Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	E. A. Mccutchan	NDS 152, 331 (2018)	1-Apr-2018

Q(β^-)=4.7×10^2 *5*; S(n)=7.47×10^3 *5*; S(p)=5.48×10^3 *5*; Q(α)=−1.31×10^3 *5* 2017Wa10
S(2n)=1.696×10^4 *6*, S(2p)=1.372×10^4 *5* (2017Wa10).
α: Additional information 1.

^{136}La Levels

Cross Reference (XREF) Flags

A	^{136}La IT decay	D	^{130}Te(^{11}B,5nγ)
B	^{124}Sn(^{17}N,5nγ)	E	^{135}Ba(^{3}He,d),(α,t)
C	^{128}Te(^{11}B,3nγ)	F	^{138}Ba(p,3nγ),^{133}Cs(α,nγ)

E(level)†	J$^\pi$	T$_{1/2}$	XREF	Comments
0.0#	1$^+$	9.87 min *3*	A DEF	%ε+%β^+=100 T$_{1/2}$: from 1968Ju02, using γ(t) following chemical separation. J$^\pi$: from atomic beam (1976Fu06,1973In04); π from L=2 in (^{3}He,d),(α,t).
21.80# *20*	(2)$^+$		A DEF	J$^\pi$: L=2 in (^{3}He,d),(α,t), assignment to $\pi d_{5/2}\otimes\nu d_{3/2}$ band.
44.36 *24*	(3)$^+$		A DEF	J$^\pi$: L=2 in (^{3}He,d),(α,t), 22.5γ to (2)$^+$.
140.0 *3*	(4)$^+$		EF	J$^\pi$: L=4 in (^{3}He,d),(α,t), 95.7γ to (3)$^+$.
158.3 *10*	(5)$^+$		EF	J$^\pi$: L=4 in (^{3}He,d),(α,t), 18.3γ to (4)$^+$.
172.00# *24*	(3)$^+$		A DEF	J$^\pi$: D+Q 150.2γ to (2)$^+$, assignment to $\pi d_{5/2}\otimes\nu d_{3/2}$ band.
211.83 *13*	(2)		D F	J$^\pi$: D 211γ to 1$^+$.
241			E	
257	$^+$		E	J$^\pi$: L=2 in (^{3}He,d),(α,t). 4$^+$ is tentatively assigned based on spectroscopic strengths.
259.5? *3*	(7$^-$)	114 ms *5*	ABCD F	%IT=100 E(level): energy of isomer tentatively fixed in ^{130}Te(^{11}B,5nγ) on the basis of a weak 87.5γ. In ^{138}Ba(p,3nγ),^{133}Cs(α,nγ) 1980SuZY place the isomer at 230.1-keV decaying by a 71.8γ, while 1985Mo01 tentatively place the isomer as slightly higher (x+230 keV) decaying by a highly converted, unobserved, low-energy transition. The transition strength for a single M4 87.5γ from this level results in an M4 transition strength which significantly exceeds the RUL, suggesting that either the placement is incorrect, or that the level decays by an additional, highly converted, unobserved low energy transition. T$_{1/2}$: from γ(t) in ^{138}Ba(p,3nγ),^{133}Cs(α,nγ). J$^\pi$: M1 280.7γ fom (8$^-$).
270.13 *25*	(3)	17 ns *4*	D F	T$_{1/2}$: from γ(t) in ^{138}Ba(p,3nγ),^{133}Cs(α,nγ). J$^\pi$: D+Q 130γ to (4)$^+$, D+Q 248γ to (2)$^+$.
274.6 *3*			F	
290.1 *4*	(7$^+$,8)		BC	J$^\pi$: 835.2γ from (9$^+$).
304			E	J$^\pi$: L=4 in (^{3}He,d),(α,t).
331.6 *3*	(2,3,4)		EF	J$^\pi$: D+Q 159.5γ to (3)$^+$.
341.9‡ *4*	(8$^-$)		CD F	J$^\pi$: E2+M1 82.3γ to (7$^-$).
342.6 *3*			EF	
346.0 *6*			F	
381.5 *3*	(4)		F	J$^\pi$: D+Q 111.4γ to (3).
392.8 *5*			F	
403?			E	
414.12 *16*	(3)		EF	XREF: E(418). J$^\pi$: Q 414γ to 1$^+$.
436.9 *3*	(2,3,4)		EF	J$^\pi$: D+Q 264.9γ to (3)$^+$.

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Adopted Levels, Gammas (continued)

^{136}La Levels (continued)

E(level)[†]	Jπ	$T_{1/2}$	XREF	Comments
484			E	
540.1 *4*	(8⁻)		BCD F	Jπ: E1 585.5γ from (9⁺).
547.98 *19*			EF	XREF: E(543).
555.0 *3*			F	
563.24[@] *24*	(3)		D F	Jπ: E1 351γ to (2).
570.97 *16*			F	
594			E	
598.9 *4*			F	
617			E	
629			E	
658.8 *5*			F	
666.1? *8*			C	
704			E	
710.7 *4*			EF	XREF: E(716).
726			E	
749.21 *19*	(3)		F	Jπ: D+Q 537γ to (2).
752.6 *3*			EF	
798			E	
800.9 *4*	(9)		D F	Jπ: D 458.5γ to (8⁻).
829			E	
840			E	
860.9 *5*			F	
945.34 *24*			F	
960.6 *4*			F	
972?			E	
983.7 *3*	(4)		D	Jπ: 420γ to (3), band assignment.
987.94 *24*			F	
999?			E	
1006			E	
1023.7[‡] *4*	(10⁻)		CD F	Jπ: E2 682γ to (8⁻); band assignment.
1028			E	
1060.3 *6*			F	
1076			E	
1114			E	
1125.3[&] *4*	(9⁺)		BCD F	Jπ: from systematics of πh11/2⊗νh$^{-1-11/2}$ bands in ^{130,132,134}La.
1155			E	
1180			E	
1211			E	
1247			E	
1257			E	
1281.2[&] *4*	(10⁺)		BCD F	Jπ: M1 156γ to (9⁺), band assignment.
1282.6 *5*			F	
1311.0 *4*			F	
1335.5 *4*			F	
1521.8 *4*	(10⁻)		CD F	Jπ: M1 498.3γ to (10⁻), 10⁻ assigned by 2005Bh06 in (^{11}B,5nγ).
1687.6[&] *4*	(11⁺)		BCD F	Jπ: M1+E2 406γ to (10⁺), band assignment.
1728.9[@] *3*	(5)		D	Jπ: 745γ to (4), 1166γ to (3), band assignment.
1875.5 *4*	(10⁺)		D	Jπ: M1+E2 750γ to (9⁺).
2112.8[&] *4*	(12⁺)		BCD F	Jπ: M1+E2 425γ to (11⁺), Q 831.5γ to (10⁺), band assignment.
2113.5[‡] *4*	(12⁻)		CD	Jπ: E2 1090γ to (10⁻), band assignment.
2371.4[&] *4*	(13⁺)		BCD	Jπ: D+Q 258.5γ to (12⁺), Q 684γ to (11⁺), band assignment.
2372.1 *4*	(13⁻)		CD	Jπ: 258.7γ to (12⁻).
2465.6? *5*			D	
2520.6[a] *4*	(14⁺)	187 ns *27*	B D	%IT=100

