Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	D. M. Symochko, E. Browne, J. K. Tuli	NDS 110,2945 (2009)	1-Dec-2008

Q(β^-)=3.72×10^3 *4*; S(n)=5.35×10^3 *5*; S(p)=1.171×10^4 *4*; Q(α)=−5.98×10^3 *4* 2012Wa38
Note: Current evaluation has used the following Q record 3.73E+3 4 5.34×10^3 *4* 11710 *40*−6010 *70* 2009AuZZ.
Q(β^-)=3800 *80*, S(n)=5270 *80*, S(p)=11630 *100*, Q(α)=−5930 *100* (2003Au03).
Additional information 1.

^{119}Cd Levels

Cross Reference (XREF) Flags

A ^{119}Ag β^- decay (2.1 s)
B ^{208}Pb(^{18}O,Fγ)

E(level)	J$^\pi$	T$_{1/2}$#	XREF	Comments
0.0	1/2$^+$	2.69 min *2*	A	%β^-=100 J$^\pi$: from recent hyperfine structure measurement, prl 110, 192501 (2013) Earlier assignment of 3/2$^+$ was based on log *ft* arguments and syst. T$_{1/2}$: from γ(t). Value from 1976Sc30. Others: 2.6 min (1974Mc09), 3.3 min *10* (1974Gr29).
27.00 *6*	3/2$^+$	2.3 ns *4*	A	J$^\pi$: M1 γ to 3/2$^+$. If J^π(g.s.)=3/2$^+$, 1/2$^+$ is favored from syst of low-lying state for odd Cd isotopes, but γ from (7/2$^+$) level allows only 3/2$^+$.
146.54@ *11*	(11/2$^-$)	2.20 min *2*	AB	%β^-=100 I(γ+ce)(119.5γ)<0.02% from B(M4)(W.u.)<30, thus, %β^-=100. J$^\pi$: syst of lighter odd-mass Cd isotopes for the high-spin isomer. T$_{1/2}$: from γ(t). Value from 1976Sc30. Other: 1.9 min (1974Mc09).
213.91 *11*	(9/2$^-$)	≤1.5 ns	A	J$^\pi$: M1 γ to (11/2$^-$) and log *ft*=5.9 from (7/2$^+$).
228.27 *9*	(7/2$^-$,9/2$^-$)	43 ns *3*	A	J$^\pi$: E2 γ to (11/2$^-$), E1 γ from (7/2$^+$).
393.21 *7*	$^+$		A	J$^\pi$: M1,E2 γ to 3/2$^+$.
399.17 *7*	(3/2$^-$,5/2)		A	J$^\pi$: ΔJ=1 γ to 3/2$^+$, log *ft*≥6.5 from (7/2$^+$).
427.28 *8*	(7/2$^+$)	1.6 ns *1*	A	J$^\pi$: E1 γ to (9/2$^-$), γ to 3/2$^+$.
525.00 *9*	(3/2$^-$,5/2,7/2$^+$)		A	J$^\pi$: γ to 3/2$^+$; log *ft*=6.8 and log $f^{1u}t$=8.6 from (7/2$^+$).
570.84 *7*	(5/2,7/2)		A	J$^\pi$: γ rays to 3/2$^+$ levels and log *ft*=6.39 from (7/2$^+$).
655.52 *10*	(5/2,7/2)		A	J$^\pi$: γ to 3/2$^+$ and log *ft*=5.93 from 7/2$^+$.
682.34@ *20*	(15/2$^-$)		B	
806.14 *6*	(5/2$^+$,7/2$^+$)		A	J$^\pi$: log *ft*=5.57 from (7/2$^+$) and γ to 3/2$^+$.
866.47 *13*	(5/2,7/2,9/2)		A	J$^\pi$: γ to (7/2$^+$) and log *ft*=6.38 from (7/2$^+$).
924.26 *11*	(5/2,7/2$^+$)†		A	
1053.65 *6*	(5/2$^+$,7/2$^+$)‡		A	
1086.84 *9*	(5/2,7/2$^+$)†		A	
1130.82 *10*	(5/2,7/2$^+$)†		A	
1278.82 *9*	(5/2$^+$,7/2$^+$)‡		A	
1401.77 *7*	(5/2$^+$,7/2$^+$)‡		A	
1431.8@ *4*	(19/2$^-$)		B	
1538.83 *15*	(5/2,7/2$^+$)†		A	
1925.5 *2*	(5/2$^+$,7/2$^+$)‡		A	
2088.21 *15*	(5/2$^+$,7/2$^+$)‡		A	
2326.8@ *6*	(23/2$^-$)		B	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{119}Cd Levels (continued)

