1	(14)	288.0 *5*	100 *50*	5493.1	(13$^-$)	(D+Q)	
		528.2 *10*	42 *17*	5253.0	(13)	(D+Q)	
5842.3	(16$^+$)	846.8 *2*	100	4995.5	(14$^+$)	E2	E_γ: weighted average of 846.7 *2* from ^{94}Zr(^{48}Ca,4nγ),

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Adopted Levels, Gammas (continued)

γ(^{138}Nd) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	Comments
							847.4 *3* from ^{123}Sb(^{19}F,4nγ), and 846.5 *3* from ^{140}Ce(α,6nγ),^{141}Pr(p,4nγ). Mult.: from γγ(DCO) in ^{94}Zr(^{48}Ca,4nγ) and ^{123}Sb(^{19}F,4nγ), γ(θ) and RUL in ^{140}Ce(α,6nγ),^{141}Pr(p,4nγ).
5901.4	(15)	120.3 *10*	100	5781.1	(14)	D+Q	
6001.4	(16$^-$)	230.7 *2*	100 *10*	5770.6	15$^{(-)}$	D+Q	E_γ: weighted average of 230.6 *2* from ^{94}Zr(^{48}Ca,4nγ) and 230.8 *3* from ^{123}Sb(^{19}F,4nγ). Mult.: D+Q from ^{94}Zr(^{48}Ca,4nγ) and D from γγ(DCO) in ^{123}Sb(^{19}F,4nγ).
		242.2 *10*	1.6 *6*	5759.5	15$^{(-)}$		
		252.9 *10*	0.22 *11*	5747.9	(16)	D	
		424.0 *5*	5.5 *28*	5576.9	(14$^-$)		
		973.3 *3*		5028.8	14$^+$		E_γ: only from ^{123}Sb(^{19}F,4nγ).
6017.5	(15)	403.5 *10*		5614.3	(14)	D+Q	
		440.1 *10*		5576.9	(14$^-$)	D+Q	
6071.1	(15$^-$)	952.6 *10*	100	5118.5	(13$^-$)		
6071.8	(15)	708.4 *10*	33 *17*	5363.2	(14$^+$)	(D)	
		722.4 *10*	100 *50*	5349.3	(14$^+$)	(D+Q)	
6088.2	(16)	186.8 *5*	100	5901.4	(15)	D+Q	
6152.1	(16$^+$)	803.0 *10*	43 *22*	5349.3	(14$^+$)		
		1156.6 *3*	100 *50*	4995.5	(14$^+$)	Q	E_γ: weighted average of 1156.4 *5* from ^{94}Zr(^{48}Ca,4nγ) and 1156.7 *3* from ^{123}Sb(^{19}F,4nγ). Mult.: from γγ(DCO) in ^{123}Sb(^{19}F,4nγ).
6179.9	(16$^+$)	501.6 *5*	100	5678.2	(15$^+$)		
6233.4	(16$^+$)	390.9 *5*	100 *50*	5842.3	(16$^+$)		
		705.8 *10*	70 *30*	5527.5	(14$^+$)	E2	
		1237.7 *10*	100 *50*	4995.5	(14$^+$)		
6241.9	(17$^+$)	772.9 *2*	100	5469.1	(15$^+$)	E2	E_γ: weighted average of 772.4 *5* from ^{94}Zr(^{48}Ca,4nγ) and 773.0 *2* from ^{123}Sb(^{19}F,4nγ).
6285.2	(16)	267.5 *10*	12 *6*	6017.5	(15)	D+Q	
		514.6 *5*	100 *46*	5770.6	15$^{(-)}$	D+Q	
6287.6	(17$^-$)	286.2 *2*	100 *10*	6001.4	(16$^-$)	D+Q	E_γ: weighted average of 286.2 *2* from ^{94}Zr(^{48}Ca,4nγ) and 286.3 *2* from ^{123}Sb(^{19}F,4nγ). Mult.: D+Q from ^{94}Zr(^{48}Ca,4nγ) and D from γγ(DCO) in ^{123}Sb(^{19}F,4nγ).
		516.7 *5*	9.8 *19*	5770.6	15$^{(-)}$		
6395.5	(16$^+$)	653.1 *5*	100 *50*	5742.7	(15)	D+Q	
		867.8 *10*	70 *30*	5527.5	(14$^+$)		
6409.5	(16$^-$)	991.9 *10*	100	5417.6	(14$^-$)		
6465.8	(17)	377.6 *5*	100	6088.2	(16)	D+Q	
6470.2	(17)	627.9 *3*	100	5842.3	(16$^+$)	D	E_γ,Mult.: from ^{123}Sb(^{19}F,4nγ).
6556.2	(16)	376.1 *10*	100	6179.9	(16$^+$)	(D+Q)	
6560.4	(17)	275.2 *5*	100 *47*	6285.2	(16)	D+Q	
		559.2 *10*	16 *5*	6001.4	(16$^-$)	D+Q	
6566.8	(18)	325.1 *3*	100 *20*	6241.9	(17$^+$)	D+Q	E_γ: weighted average of 324.8 *5* from ^{94}Zr(^{48}Ca,4nγ) and 325.2 *3* from ^{123}Sb(^{19}F,4nγ). Mult.: D+Q from ^{94}Zr(^{48}Ca,4nγ) and D from γγ(DCO) in ^{123}Sb(^{19}F,4nγ).
		818.8 *3*	63 *30*	5747.9	(16)	E2	E_γ: weighted average of 818.6 *5* from ^{94}Zr(^{48}Ca,4nγ) and 818.8 *3* from ^{123}Sb(^{19}F,4nγ).
6627.8	(17)	556.6 *10*	3.4 *16*	6071.8	(15)		
		785.4 *2*	100 *15*	5842.3	(16$^+$)	(D+Q)	
6668.3	(18$^-$)	380.7 *2*	100 *11*	6287.6	(17$^-$)	D+Q	E_γ: weighted average of 380.8 *2* from ^{94}Zr(^{48}Ca,4nγ)

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Adopted Levels, Gammas (continued)

γ(^{138}Nd) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	Comments
							and 380.5 *2* from ^{123}Sb(^{19}F,4nγ). Mult.: D+Q from ^{94}Zr(^{48}Ca,4nγ) and D from γγ(DCO) in ^{123}Sb(^{19}F,4nγ).
6668.3	(18$^-$)	667.0 *5*	5.3 *26*	6001.4	(16$^-$)		
6706.8	(16$^+$)	864.5 *5*	100 *20*	5842.3	(16$^+$)		
		1711.4 *10*	35 *15*	4995.5	(14$^+$)		
6760.5	(17$^+$)	580.6 *10*	100	6179.9	(16$^+$)		
6780.7	(17)	224.4 *5*	100	6556.2	(16)	D+Q	
6810.8	(17)	738.9 *5*	16 *8*	6071.8	(15)		
		968.5 *2*	100 *14*	5842.3	(16$^+$)	(D)	
6825.5	(17)	983.1 *5*	100	5842.3	(16$^+$)		
6829.2	(18$^+$)	986.8 *2*	100	5842.3	(16$^+$)	E2	E_γ: weighted average of 986.7 *2* from ^{94}Zr(^{48}Ca,4nγ) and 986.9 *3* from ^{123}Sb(^{19}F,4nγ). Mult.: also from γγ(DCO) in ^{123}Sb(^{19}F,4nγ).
6865.2	(17)	1117.4 *5*	100	5747.9	(16)	D+Q	
6909.4	(18)	349.0 *5*	100 *50*	6560.4	(17)	D+Q	
		622.0 *10*	<6	6285.2	(16)		
6937.6	(18)	471.8 *10*	100	6465.8	(17)	D+Q	
6997.9	(18$^+$)	845.9 *5*	100 *20*	6152.1	(16$^+$)		
		1155.5 *5*	72 *36*	5842.3	(16$^+$)	(E2)	
7047.2	(19$^-$)	378.9 *2*	100 *13*	6668.3	(18$^-$)	D+Q	E_γ: weighted average of 378.8 *2* from ^{94}Zr(^{48}Ca,4nγ) and 379.1 *3* from ^{123}Sb(^{19}F,4nγ).
		759.6 *5*	6 *3*	6287.6	(17$^-$)		
7091.4	(18)	280.9 *10*	64 *27*	6810.8	(17)	(D)	
		310.6 *5*	100 *46*	6780.7	(17)	D+Q	
7125.6	(18)	300.0 *5*	56 *28*	6825.5	(17)	D+Q	
		315.2 *5*	100 *50*	6810.8	(17)	D+Q	
7201.4	(18$^+$)	336.2 *5*	100 *20*	6865.2	(17)	D+Q	
		372.3 *5*	57 *12*	6829.2	(18$^+$)		
		494.6 *5*	69 *14*	6706.8	(16$^+$)	Q	
		806.2 *5*	63 *12*	6395.5	(16$^+$)	Q	
		967.8 *5*	63 *12*	6233.4	(16$^+$)		
		1358.6 *10*	29 *14*	5842.3	(16$^+$)	Q	
7369.7	(20)	322.4 *5*	100	7047.2	(19$^-$)		
7414.9	(19)	505.6 *10*	100	6909.4	(18)	D+Q	
7422.4	(19)	794.6 *2*	100	6627.8	(17)	(E2)	
7427.0	(20)	860.2 *3*	100	6566.8	(18)	(E2)	E_γ: weighted average of 859.7 *5* from ^{94}Zr(^{48}Ca,4nγ) and 860.4 *3* from ^{123}Sb(^{19}F,4nγ).
7484.8	(19)	393.4 *5*	100	7091.4	(18)	D+Q	
7503.6	(19)	378.0 *2*	100	7125.6	(18)	D+Q	
7564.3	(20$^-$)	193.6 *10*	8 *4*	7369.7	(20)		
		517.1 *4*	100 *10*	7047.2	(19$^-$)	D+Q	E_γ: unweighted average of 517.5 *2* from ^{94}Zr(^{48}Ca,4nγ) and 516.7 *2* from ^{123}Sb(^{19}F,4nγ). Mult.: D+Q from ^{94}Zr(^{48}Ca,4nγ) and D from γγ(DCO) in ^{123}Sb(^{19}F,4nγ).
		896.3 *10*	6 *3*	6668.3	(18$^-$)		
7601.1	(19)	399.5 *5*	100	7201.4	(18$^+$)	D+Q	
7689.9	(20)	275.1 *10*	100	7414.9	(19)		
7764.6	(20$^+$)	563.2 *2*	100 *10*	7201.4	(18$^+$)	Q	
		935.0 *5*	16 *3*	6829.2	(18$^+$)		
7777.1		730.3 *10*	100	7047.2	(19$^-$)		
7830.1	(19)	1262.8 *10*	100	6566.8	(18)	(D+Q)	
7888.5	(19)	1322.4 *10*	100	6566.8	(18)	(D+Q)	
7933.8	(20)	430.4 *5*	100	7503.6	(19)	D+Q	
		1104.1 *10*		6829.2	(18$^+$)		

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Adopted Levels, Gammas (continued)