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Adopted Levels, Gammas (continued)

^{136}La Levels (continued)

E(level)[†]	Jπ	XREF	Comments
			Jπ: D 149γ to (13+), 408γ to (12+). $T_{1/2}$: from γγ(t) in ^{124}Sn(^{17}N,5nγ).
2548.2 *5*	(14−)	D	Jπ: M1+E2 176γ to (13−).
2580.0[b] *4*	(12−)	BCD	Jπ: E2 1058γ to (10−).
2613.7[‡] *5*	(13−)	CD	Jπ: 500γ to (12−), band assignment.
2691.8 *11*		C	
2768.2[@] *4*	(6)	D	Jπ: 1039γ to (5), band assignment.
2790.8[b] *4*	(13−)	BCD	Jπ: M1 211γ to (12−), band assignment.
2810.7 *6*	(12,13,14)	CD	Jπ: D 439.1γ to (13+).
2892.3[@] *4*	(7)	D	Jπ: D 124γ to (6), band assignment.
2920.4 *5*		D	
2970.2[‡] *5*	(14−)	CD	Jπ: M1 357γ to (13−), band assignment.
2985.7 *11*		C	
2990.6[@] *5*	(8)	D	Jπ: 98.3γ to (7), band assignment.
3070.6[b] *5*	(14−)	BCD	Jπ: M1 280γ to (13−), band assignment.
3117.0[a] *5*	(15+)	B D	Jπ: M1 596γ to (14+), band assignment.
3123.9 *8*		C	
3161.7 *15*		C	
3225.9[@] *5*	(9)	D	Jπ: (M1) 235γ to (8), band assignment.
3314.0[c] *5*	(14+)	CD	Jπ: M1 942.6γ to (13+).
3392.2 *5*	(14,15−)	CD	Jπ: 778.5γ to 13−.
3405.9[b] *5*	(15−)	BCD	Jπ: M1 335γ to (14−), band assignment.
3686.2[c] *5*	(15+)	D	Jπ: D+Q 372γ to (14+), band assignment.
3734.7[a] *5*	(16+)	B D	Jπ: D+Q 617.5γ to (15+), Q 1214γ to (14+), band assignment.
3822.2[‡] *5*	(15−,16−)	CD	Jπ: 852γ to (14−), band assignment.
3844.0[b] *7*	(16−)	CD	Jπ: D+Q 438.1γ to (15−), band assignment.
3862.3[c] *5*	(16+)	D	Jπ: 176.1γ to (15+), band assignment.
4147.4[a] *5*	(17+)	B D	Jπ: M1+E2 412γ to (16+), band assignment.
4294.2? *5*		B	E(level): reversed ordering of the 559.8γ and 337.2γ is possible would instead result in a level at 4072 keV.
4393.7[b] *7*	(17−)	CD	Jπ: D 549.7γ to (16−), band assignment.
4401.3[c] *6*	(17+)	D	Jπ: 539.0γ to (16+), band assignment.
4631.1[a] *5*	(18+)	B D	Jπ: D 483γ to (17+), 896γ to (16+), band assignment.
4869.3[a] *5*	(19+)	B	Jπ: 238γ to (18+), 722γ to (17+), band assignment. E(level): in ^{130}Te(^{11}B, 5nγ) the (19+) member of this band is placed at 5227.6 keV.
4937.4 *5*		B	
5028.5 *5*		B	
5075.3[b] *9*	(18−)	CD	Jπ: 681.6γ to (17−), band assignment.
5082.3 *8*		D	
5199.8? *5*		B	
5467.4 *5*		B	
5910.3[b] *10*	(19−)	D	Jπ: 835γ to (18−), band assignment.

[†] From least-squares procedure to Eγ, assuming ΔEγ=1 keV when unknown.
[‡] Band(A): Possible π1/2[431]⊗νh$_{11/2}$, 8− band.
[#] Band(B): πd$_{5/2}$⊗νd$_{3/2}$, 1+ band.
[@] Band(C): band based on 3− level.
[&] Band(D): πh$_{11/2}$⊗νh$_{11/2}$, 9+ band.

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Adopted Levels, Gammas (continued)

^{136}La Levels (continued)

[a] Band(E): $\pi(d_{5/2}g_{7/2})^1 \otimes \nu(s_{1/2}d_{3/2}d_{5/2}g_{7/2})^1 h^{-2}_{11/2}$ band. Note that in ^{130}Te(^{11}B,5nγ), this is identified as an extension of the $\pi h_{11/2} \otimes \nu h_{11/2}$, 9^+ band.

[b] Band(F): Negative parity side band.

[c] Band(G): Band based on 14^+ level. 2005Zh16 propose oblate structure with $\pi g_{7/2} \otimes \nu(g^2_{7/2}d_{5/2}h^2_{11/2})$ configuration.

Adopted Levels, Gammas (continued)

