Adopted Levels, Gammas

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	T. D. Johnson, D. Symochko(a), M. Fadil(b), and J. K. Tuli	NDS 112,1949 (2011)	1-Jun-2010

Q(β^-)=4509 *6*; S(n)=5161 *8*; S(p)=7580 *9*; Q(α)=438 *12* 2012Wa38
Note: Current evaluation has used the following Q record 4510 65159 87578 8440 11 2011AuZZ.
Q(β^-n)=−2658 *6*, Q(εp)=−12831 *12* 2011AuZZ.
Values in 2003Au03: Q(β^-)=4504 *5*, S(n)=5168 *7*, S(p)=7598 *10*, Q(α)=428 *11*, Q(β^-n)=−2666 *6*, Q(εp)=−12847 *12*.

^{142}La Levels

Cross Reference (XREF) Flags

A ^{142}Ba β^- decay

E(level)	J$^\pi$	T$_{1/2}$	XREF	Comments
0.0	2$^-$	91.1 min *5*	A	%β^-=100 T$_{1/2}$: from 1981Ge04; others: 92.5 min *5* (1962Fr04), 95.4 min *18* (1972Eh02). J$^\pi$: β^- transition to 0$^+$ ^{142}Ce g.s. is first-forbidden unique.
77.594 *3*	(2)$^-$		A	J$^\pi$: γ to 2$^-$ is M1,E2; strong γ from 1$^+$; no observed β feeding from 0$^+$.
145.82 *8*	(4)$^-$	0.87 μs *17*	A	T$_{1/2}$: from ^{142}Ba β^- decay. J$^\pi$: 68.3γ to (2)$^-$ is E2; no observed β feeding from 0$^+$.
147.24 *5*	$^-$		A	J$^\pi$: M1,E2 to (2)$^-$.
231.3? *4*			A	
255.302 *12*	1$^-$		A	J$^\pi$: γ to 2$^-$ is M1+E2, log *ft*=6.96 from 0$^+$.
300.38 *6*			A	
309.210 *11*	2$^-$		A	J$^\pi$: from (895γ)(309γ)(θ), $\Delta\pi$=no cascade.
335.02 *6*	1$^{(-)}$		A	J$^\pi$: log *ft*=7.95 via 0$^+$ parent, strong γ to 2$^-$, $\gamma\gamma(\theta)$.
361.44 *11*			A	
363.94 *3*	2$^{(-)}$		A	J$^\pi$: from (840γ)(364γ)(θ), γ to 2$^-$ is (M1+E2).
417.80 *9*			A	
424.99 *3*	1$^{(-)}$		A	J$^\pi$: log *ft*=6.61 from 0$^+$ parent, γ to 2$^-$ is (M1+E2).
432.30 *5*	1$^-$		A	J$^\pi$: log *ft*=6.705 from 0$^+$, γ to 2$^-$ is M1,E2; $\gamma\gamma(\theta)$.
604.46 *6*	(1$^-$,2$^-$)		A	J$^\pi$: γ to 1$^{(-)}$ is (M1+E2), γ to 2$^-$ is (M1+E2).
666.13 *14*			A	
866.91 *6*			A	
969.57 *14*			A	
984.39 *8*			A	
1009.68 *10*			A	
1078.71 *5*	(1$^+$)		A	J$^\pi$: log *ft*=5.25 from 0$^+$.
1204.35 *4*	(1)$^+$		A	J$^\pi$: log *ft*=4.74 from 0$^+$.
1457.90 *4*	(1)$^+$		A	J$^\pi$: log *ft*= 4.76 from 0$^+$.
1539.26 *16*	(1)		A	J$^\pi$: log *ft*=6.33 from 0$^+$, γ to 2$^-$.

γ(^{142}La)

All data are from ^{142}Ba β^- decay.

E$_i$(level)	J$_i^\pi$	E$_\gamma$	I$_\gamma$	E$_f$	J$_f^\pi$	Mult.	$\alpha^\dagger$	Comments
77.594	(2)$^-$	77.594 *3*	100	0.0	2$^-$	M1,E2	3.6 *14*	α(K)=2.2 *3*; α(L)=1.1 *9*; α(M)=0.24 *19*; α(N+..)=0.06 *5* α(N)=0.05 *4*; α(O)=0.007 *6*; α(P)=0.000140 *10*
145.82	(4)$^-$	68.3 *1*	100	77.594	(2)$^-$	E2	7.92	B(E2)(W.u.)=1.10 *22*

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Adopted Levels, Gammas (continued)