$\gamma(^{138}Nd)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]
7962.8	(20)	478.0 *10*	100	7484.8	(19)	D+Q
7983.3	(20^+)	985.4 *5*	100 *20*	6997.9	(18^+)	
		1154.2 *5*	33 *17*	6829.2	(18^+)	
8013.1	(21^-)	323.2 *5*	23 *11*	7689.9	(20)	
		448.7 *2*	100 *15*	7564.3	(20^-)	D+Q
		643.6 *5*	83 *17*	7369.7	(20)	D+Q
		966.2 *10*	15 *8*	7047.2	(19^-)	
8049.7	(21)	485.4 *10*	100	7564.3	(20^-)	
8058.2	(20)	169.9 *5*	42 *21*	7888.5	(19)	(D+Q)
		228.0 *5*	62 *29*	7830.1	(19)	D+Q
		281.4 *10*	2.5 *13*	7777.1		
		456.9 *5*	100 *21*	7601.1	(19)	(D+Q)
8080.0	(20^+)	1251.0 *10*	100	6829.2	(18^+)	E2
8091.8	(20)	1044.7 *10*	100	7047.2	(19^-)	
8115.5	(20)	514.4 *5*	100	7601.1	(19)	D+Q
8249.4	(20)	826.7 *10*	100	7422.4	(19)	D+Q
8328.9	(21)	906.4 *5*	100	7422.4	(19)	(E2)
8351.6	(21)	293.4 *5*	100	8058.2	(20)	D+Q
8395.9	(22)	968.9 *5*	100	7427.0	(20)	(E2)
8396.3	(21)	462.5 *5*	100 *50*	7933.8	(20)	D+Q
		893.1 *10*	67 *33*	7503.6	(19)	
8438.0	(21)	504		7933.8	(20)	
		934.3 *10*		7503.6	(19)	
		1015.2 *10*		7422.4	(19)	
8453.0	(22)	439.9 *2*	100	8013.1	(21^-)	D+Q
8481.4	(22)	431.5 *10*	22 *13*	8049.7	(21)	D+Q
		917.1 *5*	100 *22*	7564.3	(20^-)	Q
8484.1	(21)	521.3 *10*	100	7962.8	(20)	
8489.0	(21)	924.7 *3*	100	7564.3	(20^-)	D
8585.5	(21)	335.9 *10*	18 *9*	8249.4	(20)	D+Q
		493.8 *10*	34 *16*	8091.8	(20)	
		651.9 *5*	100 *46*	7933.8	(20)	D+Q
8611.5	(21)	628.2 *2*	60 *91*	7983.3	(20^+)	(D)
		846.9 *2*	100 *10*	7764.6	(20^+)	(D)
8708.3	(22)	356.7 *5*	100	8351.6	(21)	D+Q
8837.6	(22)	508.7 *5*	32 *16*	8328.9	(21)	(D)
		757.7 *5*	100 *19*	8080.0	(20^+)	Q
8878.5	(22)	394.4 *10*	100	8484.1	(21)	(D+Q)
8891.5		410.4 *10*	64 *36*	8481.4	(22)	D+Q
		841.8 *5*	100 *50*	8049.7	(21)	
8897.3	(23)	444.4 *5*	100	8453.0	(22)	D+Q
8921.2	(22)	335.7 *2*	64 *10*	8585.5	(21)	(D)
		483.1 *2*	100 *15*	8438.0	(21)	(D+Q)
		524.9 *5*	24 *5*	8396.3	(21)	(D)
9132.7	(23)	424.4 *5*	100	8708.3	(22)	D+Q
9261.1	(24)	369.8 *5*	100 *50*	8891.5		D+Q
		779.5 *5*	88 *44*	8481.4	(22)	E2
9348.7	(23)	1019.8 *5*	100	8328.9	(21)	
9351.8	(23)	740.3 *2*	100	8611.5	(21)	E2
9356.4	(23)	477.9 *10*	100	8878.5	(22)	(D+Q)
9384.6	(24)	487.8 *10*	<50	8897.3	(23)	D+Q
		931.5 *5*	<100	8453.0	(22)	
9401.9	(24)	504.6 *5*	100	8897.3	(23)	D+Q
9513.6	(22)	902.1 *2*	100	8611.5	(21)	(D+Q)
9596.4	(24)	675.2 *2*	100	8921.2	(22)	E2
9620.6	(24)	487.9 *5*	100	9132.7	(23)	D+Q
9685.8	(24)	848.2 *5*	100	8837.6	(22)	E2

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Adopted Levels, Gammas (continued)

γ(^{138}Nd) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult. ‡
9808.0	(25)	406 *10*	<5	9401.9	(24)	
		423.4 *5*	100 *20*	9384.6	(24)	D+Q
9989.6	(25)	587.7 *5*	100	9401.9	(24)	D+Q
10038.3	(24)	524.8 *2*	83 *12*	9513.6	(22)	E2
		686.4 *2*	100 *16*	9351.8	(23)	
10232.2	(25)	611.6 *5*	100	9620.6	(24)	
10243.3	(25)	891.6 *2*	100	9351.8	(23)	E2
10262.4	(26)	454.4 *10*	100	9808.0	(25)	D+Q
10341.8	(26)	1080.7 *5*	100	9261.1	(24)	E2
10363.4	(25)	767.1 *10*	100	9596.4	(24)	(D)
10413.9	(26)	817.5 *2*	100	9596.4	(24)	E2
10648.9	(26)	659.3 *10*	100	9989.6	(25)	
10688.6	(26)	1002.8 *5*	100	9685.8	(24)	E2
10724.2	(26)	481.4 *5*	258 *5*	10243.3	(25)	(D+Q)
		685.8 *2*	100 *10*	10038.3	(24)	E2
10741.8	(26)	378.4 *10*	100	10363.4	(25)	D+Q
10798.4	(27)	536.0 *10*	100	10262.4	(26)	
11284.2	(27)	542.4 *10*	<100	10741.8	(26)	D+Q
		870.3 *10*	100	10413.9	(26)	(D)
11286.2	(27)	1042.9 *5*	100	10243.3	(25)	E2
11368.5	(28)	1026.7 *5*	100	10341.8	(26)	(E2)
11404.3	(28)	990.4 *2*	100	10413.9	(26)	E2
11563.8	(28)	1222.0 *10*	100	10341.8	(26)	
11725.4	(28)	1001.9 *10*	100	10724.2	(26)	(E2)
11741.2	(28)	1016.8 *5*	100	10724.2	(26)	E2
11904.7	(28)	1216.1 *10*	100	10688.6	(26)	E2
11941.6	(29)	657.4 *5*	100	11284.2	(27)	E2
11962.3	(28)	1238.1 *10*	100	10724.2	(26)	(E2)
12490.2	(29)	1204.0 *5*	100	11286.2	(27)	E2
12580.4	(29)	1294.2 *10*	100	11286.2	(27)	(E2)
12584.7	(30)	1180.4 *5*	100	11404.3	(28)	E2
12668.0	(30)	926.1	<6	11741.2	(28)	
		943.4	100	11725.4	(28)	(E2)
12723.4	(30)	1354.9 *10*	100	11368.5	(28)	
12852.7	(31)	911.1 *5*	100	11941.6	(29)	E2
12915.4	(30)	953.1 *10*	100	11962.3	(28)	E2
12944.4	(30)	1203.2 *5*	100	11741.2	(28)	E2
12970.8	(30)	1407.0 *10*	100	11563.8	(28)	
13174.4	(31)	506.4 *10*	100	12668.0	(30)	
		989.5 *10*	100	12184.9	(29)	E2
13304.7	(30)	1400.0 *10*	100	11904.7	(28)	
13514.7	(31)	934.2 *5*	100	12580.4	(29)	E2
13558.2	(32)	890.1 *5*	100	12668.0	(30)	E2
13846.4	(31)	1356.1 *10*	100	12490.2	(29)	E2
13936.1	(32)	1351.4 *10*	100	12584.7	(30)	E2
13991.3	(33)	1138.6 *10*	100	12852.7	(31)	E2
14012.7		1428 *1*	100	12584.7	(30)	
14055.9	(32)	1140.5 *10*	100	12915.4	(30)	E2
14294.2	(33)	1119.7 *10*	100	13174.4	(31)	E2
14306.7	(32)	1583.3 *10*	100	12723.4	(30)	
14335.0	(32)	1390.6 *10*	100	12944.4	(30)	E2
14609.5	(34)	1051.3 *10*	100	13558.2	(32)	E2
14678.8	(33)	1164.1 *10*	100	13514.7	(31)	
14885	(32)	1580.3 *19*	100	13304.7	(30)	
15261.4	(33)	1415.0 *10*	100	13846.4	(31)	(E2)
15354.9	(35)	1363.6 *10*	100	13991.3	(33)	E2
15367.1	(34)	1311.2 *10*	100	14055.9	(32)	E2

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

γ(^{138}Nd) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult. ‡	Comments
15480.8	(34)	1544.7 *10*	100	13936.1	(32)		
15552.0	(35)	1257.8 *10*	100	14294.2	(33)	E2	
15796.9	(36)	1187.4 *10*	100	14609.5	(34)	E2	
15877.2	(34)	1542.2 *10*	100	14335.0	(32)		
16059.7	(35)	1380.9 *10*	100	14678.8	(33)		
16694.6	(35)	1433.2 *10*	100	15261.4	(33)		
16789.2	(36)	1422.1 *10*	100	15367.1	(34)	E2	
16914.7	(37)	1559.8 *10*	100	15354.9	(35)		
16954.7	(37)	1402.7 *10*	100	15552.0	(35)		
17064.0	(36)	1583.2 *10*	100	15480.8	(34)		
17132.1	(38)	1335.2 *10*	100	15796.9	(36)		
17451.6	(36)	1574.4 *10*	100	15877.2	(34)		
18160.7	(37)	1466.1 *10*	100	16694.6	(35)		
18292	(38)	1503.2 *10*	100	16789.2	(36)		
18495.5	(39)	1540.8 *10*	100	16954.7	(37)		
18613.1	(40)	1481.0 *10*	100	17132.1	(38)		
18628.8	(39)	1714.1 *10*	100	16914.7	(37)		
18672.0	(38)	1608.0 *10*	100	17064.0	(36)		
18978.5	(38)	1526.9 *10*	100	17451.6	(36)		
19686.3	(39)	1525.6 *10*	100	18160.7	(37)		
20163	(41)	1667.5 *10*	100	18495.5	(39)		
20231	(42)	1618.4 *10*	100	18613.1	(40)		
20340.1	(40)	1668.1 *10*	100	18672.0	(38)		
20422	(41)	1793.5 *10*	100	18628.8	(39)		
20483.8	(40)	1505.2 *10*	100	18978.5	(38)		
21294	(41)	1607.4 *10*	100	19686.3	(39)		
21946	(43)	1783 *1*	100	20163	(41)		Additional information 6.
21991	(44)	1759.9 *10*	100	20231	(42)		
22135	(42)	1651.2 *10*	100	20483.8	(40)		
22260	(43)	1837.5 *10*	100	20422	(41)		
23008	(43)	1714.4 *10*	100	21294	(41)		
23853	(46)	1861.7 *10*	100	21991	(44)		
24133	(45)	1873 *1*	100	22260	(43)		
894.4+x		894.4 *10*	100	x			
1976.7+x		1082.3 *5*	100	894.4+x			
3239.9+x		1263.2 *10*	100	1976.7+x			
4674.6+x		1434.7 *10*	100	3239.9+x			
6294.6+x		1620.0 *10*	100	4674.6+x			
8111.6+x		1817 *1*	100	6294.6+x			
842.1+y		842.1 *5*	100	y			
1833.3+y		991.2 *5*	100	842.1+y			
2983.0+y		1149.7 *5*	100	1833.3+y			
4290.0+y		1307.0 *10*	100	2983.0+y			
5751.0+y		1461.0 *10*	100	4290.0+y			
7374.8+y		1623.8 *10*	100	5751.0+y			
814.9+z		814.9 *10*	100	z			
1791.8+z		976.9 *10*	100	814.9+z			
2958.8+z		1167.0 *10*	100	1791.8+z			
4330.1+z		1371.3 *10*	100	2958.8+z			
5907.2+z		1577.1 *10*	100	4330.1+z			
968.9+u	(28^+)	968.9 *4*	100	u	(26^+)		
2005.3+u	(30^+)	1036.4 *4*	100	968.9+u	(28^+)		
3074.3+u	(32^+)	1069.0 *2*	100	2005.3+u	(30^+)		
4201.5+u	(34^+)	1127.2 *3*	100	3074.3+u	(32^+)		
5405.5+u	(36^+)	1204.0 *2*	100	4201.5+u	(34^+)		
6679.0+u	(38^+)	1273.5 *2*	100	5405.5+u	(36^+)		
8012.4+u	(40^+)	1333.4 *2*	100	6679.0+u	(38^+)		

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

$\gamma(^{138}Nd)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	E_i(level)	E_γ[†]	I_γ[†]	E_f
9413.3+u		1400.9 *2*	100	8012.4+u	(40^+)	15748.5+u	1707.9 *4*	100	14040.6+u
10880.8+u		1467.4 *2*	100	9413.3+u		17546.8+u	1798.3 *6*	100	15748.5+u
12421.0+u		1540.2 *2*	100	10880.8+u		19444.7+u	1897.9 *15*	100	17546.8+u
14040.6+u		1619.6 *4*	100	12421.0+u		21438.8+u	1994.1 *13*	100	19444.7+u

† From $^{94}Zr(^{48}Ca,4n\gamma)$, unless otherwise noted.