E(level)	J^π	XREF	Comments
2424.20 *20*	$(5/2^+,7/2^+,9/2^+)$	A	J^π: log *ft*=5.6 from $(7/2^+)$.
2442.5 *4*	$(5/2^+,7/2^+)^{\ddagger}$	A	
2676.52 *19*	$(5/2^+,7/2^+)^{\ddagger}$	A	
2813.5 *1*	$(5/2^+,7/2^+)$	A	J^π: log *ft*=4.8 from $(7/2^+)$ and γ to $1/2^+,3/2^+$.
2862.4 *5*	$(5/2^+,7/2^+,9/2^+)$	A	J^π: log *ft*=5.5 from $(7/2^+)$.
3022.8[@] *8*	$(27/2^-)$	B	
3337.8 *9*		B	
3988.1[@] *10*		B	

[†] γ to $3/2^+$ and 5.9<log *ft*<6.2 from $(7/2^+)$.
[‡] γ to $3/2^+$ and 4.7<log *ft*<5.6 from $(7/2^+)$.
[#] From $\gamma\gamma$(t) in ^{119}Ag β^- decay (1975Ka09), unless otherwise noted.
[@] Band(A): $\nu h_{11/2}$ sequence.

Adopted Levels, Gammas (continued)

$\gamma(^{119}Cd)$

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[#]	α[†]	Comments
27.00	$3/2^+$	26.9 *1*	100	0.0	$1/2^+$	M1	21.2	B(M1)(W.u.)=0.022 *4*
213.91	$(9/2^-)$	67.4 *1*	100	146.54	$(11/2^-)$	M1	1.428	α(K)=1.237 *19*; α(L)=0.1560 *23*; α(M)=0.0300 *5*; α(N+..)=0.00564 *9* α(N)=0.00534 *8*; α(O)=0.000302 *5* B(M1)(W.u.)>0.020
228.27	$(7/2^-,9/2^-)$	14.3	<4.6	213.91	$(9/2^-)$	[M1]	18.7	ce(L)/(γ+ce)=0.773 *7*; ce(M)/(γ+ce)=0.149 *3*; ce(N+)/(γ+ce)=0.0278 *6* ce(N)/(γ+ce)=0.0264 *5*; ce(O)/(γ+ce)=0.00147 *3* $I_{(\gamma+ce)}$: from B(M1)(W.u.), value relative to I(81.7γ)=100.
		81.7 *1*	100 *11*	146.54	$(11/2^-)$	E2	3.07	α(K)=2.17 *4*; α(L)=0.730 *11*; α(M)=0.1456 *22*; α(N+..)=0.0244 *4* α(N)=0.0240 *4*; α(O)=0.000388 *6* B(E2)(W.u.)=19 *4*