$\gamma(^{142}La)$ (continued)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.	δ	$\alpha^\dagger$	Comments
									α(K)=3.49 *5*; α(L)=3.47 *6*; α(M)=0.772 *12*; α(N+..)=0.186 *3* α(N)=0.163 *3*; α(O)=0.0228 *4*; α(P)=0.000179 *3*
147.24	$^-$	69.7 *1*	100 *5*	77.594	$(2)^-$	M1,E2		5.2 *22*	α(K)=3.0 *4*; α(L)=1.8 *14*; α(M)=0.4 *4*; α(N+..)=0.09 *8* α(N)=0.08 *7*; α(O)=0.012 *9*; α(P)=0.000187 *17*
		147.5 *5*	28 *5*	0.0	2^-				
231.3?		84.0 *5*	100	147.24	$^-$				
255.302	1^-	255.300 *12*	100	0.0	2^-	M1+E2	−0.26 *16*	0.0808	α(K)=0.0689 *12*; α(L)=0.0094 *4*; α(M)=0.00196 *8*; α(N+..)=0.000506 *18* α(N)=0.000431 *16*; α(O)=6.98×10^{-5} *21*; α(P)=5.29×10^{-6} *14*
300.38		153.1 *1*	18 *5*	147.24	$^-$				
		154.6 *1*	100 *6*	145.82	$(4)^-$				
		222.8 *1*	66 *3*	77.594	$(2)^-$				
309.210	2^-	(8.7)		300.38					
		162.3 *1*	0.9 *1*	147.24	$^-$				
		231.611 *10*	100 *2*	77.594	$(2)^-$	M1+E2	−0.16 *4*	0.1052	α(K)=0.0898 *13*; α(L)=0.01214 *20*; α(M)=0.00252 *4*; α(N+..)=0.000651 *11* α(N)=0.000554 *9*; α(O)=9.00×10^{-5} *14*; α(P)=6.93×10^{-6} *10*
		309.2 *1*	21 *1*	0.0	2^-	(M1+E2)	−0.74 *15*	0.0467 *9*	α(K)=0.0393 *9*; α(L)=0.00583 *12*; α(M)=0.00122 *3*; α(N+..)=0.000312 *7* α(N)=0.000267 *6*; α(O)=4.25×10^{-5} *7*; α(P)=2.91×10^{-6} *10*
335.02	$1^{(-)}$	79.8 *5*	2.5 *8*	255.302	1^-				
		257.5 *1*	9.5 *22*	77.594	$(2)^-$				
		335.0 *1*	100 *1*	0.0	2^-				
361.44		130.0 *5*	21 *6*	231.3?					
		215.7 *2*	36 *14*	145.82	$(4)^-$				
		283.5 *2*	100 *29*	77.594	$(2)^-$				
363.94	$2^{(-)}$	63.6 *1*	1.9 *3*	300.38		M1,E2		7 *4*	α(K)=3.8 *4*; α(L)=2.7 *22*; α(M)=0.6 *5*; α(N+..)=0.14 *12* α(N)=0.12 *11*; α(O)=0.018 *15*; α(P)=0.00024 *3*
		216.6 *1*	4 *1*	147.24	$^-$				
		286.3 *1*	23 *2*	77.594	$(2)^-$	(M1+E2)	−0.00 *6*	0.0598	α(K)=0.0512 *8*; α(L)=0.00678 *10*; α(M)=0.001406 *20*; α(N+..)=0.000363 *6* α(N)=0.000309 *5*; α(O)=5.04×10^{-5} *7*; α(P)=3.96×10^{-6} *6*
		363.96 *3*	100 *3*	0.0	2^-	(M1+E2)	−0.77 *12*	0.0297 *7*	α(K)=0.0251 *6*; α(L)=0.00362 *5*; α(M)=0.000755 *11*; α(N+..)=0.000194 *3* α(N)=0.0001652 *24*;

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Adopted Levels, Gammas (continued)