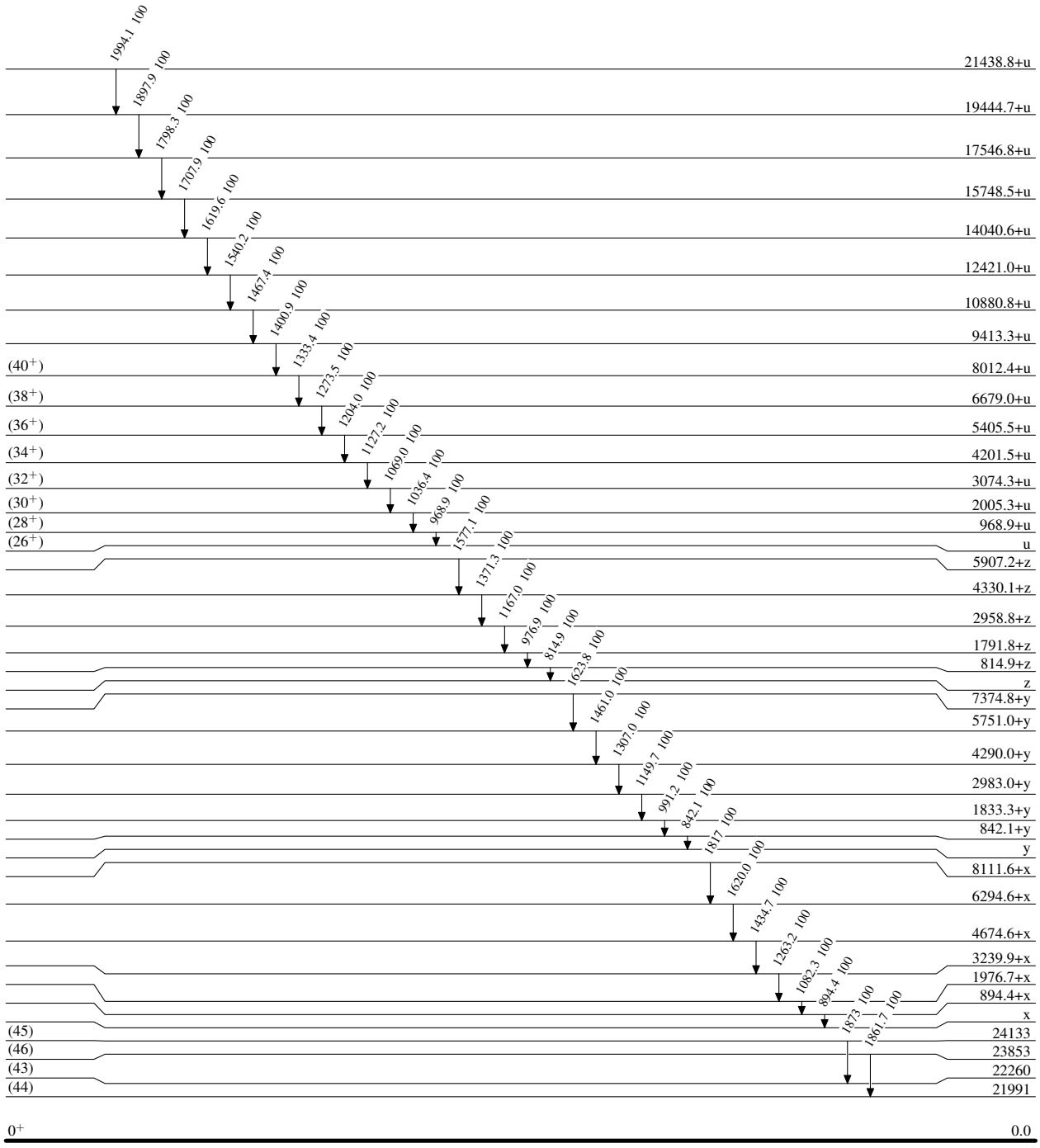
‡ From $^{94}Zr(^{48}Ca,4n\gamma)$ based on $\gamma\gamma$(DCO) and band structure, unless otherwise noted. Some are also from ce data in ^{138}Pm ε decay, $\gamma\gamma$(DCO) in $^{123}Sb(^{19}F,4n\gamma)$ and $^{124}Te(^{19}F,p4n\gamma)$, ce data and $\gamma(\theta)$ in $^{140}Ce(\alpha,6n\gamma)$,$^{141}Pr(p,4n\gamma)$. Note that some assignments for polarity in $^{94}Zr(^{48}Ca,4n\gamma)$ have no firm evidence and thus the evaluator has adopted D for M1 or E1 and Q for E2 in those cases.

Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level

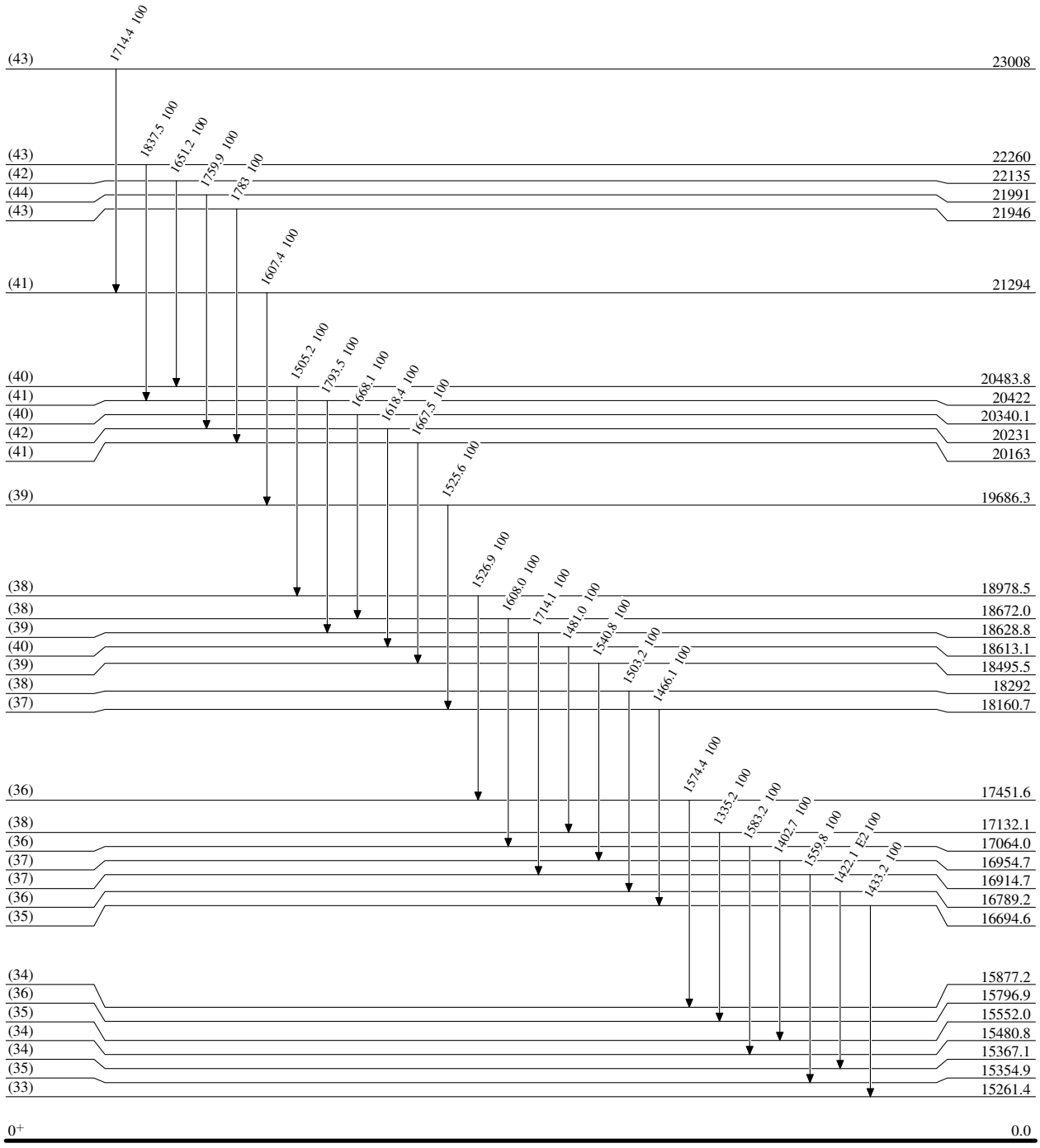


$^{138}_{60}Nd_{78}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

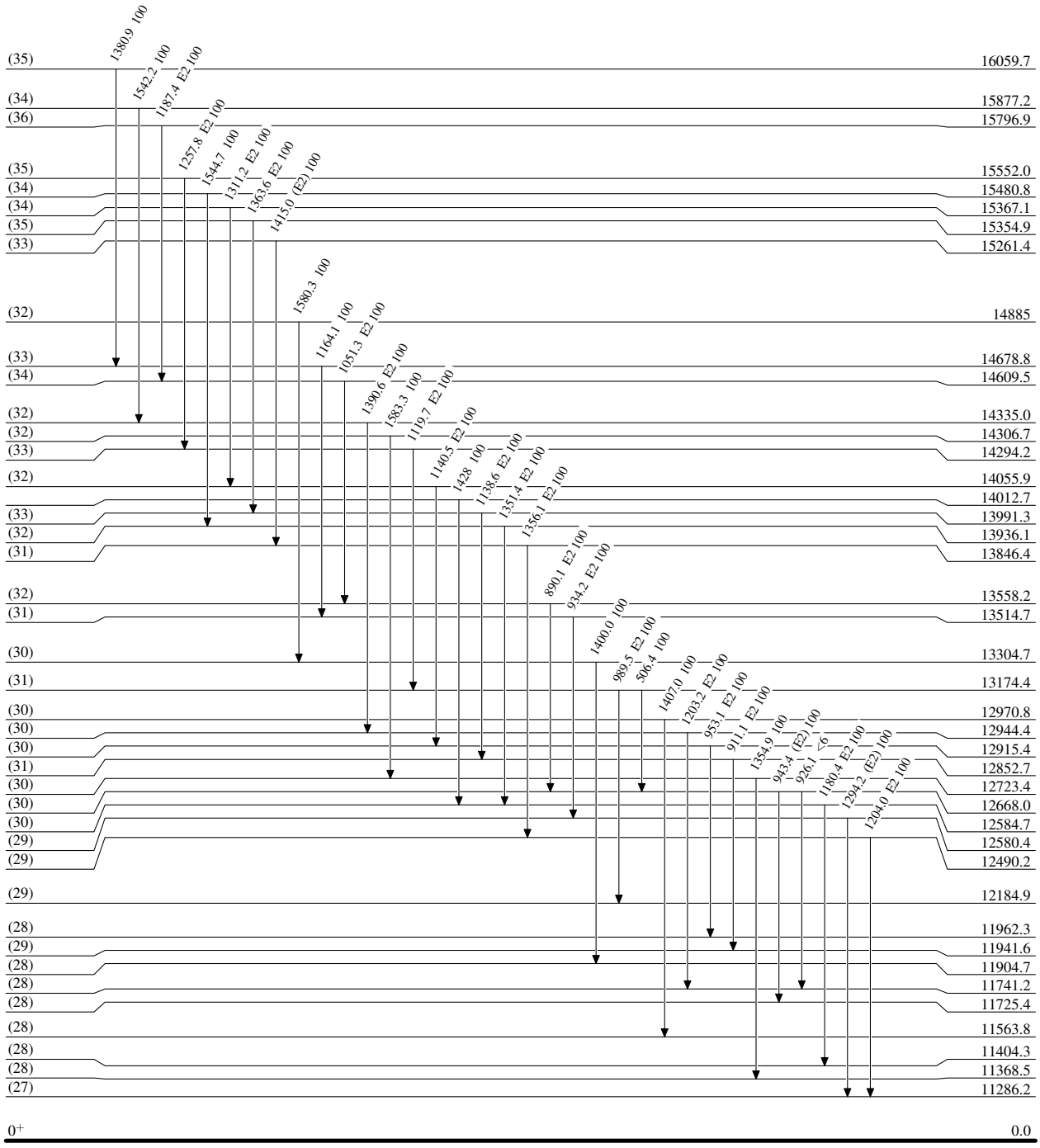


$^{138}_{60}Nd_{78}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

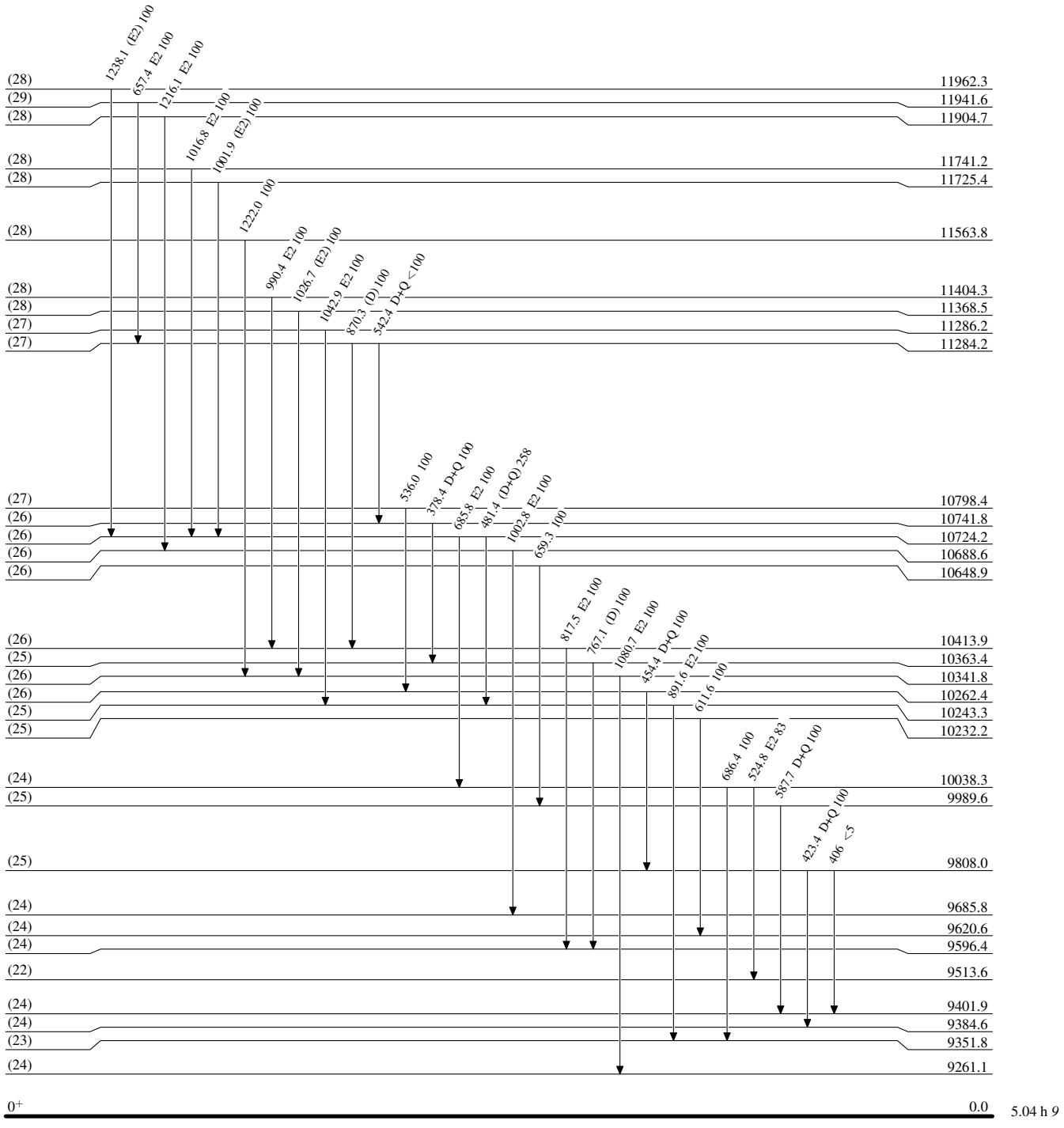