γ(^{136}La)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[†]	α	Comments
21.80	$(2)^+$	21.8[@] *2*	100	0.0	1^+			
44.36	$(3)^+$	22.5[@] *2*	100	21.80	$(2)^+$			
140.0	$(4)^+$	95.7[d] *2*	100	44.36	$(3)^+$			
158.3	$(5)^+$	18.27	100	140.0	$(4)^+$			
172.00	$(3)^+$	127.5[@] *2*	100[@] *30*	44.36	$(3)^+$	M1+E2[a]	0.69 *15*	α(K)=0.52 *6*; α(L)=0.136 *74*; α(M)=0.029 *17*; α(N)=0.0063 *35*; α(O)=9.4×10^{-4} *48* α(P)=3.44×10^{-5} *19*
		150.2[@] *2*	61[@] *16*	21.80	$(2)^+$	M1+E2[a]	0.41 *7*	α(K)=0.318 *25*; α(L)=0.072 *33*; α(M)=0.0155 *73*; α(N)=0.0033 *16*; α(O)=5.0×10^{-4} *21* α(P)=2.15×10^{-5} *14*
211.83	(2)	211.4 *2*	100	0.0	1^+	D		
259.5?	(7^-)	87.5[d] *2*	100	172.00	$(3)^+$	[M4]	1.86×10^3 *4*	α(K)=580 *10*; α(L)=965 *20*; α(M)=249 *6*; α(N)=54.5 *12*; α(O)=7.84 *16*; α(P)=0.228 *5* E_γ: B(M4) transition strength significantly exceeds the RUL, suggesting that either placement is incorrect, or there are additional, highly converted, unobserved, low-energy transitions depopulating the level.
270.13	(3)	98.0[@] *2*	59[@] *12*	172.00	$(3)^+$			
		130.2[@] *2*	100[@] *23*	140.0	$(4)^+$	D+Q[&]		E_γ: not observed in ^{130}Te(^{11}B,5nγ).
		248.4[@] *2*	88[@] *20*	21.80	$(2)^+$	D+Q[&]		E_γ: not observed in ^{130}Te(^{11}B,5nγ).
274.6		102.7[@] *2*	100[@] *60*	172.00	$(3)^+$			
		230.2[@] *2*	100[@] *60*	44.36	$(3)^+$			
331.6	(2,3,4)	159.5[@] *2*	94[@] *24*	172.00	$(3)^+$	D+Q[&]		
		287.3[@] *2*	100[@] *30*	44.36	$(3)^+$	D+Q[&]		
341.9	(8^-)	82.3 *2*	100	259.5?	(7^-)	E2+M1	2.9 *11*	α(K)=1.9 *3*; α(L)=0.84 *63*; α(M)=0.19 *14*; α(N)=0.039 *30*; α(O)=0.0057 *41*; α(P)=0.000119 *8*
342.6		72.5[@] *2*	100	270.13	(3)			
346.0		174.0[@] *5*	100	172.00	$(3)^+$			
381.5	(4)	111.4[@] *2*	100	270.13	(3)	D+Q[&]		
392.8		181.0[@] *5*	100	211.83	(2)			
414.12	(3)	202.1[@] *2*	42[@] *20*	211.83	(2)			
		414.3[@] *2*	100[@] *50*	0.0	1^+	Q[&]		
436.9	(2,3,4)	264.9[@] *2*	100	172.00	$(3)^+$	D+Q[&]		
540.1	(8^-)	280.7 *2*	100	259.5?	(7^-)	M1	0.0630	α(K)=0.0540 *8*; α(L)=0.00714 *10*; α(M)=0.001482 *21*; α(N)=0.000326 *5*; α(O)=5.31×10^{-5} *8* α(P)=4.17×10^{-6} *6*
547.98		336.0[@] *5*	100[@] *50*	211.83	(2)			
		548.0[@] *2*	80[@] *50*	0.0	1^+			

From ENSDF

$^{136}_{57}La_{79}$-5

Adopted Levels, Gammas (continued)

γ(^{136}La) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[†]	α	Comments
555.0		284.9[@] *2*	100	270.13	(3)			
563.24	(3)	351.4 *2*	100	211.83	(2)	E1	0.00798	α(K)=0.00687 *10*; α(L)=0.000883 *13*; α(M)=0.000182 *3*; α(N)=3.98×10^{-5} *6*; α(O)=6.42×10^{-6} *9* α(P)=4.76×10^{-7} *7*
570.97		358.9[@] *2*	50[@] *30*	211.83	(2)			
		571.2[@d] *2*	100[@] *30*	0.0	1$^+$			
598.9		257.0[@] *2*	100	341.9	(8$^-$)			
658.8		447.0[@] *5*	100	211.83	(2)			
666.1?		324[d]	100	341.9	(8$^-$)			E_γ: transition only observed in ^{128}Te(^{11}B,3nγ).
710.7		329.2[@] *2*	100	381.5	(4)			
749.21	(3)	537.4[@] *5*	70[@] *35*	211.83	(2)	D+Q[&]		
		749.2[@] *2*	100[@] *50*	0.0	1$^+$			
752.6		482.5[@] *2*	100	270.13	(3)			
800.9	(9)	458.5 *2*	100	341.9	(8$^-$)	D		
860.9		262.0[@] *2*	100	598.9				
945.34		733.5[@] *2*	100	211.83	(2)			
960.6		420.5[@] *2*	100[@] *50*	540.1	(8$^-$)			
		619.3[@] *5*	86[@] *43*	341.9	(8$^-$)			
983.7	(4)	420.4 *2*	100	563.24	(3)			
987.94		776.1[@] *2*	100	211.83	(2)			
1023.7	(10$^-$)	682.1 *2*	100	341.9	(8$^-$)	E2	0.00460	α(K)=0.00391 *6*; α(L)=0.000554 *8*; α(M)=0.0001155 *17*; α(N)=2.52×10^{-5} *4*; α(O)=4.04×10^{-6} *6* α(P)=2.83×10^{-7} *4*
1060.3		520.2[@] *5*	100	540.1	(8$^-$)			
1125.3	(9$^+$)	324.4 *2*	12.0 *23*	800.9	(9)			
		459[d]		666.1?				E_γ: transition only observed in ^{128}Te(^{11}B,3nγ).
		585.5 *2*	100 *11*	540.1	(8$^-$)	E1	0.00239	α(K)=0.00207 *3*; α(L)=0.000261 *4*; α(M)=5.37×10^{-5} *8*; α(N)=1.177×10^{-5} *17*; α(O)=1.91×10^{-6} *3* α(P)=1.467×10^{-7} *21*
		835.2[‡] *1*	15[‡] *3*	290.1	(7$^+$,8)			
1281.2	(10$^+$)	156.1 *2*	100 *1*	1125.3	(9$^+$)	M1	0.309	α(K)=0.264 *4*; α(L)=0.0355 *6*; α(M)=0.00737 *11*; α(N)=0.001620 *24*; α(O)=0.000264 *4* α(P)=2.05×10^{-5} *3*
		480.0 *2*	1.2 *3*	800.9	(9)			
1282.6		683.7[@] *2*	100	598.9				
1311.0		287.9[@] *5*	28[@] *17*	1023.7	(10$^-$)			
		770.8[@] *2*	100[@] *50*	540.1	(8$^-$)			

From ENSDF

$^{136}_{57}La_{79}$-6

Adopted Levels, Gammas (continued)