393.21	+	366.2 *1*	100 *6*	27.00	$3/2^+$	M1,E2	0.0157 *14*	α(K)=0.0135 *11*; α(L)=0.0018 *3*; α(M)=0.00034 *6*; α(N+..)=6.3×10^{-5} *9* α(N)=6.0×10^{-5} *9*; α(O)=3.12×10^{-6} *12*
		393.2 *2*	7.0 *10*	0.0	$1/2^+$			
399.17	$(3/2^-,5/2)$	372.3 *1*	14 *1*	27.00	$3/2^+$			
		399.1 *2*	100 *16*	0.0	$1/2^+$	D		
427.28	$(7/2^+)$	199.0 *1*	91 *11*	228.27	$(7/2^-,9/2^-)$	E1	0.0237	α(K)=0.0207 *3*; α(L)=0.00248 *4*; α(M)=0.000474 *7*; α(N+..)=8.81×10^{-5} *13* α(N)=8.36×10^{-5} *12*; α(O)=4.48×10^{-6} *7* B(E1)(W.u.)=9.5×10^{-6} *15*
		213.4 *1*	100 *11*	213.91	$(9/2^-)$	E1	0.0195	α(K)=0.01701 *24*; α(L)=0.00204 *3*; α(M)=0.000390 *6*; α(N+..)=7.25×10^{-5} *11* α(N)=6.88×10^{-5} *10*; α(O)=3.71×10^{-6} *6* B(E1)(W.u.)=8.4×10^{-6} *13*
		400.1 *2*	18 *3*	27.00	$3/2^+$	[E2]	0.01294	α(K)=0.01108 *16*; α(L)=0.001514 *22*; α(M)=0.000292 *5*; α(N+..)=5.36×10^{-5} *8* α(N)=5.12×10^{-5} *8*; α(O)=2.48×10^{-6} *4* B(E2)(W.u.)=0.084 *17*
525.00	$(3/2^-,5/2,7/2^+)$	131		393.21	+			
		497.9 *1*	100 *7*	27.00	$3/2^+$			
570.84	(5/2,7/2)	177		393.21	+			
		543.9 *1*	100 *7*	27.00	$3/2^+$			
		570.8 *1*	20 *3*	0.0	$1/2^+$			
655.52	(5/2,7/2)	262.7 *2*	4.8 *14*	393.21	+			
		628.2 *2*	100 *15*	27.00	$3/2^+$			
		656.1 *2*	68 *11*	0.0	$1/2^+$			
682.34	$(15/2^-)$	535.8 *2*	100	146.54	$(11/2^-)$			
806.14	$(5/2^+,7/2^+)$	150.7 *2*	5.2 *14*	655.52	(5/2,7/2)			
		235.3 *2*	5.0 *14*	570.84	(5/2,7/2)			

$^{119}_{48}Cd_{71}$-3

Adopted Levels, Gammas (continued)