γ(^{142}La) (continued)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.	δ	α†	Comments
									α(O)=2.64×10^{-5} *4*; α(P)=1.87×10^{-6} *6*
417.80		340.5 *7*	6.7 *56*	77.594	(2)$^-$				
		417.8 *2*	100 *11*	0.0	2$^-$				
424.99	1$^{(-)}$	346.8 *2*	2.3 *2*	77.594	(2)$^-$				
		425.036 *31*	100 *2*	0.0	2$^-$	(M1+E2)	+0.31 *24*	0.0211 *9*	α(K)=0.0180 *8*; α(L)=0.00239 *5*; α(M)=0.000496 *9*; α(N+..)=0.000128 *3* α(N)=0.0001091 *21*; α(O)=1.77×10^{-5} *4*; α(P)=1.38×10^{-6} *8*
432.30	1$^-$	68.3 *1*	4.5 *6*	363.94	2$^{(-)}$				
		123.0 *1*	54 *19*	309.210	2$^-$	M1,E2		0.78 *18*	α(K)=0.58 *7*; α(L)=0.16 *9*; α(M)=0.034 *20*; α(N+..)=0.008 *5* α(N)=0.007 *5*; α(O)=0.0011 *6*; α(P)=3.81×10^{-5} *20*
		177.0 *1*	100 *2*	255.302	1$^-$				
		354.7 *5*	2.9 *10*	77.594	(2)$^-$				
		432.3 *1*	60 *5*	0.0	2$^-$				
604.46	(1$^-$,2$^-$)	172.6 *3*	4.0 *16*	432.30	1$^-$				
		242.9 *2*	20 *4*	361.44					
		269.5 *1*	100 *9*	335.02	1$^{(-)}$	(M1+E2)		0.0682 *22*	α(K)=0.057 *4*; α(L)=0.0092 *13*; α(M)=0.0019 *3*; α(N+..)=0.00049 *7* α(N)=0.00042 *6*; α(O)=6.6×10^{-5} *8*; α(P)=4.1×10^{-6} *6*
		457.1 *1*	40.4 *16*	147.24	$^-$	(M1+E2)		0.0156 *24*	α(K)=0.0132 *22*; α(L)=0.00187 *14*; α(M)=0.000391 *25*; α(N+..)=0.000100 *8* α(N)=8.6×10^{-5} *6*; α(O)=1.37×10^{-5} *12*; α(P)=9.8×10^{-7} *21*
		604.3 *2*	45.3 *22*	0.0	2$^-$	(M1+E2)		0.0076 *14*	α(K)=0.0065 *13*; α(L)=0.00088 *12*; α(M)=0.000183 *23*; α(N+..)=4.7×10^{-5} *7* α(N)=4.0×10^{-5} *6*; α(O)=6.5×10^{-6} *9*; α(P)=4.8×10^{-7} *11*
666.13		356.8 *5*	91 *27*	309.210	2$^-$				
		588.4 *2*	100 *16*	77.594	(2)$^-$				
866.91		434.4 *1*	100 *14*	432.30	1$^-$				
		557.7 *1*	55 *2*	309.210	2$^-$				
969.57		537.2 *2*	100 *18*	432.30	1$^-$				
		714.4 *4*	59 *20*	255.302	1$^-$				
984.39		380.0 *5*	89 *31*	604.46	(1$^-$,2$^-$)				
		620.3 *3*	67 *17*	363.94	2$^{(-)}$				
		622.8 *2*	89 *17*	361.44					
		649.3 *2*	94 *17*	335.02	1$^{(-)}$				
		674.4 *6*	89 *36*	309.210	2$^-$				

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Adopted Levels, Gammas (continued)

γ(^{142}La) (continued)