γ(^{136}La) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[†]	α	Comments
1335.5		375.0[@] *2*	100[@] *53*	960.6		D+Q		Mult.: from γ(θ) in ^{138}Ba(p,3nγ),^{133}Cs(α,nγ).
		795.3[@] *2*	65[@] *35*	540.1	(8$^-$)			
1521.8	(10$^-$)	498.3 *2*	100 *5*	1023.7	(10$^-$)	M1	0.01442	α(K)=0.01239 *18*; α(L)=0.001609 *23*; α(M)=0.000333 *5*; α(N)=7.33×10^{-5} *11* α(O)=1.196×10^{-5} *17*; α(P)=9.49×10^{-7} *14*
		720.0 *5*	25 *3*	800.9	(9)			
1687.6	(11$^+$)	406.3 *2*	100	1281.2	(10$^+$)	M1+E2	0.021 *3*	α(K)=0.018 *3*; α(L)=0.00262 *10*; α(M)=0.000548 *16*; α(N)=0.000120 *4*; α(O)=1.91×10^{-5} *11* α(P)=1.3×10^{-6} *3*
1728.9	(5)	745.1 *2*	19 *4*	983.7	(4)			
		1165.8 *2*	100 *11*	563.24	(3)			
1875.5	(10$^+$)	750.2 *2*	100	1125.3	(9$^+$)	M1+E2	0.0045 *9*	α(K)=0.0038 *8*; α(L)=0.00051 *8*; α(M)=0.000106 *16*; α(N)=2.3×10^{-5} *4*; α(O)=3.8×10^{-6} *6* α(P)=2.9×10^{-7} *6*
2112.8	(12$^+$)	425.3 *2*	100 *10*	1687.6	(11$^+$)	M1+E2	0.019 *3*	α(K)=0.0160 *25*; α(L)=0.00230 *12*; α(M)=0.000480 *20*; α(N)=0.000105 *5*; α(O)=1.68×10^{-5} *12* α(P)=1.18×10^{-6} *24*
		831.5 *2*	10 *2*	1281.2	(10$^+$)	E2	0.00288	α(K)=0.00246 *4*; α(L)=0.000335 *5*; α(M)=6.97×10^{-5} *10*; α(N)=1.526×10^{-5} *22*; α(O)=2.45×10^{-6} *4* α(P)=1.79×10^{-7} *3* Mult.: Q from R(DCO) in ^{130}Te(^{11}B,5nγ),Δπ=no from level scheme.
2113.5	(12$^-$)	592.0 *2*	1.4	1521.8	(10$^-$)			
		1089.9 *2*	100 *20*	1023.7	(10$^-$)	E2	1.59×10^{-3}	α(K)=0.001366 *20*; α(L)=0.000179 *3*; α(M)=3.71×10^{-5} *6*; α(N)=8.13×10^{-6} *12* α(O)=1.317×10^{-6} *19*; α(P)=1.001×10^{-7} *14*
2371.4	(13$^+$)	258.5 *2*	44 *8*	2112.8	(12$^+$)	M1+E2	0.0771 *17*	α(K)=0.064 *4*; α(L)=0.0106 *17*; α(M)=0.0022 *4*; α(N)=0.00048 *8*; α(O)=7.6×10^{-5} *10* α(P)=4.6×10^{-6} *7* Mult.: D+Q from R(DCO) in ^{130}Te(^{11}B,5nγ),Δπ=no from level scheme.
		683.8 *2*	100 *10*	1687.6	(11$^+$)	E2[#]	0.00458	α(K)=0.00388 *6*; α(L)=0.000550 *8*; α(M)=0.0001148 *16*; α(N)=2.51×10^{-5} *4*; α(O)=4.01×10^{-6} *6* α(P)=2.81×10^{-7} *4*
2372.1	(13$^-$)	258.7 *2*		2113.5	(12$^-$)			
		847[d]		1521.8	(10$^-$)			E_γ: transition only observed in ^{128}Te(^{11}B,3nγ).
2465.6?		352.8[d] *2*	100	2112.8	(12$^+$)			
2520.6	(14$^+$)	149.0 *2*	21 *4*	2371.4	(13$^+$)	D		
		408.1 *2*	100 *20*	2112.8	(12$^+$)	[E2]	0.0183	α(K)=0.01519 *22*; α(L)=0.00250 *4*; α(M)=0.000527 *8*; α(N)=0.0001144 *17*; α(O)=1.79×10^{-5} *3* α(P)=1.056×10^{-6} *15* B(E2)(W.u.)=0.0052 *16*

From ENSDF

$^{136}_{57}La_{79}$-7

Adopted Levels, Gammas (continued)

γ(^{136}La) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult.†	α	Comments
2548.2	(14$^-$)	176.1 *2*	100	2372.1	(13$^-$)	M1+E2	0.25 *3*	α(K)=0.197 *9*; α(L)=0.040 *15*; α(M)=0.0085 *33*; α(N)=0.00184 *69*; α(O)=2.80×10^{-4} *92* α(P)=1.36×10^{-5} *12*
2580.0	(12$^-$)	892.3 *2*	67 *13*	1687.6	(11$^+$)			
		1058.0 *2*	100 *20*	1521.8	(10$^-$)	E2	1.69×10^{-3}	α(K)=0.001453 *21*; α(L)=0.000191 *3*; α(M)=3.96×10^{-5} *6*; α(N)=8.69×10^{-6} *13* α(O)=1.406×10^{-6} *20*; α(P)=1.065×10^{-7} *15*
2613.7	(13$^-$)	500.2 *2*	100	2113.5	(12$^-$)			
2691.8		579[b]	100	2112.8	(12$^+$)			
2768.2	(6)	1039.3 *2*	100	1728.9	(5)			
2790.8	(13$^-$)	210.6 *2*	48 *9*	2580.0	(12$^-$)	M1	0.1358	α(K)=0.1162 *17*; α(L)=0.01551 *22*; α(M)=0.00322 *5*; α(N)=0.000708 *10* α(O)=0.0001153 *17*; α(P)=9.01×10^{-6} *13*
		677.6 *2*	100 *21*	2113.5	(12$^-$)	(M1)	0.00678	α(K)=0.00583 *9*; α(L)=0.000750 *11*; α(M)=0.0001550 *22*; α(N)=3.41×10^{-5} *5*; α(O)=5.57×10^{-6} *8* α(P)=4.44×10^{-7} *7* Mult.: D from R(DCO) in ^{130}Te(^{11}B,5nγ), Δπ=no from level scheme.
2810.7	(12,13,14)	439.1 *5*	100	2371.4	(13$^+$)	D		
2892.3	(7)	124.1 *2*	100	2768.2	(6)	D		
2920.4		372.2[c] *2*	100[c]	2548.2	(14$^-$)			
2970.2	(14$^-$)	356.6 *2*	100	2613.7	(13$^-$)	M1	0.0337	α(K)=0.0289 *4*; α(L)=0.00380 *6*; α(M)=0.000787 *11*; α(N)=0.0001732 *25*; α(O)=2.82×10^{-5} *4* α(P)=2.23×10^{-6} *4*
2985.7		372[b]	100	2613.7	(13$^-$)			
2990.6	(8)	98.3 *2*	100	2892.3	(7)			
3070.6	(14$^-$)	279.8 *2*	100	2790.8	(13$^-$)	M1	0.0635	α(K)=0.0544 *8*; α(L)=0.00720 *11*; α(M)=0.001494 *22*; α(N)=0.000329 *5*; α(O)=5.35×10^{-5} *8* α(P)=4.21×10^{-6} *6*
3117.0	(15$^+$)	596.3 *2*	100	2520.6	(14$^+$)	M1	0.00925	α(K)=0.00796 *12*; α(L)=0.001027 *15*; α(M)=0.000212 *3*; α(N)=4.67×10^{-5} *7*; α(O)=7.63×10^{-6} *11* α(P)=6.07×10^{-7} *9*
3123.9		1010[b]	100	2113.5	(12$^-$)			
3161.7		176[b]	100	2985.7				
3225.9	(9)	235.3 *2*	100	2990.6	(8)	(M1)	0.1007	α(K)=0.0862 *13*; α(L)=0.01147 *17*; α(M)=0.00238 *4*; α(N)=0.000524 *8*; α(O)=8.53×10^{-5} *12* α(P)=6.68×10^{-6} *10*
3314.0	(14$^+$)	503.1 *5*	67 *7*	2810.7	(12,13,14)			
		942.6 *2*	100 *10*	2371.4	(13$^+$)	M1	0.00309	α(K)=0.00267 *4*; α(L)=0.000339 *5*; α(M)=7.00×10^{-5} *10*; α(N)=1.540×10^{-5} *22*; α(O)=2.52×10^{-6} *4* α(P)=2.02×10^{-7} *3*