γ(^{119}Cd) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π
806.14	(5/2$^+$,7/2$^+$)	379.0 *1*	5 *1*	427.28	(7/2$^+$)
		407.1 *1*	51 *4*	399.17	(3/2$^-$,5/2)
		412.9 *1*	22 *3*	393.21	$^+$
		578.0 *2*	7.9 *14*	228.27	(7/2$^-$,9/2$^-$)
		779.2 *1*	100 *7*	27.00	3/2$^+$
		806.2 *2*	2.6 *10*	0.0	1/2$^+$
866.47	(5/2,7/2,9/2)	439.2 *1*	100 *10*	427.28	(7/2$^+$)
		638.0 *5*	27 *6*	228.27	(7/2$^-$,9/2$^-$)
924.26	(5/2,7/2$^+$)	524.5 *3*	35 *7*	399.17	(3/2$^-$,5/2)
		531.1 *1*	100 *13*	393.21	$^+$
		897.5 *5*	41 *17*	27.00	3/2$^+$
1053.65	(5/2$^+$,7/2$^+$)	247.6 *1*	6.5 *10*	806.14	(5/2$^+$,7/2$^+$)
		482.7 *1*	17.7 *13*	570.84	(5/2,7/2)
		528.9 *3*	4.0 *8*	525.00	(3/2$^-$,5/2,7/2$^+$)
		626.4 *2*	100	427.28	(7/2$^+$)
		654.4 *2*	32 *5*	399.17	(3/2$^-$,5/2)
		660.4 *1*	54 *5*	393.21	$^+$
		825.4 *1*	20.2 *16*	228.27	(7/2$^-$,9/2$^-$)
		1026.5 *1*	58 *5*	27.00	3/2$^+$
		1053.8 *1*	4.2 *6*	0.0	1/2$^+$
1086.84	(5/2,7/2$^+$)	280.6 *1*	100 *18*	806.14	(5/2$^+$,7/2$^+$)
		431.9 *2*	60 *9*	655.52	(5/2,7/2)
		517.5[@] *3*	18 *5*	570.84	(5/2,7/2)
		561.2 *2*	49 *9*	525.00	(3/2$^-$,5/2,7/2$^+$)
		693.4 *2*	91 *16*	393.21	$^+$
1130.82	(5/2,7/2$^+$)	325.0 *2*	14 *3*	806.14	(5/2$^+$,7/2$^+$)
		731.0 *4*	12 *4*	399.17	(3/2$^-$,5/2)
		737.6 *1*	100 *12*	393.21	$^+$
1278.82	(5/2$^+$,7/2$^+$)	224.8 *3*	5.5 *22*	1053.65	(5/2$^+$,7/2$^+$)
		472.9 *1*	27 *3*	806.14	(5/2$^+$,7/2$^+$)
		753.6 *2*	30 *7*	525.00	(3/2$^-$,5/2,7/2$^+$)
		851.4 *1*	100 *8*	427.28	(7/2$^+$)
		885.4 *3*	24 *5*	393.21	$^+$
		1251.9 *2*	43 *8*	27.00	3/2$^+$
1401.77	(5/2$^+$,7/2$^+$)	271.1 *2*	14 *4*	1130.82	(5/2,7/2$^+$)
		595.7 *1*	30 *3*	806.14	(5/2$^+$,7/2$^+$)
		746.3 *4*	20 *8*	655.52	(5/2,7/2)
		830.8 *2*	23 *3*	570.84	(5/2,7/2)
		877.0 *2*	9 *3*	525.00	(3/2$^-$,5/2,7/2$^+$)
		974.5 *2*	21 *4*	427.28	(7/2$^+$)
		1002.6 *2*	25 *4*	399.17	(3/2$^-$,5/2)

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γ(^{119}Cd) (continued)

