Adopted Levels, Gammas

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	S. Kumar(a), J. Chen(b) and F. G. Kondev	NDS 137, 1 (2016)	31-May-2016

Q(β^-)=−2016 *4*; S(n)=7323.1 *18*; S(p)=8186.6 *28*; Q(α)=−2511.5 *19* 2012Wa38
Additional information 1.

^{109}Cd Levels

Cross Reference (XREF) Flags

A	^{109}In ε decay	F	^{100}Mo(^{13}C,4nγ)
B	^{109}Cd IT decay (11.8 μs)	G	^{108}Pd(α,3nγ)
C	^{109}Cd IT decay (10.6 μs)	H	^{109}Ag(p,nγ)
D	^{96}Zr(^{16}O,3nγ)	I	^{110}Cd(d,t)
E	^{96}Zr(^{18}O,5nγ)		

E(level)[†]	J$^\pi$	T$_{1/2}$[i]	XREF	Comments
0.0	5/2$^+$	461.9 d *4*	ABCDEFGHI	%ε=100 μ=−0.8278461 *15*; Q=+0.604 *25* J$^\pi$: optical-double resonance (1976Fu06); direct ε to 7/2$^+$ level in ^{109}Ag; L(d,t)=2. T$_{1/2}$: using the Limitation of Relative Statistical Weight method and 462.3 d *8* (2014Un01), 462.36 d *33* and 461.92 d *76* (2011Va02), 459.6 d *17* (2004Sc04), 460.2 d *4* (1997Ma75), 463.1 d *4* (1982La25), 461.9 d *3* (1981Va11), 450 d *5* (1968Re04), 459 d *6* (1968Ea01),453 d *2* (1965Le06) and 470 d *8* (1950Gu54). Other: 330 d (1947Br05). Values of 463.2 *6* (1982HoZJ), 463.26 *63* (1992Un01,2002Un02) and 462.6 *6* (2012Fi12) are superseded by 2014Un01. μ: from 2014StZZ, based on 1972Sp09 and 1963By02 data. Q: from 2013Yo02 by collinear laser spectroscopy. Other: +0.69 *7* from 1969La06 by optical double resonance. configuration: a mixture between νd$_{5/2}$ and νg$_{7/2}$ orbitals.
59.60 *7*	1/2$^+$	11.8 μs *16*	AB HI	%IT=100 J$^\pi$: L(d,t)=0; 59.6γ E2 to 5/2$^+$. T$_{1/2}$: weighted average of 11.7 μs *18* (1968Iv02) and 12 μs *3* (1956Pe56) in ^{109}Cd IT decay. configuration: νs$_{1/2}$.
203.40 *5*	7/2$^+$	36 ps *+6−1*	A CDEFGHI	J$^\pi$: L(d,t)=4, 203.5γ M1 to 5/2$^+$. T$_{1/2}$: from microwave modulation of beam and lens spectrometer (1969Be37). configuration: νg$_{7/2}$.
347.51 *6*	5/2$^+$		A HI	J$^\pi$: L(d,t)=2, 288.1γ E2 to 1/2$^+$.
426.42 *6*	5/2$^+$		A HI	J$^\pi$: L(d,t)=2; 426.3γ M1+E2 to 5/2$^+$; 679.5γ from 9/2$^+$.
463.10[‡] *11*	11/2$^-$	10.6 μs *4*	A CDEFGHI	%IT=100 Q=−0.92; μ=−1.096 *2* J$^\pi$: L(d,t)=5, 259.7γ M2 to 7/2$^+$. T$_{1/2}$: weighted average of 10.4 μs *6* (1964Br27), 10.4 μs *10* (1966Mc06), 10.8 μs *16* (1968Iv02), and 10.8 μs *7* in 1975Me22. μ: from a measurement by the Stroboscopic Observation of Perturbed Angular Distribution (SOPAD) method (2014StZZ). Q: from 1978Sp09 by the Time Dependent Perturbed Angular Distribution (TDPAD) method. Value measured relative to Q for ^{107}Cd and ^{111}Cd and by assuming that the magnitude of Q follows the relative h$_{11/2}$ shell filling with an increasing neutron number. configuration: νh$_{11/2}$.

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Adopted Levels, Gammas (continued)

^{109}Cd Levels (continued)

E(level)[†]	J$^\pi$	T$_{1/2}$[i]	XREF	Comments
623.88 *7*	7/2$^+$	41 fs *+25−15*	A HI	J$^\pi$: L(d,t)=4, 623.8γ M1 to 5/2$^+$. T$_{1/2}$: from DSAM (1988Ch35) in (p,nγ).
673.41 *8*	3/2$^+$	55 fs *+15−12*	A HI	J$^\pi$: L(d,t)=2; 613.6γ M1 to 1/2$^+$.
721.67 *7*	5/2$^+$	76 fs *+21−13*	A HI	J$^\pi$: L(d,t)=2; J=3/2 is ruled out based on measured 721.8$\gamma(\theta)$ compared with theoretical values using the χ^2 fits method in (p,nγ).
818 *5*	3/2$^+$,5/2$^+$		I	J$^\pi$: L(d,t)=2.
822.04 *7*	9/2$^+$	90 fs *+49−28*	A EFGH	J$^\pi$: 618.5γ M1 to 7/2$^+$, 822.0γ E2 to 5/2$^+$.
891.25 *7*	3/2$^+$,5/2$^+$	36 fs *+8−6*	A HI	J$^\pi$: L(d,t)=2.
929.38 *8*	5/2$^+$		HI	J$^\pi$: L(d,t)=2; measured C^{2}S=1.3 in (d,t) is considered too large for J=3/2 assignment based on comparisons with theoretical values of neighbouring nuclei by 1975Ch07 in (d,t).
985.51[‡] *15*	15/2$^-$	10.0 ps *4*	DEFGH	J$^\pi$: 522.4γ E2 to 11/2$^-$; band assignment.
997.50 *8*	7/2$^+$	64 fs *+20−12*	A H	J$^\pi$: direct ε decay from 9/2$^+$, 650.0γ to 5/2$^+$, 324.4γ to 3/2$^+$.
1066.09 *11*	11/2$^+$		A EFGH	J$^\pi$: 862.9γ E2 to 7/2$^+$. Level considered as member of 7/2$^+$ band.
1105 *5*	3/2$^+$,5/2$^+$		I	J$^\pi$: L(d,t)=2.
1105.83 *9*	9/2$^+$	73 fs *+38−24*	A F H	J$^\pi$: 1105.9γ (E2) to 5/2$^+$; direct EC decay from 9/2$^+$; absence of γ's to 3/2$^+$.
1121.21 *8*	(1/2$^+$,3/2,5/2$^+$)		H	J$^\pi$: 1061.5γ to 1/2$^+$, 773.7γ to 5/2$^+$.
1132.91 *21*	7/2$^+$	61 fs *+32−18*	A H	J$^\pi$: possible EC feeding from 9/2$^+$; J=7/2 from measured 929.5$\gamma(\theta)$ compared with theoretical values using the χ^2 fits method in (p,nγ).
1173.48 *14*	3/2$^+$,5/2$^+$		A HI	J$^\pi$: L(d,t)=2.
1219.01 *18*			A H	
1318.10 *12*	3/2$^+$,5/2$^+$		HI	J$^\pi$: L(d,t)=2.
1352.15 *7*	(7/2)$^+$		A H	J$^\pi$: strong direct EC feeding from 9/2$^+$, 1352.2γ to 5/2$^+$, 678.6γ to 3/2$^+$.
1388.56 *13*	(7/2$^+$,9/2$^+$)		A H	J$^\pi$: direct ε feeding from 9/2$^+$, 1388.6γ to 5/2$^+$.
1417.96 *18*	1/2$^+$		HI	J$^\pi$: L(d,t)=0.
1425.2[b] *3*	(13/2$^-$)		EFGH	J$^\pi$: 962.3γ (M1+E2) to 11/2$^-$, band assignment.
1430.1 *4*	(7/2,9/2$^+$)		A	J$^\pi$: possible EC feeding from 9/2$^+$, 1430.1γ to 5/2$^+$.
1458.75 *15*			H	
1475.69 *9*	(7/2,9/2)$^+$		A H	J$^\pi$: strong direct EC feeding from 9/2$^+$, 1475.6γ to 5/2$^+$.
1479.77 *20*			H	
1539.37 *16*	(7/2$^+$,9/2$^+$)		A H	J$^\pi$: direct EC feeding from 9/2$^+$, 1539.3γ to 5/2$^+$.
1563.1 *3*	11/2$^{(+)}$		F H	J$^\pi$: 939.6γ Q to 7/2$^+$, 740.3γ D+Q to 9/2$^+$.
1580.71 *18*			H	
1593.3 *3*			H	
1622.46 *8*	(7/2)$^+$		A H	J$^\pi$: strong direct EC feeding from 9/2$^+$, 1622.3γ to 5/2$^+$, 948.9γ to 3/2$^+$.
1633.55 *23*			H	
1729.99 *19*			H	
1772.79 *10*	(7/2,9/2)$^+$		A H	J$^\pi$: strong direct EC feeding from 9/2$^+$, 1772.5γ to 5/2$^+$.
1787.36 *10*			H	
1813.42 *12*			H	
1821.50[‡] *17*	19/2$^-$	0.59 ps *14*	DEFG	J$^\pi$: 836.0γ E2 γ to 15/2$^-$.
1854.0 *4*	(13/2$^+$)		EF H	J$^\pi$: 1031.8γ (E2) to 9/2$^+$, 788.0γ (M1) to 11/2$^+$.
1861.42 *10*	(7/2$^+$,9/2$^+$)		A	J$^\pi$: direct EC decay from 9/2$^+$, 1861.4γ to 5/2$^+$.
1869.23 *19*			H	
1937.5 *3*			H	
1944.03 *20*			H	
1956.0 *6*			H	
1989.0 *3*			H	
2033.78 *17*			A H	
2046.4 *3*			H	

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Adopted Levels, Gammas (continued)

^{109}Cd Levels (continued)

E(level)[†]	Jπ	$T_{1/2}$[i]	XREF	Comments
2064.67 *9*			F H	XREF: F(?). Jπ: 1717.0γ to 5/2+, 1861.4γ to 7/2+.
2111.65 *19*			H	
2141.41 *22*	15/2+		EFGH	Jπ: 1075.3γ E2 to 11/2+.
2165.94[b] *23*	(17/2−)	0.5 ps *3*	EFGH	Jπ: 740.8γ (E2) to (13/2−), 1180.2γ (M1+E2) to 15/2−, band assignment.
2166.48 *17*			H	
2198.92 *17*			H	
2234.22 *22*			H	
2271.3 *5*			H	
2282.46 *25*			H	
2325.8 *4*			H	
2372.3 *3*			H	
2391.85 *24*			H	
2589.8 *5*	19/2−	0.8 ps *4*	EF	Jπ: 1604.5γ E2 to 15/2−.
2687.1[#] *4*	(17/2+)		EF	Jπ: 1701.8γ (E1) to 15/2−.
2700.5[c] *4*	(19/2−)		EF	Jπ: 1715.0γ (E2) to 15/2−, band assignment.
2862.20[‡] *19*	23/2−	<1.2 ps	DEFG	Jπ: 1040.7γ E2 to 19/2−.
2866.70[e] *20*	(21/2+)	1.26 ns *19*	EFG	Jπ: 1045.2γ (E1) to 19/2−, band assignment.
2942.0[@] *3*	19/2+	<3.5 ps	EFG	Jπ: 800.5γ E2 to 15/2+.
2974.0[d] *3*	(21/2−)	<7.6 ps	EF	Jπ: 807.8γ (E2) to (17/2−).
3042.6[b] *4*	(21/2−)	<3.5 ps	EF	Jπ: 876.7γ (E2) to (17/2−).
3058.78[#] *19*	(21/2+)	0.8 ps *5*	DEFG	Jπ: 371.8γ (E2) to (17/2+).
3256.5 *11*			E	
3282.4 *5*	(21/2+)		EF	Jπ: proposed in ^{96}Zr(^{18}O,5nγ).
3343.2 *6*	(25/2−)		D	Jπ: 481.0γ (M1+E2) to 23/2−.
3354.0[g] *4*	(21/2−)		EF	Jπ: 491.8γ (M1) to 23/2−, 1188.0γ to (17/2−).
3369.9 *4*	23/2−	<3.5 ps	EF	Jπ: 780.2γ and 1548.5γ E2 to 19/2−.
3382.9[@] *3*	23/2+	12.1 ps *9*	EFG	Jπ: 441.0γ E2 to 19/2+, 323.8γ M1+E2 to (21/2+),
3411.1[c] *4*	(23/2−)		EF	Jπ: 436.7γ (M1) to (21/2−), 710.5γ (E2) to (19/2−).
3524.3[a] *5*	(21/2+)		EF	Jπ: based on band structure in ^{96}Zr(^{18}O,5nγ).
3524.41[#] *21*	(25/2+)	12.1 ps *12*	DEFG	Jπ: 465.2γ E2 to (21/2+).
3549.0[g] *4*	(23/2−)	<2.1 ps	EF	Jπ: 195.0γ (M1+E2) to (21/2−), band assignment.
3570.1[e] *4*	(23/2+)		EFG	Jπ: 287.5γ (M1) to (21/2+), 703.4γ (M1) to (21/2+).
3615.6 *5*	(23/2−)		EF	Jπ: 1793.8γ (E2) to 19/2−.
3620.6[&] *4*	(23/2+)		EF	Jπ: 561.6γ (M1) to (21/2+), 758.6γ (E1) to 23/2−.
3837.1 *9*	(25/2+)		E	Jπ: proposed in ^{96}Zr(^{18}O,5nγ).
3897.6[d] *4*	(25/2−)		EF	Jπ: 923.4γ (E2) to (21/2−).
3910.3[a] *4*	(25/2+)	<13 ps	EF	Jπ: 527.3γ (M1) to 23/2+, 851.4γ (E2) to (21/2+).
3939.8[@] *3*	27/2+	3.8 ps *4*	EFG	Jπ: 415.0γ M1+E2 to (25/2+), 556.8γ E2 to 23/2+.
4021.3[‡] *4*	(27/2−)		DEFG	Jπ: 1159.0γ (E2) to 23/2−.
4030.6[g] *4*	(25/2−)	<2.8 ps	EF	Jπ: 414.8γ (M1) to (23/2−), 481.7γ (M1+E2) to (23/2−).
4088.6[b] *5*	(25/2−)		E	Jπ: 1046.0γ (E2) to (21/2−).
4154.2 *6*			E	
4232.3[&] *4*	(27/2+)		EF	Jπ: 611.8γ (E2) to (23/2+), 708.0γ (M1) to (25/2+).
4246.2[#] *4*	(29/2+)	<3.8 ps	DEFG	Jπ: 721.8γ E2 to (25/2+).
4293.2[e] *5*	(25/2+)		EF	Jπ: 1426.6γ (E2) to (21/2+).
4296.0 *5*	(27/2−)		EF	Jπ: 926.4γ (E2) to 23/2−.
4414.1 *10*	(27/2+)		E	Jπ: proposed in ^{96}Zr(^{18}O,5nγ).
4431.9 *6*	(27/2+)		E	Jπ: 811.3γ (E2) to (23/2+).
4458.7[c] *5*	(27/2−)		E	Jπ: 1048.1γ (E2) to (23/2−).
4591.2 *6*	(27/2−)		E	Jπ: 1729.0γ (E2) to 23/2−.

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Adopted Levels, Gammas (continued)

^{109}Cd Levels (continued)

E(level)[†]	Jπ	$T_{1/2}$[i]	XREF	Comments
4630.6[g] 4	(27/2⁻)	<4.2 ps	EF	Jπ: 600.0γ (M1) to (25/2⁻).
4697.7[a] 6	(29/2⁺)		EF	Jπ: 787.4γ (E2) to (25/2⁺).
4724.5[@] 5	31/2⁺	<3.1 ps	EF	Jπ: 785.1γ E2 to 27/2⁺, 478.0γ (M1+E2) to (29/2⁺).
4875.2 5	(27/2⁻)		E	Jπ: proposed in ^{96}Zr(^{18}O,5nγ).
4950.9[e] 8	(27/2⁺)		E	Jπ: band assignment.
5050.7[‡] 5	(31/2⁻)	1.05 ps *+4−5*	EF	Jπ: 1029.6γ (E2) to (27/2⁻), 754.7γ E2 to to (27/2⁻). $T_{1/2}$: from 2000Ch04 in ^{96}Zr(^{18}O,5nγ) using DSAM, weighted average of 1.26 ps *+12−8*, 1.25 ps *5* and 0.85 ps *+7−6*.
5063.7 5	(27/2⁻)		E	Jπ: proposed in ^{96}Zr(^{18}O,5nγ).
5082.6[&] 4	(31/2⁺)		EF	Jπ: 850.8γ (E2) to (27/2⁺).
5122.7[d] 7	(29/2⁻)		E	Jπ: 1225.1γ (E2) to (25/2⁻).
5227.6 7			E	
5254.6 11	(29/2⁻)		E	Jπ: proposed in ^{96}Zr(^{18}O,5nγ).
5261.1[#] 7	(33/2⁺)		E	Jπ: 1014.8γ (E2) to (29/2⁺).
5279.7[g] 4	(29/2⁻)	<7.6 ps	EF	Jπ: 649.0γ (M1) to (27/2⁻), 1249.0γ (E2) to (25/2⁻).
5287.6[b] 11	(29/2⁻)		E	Jπ: band assignment.
5399.3 7	(31/2⁻)		E	Jπ: 1378.0γ (E2) to (27/2⁻).
5441.3[g] 7	(31/2⁻)		EF	Jπ: 161.6γ M1+E2 to (29/2⁻).
5623.0 7			E	
5650.5[e] 9	(29/2⁺)		E	Jπ: band assignment.
5671.7[a] 8	(33/2⁺)		E	Jπ: 974.0γ (E2) to (29/2⁺).
5731.2[g] 8	(33/2⁻)	0.97 ps *+2−3*	EF	Jπ: 289.9γ (M1) to (31/2⁻). $T_{1/2}$: from 2000Ch04 in ^{96}Zr(^{18}O,5nγ) using DSAM, weighted average of 0.96 ps *3*, 0.81 ps *+1−8*, and 1.12 ps *5*.
5775.1[@] 7	(35/2⁺)		EF	Jπ: 1050.6γ (E2) to 31/2⁺.
5788.0 10	(31/2⁻)		E	Jπ: proposed in ^{96}Zr(^{18}O,5nγ).
5813.2[f] 12	(29/2⁺)		E	Jπ: band assignment.
5862.0 8	(31/2⁻)		E	Jπ: proposed in ^{96}Zr(^{18}O,5nγ).
5954.8 10			E	
5971.4[‡] 7	(35/2⁻)	0.233 ps *+15−8*	EF	Jπ: 920.7γ E2 to (31/2⁻). $T_{1/2}$: from 2000Ch04 using DSAM in ^{96}Zr(^{18}O,5nγ), weighted average of 0.214 ps *+14−21*, 0.277 ps *+21−14*, and 0.236 ps *+42−7*.
5995.8 7	(31/2⁺)		E	Jπ: proposed in ^{96}Zr(^{18}O,5nγ).
6004.2[f] 7	(31/2⁺)		E	Jπ: band assignment.
6154.6[&] 7	(35/2⁺)		E	Jπ: 1072.0γ (E2) to (31/2⁺).
6164.5[g] 10	(35/2⁻)	0.189 ps *+3−4*	E	Jπ: 433.3γ (M1) to (33/2⁻). $T_{1/2}$: from 2000Ch04 using DSAM in ^{96}Zr(^{18}O,5nγ), weighted average of 0.173 ps *7*, 0.183 ps *+5−6*, and 0.202 *+4−6*.
6240.8 9	(35/2⁻)		E	Jπ: 379.0γ (E2) to (31/2⁻).
6305.2[f] 8	(33/2⁺)		E	Jπ: 301.1γ (M1) to (31/2⁺). $T_{1/2}$: from 2000Ch04 using DSAM in ^{96}Zr(^{18}O,5nγ), 0.248 ps *+10−8*, weighted average of 0.284 ps *+27−21*, 0.263 ps *14*, and 0.222 ps *14*.
6518.4[#] 8	(37/2⁺)		E	Jπ: 1257.3γ (E2) to (33/2⁺).
6572.7 7			E	
6670.8 13	(37/2⁻)		E	Jπ: proposed in ^{96}Zr(^{18}O,5nγ).
6684.2[f] 13	(35/2⁺)	0.175 ps *+3−4*	E	Jπ: band assignment. $T_{1/2}$: from 2000Ch04 using DSAM in ^{96}Zr(^{18}O,5nγ), weighted average of 0.187 ps *7*, 0.173 ps *+6−5* and 0.166 ps *+5−9*.
6796.0[g] 11	(37/2⁻)	0.150 ps *+3−4*	E	Jπ: 631.5γ (M1) to (35/2⁻). $T_{1/2}$: from 2000Ch04 using DSAM in ^{96}Zr(^{18}O,5nγ), weighted average of 0.215 ps *+14−21*, 0.194 ps *+7−14*, and 0.142 ps *+2−5*.