From ENSDF

$^{136}_{57}La_{79}$-8

Adopted Levels, Gammas (continued)

γ(^{136}La) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[†]	α	Comments
3392.2	(14,15$^-$)	268		3123.9				E_γ: transition only observed in ^{128}Te(^{11}B,3nγ).
		778.5 *2*		2613.7	(13$^-$)			
3405.9	(15$^-$)	335.3 *2*	100	3070.6	(14$^-$)	M1	0.0395	α(K)=0.0339 *5*; α(L)=0.00446 *7*; α(M)=0.000925 *13*; α(N)=0.000203 *3*; α(O)=3.32×10^{-5} *5* α(P)=2.61×10^{-6} *4*
3686.2	(15$^+$)	372.2 *2*	100	3314.0	(14$^+$)	D+Q		
3734.7	(16$^+$)	617.5 *2*	100 *10*	3117.0	(15$^+$)	D+Q		
		1214.1 *2*	45 *6*	2520.6	(14$^+$)	Q		
3822.2	(15$^-$,16$^-$)	429.9 *2*	100 *21*	3392.2	(14,15$^-$)			
		852.0 *2*	5	2970.2	(14$^-$)			
3844.0	(16$^-$)	438.1 *5*	100	3405.9	(15$^-$)	D+Q		
3862.3	(16$^+$)	176.1 *2*	100	3686.2	(15$^+$)			
4147.4	(17$^+$)	412.4 *2*	100 *8*	3734.7	(16$^+$)	M1+E2	0.021 *3*	α(K)=0.017 *3*; α(L)=0.00251 *11*; α(M)=0.000525 *17*; α(N)=0.000115 *5*; α(O)=1.83×10^{-5} *11* α(P)=1.3×10^{-6} *3*
		1030.4 *5*	38 *13*	3117.0	(15$^+$)			
4294.2?		559.8[‡d] *2*	100	3734.7	(16$^+$)			
4393.7	(17$^-$)	549.7 *2*	100	3844.0	(16$^-$)	D		
4401.3	(17$^+$)	539.0 *2*	100	3862.3	(16$^+$)			
4631.1	(18$^+$)	337.2[‡] *2*	80[‡] *20*	4294.2?				
		483.4 *2*	100[‡] *40*	4147.4	(17$^+$)	D		
		896.4 *5*	36[‡] *10*	3734.7	(16$^+$)			
4869.3	(19$^+$)	238.2[‡] *1*	100[‡] *40*	4631.1	(18$^+$)			
		722.2[‡] *4*	90[‡] *40*	4147.4	(17$^+$)			
4937.4		306.2[‡] *2*	100	4631.1	(18$^+$)			
5028.5		397.5[‡] *2*	100	4631.1	(18$^+$)			
5075.3	(18$^-$)	681.6 *5*	100	4393.7	(17$^-$)			
5082.3		681.0 *5*	100	4401.3	(17$^+$)			
5199.8?		330.5[‡d] *1*	100	4869.3	(19$^+$)			
5467.4		439.0[‡] *1*	100[‡] *40*	5028.5				
		529.7[‡] *3*	90[‡] *40*	4937.4				
5910.3	(19$^-$)	835.0 *5*	100	5075.3	(18$^-$)			

[†] From ^{130}Te(^{11}B,5nγ), except where noted.
[‡] From ^{124}Sn(^{17}N,5nγ).
[#] Q from R(DCO) in ^{130}Te(^{11}B,5nγ), E2 from assumed band structure.
[@] From ^{138}Ba(p,3nγ),^{133}Cs(α,nγ).

From ENSDF

$^{136}_{57}La_{79}$-9

Adopted Levels, Gammas (continued)

$\gamma(^{136}La)$ (continued)

& From $\gamma(\theta)$ in $^{138}Ba(p,3n\gamma)$,$^{133}Cs(\alpha,n\gamma)$.
[a] D+Q from $\gamma(\theta)$ in $^{138}Ba(p,3n\gamma)$,$^{133}Cs(\alpha,n\gamma)$, $\Delta\pi$= no from level scheme.
[b] From $^{128}Te(^{11}B,3n\gamma)$.
[c] Multiply placed with intensity suitably divided.
[d] Placement of transition in the level scheme is uncertain.