E$_i$(level)	J$^\pi_i$	E$_\gamma$‡	I$_\gamma$‡	E$_f$	J$^\pi_f$
1401.77	(5/2$^+$,7/2$^+$)	1008.5 *1*	100 *9*	393.21	$^+$
		1173.3 *2*	46 *6*	228.27	(7/2$^-$,9/2$^-$)
		1374.8 *2*	57 *7*	27.00	3/2$^+$
		1401.6 *2*	38 *3*	0.0	1/2$^+$
1431.8	(19/2$^-$)	749.5 *2*	100	682.34	(15/2$^-$)
1538.83	(5/2,7/2$^+$)	732.7 *4*	96 *22*	806.14	(5/2$^+$,7/2$^+$)
		1014.0 *3*	100 *26*	525.00	(3/2$^-$,5/2,7/2$^+$)
		1111.0 *3*	96 *22*	427.28	(7/2$^+$)
		1140.2 *3*	39 *13*	399.17	(3/2$^-$,5/2)
		1145.1 *3*	83 *17*	393.21	$^+$
		1512.7 *5*	87 *17*	27.00	3/2$^+$
1925.5	(5/2$^+$,7/2$^+$)	872.3 *4*	13 *4*	1053.65	(5/2$^+$,7/2$^+$)
		1526.6 *2*	57 *7*	399.17	(3/2$^-$,5/2)
		1532.7 *5*	13 *4*	393.21	$^+$
		1898.3 *2*	100 *9*	27.00	3/2$^+$
		1925.0 *3*	38 *6*	0.0	1/2$^+$
2088.21	(5/2$^+$,7/2$^+$)	1689.0 *2*	20 *3*	399.17	(3/2$^-$,5/2)
		1695.5 *3*	13.6 *25*	393.21	$^+$
		2060.7 *5*	100.0 *13*	27.00	3/2$^+$
		2087.9 *3*	14 *3*	0.0	1/2$^+$
2326.8	(23/2$^-$)	895.0 *4*	100	1431.8	(19/2$^-$)
2424.20	(5/2$^+$,7/2$^+$,9/2$^+$)	1996.9 *2*	100 *11*	427.28	(7/2$^+$)
		2195.9 *4*	30 *8*	228.27	(7/2$^-$,9/2$^-$)
2442.5	(5/2$^+$,7/2$^+$)	2043.6 *5*	17 *7*	399.17	(3/2$^-$,5/2)
		2050.1 *5*	17 *7*	393.21	$^+$
		2415.2 *6*	50 *25*	27.00	3/2$^+$
		2442.0 *4*	100 *25*	0.0	1/2$^+$
2676.52	(5/2$^+$,7/2$^+$)	1274.7 *3*	73 *22*	1401.77	(5/2$^+$,7/2$^+$)
		2151.7 *4*	100 *22*	525.00	(3/2$^-$,5/2,7/2$^+$)
		2649.5 *7*	46 *15*	27.00	3/2$^+$
		2676.4 *3*	27 *15*	0.0	1/2$^+$
2813.5	(5/2$^+$,7/2$^+$)	2386.2 *5*	20 *5*	427.28	(7/2$^+$)
		2786.4 *2*	100 *10*	27.00	3/2$^+$
		2814.4 *7*	8 *4*	0.0	1/2$^+$
2862.4	(5/2$^+$,7/2$^+$,9/2$^+$)	2435.4 *7*	100 *3*	427.28	(7/2$^+$)
3022.8	(27/2$^-$)	696.0 *6*	100	2326.8	(23/2$^-$)
3337.8		1011.0 *8*	100	2326.8	(23/2$^-$)
3988.1		650.4 *8*	73 *15*	3337.8	
		965.2 *8*	100 *23*	3022.8	(27/2$^-$)

Adopted Levels, Gammas (continued)