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Adopted Levels, Gammas (continued)

^{109}Cd Levels (continued)

E(level)[†]	Jπ	$T_{1/2}$[i]	XREF	Comments
6861.8[a] *10*	(37/2$^+$)		E	Jπ: band assignment.
7010.4[‡] *9*	(39/2$^-$)	0.274 ps *+10−9*	EF	Jπ: 1039.0γ (E2) to (35/2$^-$). $T_{1/2}$: from 2000Ch04 using DSAM in ^{96}Zr(^{18}O,5nγ), weighted average of 0.28 ps *3*, 0.284 ps *+14−7*, and 0.24 ps *2*.
7077.2[@] *9*	(39/2$^+$)		E	Jπ: 1302.0γ (E2) to (35/2$^+$).
7147.2[f] *14*	(37/2$^+$)	0.146 ps *+1−3*	E	Jπ: 463.0γ (M1) to (35/2$^+$). $T_{1/2}$: from 2000Ch04 using DSAM in ^{96}Zr(^{18}O,5nγ), weighted average of 0.148 ps *+5−6*, 0.146 ps *3*, and 0.141 ps *+3−15*.
7384.6[&] *8*	(39/2$^+$)		E	Jπ: 1230.0γ (E2) to (35/2$^+$); band assignment.
7555.0[g] *12*	(39/2$^-$)	0.226 ps *+8−11*	E	Jπ: 759.0γ (M1) to (37/2$^-$). $T_{1/2}$: from 2000Ch04 using DSAM in ^{96}Zr(^{18}O,5nγ), weighted average of 0.187 ps *+14−21*, 0.235 ps *14*, and 0.249 ps *+14−21*.
7562.0 *15*	(39/2$^-$)		E	Jπ: proposed in ^{96}Zr(^{18}O,5nγ).
7687.8[f] *15*	(39/2$^+$)	0.077 ps *+2−3*	E	Jπ: 540.6γ (M1) to (37/2$^+$). $T_{1/2}$: from 2000Ch04 using DSAM in ^{96}Zr(^{18}O,5nγ), weighted average of 0.067 ps *4*, 0.078 ps *+3−7*, and 0.091 ps *+4−6*.
7908.8[#] *10*	(41/2$^+$)		E	Jπ: 1390.4γ (E2) to (37/2$^+$).
7951.0 *16*	(41/2$^-$)		E	Jπ: proposed in ^{96}Zr(^{18}O,5nγ).
8202.0[‡] *10*	(43/2$^-$)	0.129 ps *+3−5*	E	Jπ: 1191.6γ (E2) to (39/2$^-$). $T_{1/2}$: from 2000Ch04 using DSAM in ^{96}Zr(^{18}O,5nγ), weighted average of 0.110 ps *+7−14*, 0.130 ps *+3−13*, and 0.133 ps *+6−4*.
8264.8[f] *18*	(41/2$^+$)	0.056 ps *+2−4*	E	Jπ: band assignment. $T_{1/2}$: from 2000Ch04 using DSAM in ^{96}Zr(^{18}O,5nγ), weighted average of 0.059 ps *+4−6*, 0.049 ps *+4−5*, and 0.067 ps *+3−9*.
8598.6[@] *10*	(43/2$^+$)		E	Jπ: 1521.4γ (E2) to (39/2$^+$).
8870.8[f] *20*	(43/2$^+$)		E	Jπ: band assignment.
9377.7[#] *11*	(45/2$^+$)		E	Jπ: band assignment.
9502.8[f] *23*	(45/2$^+$)		E	Jπ: band assignment.
9569.0[‡] *11*	(47/2$^-$)	0.124 ps *3*	E	Jπ: 1367.0γ (E2) to (43/2$^-$). $T_{1/2}$: from 2000Ch04 using DSAM in ^{96}Zr(^{18}O,5nγ), weighted average of 0.126 ps *5*, 0.119 ps *+6−5*, and 0.126 ps *+5−6*.
10165.8[f] *25*	(47/2$^+$)		E	Jπ: band assignment.
10898[f] *3*	(49/2$^+$)		E	Jπ: band assignment.
11132.1[‡] *12*	(51/2$^-$)		E	Jπ: band assignment.
x[h]	(37/2)		E	Additional information 2. Jπ: band assignment. E(level): x >5730, since transitions from this level feed members of bands #10 and #11 as labeled by 2000Ch04.
295.0+x[h] *10*	(39/2)		E	Jπ: band assignment.
634.0+x[h] *15*	(41/2)		E	Jπ: band assignment.
1054.0+x[h] *18*	(43/2)		E	Jπ: band assignment.
1542.0+x[h] *20*	(45/2)		E	Jπ: band assignment.
2100.0+x[h] *23*	(47/2)		E	Jπ: band assignment.
2727.0+x[h] *25*	(49/2)		E	Jπ: band assignment.

[†] From a least-squares fit to γ-ray energies.
[‡] Band(A): ΔJ=2, νh11/2$^-$.

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{109}Cd Levels (continued)

Band(B): ΔJ=2, based on $17/2^+$.
@ Band(C): ΔJ=2, based on $19/2^+$.
& Band(D): ΔJ=2, based on $(23/2^+)$.
a Band(E): ΔJ=2, based on $(21/2^+)$.
b Band(F): ΔJ=2, based on $(13/2^-)$.
c Band(G): ΔJ=2, based on $(19/2^-)$.
d Band(H): ΔJ=2, based on $(21/2^-)$.
e Band(I): ΔJ=1, based on $(21/2^+)$.
f Band(J): ΔJ=1, magnetic-rotational band, based on $(29/2^+)$. Configuration=$\pi g_{9/2}^{-2}\ {}_{8+}\nu[(g_{7/2}/d_{5/2})h_{11/2}^2]$.
g Band(K): ΔJ=1, magnetic-rotational band, based on $(21/2^-)$.
h Band(L): ΔJ=1, (37/2) band.
i From (p,nγ) by DSAM up to E=1133 keV level, and from 2001Ha09 in ^{100}Mo(^{13}C,4nγ) using Recoil Distance Method above E=1133 keV level, unless otherwise noted.

Adopted Levels, Gammas (continued)

γ(^{109}Cd)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[#]	α[&]	Comments
59.60	1/2$^+$	59.6 *2*	100	0.0	5/2$^+$	E2	9.45 *18*	α(K)=5.72 *10*; α(L)=3.02 *7*; α(M)=0.607 *13* α(N)=0.0990 *21*; α(O)=0.000976 *17* B(E2)(W.u.)=0.20 *3* E_γ: weighted average of 59.6 *2* from ^{109}In ε decay, 59.9 *5* from ^{109}Cd IT decay (12 μs), and 59.5 *5* from ^{109}Ag(p,nγ) (1983Ch34). Mult.: α(exp)=13 *3* (1956Pe56), K/L=0.85 *8* (1956Pe56), 1.3 *5* (1962No06) in ^{109}In ε decay.
203.40	7/2$^+$	203.3 *1*	100	0.0	5/2$^+$	M1	0.0659	α(K)=0.0572 *8*; α(L)=0.00705 *10*; α(M)=0.001354 *19* α(N)=0.000241 *4*; α(O)=1.392×10^{-5} *20* B(M1)(W.u.)=0.0683 *+19−98* Mult.: α(exp)=0.07 *1* and K/L=7.6 *4* (1956Pe56), K/(L+M)=7 *1* (1962No06) from ^{109}In ε decay; α(K)exp(259.5γ)/α(K)exp(203.2γ)=2.06 *23* (1969Be37) and Iγ(259.gγ)/Iγ(203.2γ)=0.9 (1966Mc06 and 1964Br27) from ^{109}Cd IT decay (10.9 μs) are consistent with mul(203γ)=M1 and mul(259γ)=M2.
347.51	5/2$^+$	288.1 *1*	75 *3*	59.60	1/2$^+$	E2	0.0371	α(K)=0.0314 *5*; α(L)=0.00465 *7*; α(M)=0.000902 *13* α(N)=0.0001564 *22*; α(O)=6.80×10^{-6} *10* I_γ: weighted average of 77 *3* from ^{109}In ε decay and 71 *5* from ^{109}Ag(p,nγ). Mult.: α(exp)=0.04 *1*, K/L=5.0 (1956Pe56), K/(L+M)=6.6 *15* (1962No06) from ^{109}In ε decay; A_2/A_0=+0.03 *3*, A_4/A_0=−0.06 *4* (1994Ju05) in (p,nγ).
		347.5[‡] *1*	100[‡] *5*	0.0	5/2$^+$	M1+E2	0.01638	α(K)=0.01426 *20*; α(L)=0.001727 *25*; α(M)=0.000331 *5* α(N)=5.91×10^{-5} *9*; α(O)=3.45×10^{-6} *5* Mult.: α(exp)=0.020 *8* from K/L=5.1 *5* (1956Pe56), K/(L+M)=7 *5* (1962No06) from ^{109}In ε decay; A_2/A_0=+0.01 *2*, A_4/A_0=−0.06 *4* (1994Ju05) in (p,nγ).
426.42	5/2$^+$	223.0 *1*	4.7 *8*	203.40	7/2$^+$			I_γ: weighted average of 2.9 *9* from ^{109}In ε decay and 5.0 *4* from (p,nγ).
		426.3 *1*	100 *3*	0.0	5/2$^+$	M1+E2	0.00984	α(K)=0.00857 *12*; α(L)=0.001031 *15*; α(M)=0.000198 *3* α(N)=3.53×10^{-5} *5*; α(O)=2.07×10^{-6} *3* I_γ: from ^{109}In ε decay. Other: 100 *6* from (p,nγ). Mult.: α(exp)=0.014 *5* from K/L=8 *1* (1956Pe56), K/(L+M)=8 *2* (1962No06) from ^{109}In ε decay; A_2/A_0=+0.10 *4*, A_4/A_0=+0.01 *5* (1994Ju05) in (p,nγ).
463.10	11/2$^-$	259.7 *1*	100	203.40	7/2$^+$	M2	0.1676	α(K)=0.1426 *20*; α(L)=0.0203 *3*; α(M)=0.00397 *6* α(N)=0.000705 *10*; α(O)=3.84×10^{-5} *6* B(M2)(W.u.)=0.093 *4* Mult.: α(K)exp(259.5γ)/α(K)exp(203.2γ)=2.06 *23* (1969Be37) and Iγ(259.5γ)/Iγ(203.2γ)=0.9 (1966Mc06 and 1964Br27) from ^{109}Cd IT decay (10.9 μs) are consistent with mul(203γ)=M1 and mul(259γ)=M2; K/(L+M)=2.4 *8* (1962No06) from ^{109}In ε decay. A_2/A_0=+0.045 *6*, A_4/A_0=−0.005 *6*, pol=−0.13 *5* from ^{96}Zr(^{16}O,3nγ).
623.88	7/2$^+$	420.6 *1*	16.0 *13*	203.40	7/2$^+$	(M1)	0.01017	α(K)=0.00886 *13*; α(L)=0.001066 *15*; α(M)=0.000204 *3* α(N)=3.65×10^{-5} *6*; α(O)=2.14×10^{-6} *3* B(M1)(W.u.)=1.0 *+6−4* I_γ: weighted average of 14.7 *13* from ^{109}In ε decay and 17.2 *13* from ^{109}Ag(p,nγ). Mult.: A_2/A_0=+0.22 *1*, A_4/A_0=+0.06 *2* (1994Ju05) in (p,nγ).

$^{109}_{48}Cd_{61}$-7

Adopted Levels, Gammas (continued)

γ(^{109}Cd) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[#]	α[&]	Comments
623.88	7/2$^+$	623.8 *1*	100 *4*	0.0	5/2$^+$	M1	0.00392	α(K)=0.00342 *5*; α(L)=0.000407 *6*; α(M)=7.79×10^{-5} *11* α(N)=1.392×10^{-5} *20*; α(O)=8.21×10^{-7} *12* B(M1)(W.u.)=1.9 *+11−7* I_γ: from ^{109}In ε decay. Other: 100 *7* from (p,nγ). Mult.: α(exp)=0.0032 *15* (1956Pe56) from ^{109}In ε decay; A_2/A_0=−0.41 *3*, A_4/A_0=−0.08 *4* (1994Ju05) in (p,nγ).
673.41	3/2$^+$	326.3 *2*	24.6 *8*	347.51	5/2$^+$	[M1]	0.0192	α(K)=0.01672 *24*; α(L)=0.00203 *3*; α(M)=0.000389 *6* α(N)=6.95×10^{-5} *10*; α(O)=4.04×10^{-6} *6* I_γ: weighted average of 24.3 *10* from ^{109}In ε decay and 25.1 *13* from ^{109}Ag(p,nγ).
		470.4 *2*	2.8 *3*	203.40	7/2$^+$	[E2]	0.00795	α(K)=0.00684 *10*; α(L)=0.000905 *13*; α(M)=0.0001745 *25* α(N)=3.07×10^{-5} *5*; α(O)=1.548×10^{-6} *22*
		613.6 *1*	100 *6*	59.60	1/2$^+$	M1	0.00408	α(K)=0.00356 *5*; α(L)=0.000423 *6*; α(M)=8.11×10^{-5} *12* α(N)=1.448×10^{-5} *21*; α(O)=8.53×10^{-7} *12* Mult.: A_2/A_0=+0.09 *2*, A_4/A_0=−0.06 *6* (1994Ju05) in (p,nγ), mul=Q is ruled out by $T_{1/2}$, polarity from level-parity change based L(d,t)=2.
721.67	5/2$^+$	374.3 *4*	2.5 *5*	347.51	5/2$^+$	[M1]	0.01359	α(K)=0.01184 *17*; α(L)=0.001429 *21*; α(M)=0.000274 *4* α(N)=4.89×10^{-5} *7*; α(O)=2.86×10^{-6} *4*
		518.2 *5*	1.0 *5*	203.40	7/2$^+$	[M1]	0.00611	α(K)=0.00533 *8*; α(L)=0.000636 *9*; α(M)=0.0001220 *18* α(N)=2.18×10^{-5} *3*; α(O)=1.280×10^{-6} *19*
		721.8 *1*	100 *5*	0.0	5/2$^+$	[M1]	0.00279	α(K)=0.00243 *4*; α(L)=0.000288 *4*; α(M)=5.52×10^{-5} *8* α(N)=9.86×10^{-6} *14*; α(O)=5.83×10^{-7} *9*
822.04	9/2$^+$	618.5 *1*	100 *6*	203.40	7/2$^+$	M1	0.00400	α(K)=0.00349 *5*; α(L)=0.000415 *6*; α(M)=7.95×10^{-5} *12* α(N)=1.421×10^{-5} *20*; α(O)=8.38×10^{-7} *12* E_γ: from ^{109}In ε decay. Mult.: R(angular)=0.64 *7* from ^{96}Zr(^{18}O,5nγ), A_2/A_0=−0.67 *3*, A_4/A_0=−0.10 *5* (1994Ju05) in (p,nγ).
		822.0 *1*	68 *2*	0.0	5/2$^+$	E2	0.00180	α(K)=0.001561 *22*; α(L)=0.000191 *3*; α(M)=3.67×10^{-5} *6* α(N)=6.51×10^{-6} *10*; α(O)=3.62×10^{-7} *5* E_γ: from ^{109}In ε decay. I_γ: weighted average of 67 *2* in ^{109}In ε decay and 72 *6* in (p,nγ) Others: 44 *8* from (α,3nγ), 29 *5* from ^{100}Mo(^{13}C,4nγ). Mult.: Q from A_2/A_0=+0.24 *4*, A_4/A_0=+0.03 *6* (p,nγ), M2 is ruled out by $T_{1/2}$.
891.25	3/2$^+$,5/2$^+$	169.3 *3*	2.3 *8*	721.67	5/2$^+$			
		464.8 *2*	7.6 *8*	426.42	5/2$^+$			
		831.7 *1*	100 *1*	59.60	1/2$^+$			
		891.2 *1*	77 *5*	0.0	5/2$^+$			
929.38	5/2$^+$	207.6 *1*	48 *3*	721.67	5/2$^+$			
		305.6 *3*	13.1 *16*	623.88	7/2$^+$			
		503.4 *3*	18.0 *16*	426.42	5/2$^+$			
		582.1 *3*	31.1 *16*	347.51	5/2$^+$			
		929.4 *1*	100 *8*	0.0	5/2$^+$			

$^{109}_{48}Cd_{61}$-8

Adopted Levels, Gammas (continued)