From ENSDF

$^{136}_{57}La_{79}$-10

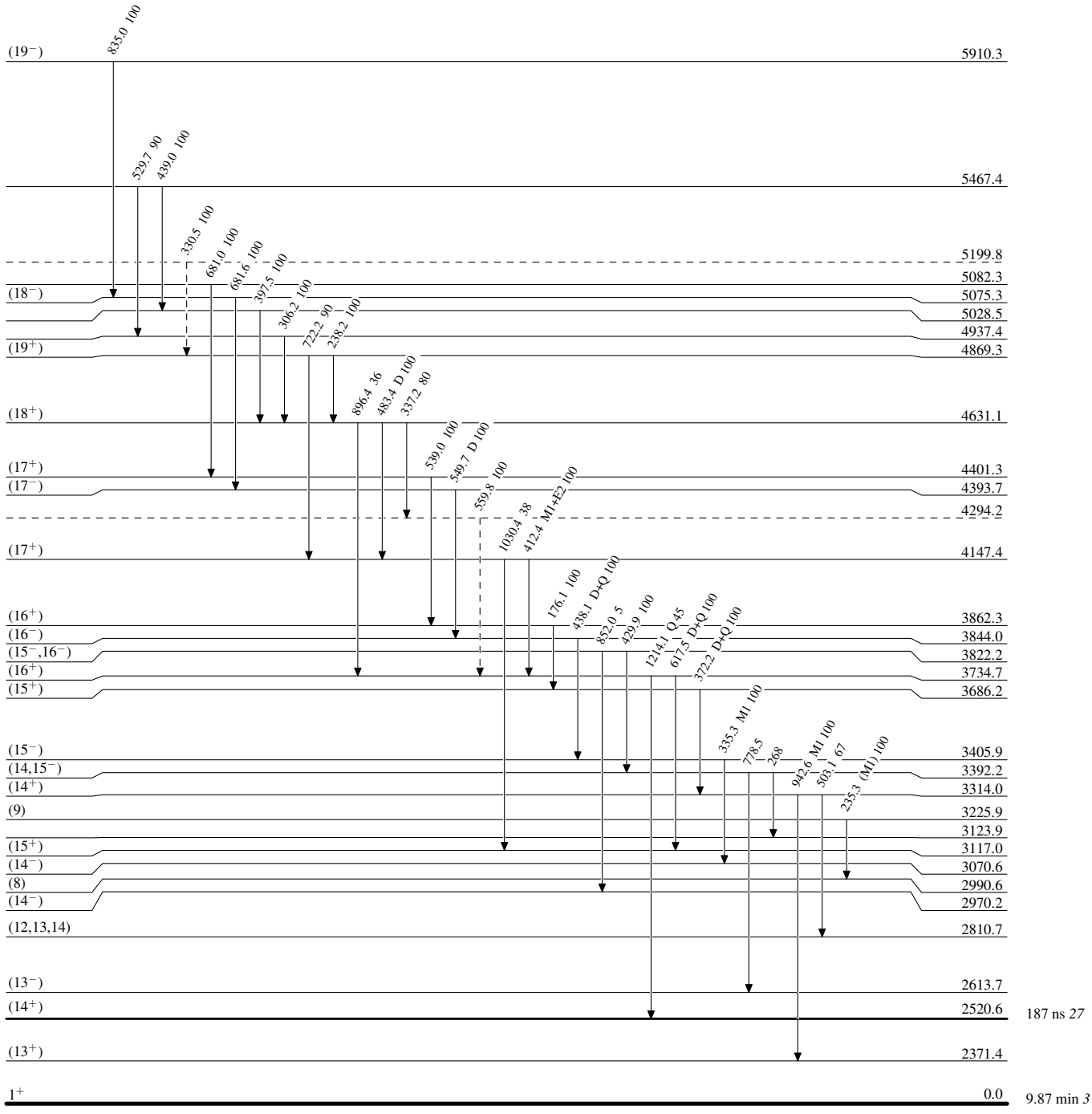
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



$^{136}_{57}La_{79}$

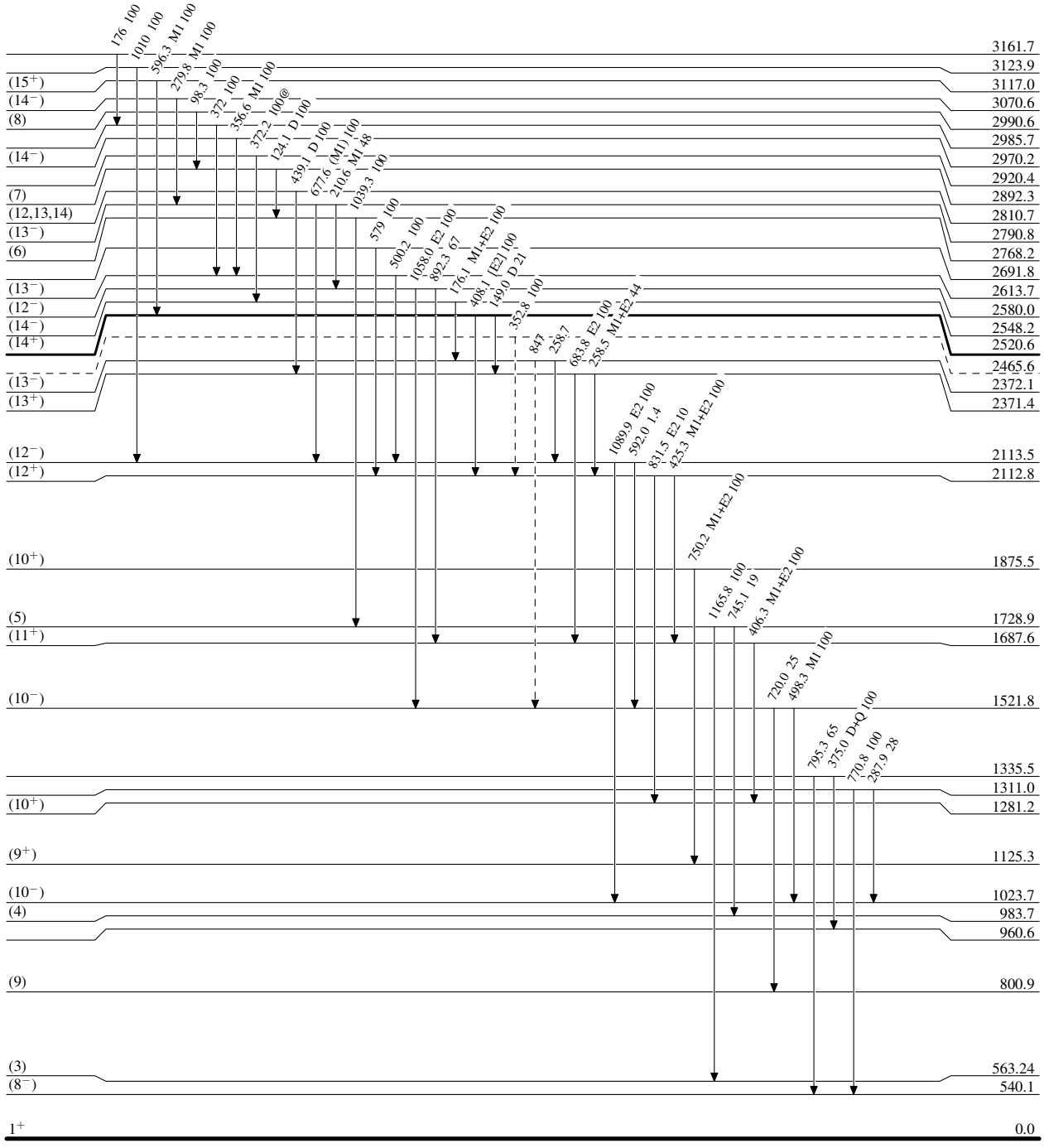
Adopted Levels, Gammas

Legend

Level Scheme (continued)