$^{138}_{60}Nd_{78}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

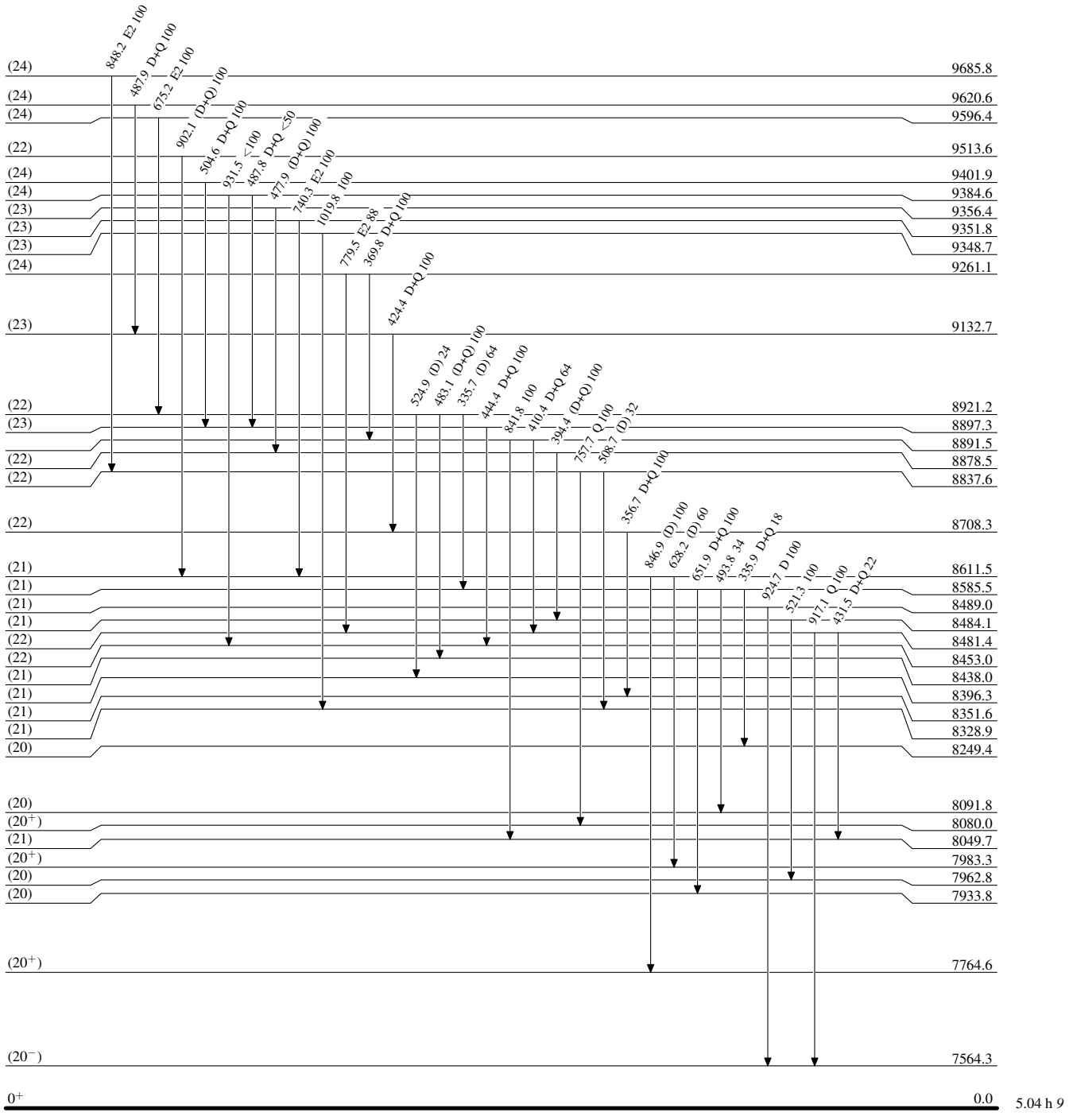


$^{138}_{60}Nd_{78}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

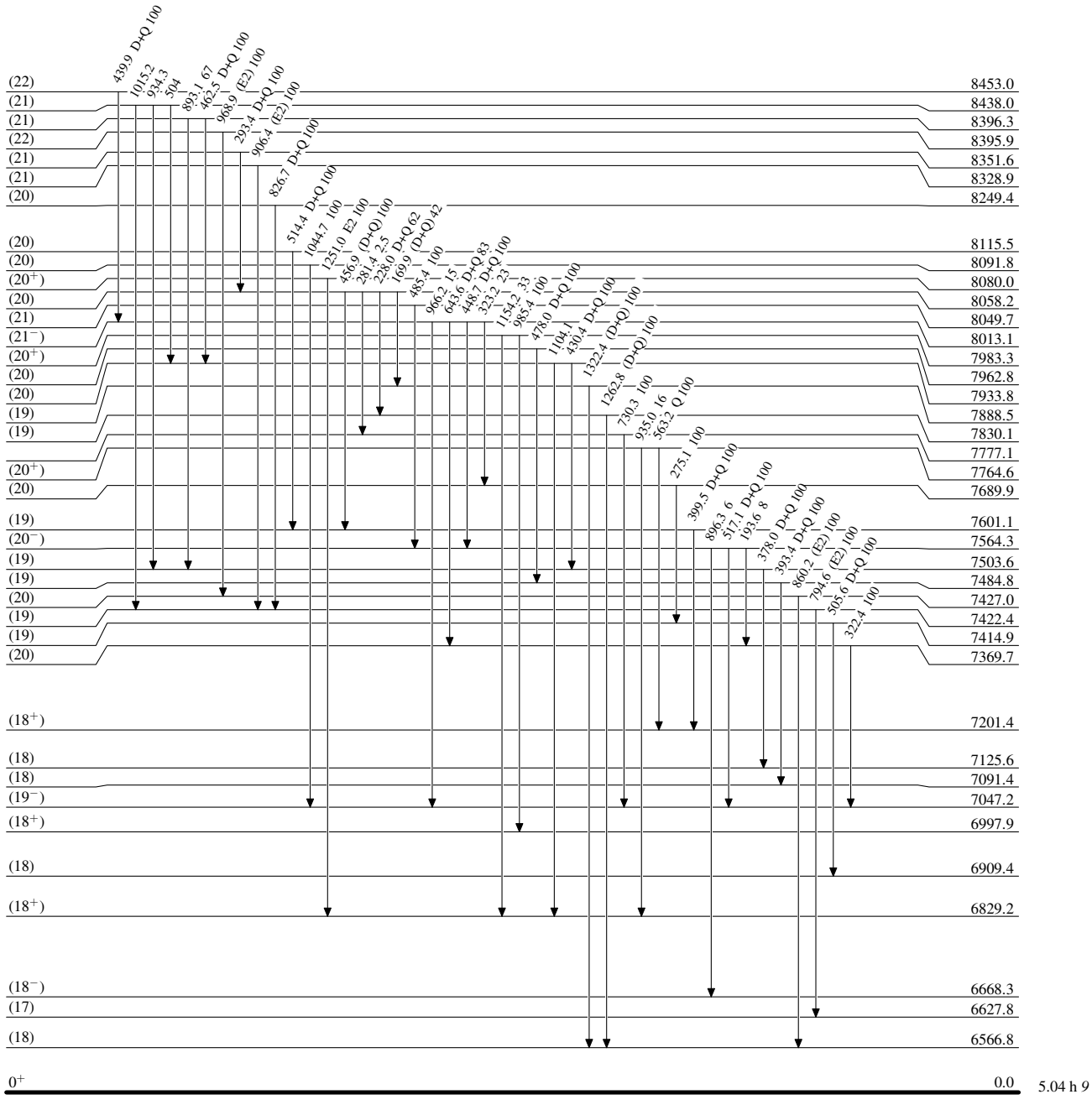


$^{138}_{60}Nd_{78}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

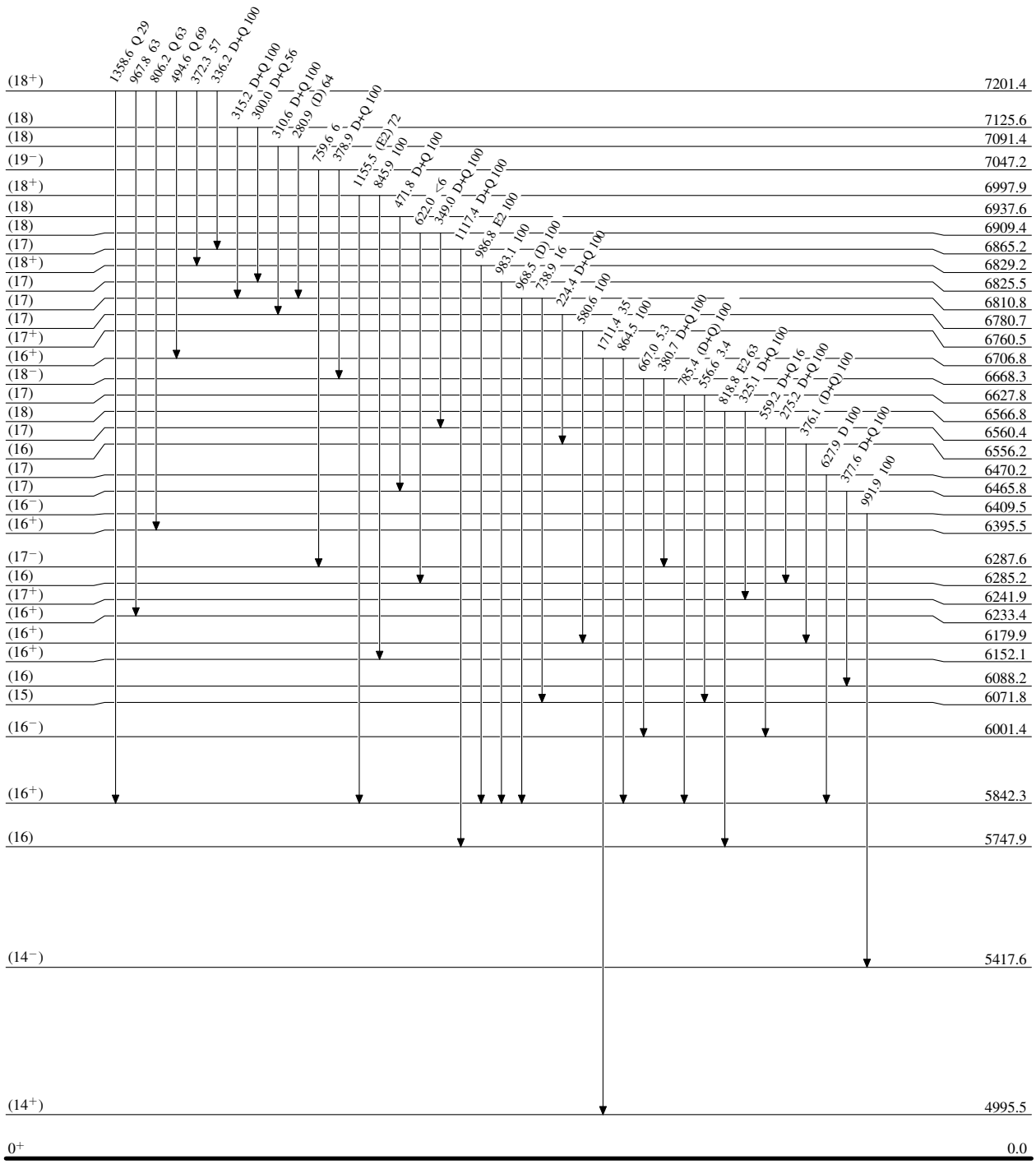