γ(^{109}Cd) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[#]	α[&]	Comments
985.51	15/2$^-$	522.4 *1*	100	463.10	11/2$^-$	E2	0.00587	α(K)=0.00507 *7*; α(L)=0.000659 *10*; α(M)=0.0001268 *18* α(N)=2.23×10^{-5} *4*; α(O)=1.154×10^{-6} *17* B(E2)(W.u.)=46.8 *19* E_γ: weighted average of 522.0 *5* from ^{96}Zr(^{16}O,3nγ), 522.4 *1* from ^{96}Zr(^{18}O,5nγ), 522.4 *1* from ^{100}Mo(^{13}C,4nγ), 522.2 *2* from ^{108}Pd(α,3nγ), and 522.2 *4* from ^{109}Ag(p,nγ). Mult.: A_2/A_0=+0.304 *10*, A_4/A_0=−0.094 *11* (1978St01) in ^{96}Zr(^{16}O,3nγ); A_2/A_0=+0.292 *3*, A_4/A_0=−0.108 *4* (1975Me22) in (α,3nγ); $T_{1/2}$ rules out M2; R(angular)=1.33 *2*, DCO(Q)=1.01 *1* in ^{96}Zr(^{18}O,5nγ).
997.50	7/2$^+$	324.4 *2*	12.9 *5*	673.41	3/2$^+$			E_γ: from ^{109}In ε decay. I_γ: weighted average of 12.8 *5* from ^{109}In ε decay and 13.3 *10* from ^{109}Ag(p,nγ).
		571.0 *4*	9.2 *10*	426.42	5/2$^+$	[M1]	0.00484	α(K)=0.00422 *6*; α(L)=0.000503 *7*; α(M)=9.64×10^{-5} *14* α(N)=1.721×10^{-5} *25*; α(O)=1.013×10^{-6} *15* E_γ: weighted average of 570.4 *5* from ^{109}In ε decay (1970Ri06) and 571.2 *3* from ^{109}Ag(p,nγ) (1988Vi03). I_γ: from (p,nγ). Other: 2.2 *10* from ^{109}In ε decay.
		650.0 *1*	100 *5*	347.51	5/2$^+$	(M1)	0.00356	α(K)=0.00311 *5*; α(L)=0.000369 *6*; α(M)=7.06×10^{-5} *10* α(N)=1.262×10^{-5} *18*; α(O)=7.45×10^{-7} *11* Mult.: A_2/A_0=+0.18 *4*, A_4/A_0=−0.06 *6* (1994Ju05) in (p,nγ).
		793.9 *1*	19.7 *15*	203.40	7/2$^+$	[M1]	0.00224	α(K)=0.00196 *3*; α(L)=0.000231 *4*; α(M)=4.42×10^{-5} *7* α(N)=7.89×10^{-6} *11*; α(O)=4.67×10^{-7} *7* I_γ: weighted average of 20 *2* from ^{109}In ε decay and 19.4 *21* from ^{109}Ag(p,nγ).
		998.5[b‡] *3*	21.8[b‡] *13*	0.0	5/2$^+$	[M1]	1.33×10^{-3}	α(K)=0.001166 *17*; α(L)=0.0001368 *20*; α(M)=2.62×10^{-5} *4* α(N)=4.68×10^{-6} *7*; α(O)=2.78×10^{-7} *4*
1066.09	11/2$^+$	243.8 *5*	7.9 *8*	822.04	9/2$^+$	(M1)	0.0408	α(K)=0.0354 *6*; α(L)=0.00434 *7*; α(M)=0.000834 *13* α(N)=0.0001486 *23*; α(O)=8.60×10^{-6} *13* I_γ: weighted average of 8.3 *17* from ^{96}Zr(^{18}O,5nγ) and 7.8 *9* from ^{100}Mo(^{13}C,4nγ). Mult.: R(angular)=1.00 *10* from ^{96}Zr(^{18}O,5nγ).
		862.7 *1*	100 *4*	203.40	7/2$^+$	E2	1.60×10^{-3}	α(K)=0.001392 *20*; α(L)=0.0001698 *24*; α(M)=3.26×10^{-5} *5* α(N)=5.78×10^{-6} *8*; α(O)=3.24×10^{-7} *5* I_γ: from ^{100}Mo(^{13}C,4nγ). Mult.: A_2/A_0=+0.32 *6*, A_4/A_0=−0.02 *8* (1975Me22) in (α,3nγ); A_2/A_0=+0.27 *6*, A_4/A_0=−0.018 (1994Ju05) in (p,nγ); R(angular)=1.33 *8*, DCO(Q)=0.93 *14* in ^{96}Zr(^{18}O,5nγ).
1105.83	9/2$^+$	482.3 *2*	29 *2*	623.88	7/2$^+$	(M1+E2)	0.00727	α(K)=0.00634 *9*; α(L)=0.000759 *11*; α(M)=0.0001455 *21* α(N)=2.60×10^{-5} *4*; α(O)=1.524×10^{-6} *22* Mult.: from A_2/A_0=−0.31 *5*, A_4/A_0=+0.11 *6* (1994Ju05) in (p,nγ).

$^{109}_{48}Cd_{61}$-9

Adopted Levels, Gammas (continued)

γ(^{109}Cd) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[#]	α[&]	Comments
1105.83	9/2$^+$	679.5 *5*	15.5 *14*	426.42	5/2$^+$	[E2]	0.00288	α(K)=0.00250 *4*; α(L)=0.000313 *5*; α(M)=6.01×10^{-5} *9* α(N)=1.064×10^{-5} *15*; α(O)=5.77×10^{-7} *9*
		901.8 *2*	43 *5*	203.40	7/2$^+$	(M1+E2)	1.68×10^{-3}	α(K)=0.001464 *21*; α(L)=0.0001722 *25*; α(M)=3.30×10^{-5} *5* α(N)=5.89×10^{-6} *9*; α(O)=3.49×10^{-7} *5* Mult.: A_2/A_0=+0.33 *12*, A_4/A_0=+0.1 *2* (1994Ju05) in (p,nγ).
		1105.9 *1*	100 *10*	0.0	5/2$^+$	(E2)	9.15×10^{-4}	α(K)=0.000797 *12*; α(L)=9.52×10^{-5} *14*; α(M)=1.82×10^{-5} *3* α(N)=3.24×10^{-6} *5*; α(O)=1.86×10^{-7} *3*; α(IPF)=6.25×10^{-7} *9* Mult.: A_2/A_0=+0.22 *4*, A_4/A_0=−0.03 *5* (1994Ju05) in (p,nγ).
1121.21	(1/2$^+$,3/2,5/2$^+$)	694.8 *1*	100 *6*	426.42	5/2$^+$			
		773.7 *1*	39 *4*	347.51	5/2$^+$			
		1061.5 *2*	73 *8*	59.60	1/2$^+$			
1132.91	7/2$^+$	929.5[@] *2*	100	203.40	7/2$^+$			E_γ: from ^{109}In ε decay. Other: 931.5 *5* from (p,nγ).
1173.48	3/2$^+$,5/2$^+$	549.4 *2*	79 *4*	623.88	7/2$^+$			
		746.9 *4*	33 *4*	426.42	5/2$^+$			
		826.2 *2*	100 *8*	347.51	5/2$^+$			
1219.01		497.2 *2*	100 *9*	721.67	5/2$^+$			
		871.8 *3*	64 *9*	347.51	5/2$^+$			
1318.10	3/2$^+$,5/2$^+$	596.4 *1*	100 *6*	721.67	5/2$^+$			
		971.2 *5*	4.5 *15*	347.51	5/2$^+$			
1352.15	(7/2)$^+$	461.4[‡] *4*	2.2[‡] *3*	891.25	3/2$^+$,5/2$^+$			
		529.9[‡] *2*	11.9[‡] *8*	822.04	9/2$^+$			I_γ: Other: 41 *4* from (p,nγ).
		630.3[‡] *3*	1.6[‡] *2*	721.67	5/2$^+$			
		678.6[‡] *2*	17.8[‡] *11*	673.41	3/2$^+$			I_γ: Other: 26 *4* from (p,nγ).
		728.1[‡] *3*	5.7[‡] *3*	623.88	7/2$^+$			I_γ: Other: 26 *4* from (p,nγ).
		925.6[‡] *3*	15.2[‡] *11*	426.42	5/2$^+$			I_γ: Other: 15 *4* from (p,nγ).
		1004.8[‡] *3*	4.8[‡] *3*	347.51	5/2$^+$			I_γ: Other: 5.6 *19* from (p,nγ).
		1148.5[‡] *2*	100[‡] *3*	203.40	7/2$^+$			I_γ: Other: 100 *8* from (p,nγ).
		1352.3[‡] *1*	15.2[‡] *6*	0.0	5/2$^+$			I_γ: Other: 63 *8* from (p,nγ).
1388.56	(7/2$^+$,9/2$^+$)	764.5 *4*	40 *5*	623.88	7/2$^+$			
		962.2 *2*	55 *5*	426.42	5/2$^+$			
		1185.0 *3*	40 *5*	203.40	7/2$^+$			
		1388.6 *2*	100 *5*	0.0	5/2$^+$			
1417.96	1/2$^+$	526.6 *5*	4.1 *22*	891.25	3/2$^+$,5/2$^+$			
		991.4 *4*	19 *4*	426.42	5/2$^+$			
		1214.6 *2*	100 *8*	203.40	7/2$^+$	[M3]	0.00385	α(K)=0.00334 *5*; α(L)=0.000419 *6*; α(M)=8.08×10^{-5} *12*

$^{109}_{48}Cd_{61}$-10

Adopted Levels, Gammas (continued)

γ(^{109}Cd) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[#]	δ[a]	α[&]	Comments
									α(N)=1.442×10^{-5} *21*; α(O)=8.33×10^{-7} *12*; α(IPF)=3.80×10^{-7} *6*
1425.2	(13/2$^-$)	962.2 *3*	100	463.10	11/2$^-$	M1(+E2)	−0.08 *21*	1.45×10^{-3} *3*	α(K)=0.001265 *22*; α(L)=0.0001486 *25*; α(M)=2.84×10^{-5} *5* α(N)=5.08×10^{-6} *9*; α(O)=3.02×10^{-7} *6* Mult.,δ: from γγ(DCO) in ^{96}Zr(^{18}O,5nγ), DCO(Q)=0.52 *19*.
1430.1	(7/2,9/2$^+$)	1430.1 *4*	100	0.0	5/2$^+$				E_γ: from ^{109}In ε decay.
1458.75		834.9 *2*	100 *3*	623.88	7/2$^+$				
		1255.3 *2*	15.9 *15*	203.40	7/2$^+$				
1475.69	(7/2,9/2)$^+$	584.3[‡] *2*	13.6[‡] *23*	891.25	3/2$^+$,5/2$^+$				
		653.4[‡] *2*	100[‡] *9*	822.04	9/2$^+$				
		753.8[‡] *4*	23.2[‡] *14*	721.67	5/2$^+$				
		851.8[‡] *3*	8.6[‡] *5*	623.88	7/2$^+$				
		1049.4[‡] *2*	71.8[‡] *23*	426.42	5/2$^+$				
		1128.4[‡] *3*	7[‡] *3*	347.51	5/2$^+$				
		1272.6[‡] *2*	35.0[‡] *14*	203.40	7/2$^+$				
		1475.6[‡] *2*	30[‡] *2*	0.0	5/2$^+$				
1479.77		758.6 *6*	37 *7*	721.67	5/2$^+$				
		1276.3 *2*	100 *9*	203.40	7/2$^+$				
1539.37	(7/2$^+$,9/2$^+$)	542[‡] *2*	63[‡] *6*	997.50	7/2$^+$				
		1113.0 *3*	60 *30*	426.42	5/2$^+$				
		1336.1 *4*	54 *8*	203.40	7/2$^+$				
		1539.3 *2*	100 *8*	0.0	5/2$^+$				
1563.1	11/2$^{(+)}$	457.5 *5*	27 *13*	1105.83	9/2$^+$				
		740.3 *5*	67 *7*	822.04	9/2$^+$	D+Q			Mult.: A_2/A_0=−0.74 *8*, A_4/A_0=+0.06 *12* from (p,nγ).
		939.6 *5*	100 *13*	623.88	7/2$^+$	Q			Mult.: A_2/A_0=+0.23 *8*, A_4/A_0=−0.15 *11* from (p,nγ).
1580.71		907.2 *2*	100 *11*	673.41	3/2$^+$				
		1233.4 *3*	42 *5*	347.51	5/2$^+$				
1593.3		1245.8 *3*	100	347.51	5/2$^+$				
1622.46	(7/2)$^+$	731.0[‡] *4*	16.4[‡] *14*	891.25	3/2$^+$,5/2$^+$				
		800.3[‡] *3*	14.3[‡] *11*	822.04	9/2$^+$				
		901.7[b‡] *2*	17.9[b‡] *11*	721.67	5/2$^+$				
		948.9[‡] *2*	70[‡] *3*	673.41	3/2$^+$				
		998.5[b‡] *3*	31[b‡] *2*	623.88	7/2$^+$				
		1195.7[‡] *2*	79[‡] *3*	426.42	5/2$^+$				
		1419.0[‡] *1*	60[‡] *2*	203.40	7/2$^+$				

$^{109}_{48}Cd_{61}$-11

Adopted Levels, Gammas (continued)

γ(^{109}Cd) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[#]	α[&]	Comments
1622.46	(7/2)$^+$	1622.3[‡] *3*	100[‡] *4*	0.0	5/2$^+$			
1633.55		960.1 *6*	50 *13*	673.41	3/2$^+$			
		1207.1 *3*	100 *13*	426.42	5/2$^+$			
		1430.2 *4*	88 *13*	203.40	7/2$^+$			
1729.99		1382.4 *4*	58 *8*	347.51	5/2$^+$			
		1526.6 *2*	100 *8*	203.40	7/2$^+$			
1772.79	(7/2,9/2)$^+$	1346.4[‡] *1*	100[‡] *6*	426.42	5/2$^+$			
		1569.9[‡] *4*	19[‡] *3*	203.40	7/2$^+$			
		1772.5[‡] *2*	72[‡] *4*	0.0	5/2$^+$			
1787.36		1066.2 *2*	57 *5*	721.67	5/2$^+$			
		1360.8 *1*	100 *5*	426.42	5/2$^+$			
1813.42		1465.9 *1*	100	347.51	5/2$^+$			
1821.50	19/2$^-$	836.0 *1*	100	985.51	15/2$^-$	E2	1.72×10^{-3}	α(K)=0.001499 *21*; α(L)=0.000183 *3*; α(M)=3.52×10^{-5} *5* α(N)=6.24×10^{-6} *9*; α(O)=3.48×10^{-7} *5* B(E2)(W.u.)=76 *18* E_γ: from ^{96}Zr(^{18}O,5nγ) (1994Ju05). Mult.: A_2/A_0=+0.284 *8*, A_4/A_0=−0.079 *8* in ^{96}Zr(^{16}O,3nγ); A_2/A_0=+0.284 *8*, A_4/A_0=−0.079 *8* in ^{96}Zr(^{18}O,5nγ); A_2/A_0=+0.274 *5*, A_4/A_0=−0.093 *8* in (α,3nγ). $T_{1/2}$ rules out M2.
1854.0	(13/2$^+$)	788.0 *5*	49 *5*	1066.09	11/2$^+$	(M1)	0.00228	α(K)=0.00199 *3*; α(L)=0.000235 *4*; α(M)=4.49×10^{-5} *7* α(N)=8.03×10^{-6} *12*; α(O)=4.75×10^{-7} *7* Mult.: R(angular)=0.38 *11* in ^{96}Zr(^{18}O,5nγ).
		1031.8 *5*	100 *9*	822.04	9/2$^+$	(E2)	1.06×10^{-3}	α(K)=0.000927 *13*; α(L)=0.0001113 *16*; α(M)=2.13×10^{-5} *3* α(N)=3.79×10^{-6} *6*; α(O)=2.16×10^{-7} *3* Mult.: R(angular)=1.15 *13* in ^{96}Zr(^{18}O,5nγ).
1861.42	(7/2$^+$,9/2$^+$)	1861.4 *1*	100	0.0	5/2$^+$			E_γ: from ^{109}In ε decay (1988Vi03).
1869.23		1442.8 *4*	30 *4*	426.42	5/2$^+$			
		1521.7 *2*	100 *4*	347.51	5/2$^+$			
1937.5		1511.0 *3*	100 *11*	426.42	5/2$^+$			
		1734.2 *5*	57 *6*	203.40	7/2$^+$			
1944.03		1270.6 *2*	100 *10*	673.41	3/2$^+$			
		1740.7 *5*	52 *6*	203.40	7/2$^+$			
1956.0		1752.6 *6*	100	203.40	7/2$^+$			
1989.0		1785.6 *3*	100	203.40	7/2$^+$			
2033.78		1410.2 *6*	15 *5*	623.88	7/2$^+$			
		1607.3 *2*	100 *6*	426.42	5/2$^+$			
		2033.8 *3*	76 *6*	0.0	5/2$^+$			
2046.4		1698.9 *3*	100	347.51	5/2$^+$			
2064.67		959.0[c] *5*	75 *10*	1105.83	9/2$^+$			
		999.0[c] *5*	40 *15*	1066.09	11/2$^+$			
		1717.0 *1*	100 *5*	347.51	5/2$^+$			

$^{109}_{48}Cd_{61}$-12

Adopted Levels, Gammas (continued)

γ(^{109}Cd) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[#]	α[&]	Comments
2064.67		1861.4 *1*	100 *5*	203.40	7/2$^+$			
2111.65		1685.3 *4*	30 *5*	426.42	5/2$^+$			
		1764.1 *2*	100 *5*	347.51	5/2$^+$			
2141.41	15/2$^+$	1075.3 *2*	100	1066.09	11/2$^+$	E2	9.71×10^{-4}	α(K)=0.000847 *12*; α(L)=0.0001014 *15*; α(M)=1.94×10^{-5} *3* α(N)=3.45×10^{-6} *5*; α(O)=1.98×10^{-7} *3* E_γ: weighted average of 1075.7 *5* from ^{100}Mo(^{13}C,4nγ) (1994Ju05), 1075.3 *3* from ^{96}Zr(^{18}O,5nγ) (1994Re06) and 1075.1 *4* from (α,3nγ). Mult.: R(angular)=1.40 *7*, DCO(Q)=1.06 *22* in ^{96}Zr(^{18}O,5nγ), A_2/A_0=+0.20 *8*, A_4/A_0=−0.04 *12* in (p,nγ), A_2/A_0=+0.23 *9*, A_4/A_0=+0.30 *16* in (α,3nγ).
2165.94	(17/2$^-$)	740.8 *3*	10 *1*	1425.2	(13/2$^-$)	(E2)	0.00232	α(K)=0.00201 *3*; α(L)=0.000249 *4*; α(M)=4.78×10^{-5} *7* α(N)=8.47×10^{-6} *12*; α(O)=4.65×10^{-7} *7* B(E2)(W.u.)=15 *9* E_γ: weighted average of 740.7 *3* from ^{96}Zr(^{18}O,5nγ) and 740.9 *4* from (α,3nγ). A 740.3γ deexcites the 1563 level in (p,nγ). I_γ: from ^{96}Zr(^{18}O,5nγ). Others: 23 *2* from ^{100}Mo(^{13}C,4nγ), 25 *8* from (α,3nγ). Mult.: DCO(Q)=0.86 *19* in ^{96}Zr(^{18}O,5nγ).
		1180.2 *3*	100 *2*	985.51	15/2$^-$	M1(+E2)	9.28×10^{-4}	α(K)=0.000808 *12*; α(L)=9.44×10^{-5} *14*; α(M)=1.80×10^{-5} *3* α(N)=3.23×10^{-6} *5*; α(O)=1.92×10^{-7} *3*; α(IPF)=4.13×10^{-6} *7* E_γ: weighted average of 1180.4 *2* from ^{96}Zr(^{18}O,5nγ), 1180.9 *5* from ^{100}Mo(^{13}C,4nγ and 1179.6 *3* from (α,3nγ). Not seen in (p,nγ). I_γ: from ^{96}Zr(^{18}O,5nγ). Mult.: R(angular)=2.0 *2*, DCO(Q)=0.71 *26* in ^{96}Zr(^{18}O,5nγ).
2166.48		1493.2 *3*	69 *8*	673.41	3/2$^+$			
		2166.4 *2*	100 *8*	0.0	5/2$^+$			
2198.92		1995.5 *3*	31 *3*	203.40	7/2$^+$			
		2198.9 *2*	100 *7*	0.0	5/2$^+$			
2234.22		2031.0 *3*	100 *6*	203.40	7/2$^+$			
		2234.0 *3*	56 *6*	0.0	5/2$^+$			
2271.3		1923.8 *5*	100	347.51	5/2$^+$			
2282.46		1855.7 *4*	86 *14*	426.42	5/2$^+$			
		2079.3 *5*	47 *13*	203.40	7/2$^+$			
		2282.6 *4*	100 *14*	0.0	5/2$^+$			
2325.8		2122.4 *5*	87 *15*	203.40	7/2$^+$			
		2325.7 *4*	100 *33*	0.0	5/2$^+$			
2372.3		1698.9 *3*	100	673.41	3/2$^+$			
2391.85		2044.0 *4*	100 *13*	347.51	5/2$^+$			
		2392.0 *3*	88 *25*	0.0	5/2$^+$			
2589.8	19/2$^-$	1604.5 *5*	100	985.51	15/2$^-$	E2	5.50×10^{-4}	α(K)=0.000374 *6*; α(L)=4.37×10^{-5} *7*; α(M)=8.35×10^{-6} *12* α(N)=1.490×10^{-6} *21*; α(O)=8.75×10^{-8} *13*; α(IPF)=0.0001219 *18*