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

γ Decay (Uncertain)



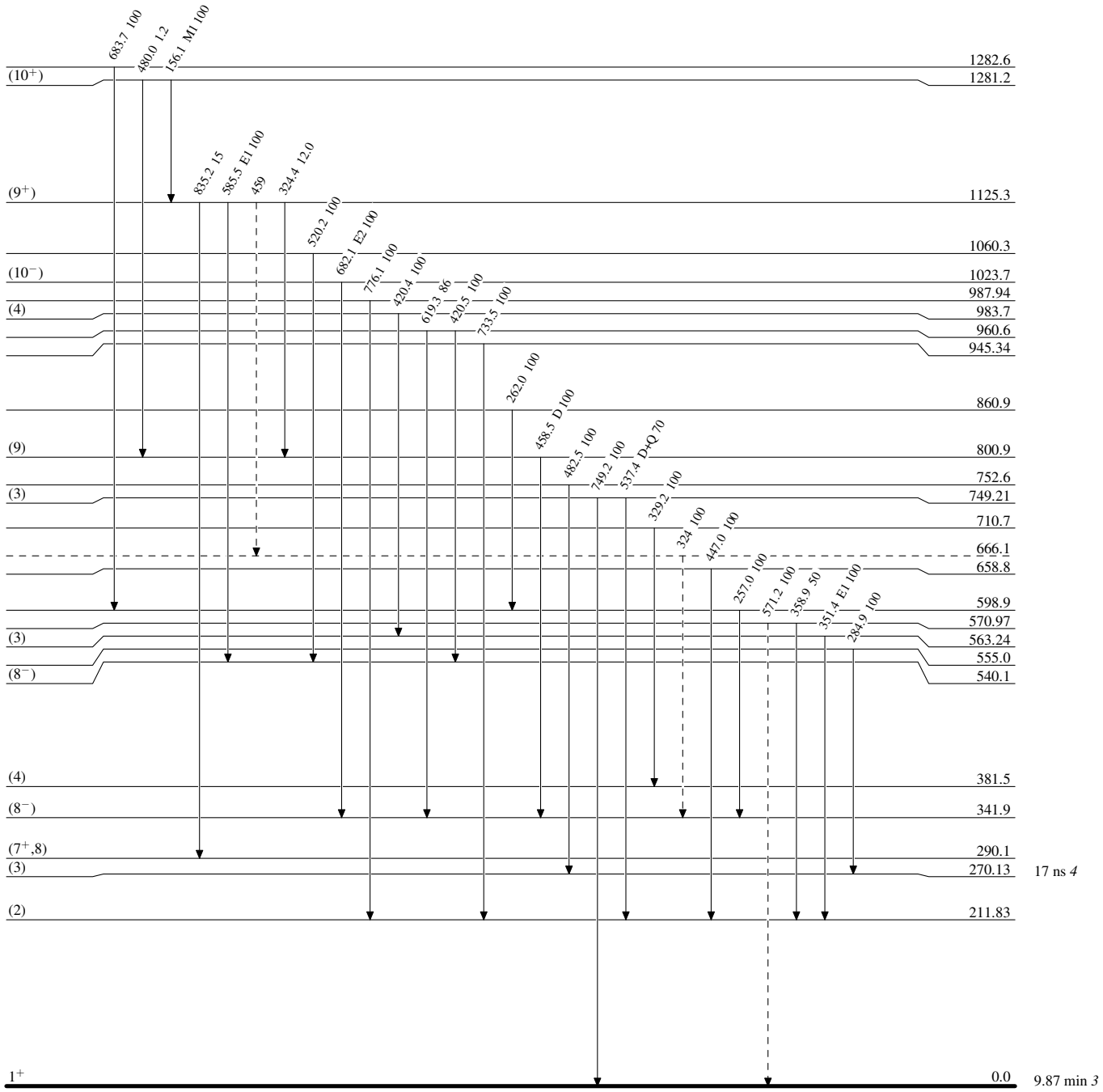
$^{136}_{57}La_{79}$

Adopted Levels, Gammas

Level Scheme (continued)

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

Legend
γ Decay (Uncertain)