$^{138}_{60}Nd_{78}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

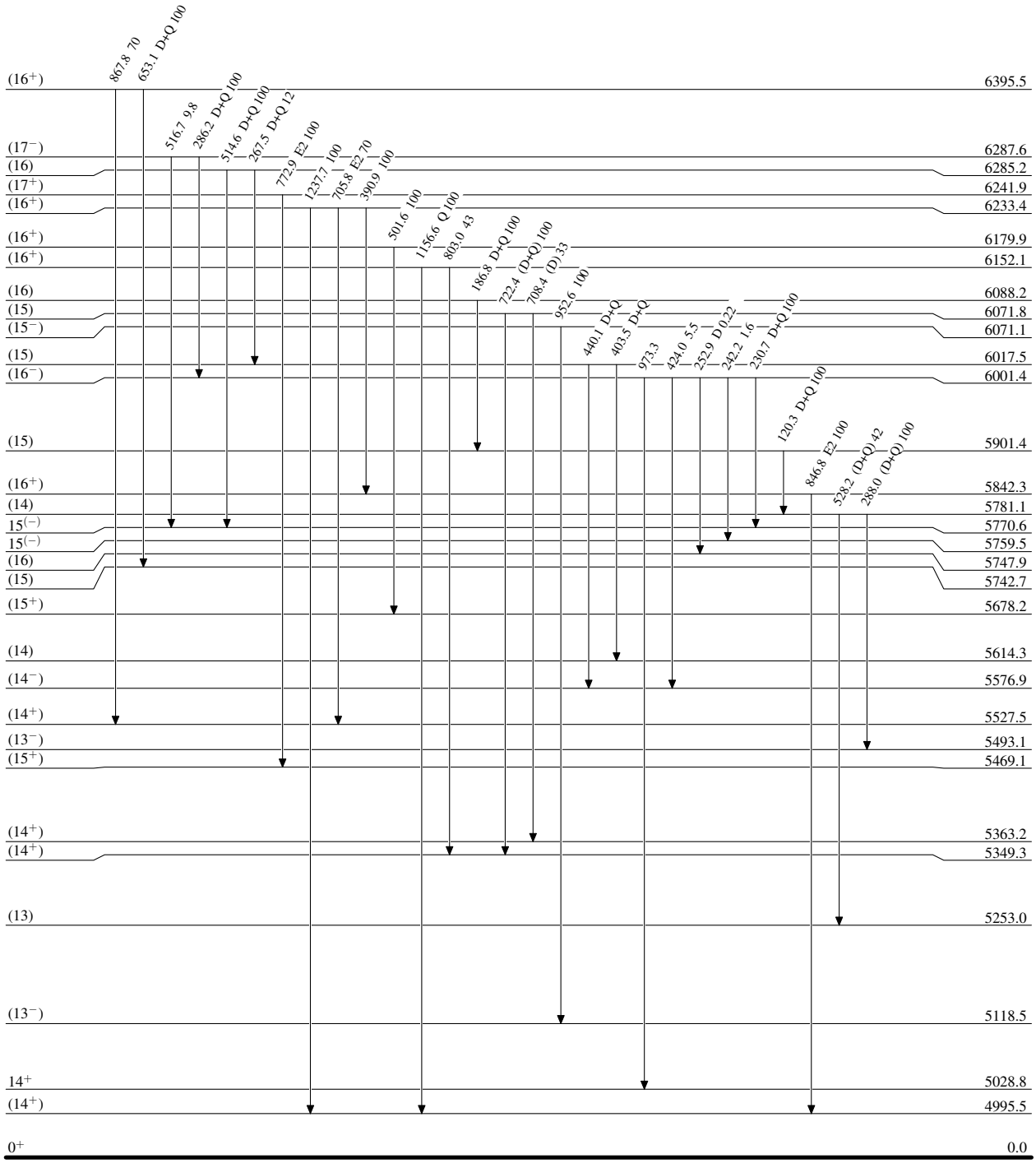


$^{138}_{60}Nd_{78}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

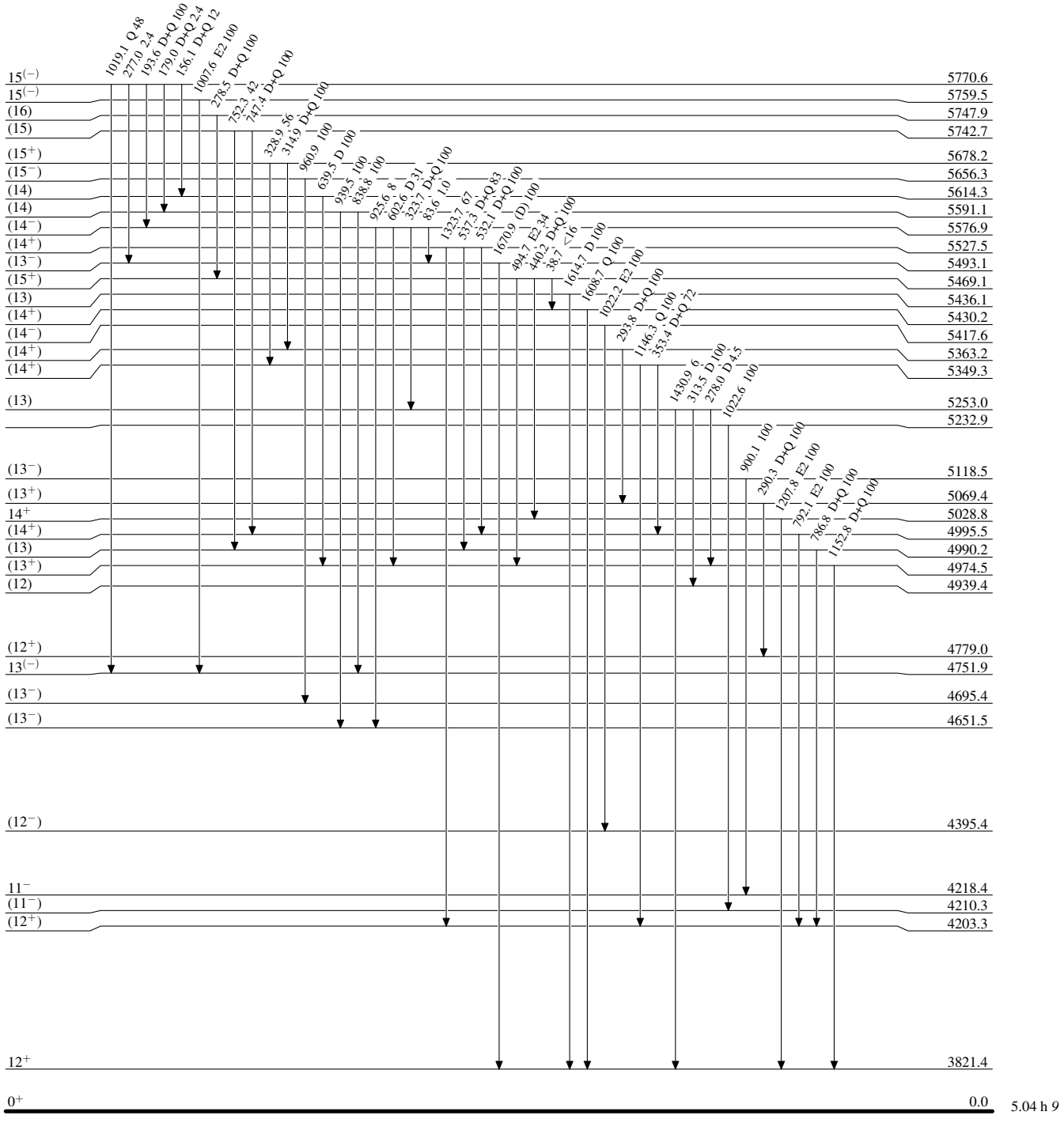


$^{138}_{60}Nd_{78}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

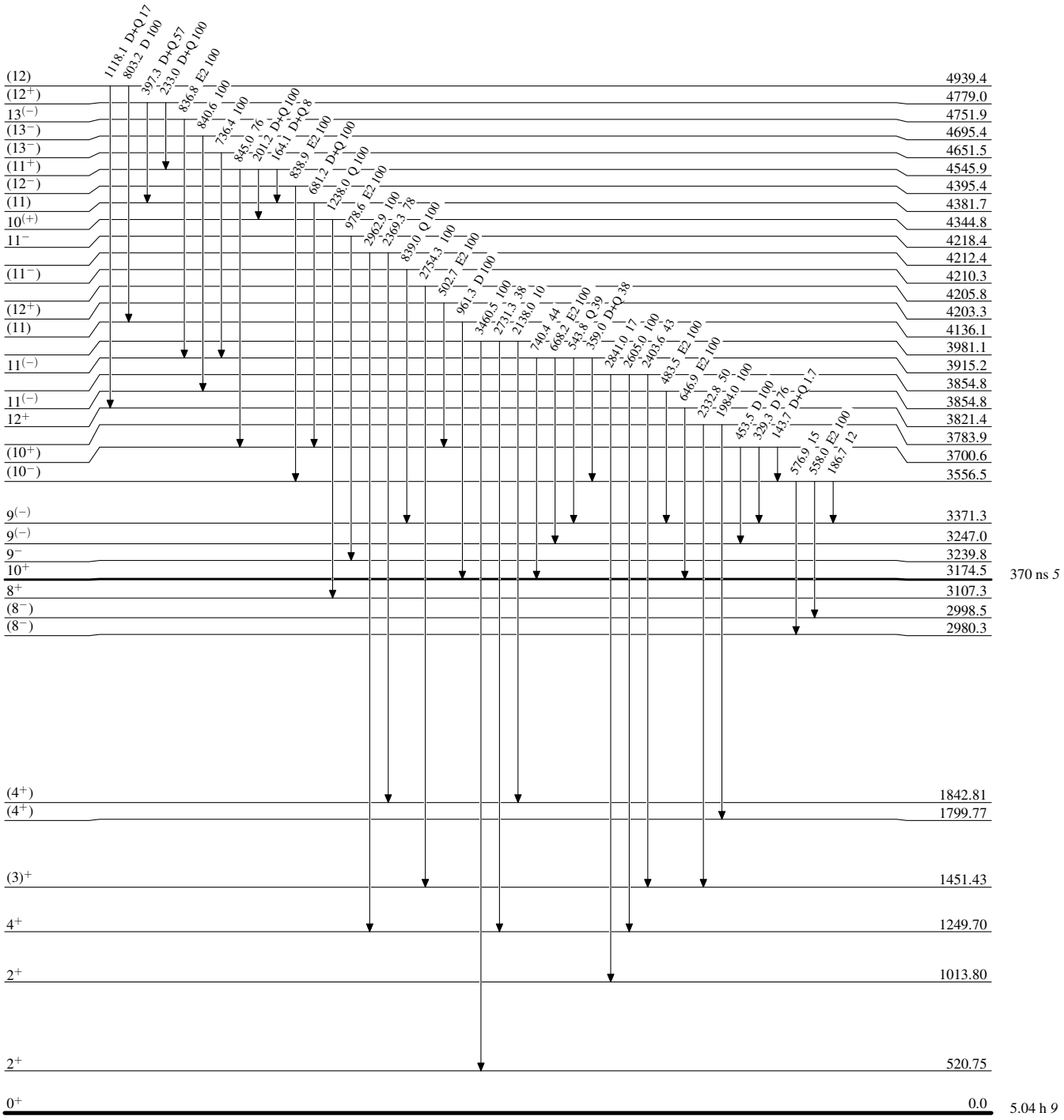