$^{109}_{48}Cd_{61}$-13

Adopted Levels, Gammas (continued)

γ(^{109}Cd) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[#]	α[&]	Comments
								B(E2)(W.u.)=2.1 *11* Mult.: R(angular)=1.41 *11*, DCO(Q)=1.12 *18* in ^{96}Zr(^{18}O,5nγ), $T_{1/2}$ rules out M2.
2687.1	(17/2$^+$)	1701.8 *5*	100	985.51	15/2$^-$	(E1)	5.79×10^{-4}	α(K)=0.0001677 *24*; α(L)=1.92×10^{-5} *3*; α(M)=3.65×10^{-6} *6* α(N)=6.52×10^{-7} *10*; α(O)=3.88×10^{-8} *6*; α(IPF)=0.000387 *6* Mult.: R(angular)=0.79 *10*, for 1701.8γ+1702.8γ in ^{96}Zr(^{18}O,5nγ).
2700.5	(19/2$^-$)	878.9 *5*	100 *20*	1821.50	19/2$^-$	(E2)	1.53×10^{-3}	α(K)=0.001333 *19*; α(L)=0.0001623 *23*; α(M)=3.11×10^{-5} *5* α(N)=5.52×10^{-6} *8*; α(O)=3.10×10^{-7} *5* Mult.: R(angular)=1.32 *13* in ^{96}Zr(^{18}O,5nγ).
		1715.0 *5*	44 *5*	985.51	15/2$^-$	(E2)	5.45×10^{-4}	α(K)=0.000329 *5*; α(L)=3.83×10^{-5} *6*; α(M)=7.33×10^{-6} *11* α(N)=1.308×10^{-6} *19*; α(O)=7.70×10^{-8} *11*; α(IPF)=0.0001690 *24* Mult.: R(angular)=1.4 *2* in ^{96}Zr(^{18}O,5nγ).
2862.20	23/2$^-$	1040.7 *1*	100	1821.50	19/2$^-$	E2	1.04×10^{-3}	α(K)=0.000910 *13*; α(L)=0.0001091 *16*; α(M)=2.09×10^{-5} *3* α(N)=3.72×10^{-6} *6*; α(O)=2.12×10^{-7} *3* B(E2)(W.u.)>12 Mult.: A_2/A_0=+0.295 *15*,A_4/A_0=−0.096 *18*, pol=+0.44 *12* in ^{96}Zr(^{16}O,3nγ), A_2/A_0=+0.26 *4*, A_4/A_0=−0.09 *5* in (α,3nγ), R(angular)=1.36 *3*, DCO(Q)=0.96 *5* in ^{96}Zr(^{18}O,5nγ), $T_{1/2}$ rules out M2.
2866.70	(21/2$^+$)	1045.2 *1*	100	1821.50	19/2$^-$	(E1)	4.47×10^{-4}	α(K)=0.000391 *6*; α(L)=4.52×10^{-5} *7*; α(M)=8.62×10^{-6} *12* α(N)=1.537×10^{-6} *22*; α(O)=9.03×10^{-8} *13* B(E1)(W.u.)=2.1×10^{-7} *4* E_γ: from ^{100}Mo(^{13}C,4nγ). Mult.: R(angular)=0.80 *14* in ^{96}Zr(^{18}O,5nγ) and A_2/A_0=−0.06 *2*, A_4/A_0=−0.06 in (α,3nγ).
2942.0	19/2$^+$	776.0 *5*	28 *4*	2165.94	(17/2$^-$)	(E1)	8.04×10^{-4}	α(K)=0.000703 *10*; α(L)=8.18×10^{-5} *12*; α(M)=1.561×10^{-5} *22* α(N)=2.78×10^{-6} *4*; α(O)=1.617×10^{-7} *23* B(E1)(W.u.)>3.4×10^{-5} Mult.: R(angular)=0.83 *8*, DCO(Q)=0.47 *11* in ^{96}Zr(^{18}O,5nγ).
		800.5 *5*	21 *4*	2141.41	15/2$^+$	E2	0.00191	α(K)=0.001663 *24*; α(L)=0.000204 *3*; α(M)=3.92×10^{-5} *6* α(N)=6.95×10^{-6} *10*; α(O)=3.86×10^{-7} *6* B(E2)(W.u.)>2.2 Mult.: R(angular)=1.5 *2*, DCO(Q)=0.90 *18* in ^{96}Zr(^{18}O,5nγ), $T_{1/2}$ rules out M2.
		1120.8 *5*	100 *2*	1821.50	19/2$^-$	(E1)	4.00×10^{-4}	α(K)=0.000344 *5*; α(L)=3.96×10^{-5} *6*; α(M)=7.56×10^{-6} *11* α(N)=1.348×10^{-6} *19*; α(O)=7.93×10^{-8} *12*; α(IPF)=7.24×10^{-6} *14* B(E1)(W.u.)>4.0×10^{-5} R(angular)=1.37 *9*, DCO(Q)=0.78 *12* in ^{96}Zr(^{18}O,5nγ).
2974.0	(21/2$^-$)	273.4 *5*	10.7 *14*	2700.5	(19/2$^-$)	(M1)	0.0303	α(K)=0.0263 *4*; α(L)=0.00321 *5*; α(M)=0.000616 *10* α(N)=0.0001099 *17*; α(O)=6.38×10^{-6} *10* Mult.: R(angular)=0.63 *13* in ^{96}Zr(^{18}O,5nγ).
		807.8 *5*	32.1 *18*	2165.94	(17/2$^-$)	(E2)	0.00187	α(K)=0.001627 *23*; α(L)=0.000200 *3*; α(M)=3.83×10^{-5} *6*

$^{109}_{48}Cd_{61}$-14

Adopted Levels, Gammas (continued)

γ(^{109}Cd) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[#]	α[&]	Comments
								α(N)=6.80×10^{-6} *10*; α(O)=3.78×10^{-7} *6* B(E2)(W.u.)>1.6 Mult.: R(angular)=1.30 *7* in ^{96}Zr(^{18}O,5nγ).
2974.0	(21/2$^-$)	1152.4 *5*	100 *4*	1821.50	19/2$^-$			Mult.: R(angular)=1.8 *3* in ^{96}Zr(^{18}O,5nγ).
3042.6	(21/2$^-$)	876.7 *5*	67 *7*	2165.94	(17/2$^-$)	(E2)	1.54×10^{-3}	α(K)=0.001341 *19*; α(L)=0.0001633 *23*; α(M)=3.13×10^{-5} *5* α(N)=5.56×10^{-6} *8*; α(O)=3.12×10^{-7} *5* B(E2)(W.u.)>4.0 Mult.: R(angular)=1.29 *14* in ^{96}Zr(^{18}O,5nγ).
		1221.2 *5*	100 *7*	1821.50	19/2$^-$	(M1)	8.66×10^{-4}	α(K)=0.000750 *11*; α(L)=8.76×10^{-5} *13*; α(M)=1.675×10^{-5} *24* α(N)=2.99×10^{-6} *5*; α(O)=1.78×10^{-7} *3*; α(IPF)=8.58×10^{-6} *14* Mult.: R(angular)=1.33 *11* in ^{96}Zr(^{18}O,5nγ).
3058.78	(21/2$^+$)	371.8 *5*	1.3 *3*	2687.1	(17/2$^+$)	(E2)	0.01626	α(K)=0.01389 *21*; α(L)=0.00193 *3*; α(M)=0.000373 *6* α(N)=6.51×10^{-5} *10*; α(O)=3.09×10^{-6} *5* B(E2)(W.u.)=4.E+1 *3* Mult.: R(angular)=1.13 *10* in ^{96}Zr(^{18}O,5nγ).
		1237.2 *1*	100 *1*	1821.50	19/2$^-$	(E1)	3.84×10^{-4}	α(K)=0.000288 *4*; α(L)=3.31×10^{-5} *5*; α(M)=6.31×10^{-6} *9* α(N)=1.126×10^{-6} *16*; α(O)=6.64×10^{-8} *10*; α(IPF)=5.61×10^{-5} *8* B(E1)(W.u.)=0.00019 *12* Mult.: A_2/A_0=−0.257 *15*, A_4/A_0=−0.005 *17*, pol= +0.4 *3* in ^{96}Zr(^{16}O,3nγ), A_2/A_0=−0.29 *2*, A_4/A_0=+0.05 *3* in (α,3nγ), R(angular)=0.81 *3*, DCO(Q)=0.53 *3* in ^{96}Zr(^{18}O,5nγ).
3256.5		1435 *1*	100	1821.50	19/2$^-$			
3282.4	(21/2$^+$)	415.6 *5*	100	2866.70	(21/2$^+$)		0.01152	α(K)=0.00987 *15*; α(L)=0.001338 *20*; α(M)=0.000258 *4* α(N)=4.53×10^{-5} *7*; α(O)=2.21×10^{-6} *4* Mult.: R(angular)=1.51 *14* in ^{96}Zr(^{18}O,5nγ).
3343.2	(25/2$^-$)	481.0 *5*	100	2862.20	23/2$^-$	(M1+E2)	0.00732	α(K)=0.00638 *9*; α(L)=0.000764 *11*; α(M)=0.0001465 *21* α(N)=2.62×10^{-5} *4*; α(O)=1.534×10^{-6} *22* E_γ: from ^{96}Zr(^{16}O,3nγ). Mult.: A_2/A_0=−0.25 *4*, A_4/A_0=+0.12 *5*, pol=−0.5 *4* in ^{96}Zr(^{16}O,3nγ).
3354.0	(21/2$^-$)	491.8 *5*	100 *25*	2862.20	23/2$^-$	(M1)	0.00693	α(K)=0.00604 *9*; α(L)=0.000723 *11*; α(M)=0.0001387 *20* α(N)=2.48×10^{-5} *4*; α(O)=1.453×10^{-6} *21* Mult.: R(angular)=0.76 *5* in ^{96}Zr(^{18}O,5nγ).
		1188.0 *5*	75 *25*	2165.94	(17/2$^-$)			
		1532.5 *5*	75 *25*	1821.50	19/2$^-$			
3369.9	23/2$^-$	780.2 *5*	74 *3*	2589.8	19/2$^-$	E2	0.00204	α(K)=0.001770 *25*; α(L)=0.000218 *3*; α(M)=4.18×10^{-5} *6* α(N)=7.42×10^{-6} *11*; α(O)=4.10×10^{-7} *6* B(E2)(W.u.)>7.7 Mult.: R(angular)=1.47 *7*, DCO(Q)=0.98 *15* in ^{96}Zr(^{18}O,5nγ), $T_{1/2}$ rules out M2.
		1548.5 *5*	100 *7*	1821.50	19/2$^-$	E2	5.58×10^{-4}	α(K)=0.000401 *6*; α(L)=4.69×10^{-5} *7*; α(M)=8.96×10^{-6} *13* α(N)=1.598×10^{-6} *23*; α(O)=9.37×10^{-8} *14*; α(IPF)=9.97×10^{-5} *14*

$^{109}_{48}Cd_{61}$-15

Adopted Levels, Gammas (continued)

γ(^{109}Cd) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[#]	δ[a]	α[&]	Comments
									B(E2)(W.u.)>0.34 Mult.: R(angular)=1.50 *10*, DCO(Q)=1.05 *3* in ^{96}Zr(^{18}O,5nγ), $T_{1/2}$ rules out M2.
3382.9	23/2$^+$	323.8 *5*	92.4 *15*	3058.78	(21/2$^+$)	M1+E2	0.31 *5*	0.0201 *4*	α(K)=0.0174 *3*; α(L)=0.00216 *5*; α(M)=0.000415 *9* α(N)=7.37×10^{-5} *14*; α(O)=4.18×10^{-6} *7* B(M1)(W.u.)=0.0221 *19*; B(E2)(W.u.)=17 *6* Mult.,δ: R(angular)=1.19 *3*, DCO(Q)=0.89 *5* in ^{96}Zr(^{18}O,5nγ), A_2/A_0=+0.13 *3*, A_4/A_0=−0.08 *4* from (α,3nγ).
		340.3 *5*	9 *3*	3042.6	(21/2$^-$)	[E1]		0.00555	α(K)=0.00484 *7*; α(L)=0.000575 *9*; α(M)=0.0001098 *16* α(N)=1.95×10^{-5} *3*; α(O)=1.086×10^{-6} *16* B(E1)(W.u.)=2.7×10^{-5} *10*
		441.0 *5*	100 *2*	2942.0	19/2$^+$	E2		0.00963	α(K)=0.00827 *12*; α(L)=0.001108 *16*; α(M)=0.000214 *3* α(N)=3.75×10^{-5} *6*; α(O)=1.86×10^{-6} *3* B(E2)(W.u.)=44 *4* Mult.: R(angular)=1.32 16, DCO(Q)=1.05 *9* in ^{96}Zr(^{18}O,5nγ), $T_{1/2}$ rules out M2.
3411.1	(23/2$^-$)	436.7 *5*	100 *10*	2974.0	(21/2$^-$)	(M1)		0.00927	α(K)=0.00808 *12*; α(L)=0.000970 *14*; α(M)=0.000186 *3* α(N)=3.32×10^{-5} *5*; α(O)=1.95×10^{-6} *3* Mult.: R(angular)=0.42 *5* in ^{96}Zr(^{18}O,5nγ).
		710.5 *5*	80 *10*	2700.5	(19/2$^-$)	(E2)		0.00257	α(K)=0.00223 *4*; α(L)=0.000278 *4*; α(M)=5.34×10^{-5} *8* α(N)=9.45×10^{-6} *14*; α(O)=5.16×10^{-7} *8* Mult.: R(angular)=1.20 *15* in ^{96}Zr(^{18}O,5nγ).
		1591.0 *5*	60 *10*	1821.50	19/2$^-$				
3524.3	(21/2$^+$)	1702.8 *5*	100	1821.50	19/2$^-$				Mult.: R(angular)=0.79 *10*, for 1701.8γ+1702.8γ in ^{96}Zr(^{18}O,5nγ).
3524.41	(25/2$^+$)	141.4 *5*	1.08 *21*	3382.9	23/2$^+$	(M1)		0.176 *3*	α(K)=0.153 *3*; α(L)=0.0190 *4*; α(M)=0.00366 *7* α(N)=0.000651 *12*; α(O)=3.73×10^{-5} *7* B(M1)(W.u.)=0.0046 *11* Mult.: R(angular)=0.99 *14* in ^{96}Zr(^{18}O,5nγ).
		465.6 *1*	100 *2*	3058.78	(21/2$^+$)	E2		0.00819	α(K)=0.00705 *10*; α(L)=0.000935 *13*; α(M)=0.000180 *3* α(N)=3.16×10^{-5} *5*; α(O)=1.593×10^{-6} *23* B(E2)(W.u.)=46 *5* Mult.: A_2/A_0=+0.303 *16*, A_4/A_0=−0.109 *19*, pol=+0.25 *9* in ^{96}Zr(^{16}O,3nγ), A_2/A_0=+0.29 *2*, A_4/A_0=−0.13 *2* in (α,3nγ), R(angular)=1.33 *5*, DCO(Q)=1.04 *3* in ^{96}Zr(^{18}O,5nγ), $T_{1/2}$ rules out M2.
		662.8 *5*	47.7 *15*	2862.20	23/2$^-$	(E1+M2)	0.01 *6*	0.00112 *5*	α(K)=0.00098 *4*; α(L)=0.000115 *5*; α(M)=2.19×10^{-5} *10* α(N)=3.90×10^{-6} *17*; α(O)=2.25×10^{-7} *10*
3549.0	(23/2$^-$)	195.0 *5*	26 *3*	3354.0	(21/2$^-$)	M1(+E2)	−0.05 *5*	0.0738 *13*	α(K)=0.0641 *11*; α(L)=0.00792 *16*; α(M)=0.00152 *3* α(N)=0.000271 *6*; α(O)=1.56×10^{-5} *3* Mult.,δ: R(angular)=0.84 *7*, DCO(Q)=0.50 *9* in ^{96}Zr(^{18}O,5nγ).
		686.9 *5*	100 *6*	2862.20	23/2$^-$	E2		0.00280	α(K)=0.00243 *4*; α(L)=0.000304 *5*; α(M)=5.84×10^{-5} *9*

$^{109}_{48}Cd_{61}$-16

Adopted Levels, Gammas (continued)