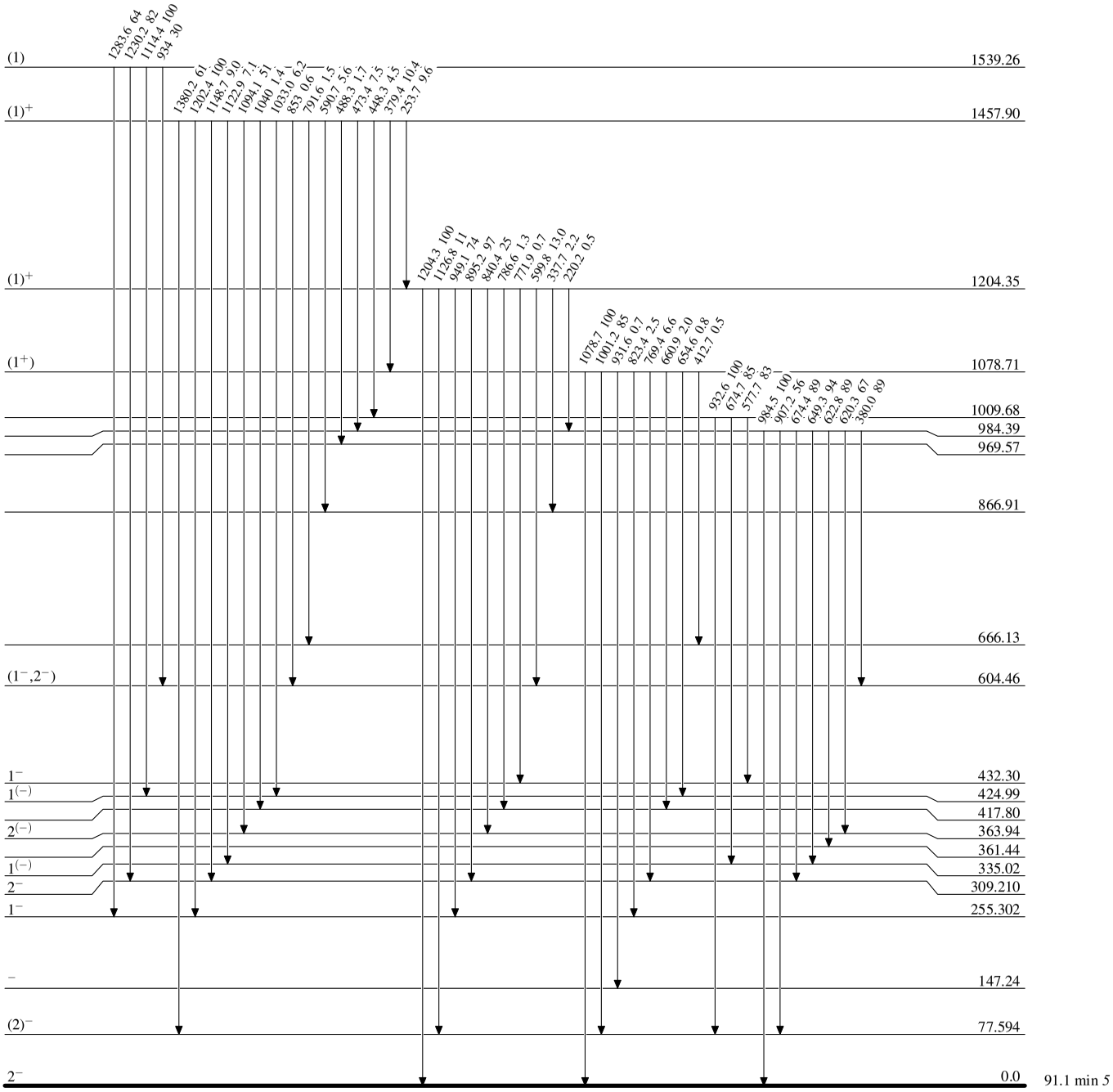
E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π
984.39		907.2 *4*	56 *19*	77.594	$(2)^-$
		984.5 *3*	100 *19*	0.0	2^-
1009.68		577.7 *2*	83 *13*	432.30	1^-
		674.7 *7*	85 *33*	335.02	$1^{(-)}$
		932.6 *9*	100 *75*	77.594	$(2)^-$
1078.71	(1^+)	412.7 *5*	0.5 *2*	666.13	
		654.6 *2*	0.8 *1*	424.99	$1^{(-)}$
		660.9 *1*	2.0 *11*	417.80	
		769.4 *1*	6.6 *16*	309.210	2^-
		823.4 *3*	2.5 *9*	255.302	1^-
		931.6 *4*	0.7 *5*	147.24	$^-$
		1001.2 *1*	85 *2*	77.594	$(2)^-$
		1078.7 *1*	100 *3*	0.0	2^-
1204.35	$(1)^+$	220.2 *2*	0.5 *1*	984.39	
		337.7 *2*	2.2 *2*	866.91	
		599.8 *1*	13.0 *14*	604.46	$(1^-,2^-)$
		771.9 *2*	0.7 *1*	432.30	1^-
		786.6 *2*	1.3 *1*	417.80	
		840.4 *1*	25 *1*	363.94	$2^{(-)}$
		895.2 *1*	97 *3*	309.210	2^-
		949.1 *1*	74 *2*	255.302	1^-
		1126.8 *1*	11 *1*	77.594	$(2)^-$
		1204.3 *1*	100 *2*	0.0	2^-
1457.90	$(1)^+$	253.7 *1*	9.6 *7*	1204.35	$(1)^+$
		379.4 *1*	10.4 *2*	1078.71	(1^+)
		448.3 *1*	4.5 *3*	1009.68	
		473.4 *1*	7.5 *3*	984.39	
		488.3 *2*	1.7 *3*	969.57	
		590.7 *1*	5.6 *3*	866.91	
		791.6 *2*	1.5 *3*	666.13	
		853	0.6 *3*	604.46	$(1^-,2^-)$
		1033.0 *1*	6.2 *3*	424.99	$1^{(-)}$
		1040	1.4 *5*	417.80	
		1094.1 *1*	51 *2*	363.94	$2^{(-)}$
		1122.9 *1*	7.1 *3*	335.02	$1^{(-)}$
		1148.7 *1*	9.0 *33*	309.210	2^-
		1202.4 *1*	100 *4*	255.302	1^-
		1380.2 *1*	61 *3*	77.594	$(2)^-$
1539.26	(1)	934	30 *16*	604.46	$(1^-,2^-)$
		1114.4 *4*	100 *40*	424.99	$1^{(-)}$
		1230.2 *2*	82 *8*	309.210	2^-
		1283.6 *3*	64 *12*	255.302	1^-

† Additional information 1.