$^{138}_{60}Nd_{78}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

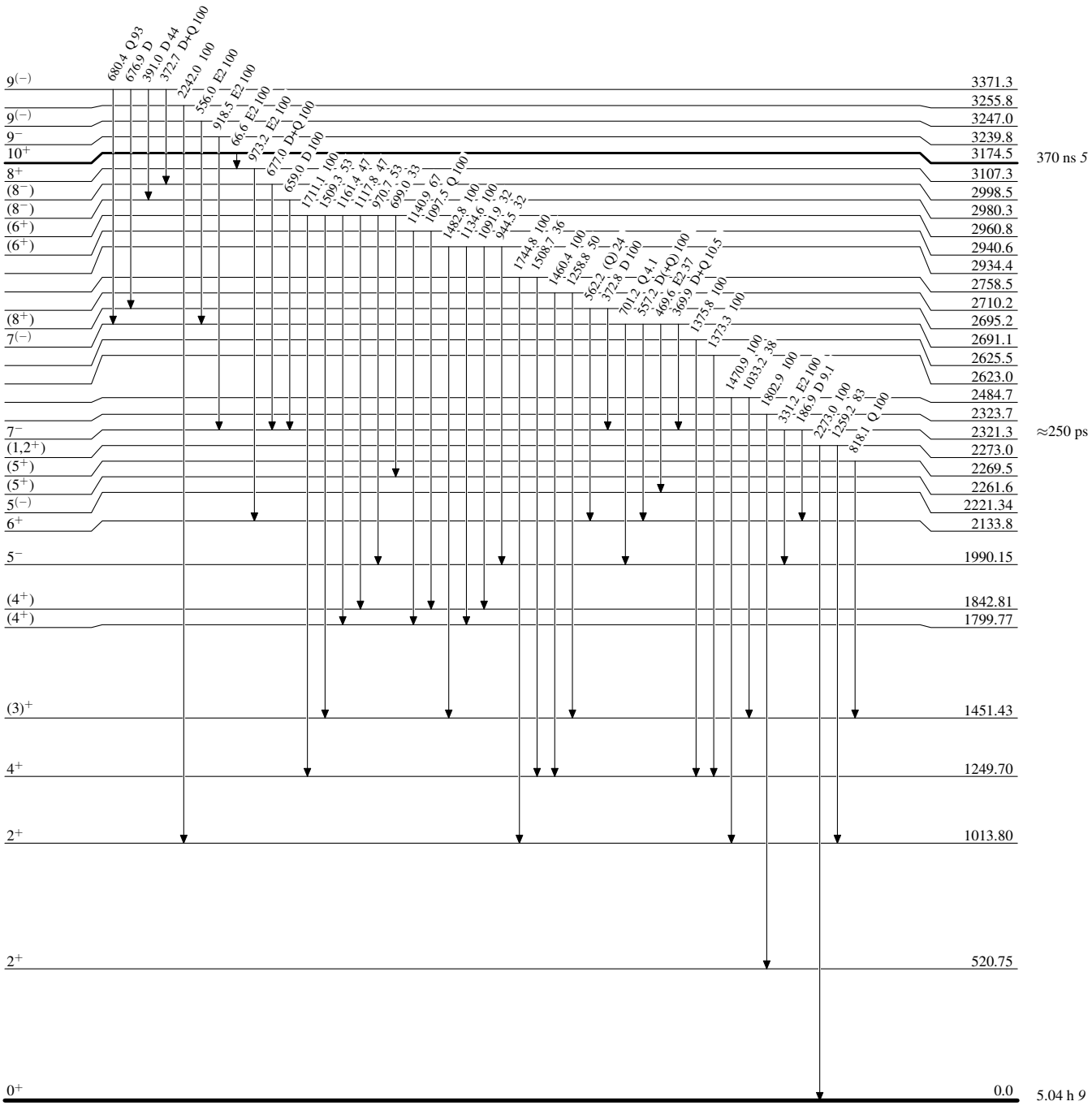


$^{138}_{60}Nd_{78}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

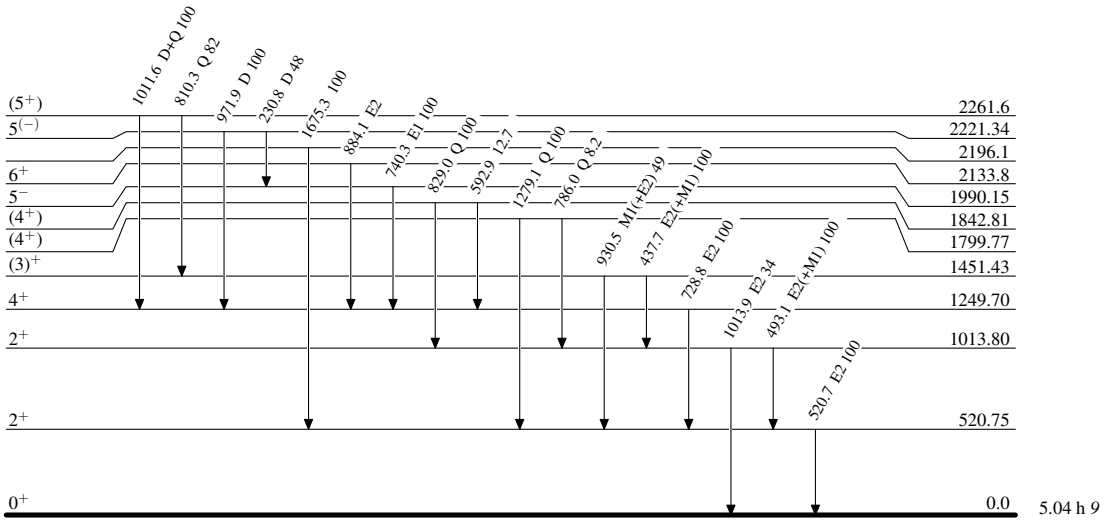


$^{138}_{60}Nd_{78}$

Adopted Levels, Gammas

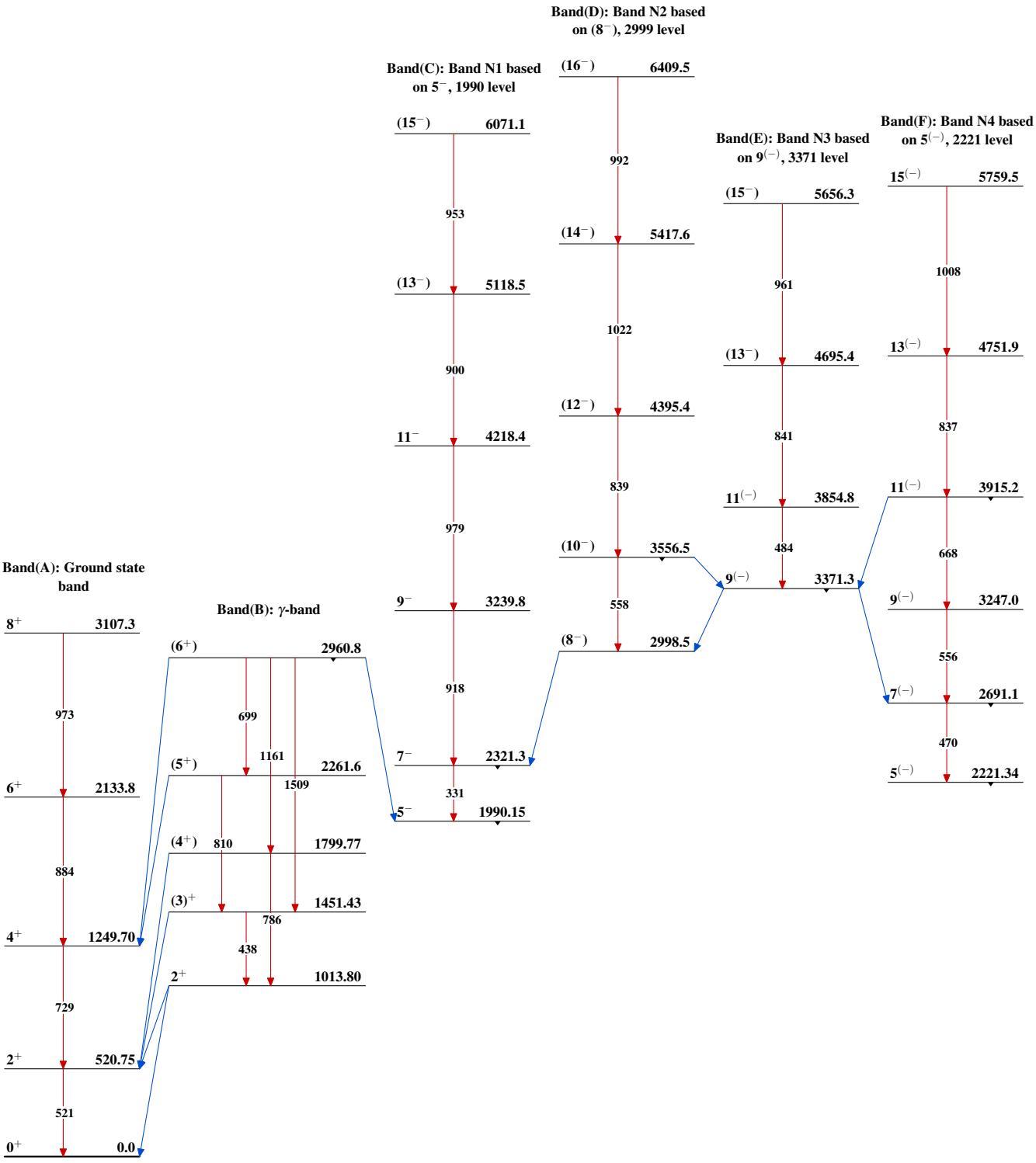
Level Scheme (continued)