γ(^{109}Cd) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[#]	δ[a]	α[&]	Comments
									α(N)=1.034×10^{-5} *15*; α(O)=5.61×10^{-7} *8* B(E2)(W.u.)>44 Mult.: R(angular)=1.54 *8*, DCO(Q)=1.28 *14* in ^{96}Zr(^{18}O,5nγ).
3570.1	(23/2$^+$)	287.5 *5*	14 *3*	3282.4	(21/2$^+$)	(M1)		0.0266	α(K)=0.0231 *4*; α(L)=0.00281 *5*; α(M)=0.000540 *8* α(N)=9.64×10^{-5} *15*; α(O)=5.60×10^{-6} *9* Mult.: R(angular)=0.76 *14* in ^{96}Zr(^{18}O,5nγ).
		703.4 *5*	100 *6*	2866.70	(21/2$^+$)	(M1)		0.00296	α(K)=0.00258 *4*; α(L)=0.000306 *5*; α(M)=5.86×10^{-5} *9* α(N)=1.047×10^{-5} *15*; α(O)=6.19×10^{-7} *9* Mult.: R(angular)=1.0 *2* in ^{96}Zr(^{18}O,5nγ).
3615.6	(23/2$^-$)	1793.8 *5*	100	1821.50	19/2$^-$	(E2)		5.50×10^{-4}	α(K)=0.000303 *5*; α(L)=3.52×10^{-5} *5*; α(M)=6.72×10^{-6} *10* α(N)=1.199×10^{-6} *17*; α(O)=7.08×10^{-8} *10*; α(IPF)=0.000205 *3* Mult.: R(angular)=1.8 *4* in ^{96}Zr(^{18}O,5nγ).
3620.6	(23/2$^+$)	561.6 *5*	100 *14*	3058.78	(21/2$^+$)	(M1)		0.00503	α(K)=0.00439 *7*; α(L)=0.000524 *8*; α(M)=0.0001003 *15* α(N)=1.79×10^{-5} *3*; α(O)=1.054×10^{-6} *15* Mult.: R(angular)=0.98 *8* in ^{96}Zr(^{18}O,5nγ).
		678.7 *5*	36 *7*	2942.0	19/2$^+$				
		758.6 *5*	36 *14*	2862.20	23/2$^-$	(E1)		8.42×10^{-4}	α(K)=0.000737 *11*; α(L)=8.58×10^{-5} *12*; α(M)=1.637×10^{-5} *23* α(N)=2.92×10^{-6} *5*; α(O)=1.694×10^{-7} *24* Mult.: R(angular)=1.3 *2* in ^{96}Zr(^{18}O,5nγ).
3837.1	(25/2$^+$)	267 *1*		3570.1	(23/2$^+$)				
3897.6	(25/2$^-$)	487.0 *5*	<45	3411.1	(23/2$^-$)				
		923.4 *5*	100 *18*	2974.0	(21/2$^-$)	(E2)		1.37×10^{-3}	α(K)=0.001189 *17*; α(L)=0.0001441 *21*; α(M)=2.76×10^{-5} *4* α(N)=4.91×10^{-6} *7*; α(O)=2.77×10^{-7} *4* Mult.: R(angular)=1.6 *2* in ^{96}Zr(^{18}O,5nγ).
		1035.0 *5*	36 *18*	2862.20	23/2$^-$				
3910.3	(25/2$^+$)	386.0 *5*	33 *7*	3524.3	(21/2$^+$)	(E2)		0.01446	α(K)=0.01237 *18*; α(L)=0.001703 *25*; α(M)=0.000329 *5* α(N)=5.75×10^{-5} *9*; α(O)=2.76×10^{-6} *4* B(E2)(W.u.)>21 Mult.: R(angular)=1.1 *2* in ^{96}Zr(^{18}O,5nγ).
		527.3 *5*	100 *13*	3382.9	23/2$^+$	(M1)		0.00586	α(K)=0.00511 *8*; α(L)=0.000610 *9*; α(M)=0.0001169 *17* α(N)=2.09×10^{-5} *3*; α(O)=1.227×10^{-6} *18* Mult.: R(angular)=0.59 *2* in ^{96}Zr(^{18}O,5nγ).
		851.4 *5*	100 *20*	3058.78	(21/2$^+$)	(E2)		1.65×10^{-3}	α(K)=0.001436 *21*; α(L)=0.0001754 *25*; α(M)=3.36×10^{-5} *5* α(N)=5.97×10^{-6} *9*; α(O)=3.34×10^{-7} *5* B(E2)(W.u.)>1.2 Mult.: R(angular)=1.41 *10* in ^{96}Zr(^{18}O,5nγ).
		1048.4 *5*	27 *7*	2862.20	23/2$^-$				
3939.8	27/2$^+$	415.0 *5*	56 *2*	3524.41	(25/2$^+$)	M1+E2	0.29 *5*	0.01059 *16*	α(K)=0.00922 *14*; α(L)=0.001121 *18*; α(M)=0.000215 *4* α(N)=3.83×10^{-5} *6*; α(O)=2.21×10^{-6} *4*

$^{109}_{48}Cd_{61}$-17

Adopted Levels, Gammas (continued)

γ(^{109}Cd) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[#]	δ[a]	α[&]	Comments
									B(M1)(W.u.)=0.027 *4*; B(E2)(W.u.)=11 *4* Mult.: A_2/A_0=+0.04 *3*, A_4/A_0=−0.02 *5* from (α,3nγ), R(angular)=1.30 *6*, DCO(Q)=0.87 *5* in ^{96}Zr(^{18}O,5nγ).
3939.8	27/2$^+$	556.8 *1*	100 *3*	3382.9	23/2$^+$	E2		0.00491	α(K)=0.00424 *6*; α(L)=0.000546 *8*; α(M)=0.0001051 *15* α(N)=1.85×10^{-5} *3*; α(O)=9.70×10^{-7} *14* B(E2)(W.u.)=57 *7* Mult.: A_2/A_0=+0.35 *3*, A_4/A_0=−0.19 *4* from (α,3nγ), R(angular)=1.50 *7*, DCO(Q)=1.01 *6* in ^{96}Zr(^{18}O,5nγ), $T_{1/2}$ rules out M2.
4021.3	(27/2$^-$)	1159.0 *5*	100	2862.20	23/2$^-$	(E2)		8.30×10^{-4}	α(K)=0.000721 *11*; α(L)=8.58×10^{-5} *12*; α(M)=1.643×10^{-5} *23* α(N)=2.92×10^{-6} *5*; α(O)=1.684×10^{-7} *24*; α(IPF)=3.00×10^{-6} *6* Mult.: A_2/A_0=+0.26 *5*, A_4/A_0=−0.10 *6*, pol=+1.3 *9* from ^{96}Zr(^{16}O,3nγ), A_2/A_0=+0.18 *5*, A_4/A_0=−0.04 *7* from (α,3nγ), R(angular)=1.44 *5*, DCO(Q)= 0.96 *10* from ^{96}Zr(^{18}O,5nγ).
4030.6	(25/2$^-$)	414.8 *5*	10 *3*	3615.6	(23/2$^-$)	(M1)		0.01052	α(K)=0.00917 *14*; α(L)=0.001104 *16*; α(M)=0.000212 *3* α(N)=3.78×10^{-5} *6*; α(O)=2.21×10^{-6} *4* Mult.: R(angular)=0.90 *12* ^{96}Zr(^{18}O,5nγ).
		481.7 *5*	100 *5*	3549.0	(23/2$^-$)	M1(+E2)	0.04 *6*	0.00729	α(K)=0.00635 *9*; α(L)=0.000761 *11*; α(M)=0.0001460 *21* α(N)=2.61×10^{-5} *4*; α(O)=1.529×10^{-6} *22* Mult.,δ: M$R(angular)=0.80 *3*, DCO(Q)=0.63 *5* from ^{96}Zr(^{18}O,5nγ).
		1168.5 *5*	13 *3*	2862.20	23/2$^-$				
4088.6	(25/2$^-$)	1046.0 *5*	100	3042.6	(21/2$^-$)	(E2)		1.03×10^{-3}	α(K)=0.000900 *13*; α(L)=0.0001079 *16*; α(M)=2.07×10^{-5} *3* α(N)=3.67×10^{-6} *6*; α(O)=2.10×10^{-7} *3* Mult.: R(angular)=1.39 *9* in ^{96}Zr(^{18}O,5nγ).
4154.2		1292.0 *5*	100	2862.20	23/2$^-$				
4232.3	(27/2$^+$)	611.8 *5*	32 *7*	3620.6	(23/2$^+$)	(E2)		0.00380	α(K)=0.00329 *5*; α(L)=0.000417 *6*; α(M)=8.03×10^{-5} *12* α(N)=1.418×10^{-5} *21*; α(O)=7.55×10^{-7} *11* Mult.: R(angular)=1.4 *2* in ^{96}Zr(^{18}O,5nγ).
		708.0 *5*	100 *11*	3524.41	(25/2$^+$)	(M1)		0.00292	α(K)=0.00255 *4*; α(L)=0.000301 *5*; α(M)=5.77×10^{-5} *9* α(N)=1.031×10^{-5} *15*; α(O)=6.09×10^{-7} *9* Mult.: R(angular)=0.53 *6* in ^{96}Zr(^{18}O,5nγ).
		849.5 *5*	18 *7*	3382.9	23/2$^+$				
4246.2	(29/2$^+$)	721.8 *5*	100	3524.41	(25/2$^+$)	E2		0.00247	α(K)=0.00214 *3*; α(L)=0.000267 *4*; α(M)=5.12×10^{-5} *8* α(N)=9.07×10^{-6} *13*; α(O)=4.96×10^{-7} *7* B(E2)(W.u.)>24 Mult.: A_2/A_0=+0.255 *20*, A_4/A_0=−0.111 *26*, pol=+29 *15* from ^{96}Zr(^{16}O,3nγ), A_2/A_0 =+0.37 *3*, A_4/A_0=−0.16 *5* from (α,3nγ), R(angular)=1.37 *5*, DCO(Q)=1.06 *7* in ^{96}Zr(^{18}O,5nγ), $T_{1/2}$ limit rules out M2.

$^{109}_{48}Cd_{61}$-18

Adopted Levels, Gammas (continued)

γ(^{109}Cd) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[#]	δ[a]	α[&]	Comments
4293.2	(25/2$^+$)	723.0 *5*	40 *13*	3570.1	(23/2$^+$)				
		1426.6 *5*	100 *9*	2866.70	(21/2$^+$)	(E2)		5.96×10^{-4}	α(K)=0.000471 *7*; α(L)=5.53×10^{-5} *8*; α(M)=1.057×10^{-5} *15* α(N)=1.89×10^{-6} *3*; α(O)=1.101×10^{-7} *16*; α(IPF)=5.71×10^{-5} *9* Mult.: R(angular)=1.39 *14* in ^{96}Zr(^{18}O,5nγ).
4296.0	(27/2$^-$)	926.4 *5*	100	3369.9	23/2$^-$	(E2)		1.36×10^{-3}	α(K)=0.001180 *17*; α(L)=0.0001430 *21*; α(M)=2.74×10^{-5} *4* α(N)=4.87×10^{-6} *7*; α(O)=2.75×10^{-7} *4* Mult.: R(angular)=1.7 *2*, DCO(Q)=1.15 *16* in ^{96}Zr(^{18}O,5nγ).
4414.1	(27/2$^+$)	577 *1*	100	3837.1	(25/2$^+$)				
4431.9	(27/2$^+$)	811.3 *5*	100	3620.6	(23/2$^+$)	(E2)		0.00185	α(K)=0.001610 *23*; α(L)=0.000198 *3*; α(M)=3.79×10^{-5} *6* α(N)=6.73×10^{-6} *10*; α(O)=3.74×10^{-7} *6* Mult.: R(angular)=1.7 *2* in ^{96}Zr(^{18}O,5nγ).
4458.7	(27/2$^-$)	1048.1 *5*	100 *50*	3411.1	(23/2$^-$)	(E2)		1.03×10^{-3}	α(K)=0.000896 *13*; α(L)=0.0001074 *15*; α(M)=2.06×10^{-5} *3* α(N)=3.66×10^{-6} *6*; α(O)=2.09×10^{-7} *3* Mult.: R(angular)=1.7 *3* in ^{96}Zr(^{18}O,5nγ).
		1596.0 *5*	50 *25*	2862.20	23/2$^-$				
4591.2	(27/2$^-$)	1729.0 *5*	100	2862.20	23/2$^-$	(E2)		5.46×10^{-4}	α(K)=0.000324 *5*; α(L)=3.77×10^{-5} *6*; α(M)=7.21×10^{-6} *11* α(N)=1.287×10^{-6} *18*; α(O)=7.58×10^{-8} *11*; α(IPF)=0.0001753 *25* Mult.: R(angular)=1.5 *4* in ^{96}Zr(^{18}O,5nγ).
4630.6	(27/2$^-$)	542.1 *5*	11 *3*	4088.6	(25/2$^-$)	(M1)		0.00548	α(K)=0.00478 *7*; α(L)=0.000570 *8*; α(M)=0.0001093 *16* α(N)=1.95×10^{-5} *3*; α(O)=1.148×10^{-6} *17* B(M1)(W.u.)>0.0030 Mult.: R(angular)=0.76 *9* in ^{96}Zr(^{18}O,5nγ).
		600.0 *5*	100 *5*	4030.6	(25/2$^-$)	(M1)		0.00430	α(K)=0.00375 *6*; α(L)=0.000446 *7*; α(M)=8.55×10^{-5} *12* α(N)=1.528×10^{-5} *22*; α(O)=9.00×10^{-7} *13* B(M1)(W.u.)>0.020
		609.0 *5*	7.1 *8*	4021.3	(27/2$^-$)	(E2)		0.00385	α(K)=0.00333 *5*; α(L)=0.000423 *6*; α(M)=8.13×10^{-5} *12* α(N)=1.436×10^{-5} *21*; α(O)=7.64×10^{-7} *11* B(E2)(W.u.)>3.1 Mult.: R(angular)=1.30 *12* in ^{96}Zr(^{18}O,5nγ).
4697.7	(29/2$^+$)	787.4 *5*	100	3910.3	(25/2$^+$)	(E2)		0.00199	α(K)=0.001731 *25*; α(L)=0.000213 *3*; α(M)=4.09×10^{-5} *6* α(N)=7.25×10^{-6} *11*; α(O)=4.01×10^{-7} *6* Mult.: R(angular)=1.6 *2* in ^{96}Zr(^{18}O,5nγ).
4724.5	31/2$^+$	478.0 *5*	9.8 *18*	4246.2	(29/2$^+$)	M1(+E2)	0.19 *22*	0.00743	α(K)=0.00648 *10*; α(L)=0.000779 *15*; α(M)=0.000149 *3* α(N)=2.66×10^{-5} *5*; α(O)=1.555×10^{-6} *24* Mult.: R(angular)=1.7 *3*, DCO(Q)=0.77 *20* in ^{96}Zr(^{18}O,5nγ).
		785.1 *5*	100 *2*	3939.8	27/2$^+$	E2		0.00201	α(K)=0.001743 *25*; α(L)=0.000215 *3*; α(M)=4.12×10^{-5} *6*

$^{109}_{48}Cd_{61}$-19

Adopted Levels, Gammas (continued)

γ(^{109}Cd) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[#]	α[&]	Comments
								α(N)=7.30×10^{-6} *11*; α(O)=4.04×10^{-7} *6* B(E2)(W.u.)>18 Mult.: R(angular)=1.48 *6*, DCO(Q)=1.07 *6* in ^{96}Zr(^{18}O,5nγ), $T_{1/2}$ limit rules out M2.
4875.2	(27/2$^-$)	844.5 *5*	100	4030.6	(25/2$^-$)			
4950.9	(27/2$^+$)	658 *1*		4293.2	(25/2$^+$)			
		1381 *1*		3570.1	(23/2$^+$)			
5050.7	(31/2$^-$)	754.7 *5*	23.2 *12*	4296.0	(27/2$^-$)	E2	0.00221	α(K)=0.00192 *3*; α(L)=0.000237 *4*; α(M)=4.56×10^{-5} *7* α(N)=8.08×10^{-6} *12*; α(O)=4.45×10^{-7} *7* Mult.: R(angular)=1.40 *7*, DCO(Q)=1.16 *17* in ^{96}Zr(^{18}O,5nγ), $T_{1/2}$ rules out M2.
		804.3 *5*		4246.2	(29/2$^+$)			
		1029.6 *5*	100 *3*	4021.3	(27/2$^-$)	E2	1.07×10^{-3}	α(K)=0.000931 *13*; α(L)=0.0001118 *16*; α(M)=2.14×10^{-5} *3* α(N)=3.81×10^{-6} *6*; α(O)=2.17×10^{-7} *3* Mult.: R(angular)=1.54 *6*, DCO(Q)=1.04 *16* in ^{96}Zr(^{18}O,5nγ), $T_{1/2}$ rules out M2.
5063.7	(27/2$^-$)	768.0 *5*	100	4296.0	(27/2$^-$)			
5082.6	(31/2$^+$)	836.8 *5*	34 *14*	4246.2	(29/2$^+$)			
		850.8 *5*	100 *14*	4232.3	(27/2$^+$)	(E2)	1.65×10^{-3}	α(K)=0.001438 *21*; α(L)=0.0001757 *25*; α(M)=3.37×10^{-5} *5* α(N)=5.98×10^{-6} *9*; α(O)=3.34×10^{-7} *5* Mult.: R(angular)=1.26 *12* in ^{96}Zr(^{18}O,5nγ).
		1142.0 *5*	<10	3939.8	27/2$^+$			
5122.7	(29/2$^-$)	1225.1 *5*	100	3897.6	(25/2$^-$)	(E2)	7.46×10^{-4}	α(K)=0.000642 *9*; α(L)=7.61×10^{-5} *11*; α(M)=1.456×10^{-5} *21* α(N)=2.59×10^{-6} *4*; α(O)=1.499×10^{-7} *21*; α(IPF)=1.060×10^{-5} *17* Mult.: R(angular)=1.37 *14* in ^{96}Zr(^{18}O,5nγ).
5227.6		1612.0 *5*	100	3615.6	(23/2$^-$)			
5254.6	(29/2$^-$)	624 *1*		4630.6	(27/2$^-$)			
5261.1	(33/2$^+$)	1014.8 *5*	100	4246.2	(29/2$^+$)	(E2)	1.10×10^{-3}	α(K)=0.000962 *14*; α(L)=0.0001156 *17*; α(M)=2.21×10^{-5} *4* α(N)=3.94×10^{-6} *6*; α(O)=2.24×10^{-7} *4* Mult.: R(angular)=1.40 *13*, DCO(Q)=0.94 *8* in ^{96}Zr(^{18}O,5nγ).
5279.7	(29/2$^-$)	216.4 *5*	11 *3*	5063.7	(27/2$^-$)	(M1)	0.0558	α(K)=0.0485 *8*; α(L)=0.00596 *10*; α(M)=0.001145 *18* α(N)=0.000204 *4*; α(O)=1.179×10^{-5} *18* Mult.: R(angular)=0.84 *4* in ^{96}Zr(^{18}O,5nγ).
		404.4 *5*	11 *2*	4875.2	(27/2$^-$)	(M1)	0.01121	α(K)=0.00976 *14*; α(L)=0.001176 *17*; α(M)=0.000226 *4* α(N)=4.03×10^{-5} *6*; α(O)=2.35×10^{-6} *4* Mult.: R(angular)=0.85 *11* in ^{96}Zr(^{18}O,5nγ).
		649.0 *5*	100 *8*	4630.6	(27/2$^-$)	(M1)	0.00357	α(K)=0.00312 *5*; α(L)=0.000370 *6*; α(M)=7.09×10^{-5} *10* α(N)=1.267×10^{-5} *18*; α(O)=7.47×10^{-7} *11* Mult.: R(angular)=0.87 *5*, DCO(D)=1.09 *21* in ^{96}Zr(^{18}O,5nγ).
		1191.2 *5*	5.6 *14*	4088.6	(25/2$^-$)	(E2)	7.86×10^{-4}	α(K)=0.000681 *10*; α(L)=8.09×10^{-5} *12*; α(M)=1.547×10^{-5} *22* α(N)=2.76×10^{-6} *4*; α(O)=1.590×10^{-7} *23*; α(IPF)=6.06×10^{-6} *11* Mult.: R(angular)=1.4 *2* in ^{96}Zr(^{18}O,5nγ).