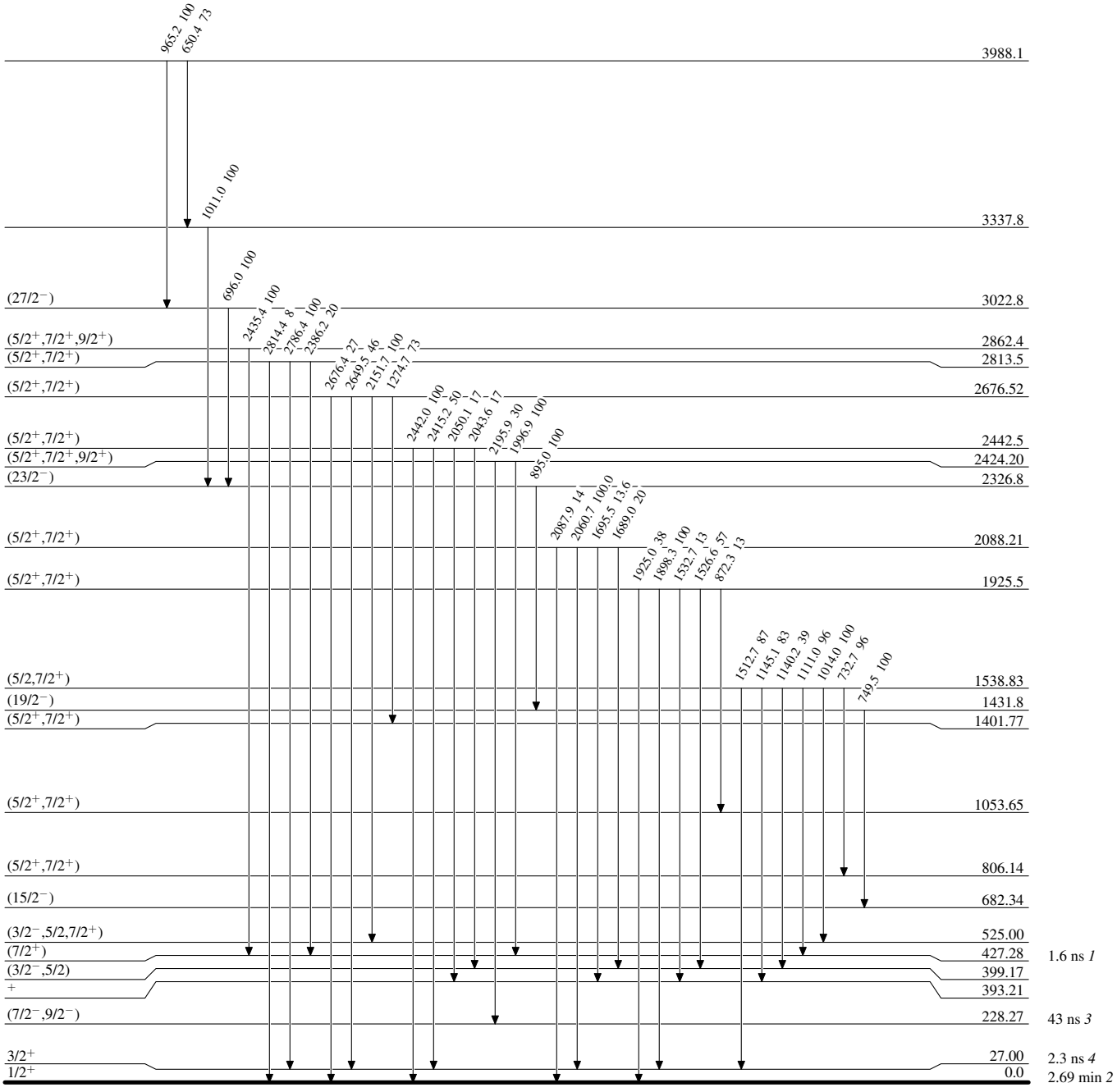
$\gamma(^{119}$Cd) (continued)

† Additional information 2.
‡ From ^{119}Ag β^- decay.
# From α(K)exp in ^{119}Ag β^- decay.
@ Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level