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level



$^{142}_{57}La_{85}$

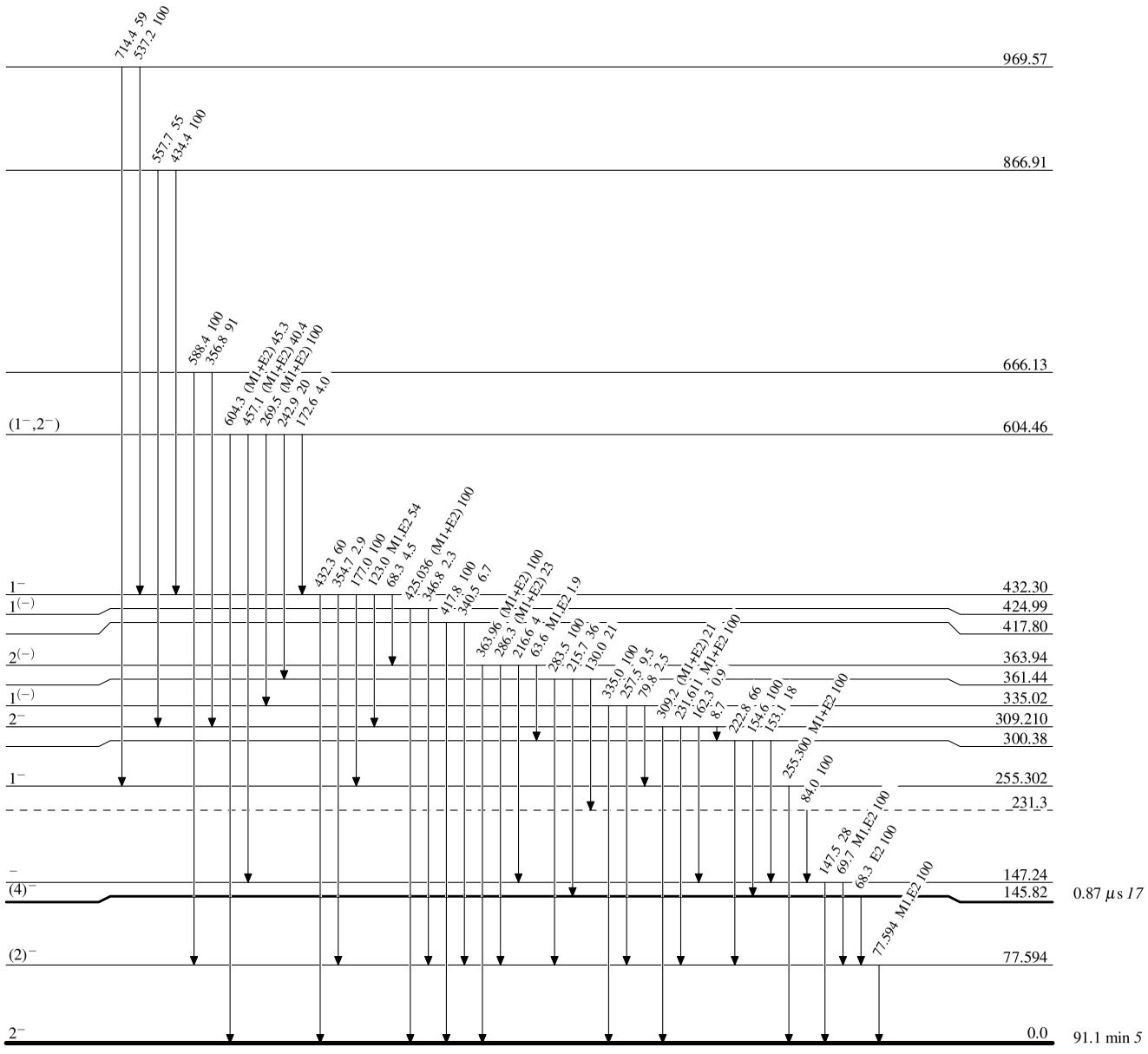
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



$^{142}_{57}La_{85}$