$^{109}_{48}Cd_{61}$-20

Adopted Levels, Gammas (continued)

γ(^{109}Cd) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[#]	δ[a]	α[&]	Comments
5279.7	(29/2$^-$)	1249.0 *5*	17 *3*	4030.6	(25/2$^-$)	(E2)		7.21×10^{-4}	α(K)=0.000617 *9*; α(L)=7.30×10^{-5} *11*; α(M)=1.397×10^{-5} *20* α(N)=2.49×10^{-6} *4*; α(O)=1.441×10^{-7} *21*; α(IPF)=1.440×10^{-5} *22* Mult.: R(angular)=1.6 *2* in ^{96}Zr(^{18}O,5nγ).
5287.6	(29/2$^-$)	1199 *1*		4088.6	(25/2$^-$)				
5399.3	(31/2$^-$)	1378.0 *5*	100	4021.3	(27/2$^-$)	(E2)		6.20×10^{-4}	α(K)=0.000505 *7*; α(L)=5.94×10^{-5} *9*; α(M)=1.136×10^{-5} *16* α(N)=2.02×10^{-6} *3*; α(O)=1.179×10^{-7} *17*; α(IPF)=4.28×10^{-5} *7* Mult.: R(angular)=0.77 *3*, DCO(Q)=0.80 *6* in ^{96}Zr(^{18}O,5nγ).
5441.3	(31/2$^-$)	153 *1*		5287.6	(29/2$^-$)				
		161.6 *5*	100	5279.7	(29/2$^-$)	M1+E2	0.22 *6*	0.129 *5*	α(K)=0.111 *4*; α(L)=0.0145 *8*; α(M)=0.00279 *16* α(N)=0.00049 *3*; α(O)=2.67×10^{-5} *7* Mult.: R(angular)=0.77 *3*, DCO(Q)=0.80 *6* in ^{96}Zr(^{18}O,5nγ).
5623.0		1327.0 *5*	100	4296.0	(27/2$^-$)				Mult.: R(angular)=1.0 *2* in ^{96}Zr(^{18}O,5nγ).
5650.5	(29/2$^+$)	700 *1*	100	4950.9	(27/2$^+$)				
5671.7	(33/2$^+$)	974.0 *5*	100	4697.7	(29/2$^+$)	(E2)		1.21×10^{-3}	α(K)=0.001054 *15*; α(L)=0.0001271 *18*; α(M)=2.44×10^{-5} *4* α(N)=4.33×10^{-6} *6*; α(O)=2.45×10^{-7} *4* Mult.: R(angular)=1.39 *9* in ^{96}Zr(^{18}O,5nγ).
5731.2	(33/2$^-$)	289.9 *5*	100	5441.3	(31/2$^-$)	(M1)		0.0260	α(K)=0.0226 *4*; α(L)=0.00275 *4*; α(M)=0.000529 *8* α(N)=9.43×10^{-5} *14*; α(O)=5.48×10^{-6} *8* Mult.: R(angular)=0.81 *3*, DCO(D)=0.97 *17* in ^{96}Zr(^{18}O,5nγ).
5775.1	(35/2$^+$)	1050.6 *5*	100	4724.5	31/2$^+$	(E2)		1.02×10^{-3}	α(K)=0.000891 *13*; α(L)=0.0001068 *15*; α(M)=2.05×10^{-5} *3* α(N)=3.64×10^{-6} *6*; α(O)=2.08×10^{-7} *3* Mult.: R(angular)=1.27 *10*, DCO(Q)=1.08 *13* in ^{96}Zr(^{18}O,5nγ).
5788.0	(31/2$^-$)	1196 *1*		4591.2	(27/2$^-$)				
5862.0	(31/2$^-$)	1271.0 *5*	100	4591.2	(27/2$^-$)				
5954.8		223.6 *5*	100	5731.2	(33/2$^-$)				
5971.4	(35/2$^-$)	920.7 *5*	100	5050.7	(31/2$^-$)	E2		1.38×10^{-3}	α(K)=0.001197 *17*; α(L)=0.0001451 *21*; α(M)=2.78×10^{-5} *4* α(N)=4.94×10^{-6} *7*; α(O)=2.79×10^{-7} *4* Mult.: R(angular)=1.43 *8*, DCO(Q)=0.98 *16* in ^{96}Zr(^{18}O,5nγ), $T_{1/2}$ rules out M2.
5995.8	(31/2$^+$)	1271 *1*		4724.5	31/2$^+$				
		2056 *1*		3939.8	27/2$^+$				
6004.2	(31/2$^+$)	191 *1*		5813.2	(29/2$^+$)				
		354 *1*		5650.5	(29/2$^+$)				
		1280 *1*		4724.5	31/2$^+$				
		1590 *1*		4414.1	(27/2$^+$)				
		2064 *1*		3939.8	27/2$^+$				
6154.6	(35/2$^+$)	1072.0 *5*	100	5082.6	(31/2$^+$)	(E2)		9.78×10^{-4}	α(K)=0.000853 *12*; α(L)=0.0001021 *15*; α(M)=1.95×10^{-5} *3* α(N)=3.48×10^{-6} *5*; α(O)=1.99×10^{-7} *3* Mult.: R(angular)=1.5 *2* in ^{96}Zr(^{18}O,5nγ).
6164.5	(35/2$^-$)	433.3 *5*	100	5731.2	(33/2$^-$)	(M1)		0.00945	α(K)=0.00823 *12*; α(L)=0.000990 *15*; α(M)=0.000190 *3* α(N)=3.39×10^{-5} *5*; α(O)=1.98×10^{-6} *3* Mult.: R(angular)=0.81 *5*, DCO(Q)= 0.59 *8* in ^{96}Zr(^{18}O,5nγ).

$^{109}_{48}Cd_{61}$-21

Adopted Levels, Gammas (continued)

γ(^{109}Cd) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[#]	α[&]	Comments
6240.8	(35/2$^-$)	379.0 *5*		5862.0	(31/2$^-$)	(E2)	0.01531	α(K)=0.01309 *19*; α(L)=0.00181 *3*; α(M)=0.000349 *6* α(N)=6.11×10^{-5} *9*; α(O)=2.91×10^{-6} *5* Mult.: R(angular)=0.84 *5* in ^{96}Zr(^{18}O,5nγ).
		452 *1*		5788.0	(31/2$^-$)			
6305.2	(33/2$^+$)	301.1 *5*	100	6004.2	(31/2$^+$)	(M1)	0.0236	α(K)=0.0205 *3*; α(L)=0.00250 *4*; α(M)=0.000479 *7* α(N)=8.55×10^{-5} *13*; α(O)=4.97×10^{-6} *8* Mult.: R(angular)=0.78 *5* in ^{96}Zr(^{18}O,5nγ).
		309 *1*		5995.8	(31/2$^+$)			
6518.4	(37/2$^+$)	1257.3 *5*	100	5261.1	(33/2$^+$)	(E2)	7.12×10^{-4}	α(K)=0.000608 *9*; α(L)=7.20×10^{-5} *10*; α(M)=1.377×10^{-5} *20* α(N)=2.45×10^{-6} *4*; α(O)=1.421×10^{-7} *20*; α(IPF)=1.581×10^{-5} *24* Mult.: R(angular)=1.41 *12*, DCO(Q)=0.99 *10* in ^{96}Zr(^{18}O,5nγ).
6572.7		1522.0 *5*	100	5050.7	(31/2$^-$)			
6670.8	(37/2$^-$)	430 *1*	100	6240.8	(35/2$^-$)			
6684.2	(35/2$^+$)	379 *1*	100	6305.2	(33/2$^+$)			
6796.0	(37/2$^-$)	631.5 *5*	100	6164.5	(35/2$^-$)	(M1)	0.00381	α(K)=0.00333 *5*; α(L)=0.000395 *6*; α(M)=7.57×10^{-5} *11* α(N)=1.352×10^{-5} *19*; α(O)=7.97×10^{-7} *12* Mult.: R(angular)=0.88 *6*, DCO(D)= 1.09 *21* in ^{96}Zr(^{18}O,5nγ).
6861.8	(37/2$^+$)	1190.0 *5*	100	5671.7	(33/2$^+$)			
7010.4	(39/2$^-$)	1039.0 *5*	100	5971.4	(35/2$^-$)	(E2)	1.05×10^{-3}	α(K)=0.000913 *13*; α(L)=0.0001095 *16*; α(M)=2.10×10^{-5} *3* α(N)=3.73×10^{-6} *6*; α(O)=2.13×10^{-7} *3* Mult.: R(angular)=1.36 *3* for 1039γ+1040.7γ, DCO(Q)= 0.87 *20* in ^{96}Zr(^{18}O,5nγ).
7077.2	(39/2$^+$)	1302.0 *5*	100	5775.1	(35/2$^+$)	(E2)	6.72×10^{-4}	α(K)=0.000566 *8*; α(L)=6.69×10^{-5} *10*; α(M)=1.279×10^{-5} *18* α(N)=2.28×10^{-6} *4*; α(O)=1.323×10^{-7} *19*; α(IPF)=2.42×10^{-5} *4* Mult.: R(angular)=1.40 *13*, DCO(Q)= 1.05 *17* in ^{96}Zr(^{18}O,5nγ).
7147.2	(37/2$^+$)	463.0 *5*	100	6684.2	(35/2$^+$)	(M1)	0.00803	α(K)=0.00700 *10*; α(L)=0.000839 *12*; α(M)=0.0001609 *23* α(N)=2.87×10^{-5} *4*; α(O)=1.684×10^{-6} *24* Mult.: R(angular)=1.1 *2* in ^{96}Zr(^{18}O,5nγ).
7384.6	(39/2$^+$)	1230.0 *5*	100	6154.6	(35/2$^+$)	(E2)		
7555.0	(39/2$^-$)	759.0 *5*	100	6796.0	(37/2$^-$)	(M1)	0.00248	α(K)=0.00217 *3*; α(L)=0.000256 *4*; α(M)=4.90×10^{-5} *7* α(N)=8.76×10^{-6} *13*; α(O)=5.18×10^{-7} *8* Mult.: R(angular)=0.9 *2* in ^{96}Zr(^{18}O,5nγ).
7562.0	(39/2$^-$)	766 *1*		6796.0	(37/2$^-$)			
7687.8	(39/2$^+$)	540.6 *5*	100	7147.2	(37/2$^+$)	(M1)	0.00552	α(K)=0.00481 *7*; α(L)=0.000574 *9*; α(M)=0.0001100 *16* α(N)=1.97×10^{-5} *3*; α(O)=1.156×10^{-6} *17* Mult.: R(angular)=0.97 *11* in ^{96}Zr(^{18}O,5nγ).
7908.8	(41/2$^+$)	1390.4 *5*	100	6518.4	(37/2$^+$)	(E2)	6.13×10^{-4}	α(K)=0.000496 *7*; α(L)=5.83×10^{-5} *9*; α(M)=1.115×10^{-5} *16* α(N)=1.99×10^{-6} *3*; α(O)=1.158×10^{-7} *17*; α(IPF)=4.63×10^{-5} *7* Mult.: R(angular)=1.29 *11*, DCO(Q)= 0.85 *20* in ^{96}Zr(^{18}O,5nγ).
7951.0	(41/2$^-$)	396 *1*	100	7555.0	(39/2$^-$)			
8202.0	(43/2$^-$)	1191.6 *5*	100	7010.4	(39/2$^-$)	(E2)	7.86×10^{-4}	α(K)=0.000680 *10*; α(L)=8.08×10^{-5} *12*; α(M)=1.546×10^{-5} *22*

$^{109}_{48}Cd_{61}$-22

Adopted Levels, Gammas (continued)

γ(^{109}Cd) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[#]	α[&]	Comments
								α(N)=2.75×10^{-6} *4*; α(O)=1.588×10^{-7} *23*; α(IPF)=6.10×10^{-6} *11* Mult.: R(angular)=1.5 *2*, DCO(Q)= 1.11 *24* in ^{96}Zr(^{18}O,5nγ).
8264.8	(41/2$^+$)	577 *1*	100	7687.8	(39/2$^+$)			
8598.6	(43/2$^+$)	1521.4 *5*	100	7077.2	(39/2$^+$)	(E2)	5.64×10^{-4}	α(K)=0.000415 *6*; α(L)=4.86×10^{-5} *7*; α(M)=9.28×10^{-6} *13* α(N)=1.656×10^{-6} *24*; α(O)=9.70×10^{-8} *14*; α(IPF)=8.95×10^{-5} *13* Mult.: R(angular)=1.5 *2*, DCO(Q)= 0.91 *18* in ^{96}Zr(^{18}O,5nγ).
8870.8	(43/2$^+$)	606 *1*	100	8264.8	(41/2$^+$)			
9377.7	(45/2$^+$)	1468.9 *5*	100	7908.8	(41/2$^+$)			
9502.8	(45/2$^+$)	632 *1*	100	8870.8	(43/2$^+$)			
9569.0	(47/2$^-$)	1367.0 *5*	100	8202.0	(43/2$^-$)	E2	6.27×10^{-4}	α(K)=0.000513 *8*; α(L)=6.04×10^{-5} *9*; α(M)=1.155×10^{-5} *17* α(N)=2.06×10^{-6} *3*; α(O)=1.199×10^{-7} *17*; α(IPF)=3.97×10^{-5} *6* B(E2)(W.u.)=30.9 *8* Mult.: R(angular)=1.40 *14*, DCO(Q)= 0.86 *17* in ^{96}Zr(^{18}O,5nγ), $T_{1/2}$ rules out M2.
10165.8	(47/2$^+$)	663 *1*	100	9502.8	(45/2$^+$)			
10898	(49/2$^+$)	732 *1*	100	10165.8	(47/2$^+$)			
11132.1	(51/2$^-$)	1563.0 *5*	100	9569.0	(47/2$^-$)			
295.0+x	(39/2)	295 *1*	100	x	(37/2)			
634.0+x	(41/2)	339 *1*	100	295.0+x	(39/2)			
1054.0+x	(43/2)	420 *1*	100	634.0+x	(41/2)			
1542.0+x	(45/2)	488 *1*	100	1054.0+x	(43/2)			
2100.0+x	(47/2)	558 *1*	100	1542.0+x	(45/2)			
2727.0+x	(49/2)	627 *1*	100	2100.0+x	(47/2)			

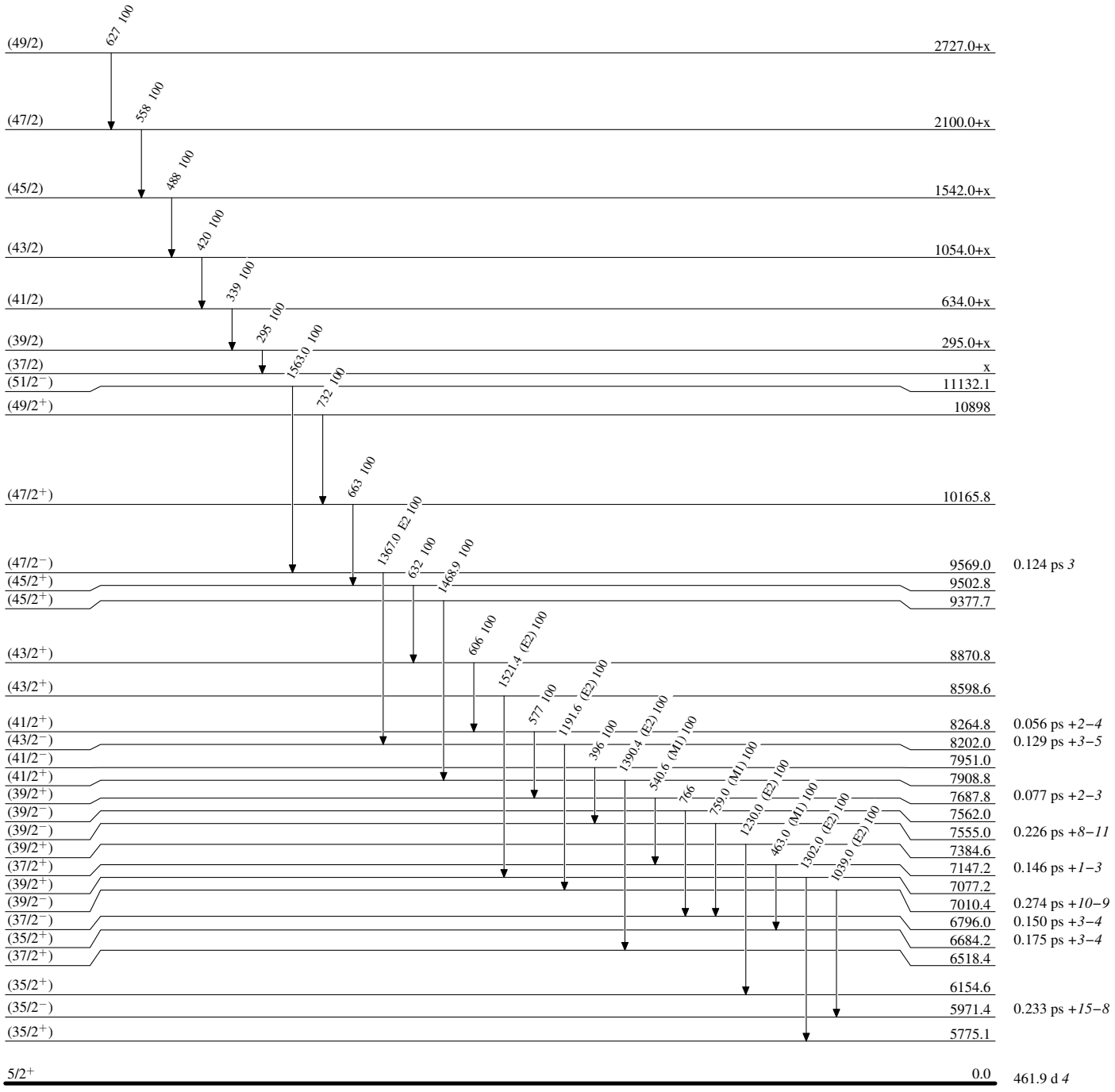
[†] From (p,nγ) up to E=2392 level and from ^{96}Zr(^{18}O,5nγ) after that, unless otherwise noted.
[‡] From ^{109}In ε decay.
[#] Based on R(angular) and DCO ratios in ^{96}Zr(^{18}O,5nγ), ce data in ^{109}In ε decay, and γ(θ) in (p,nγ), (α,3nγ) and ^{96}Zr(^{16}O,3nγ). For ΔI=0 dipole and ΔI=2 quadrupole transitions R(angular)≈1.3-1.5, for stretched dipole transitions R(angular)≈0.80. Expected DCO values are: 0.56 for ΔJ=1, dipole and 1.0 for ΔJ=2, with gate on ΔJ=2 quadrupole; 1.0 for ΔJ=1, dipole, with gate on ΔJ=1 dipole.
[@] 1988Vi03 placed this transition from the 930 level, but confirmed by 1992Si05.
[&] Additional information 3.
[a] If No value given it was assumed δ=0.00 for E2/M1, δ=1.00 for E3/M2 and δ=0.10 for the other multipolarities.
[b] Multiply placed with undivided intensity.
[c] Placement of transition in the level scheme is uncertain.