$^{119}_{48}Cd_{71}$

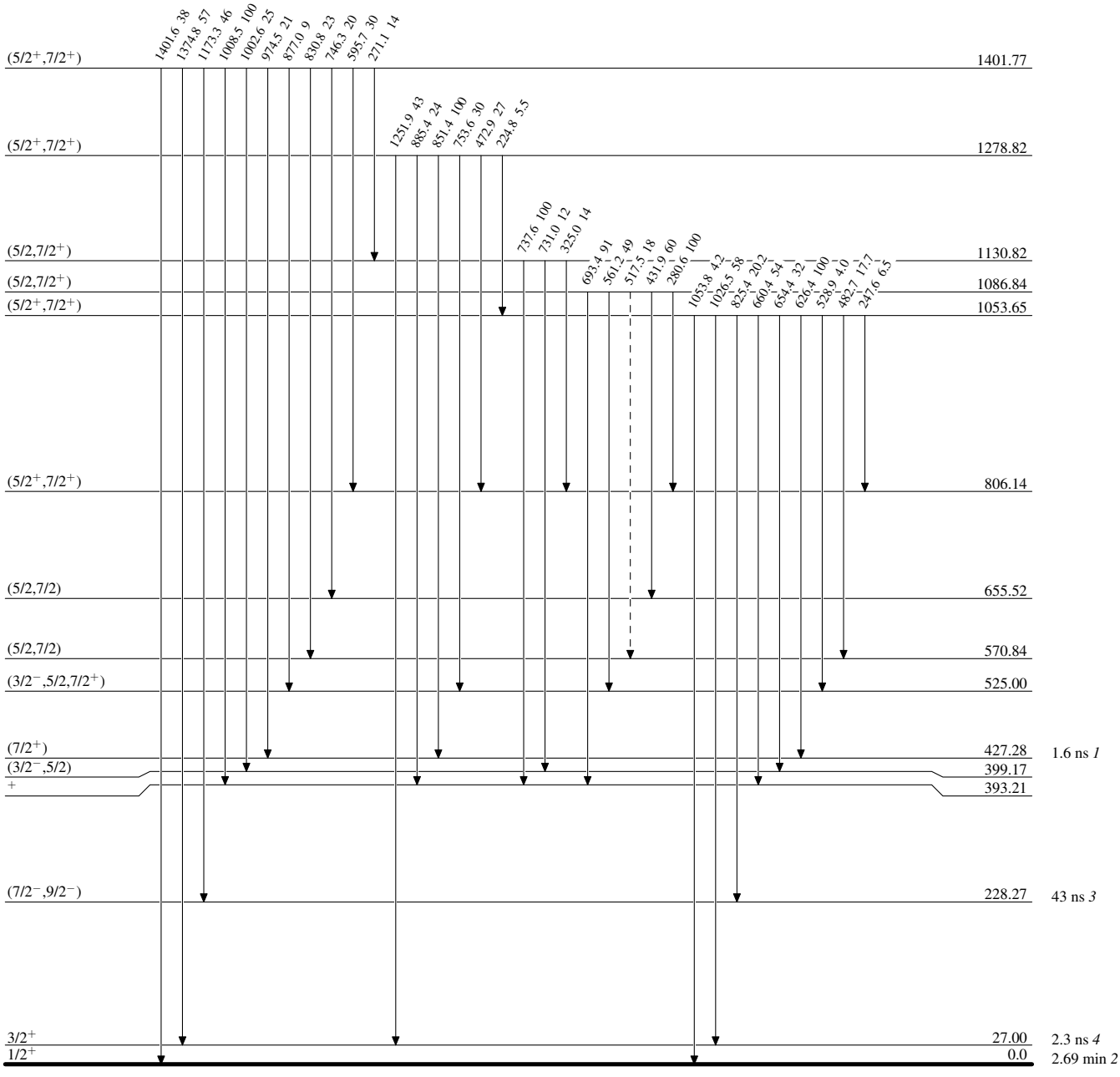
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

– – – – – – ► γ Decay (Uncertain)