Intensities: Relative photon branching from each level



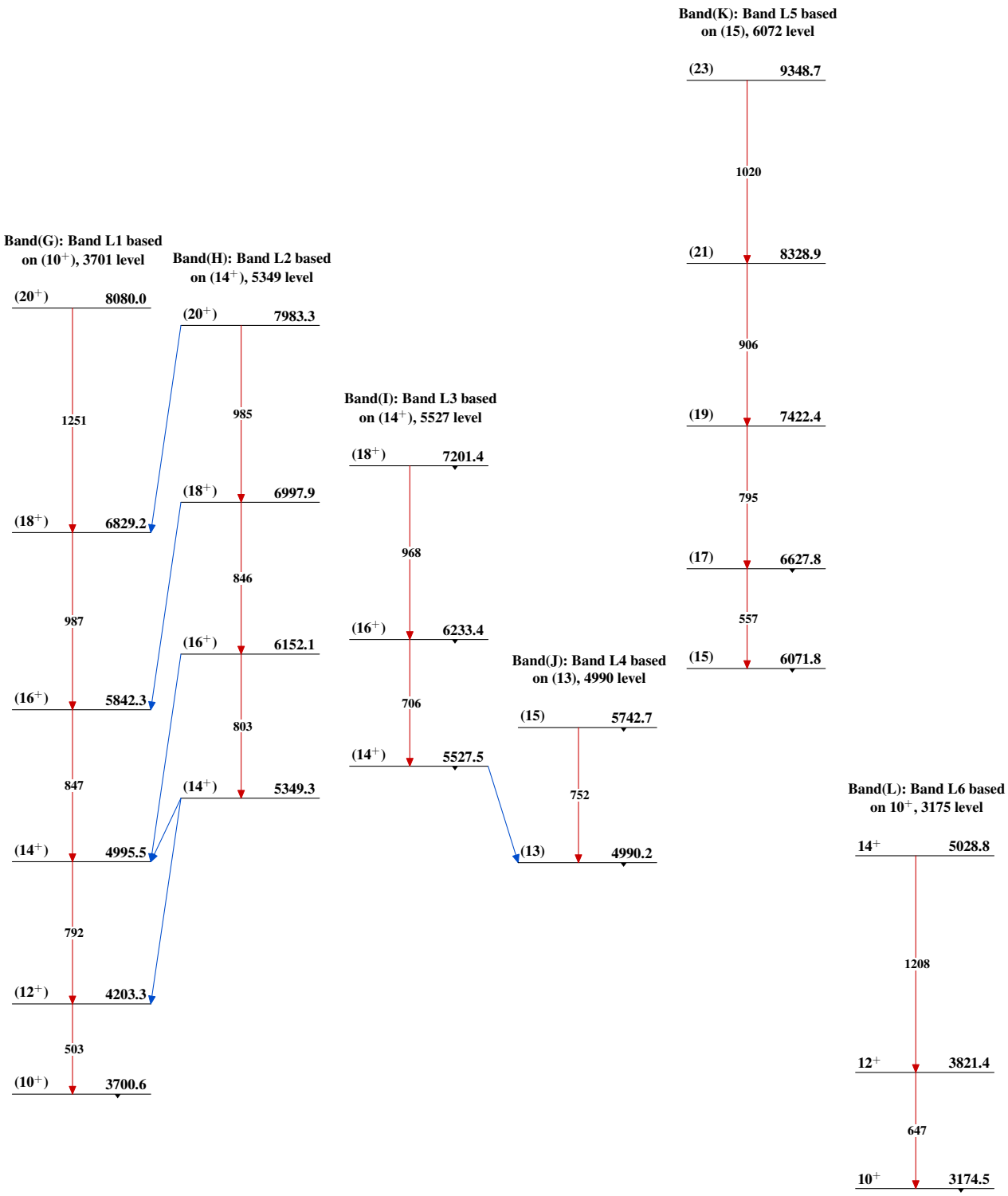
$^{138}_{60}Nd_{78}$

Adopted Levels, Gammas

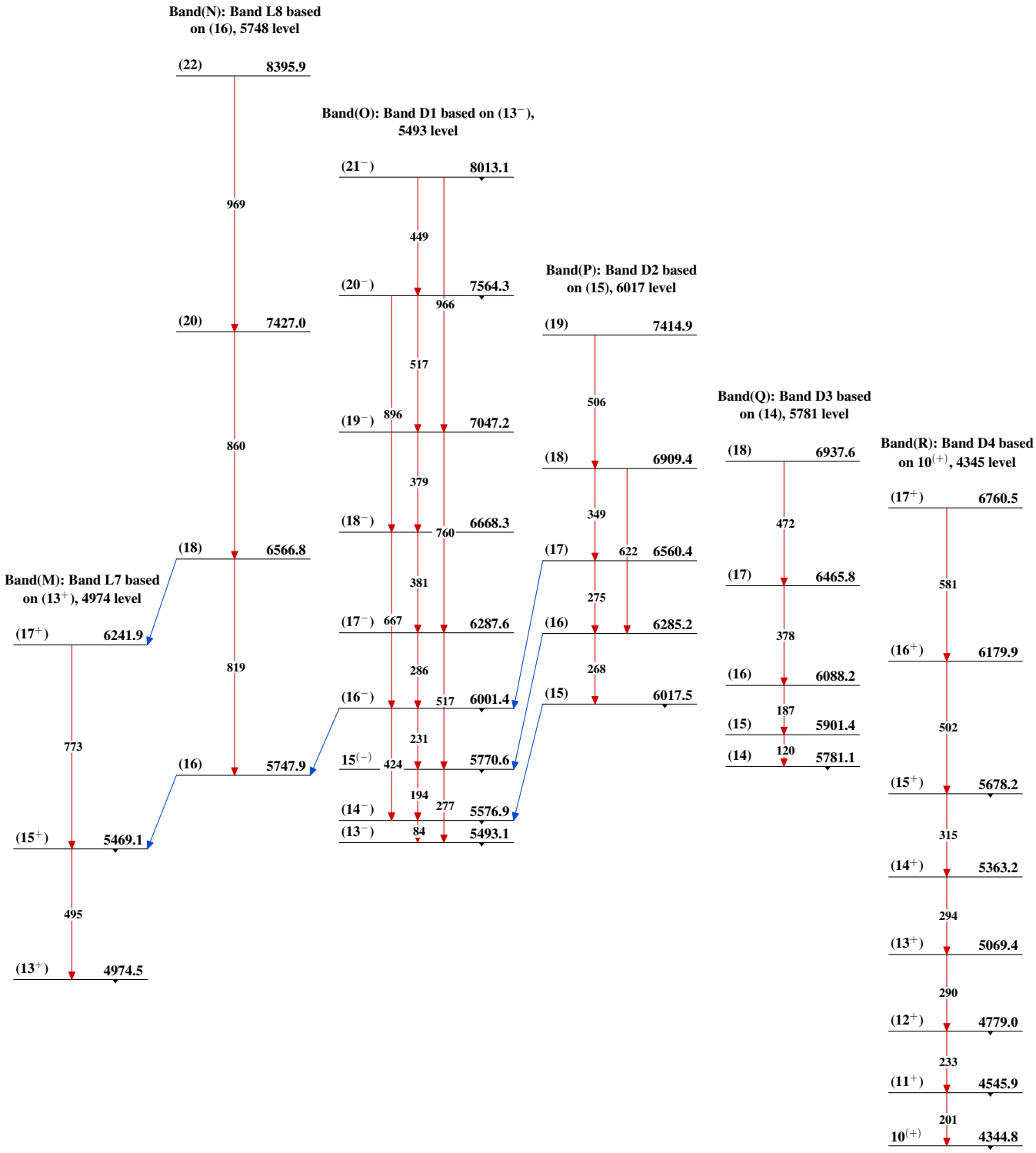


$^{138}_{60}Nd_{78}$

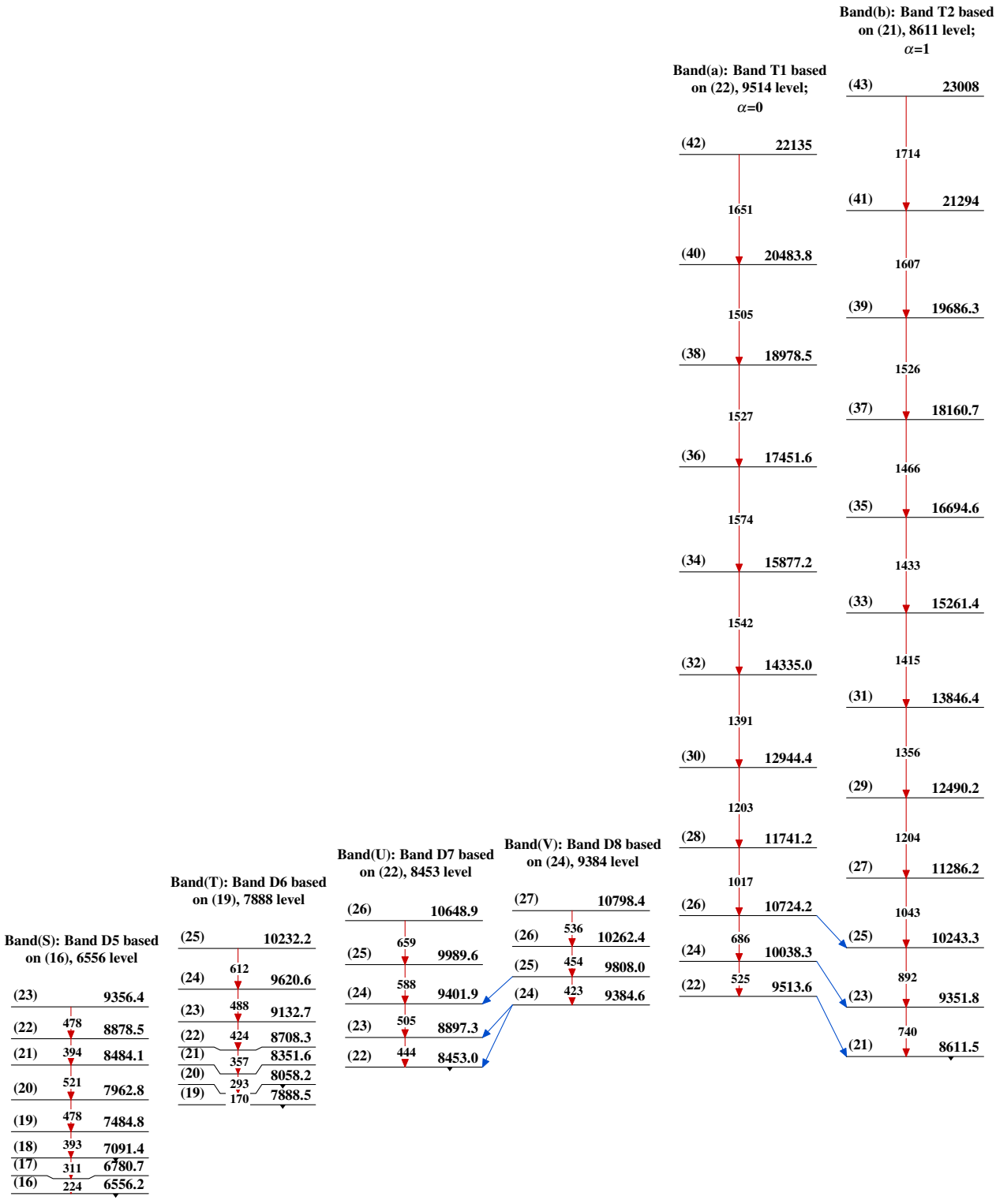
Adopted Levels, Gammas (continued)



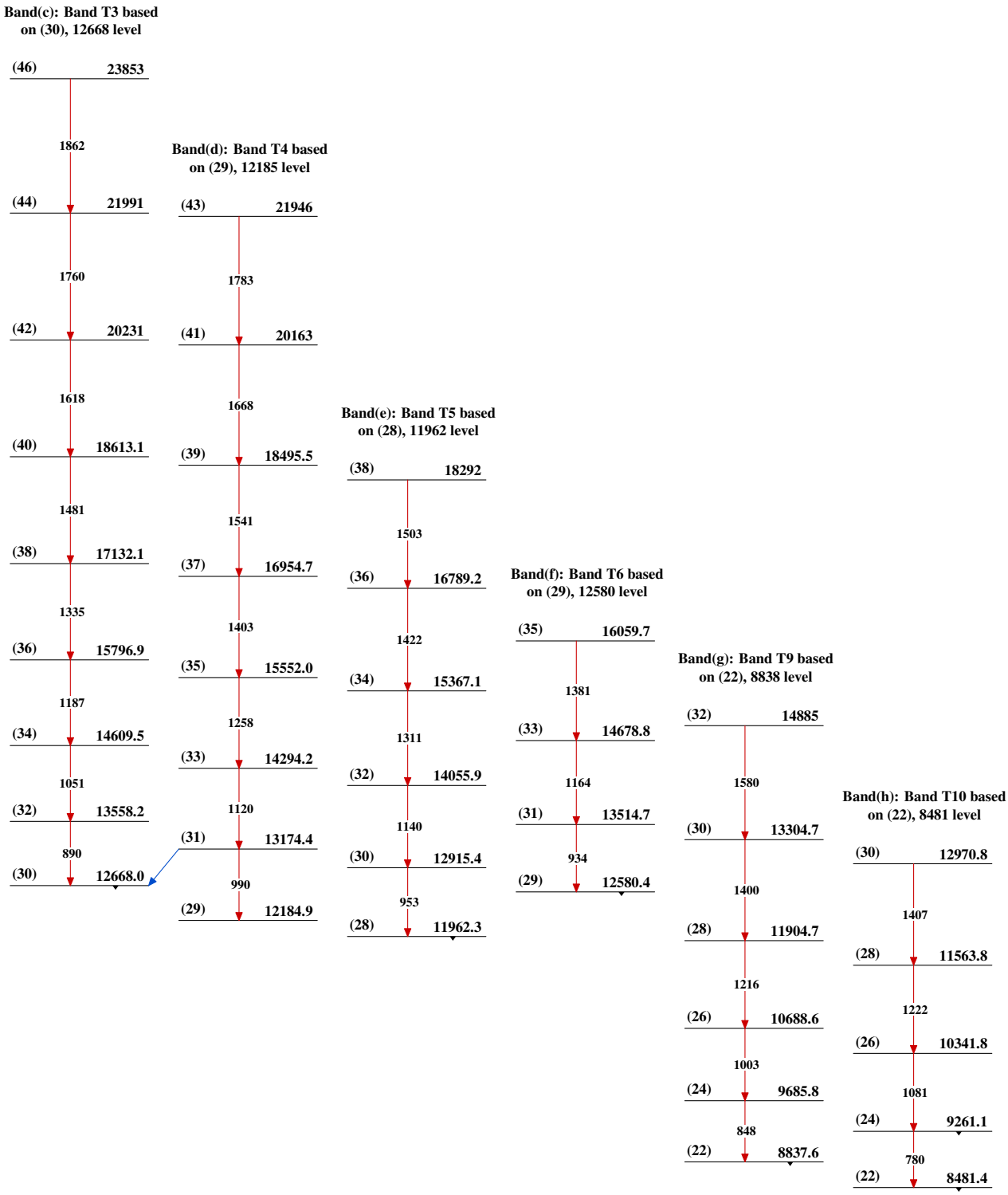
Adopted Levels, Gammas (continued)



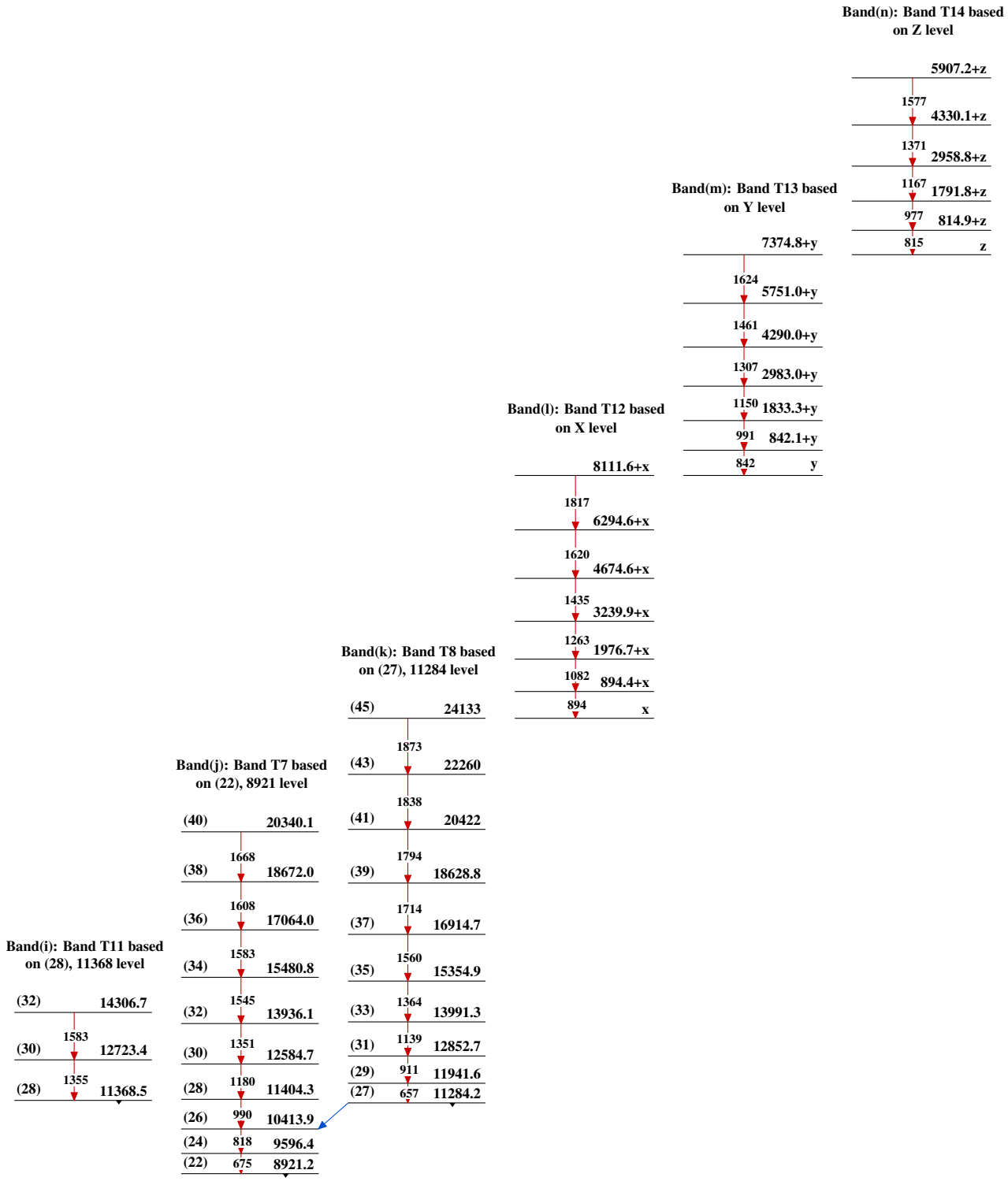
Adopted Levels, Gammas (continued)



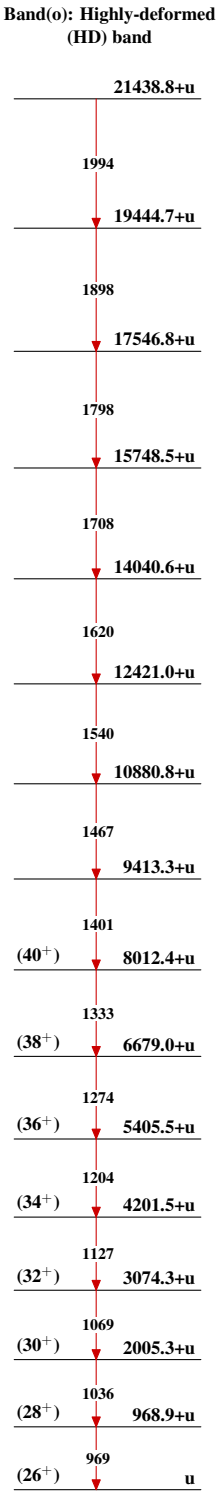
Adopted Levels, Gammas (continued)



Adopted Levels, Gammas (continued)



Adopted Levels, Gammas (continued)



$^{138}_{60}Nd_{78}$