$^{109}_{48}Cd_{61}$-23

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level

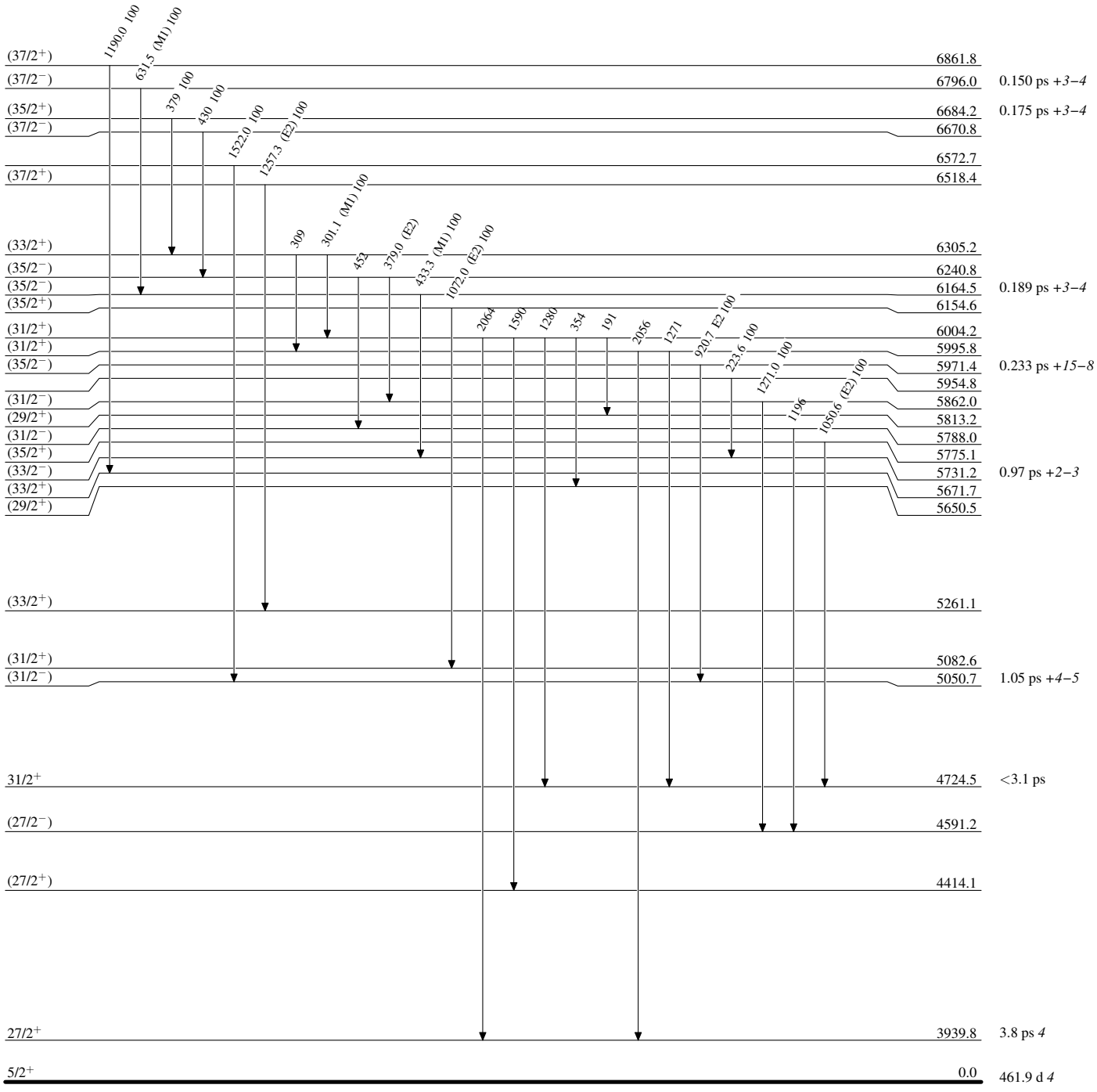


$^{109}_{48}Cd_{61}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

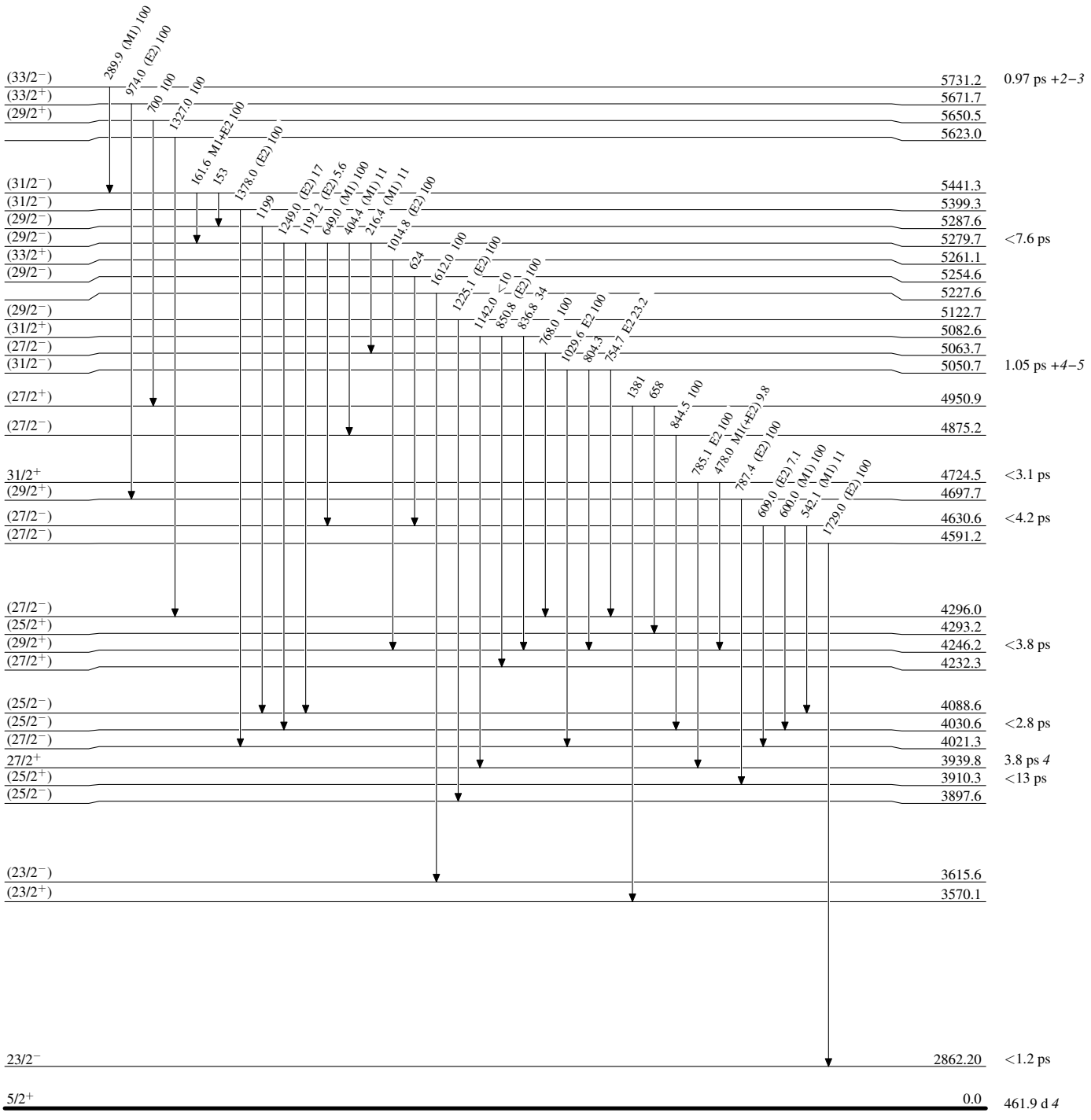


$^{109}_{48}Cd_{61}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

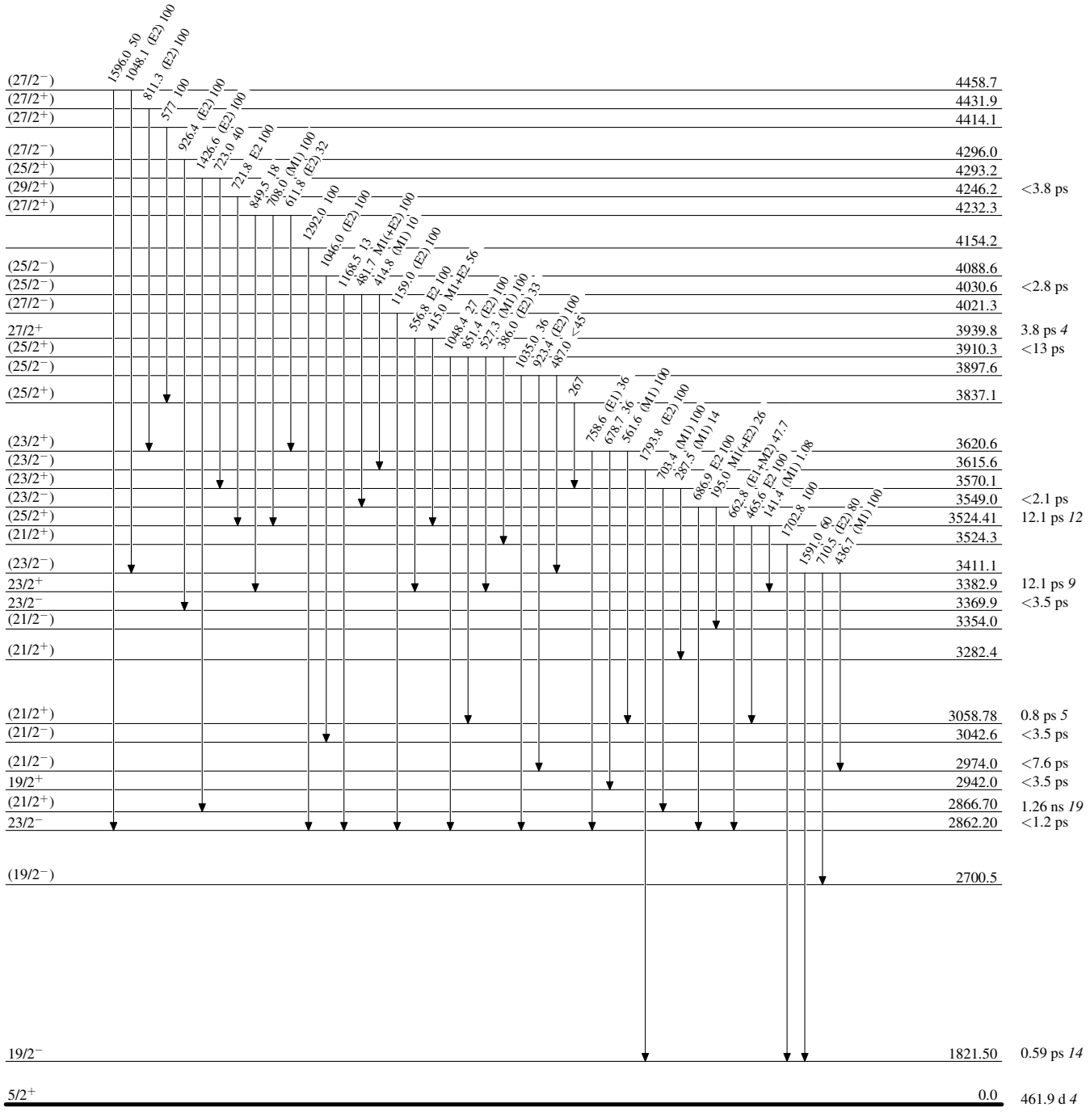


$^{109}_{48}Cd_{61}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

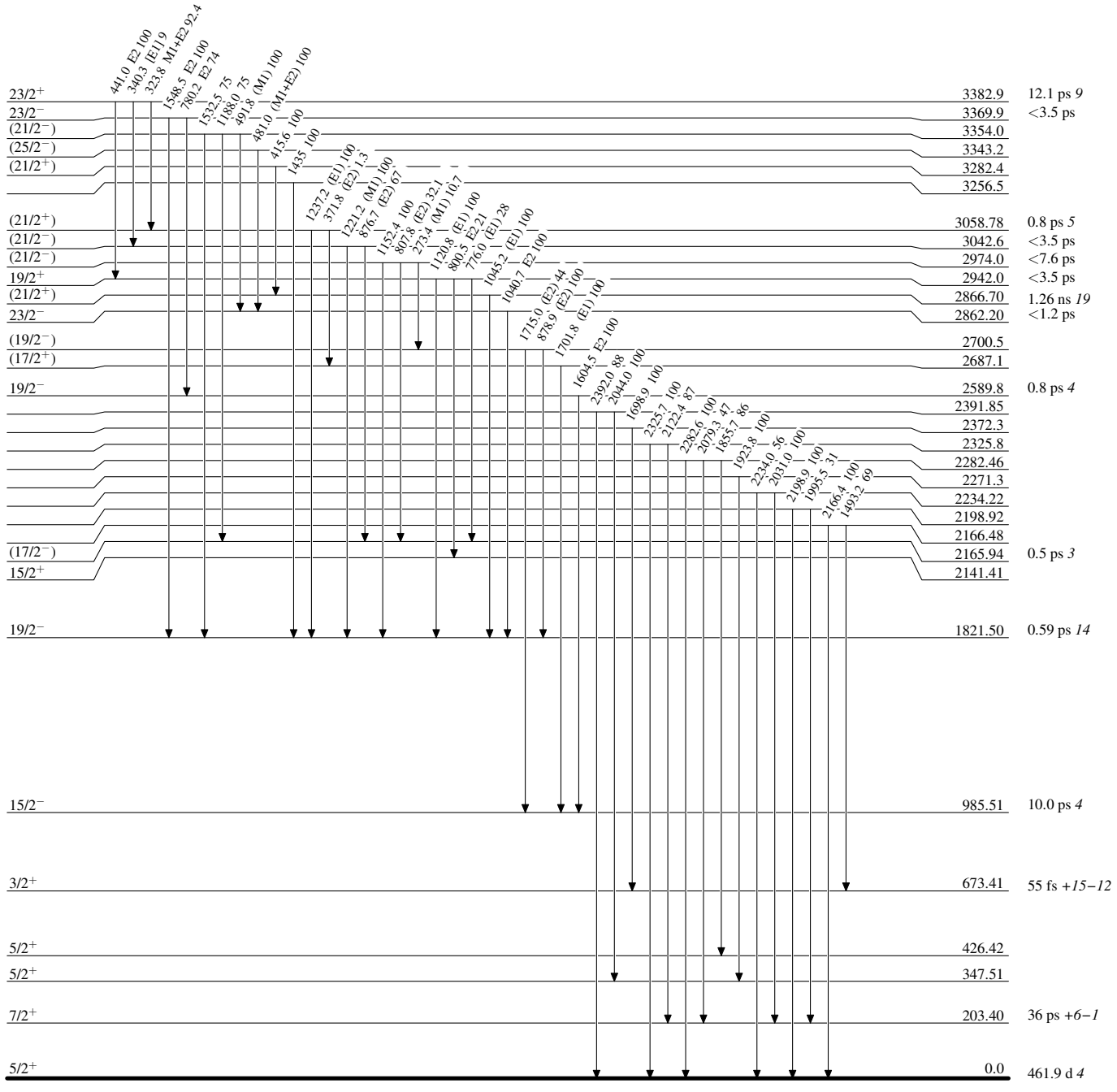


$^{109}_{48}Cd_{61}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{109}_{48}Cd_{61}$

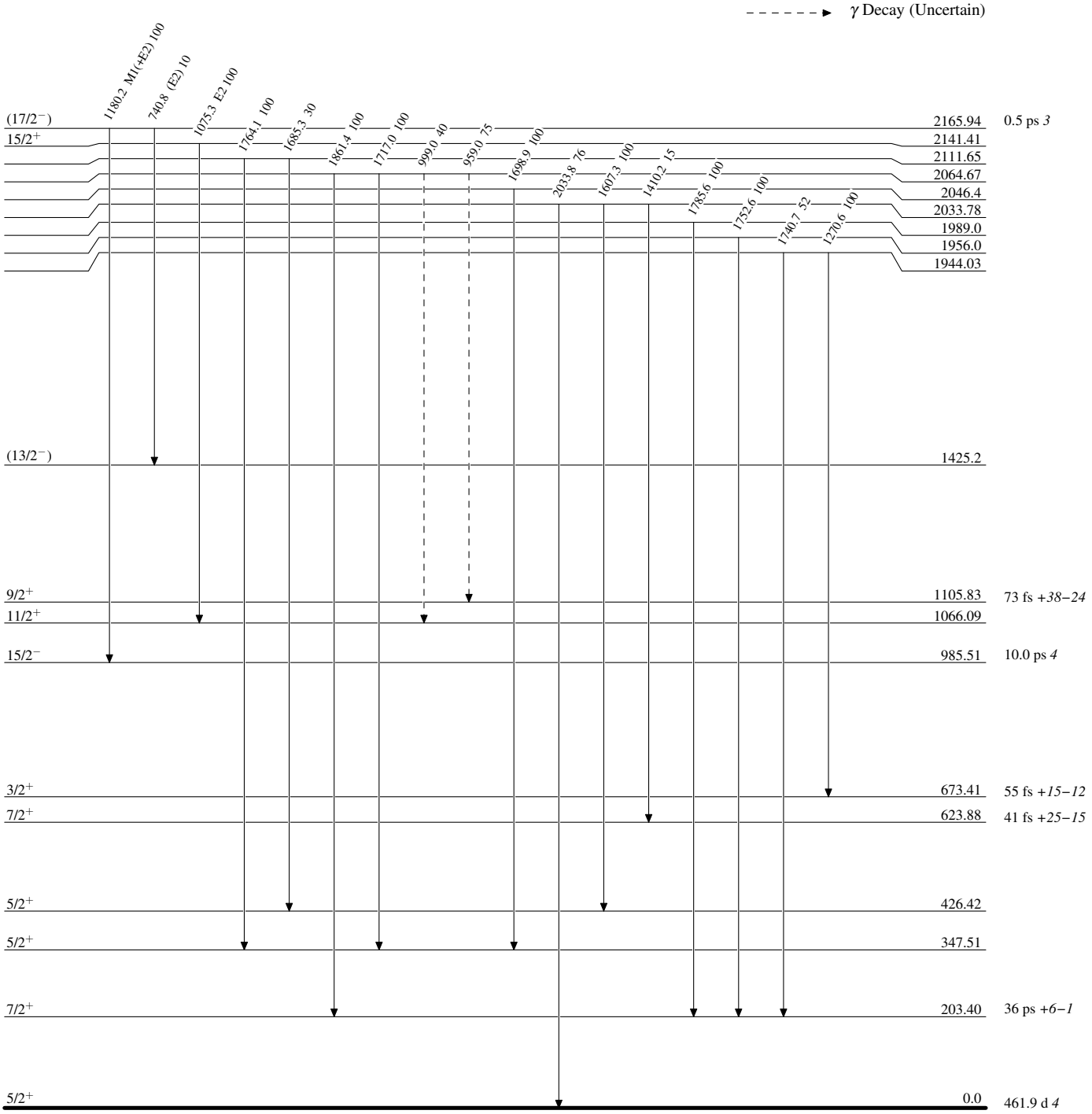
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)