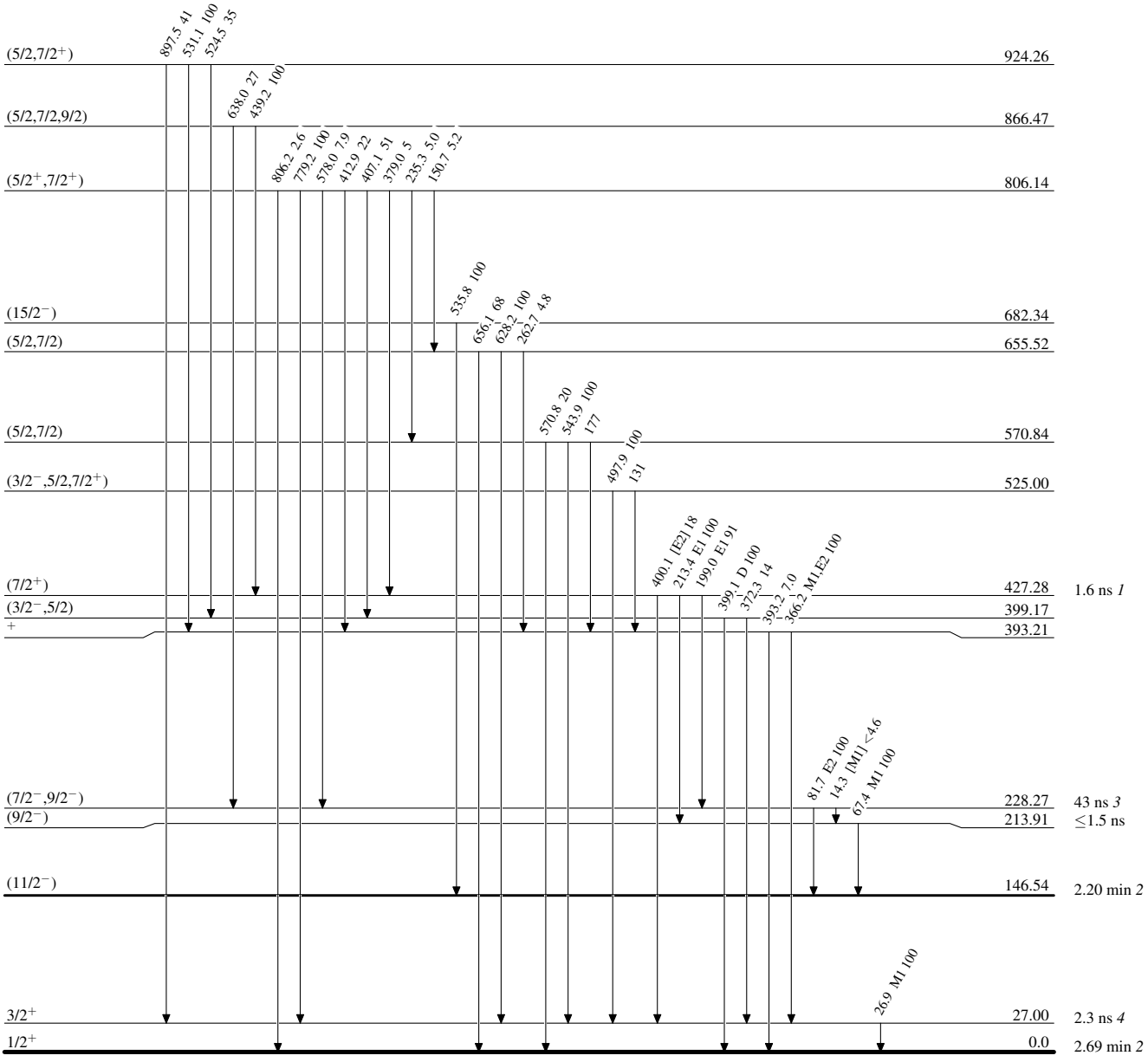


$^{119}_{48}Cd_{71}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



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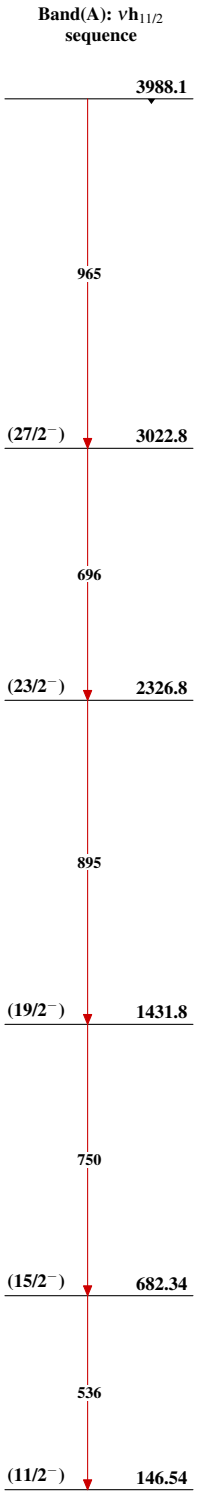
Adopted Levels, Gammas



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