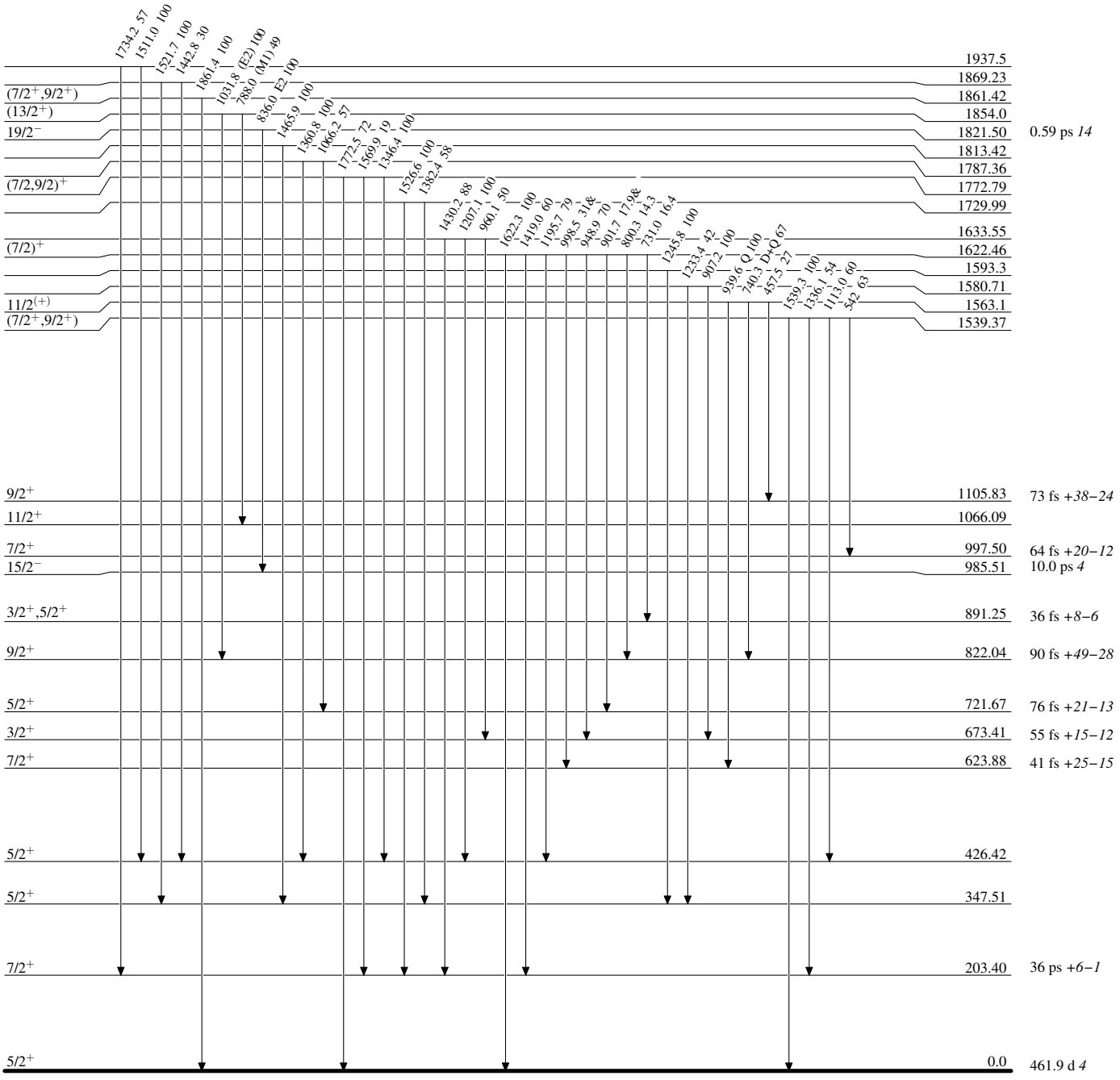


$^{109}_{48}Cd_{61}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given

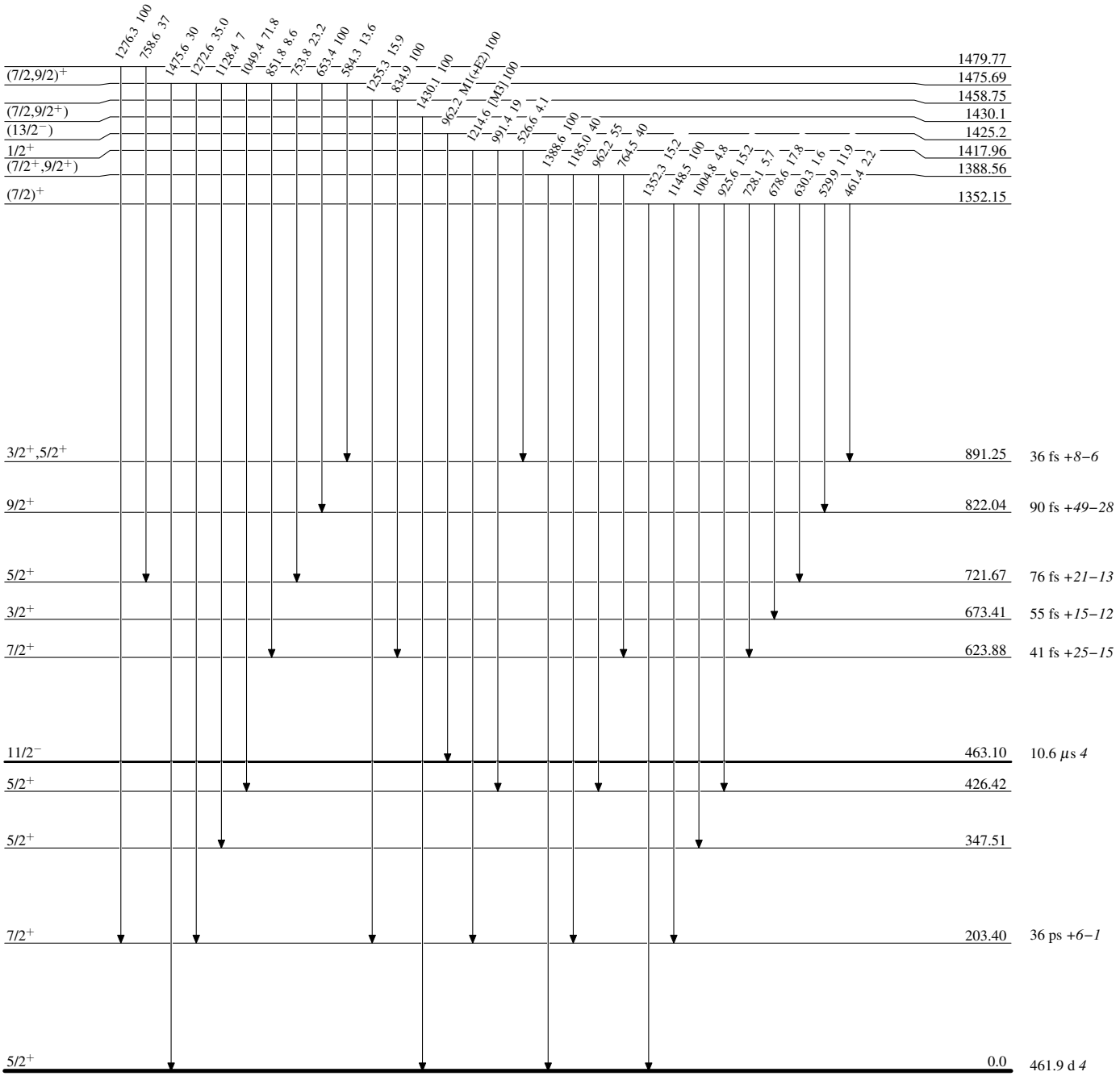


$^{109}_{48}Cd_{61}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given

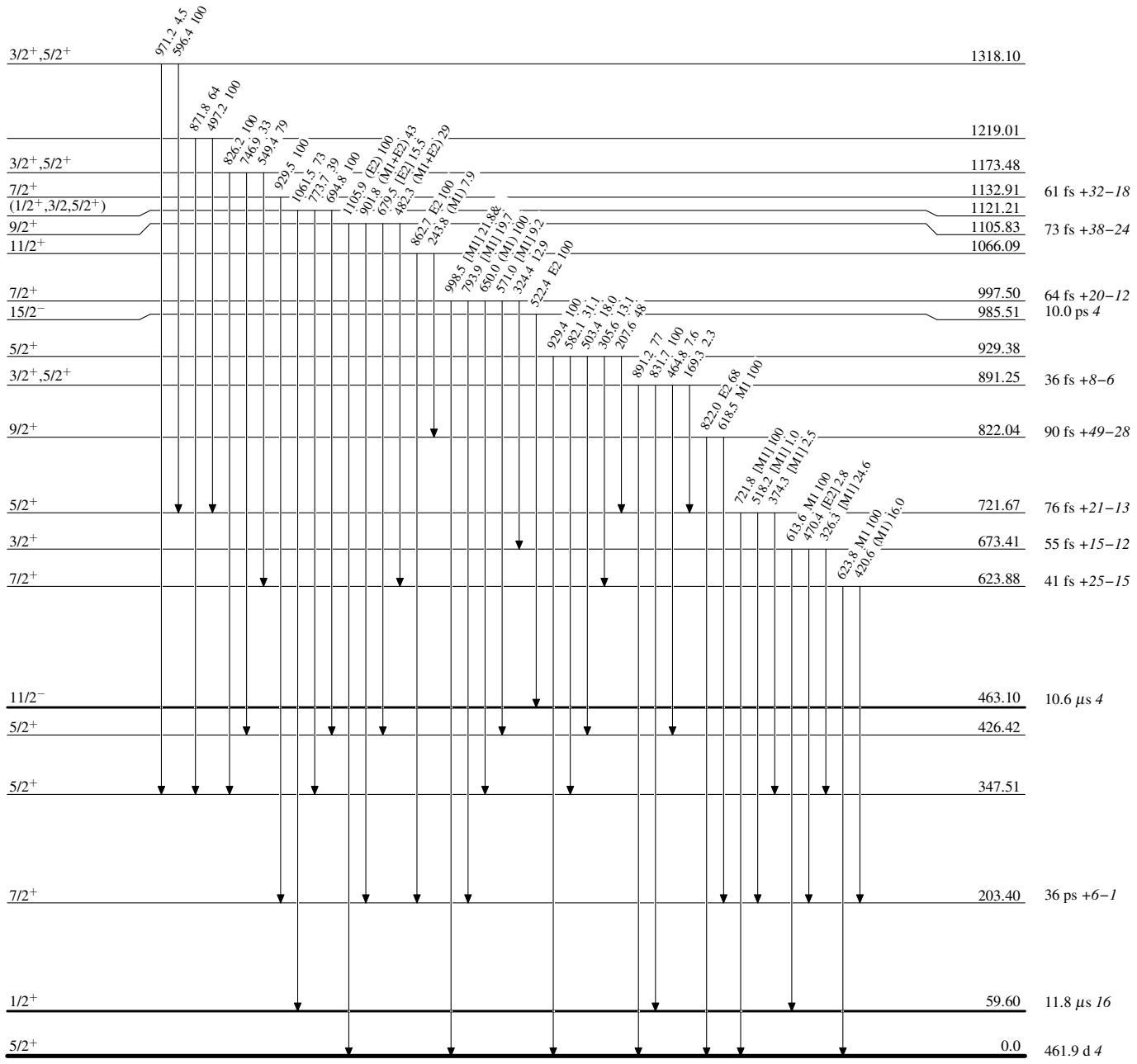


$^{109}_{48}Cd_{61}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given

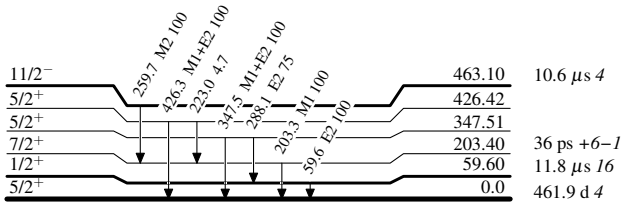


$^{109}_{48}Cd_{61}$

Adopted Levels, Gammas

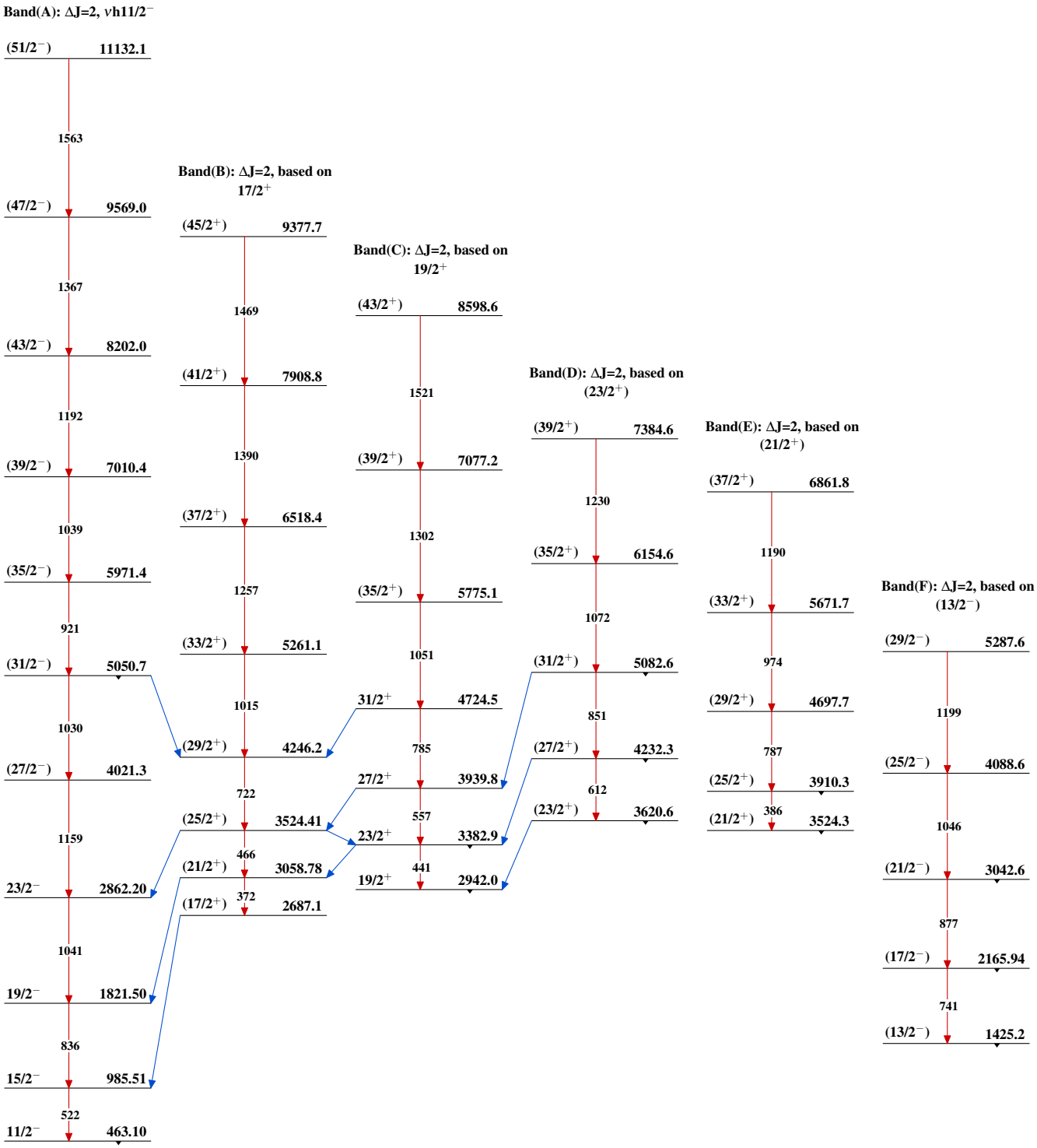
Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given



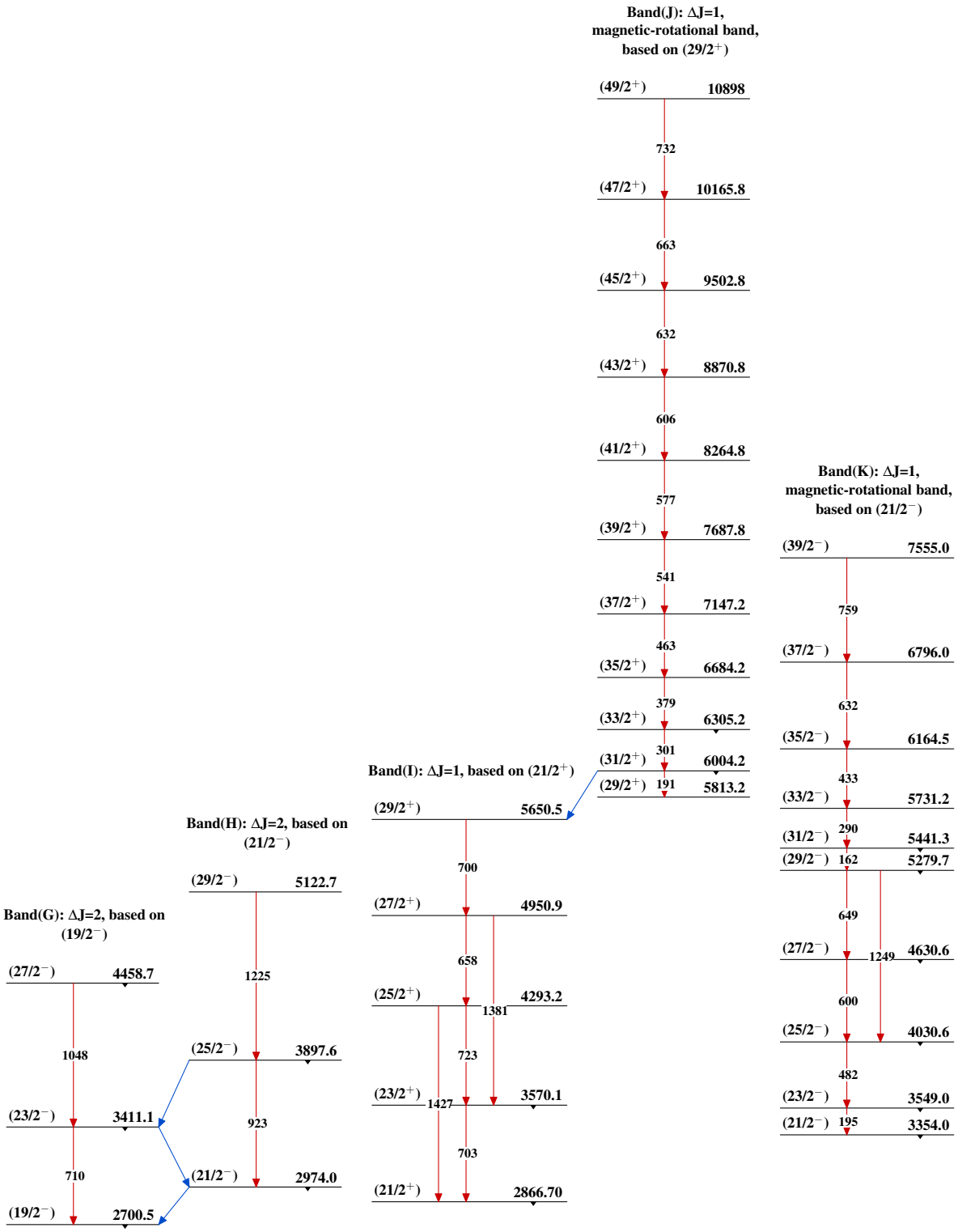
$^{109}_{48}Cd_{61}$

Adopted Levels, Gammas

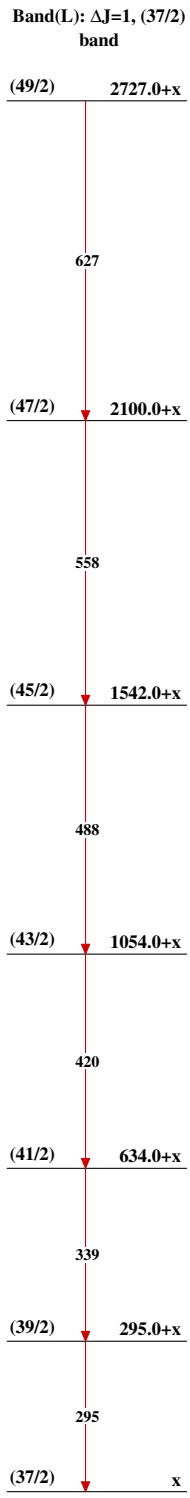


$^{109}_{48}Cd_{61}$

Adopted Levels, Gammas (continued)



Adopted Levels, Gammas (continued)



$^{109}_{48}Cd_{61}$