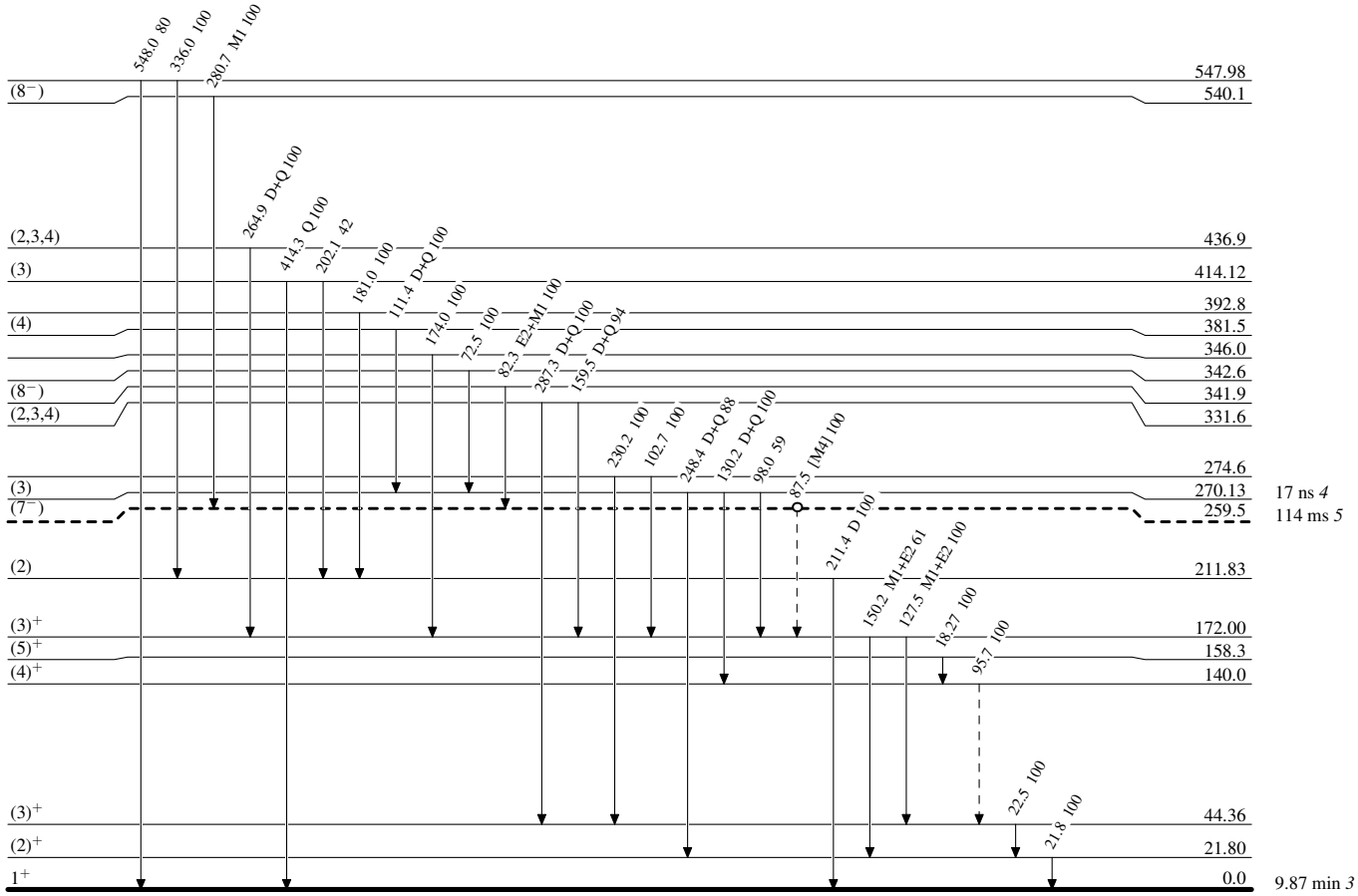
$^{136}_{57}La_{79}$

Adopted Levels, Gammas

Level Scheme (continued)

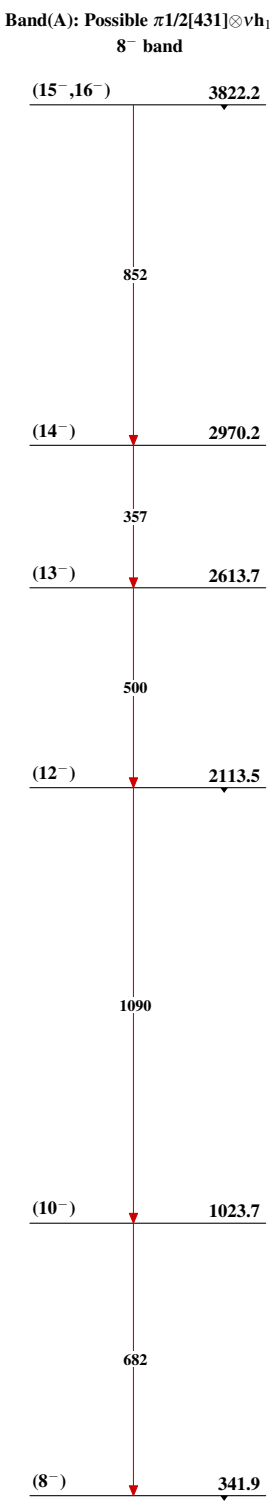
Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided

Legend
- ▸ γ Decay (Uncertain)
- ● Coincidence
- ○ Coincidence (Uncertain)



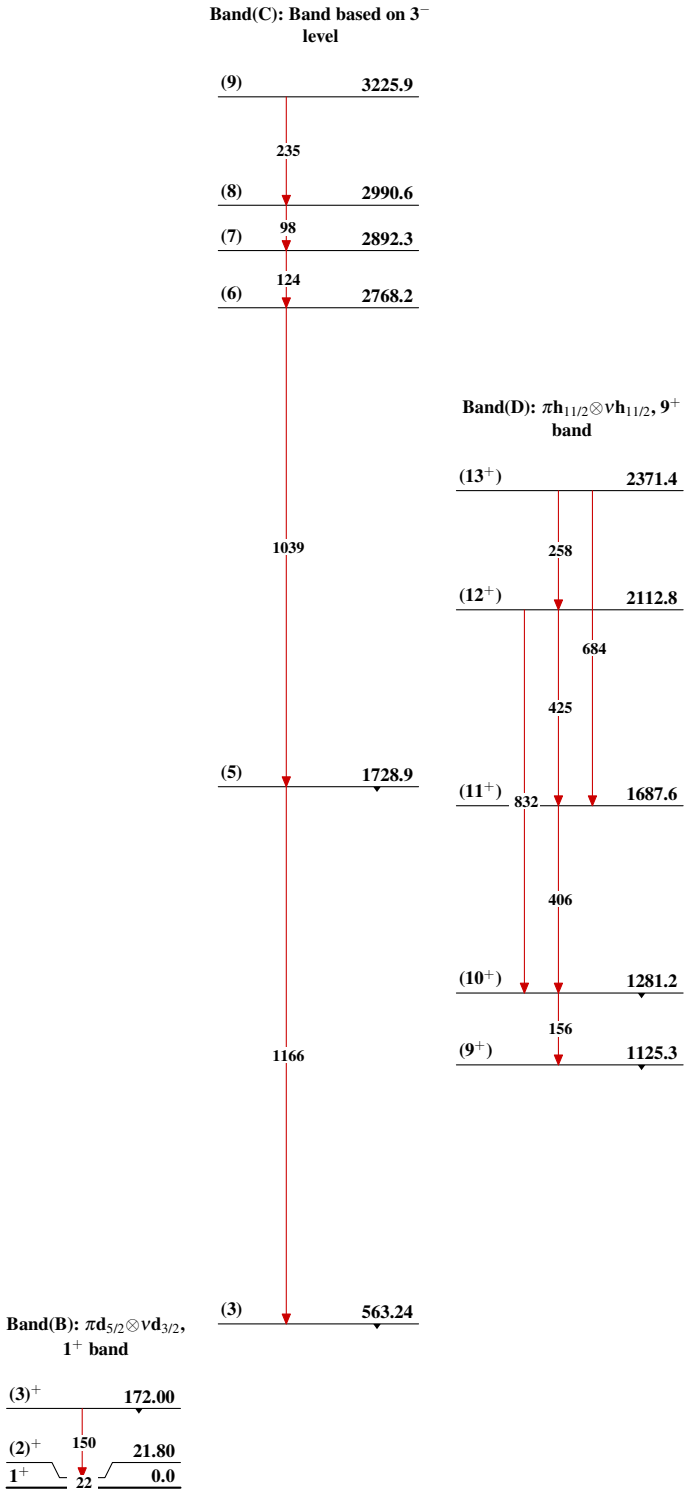
$^{136}_{57}La_{79}$

Adopted Levels, Gammas



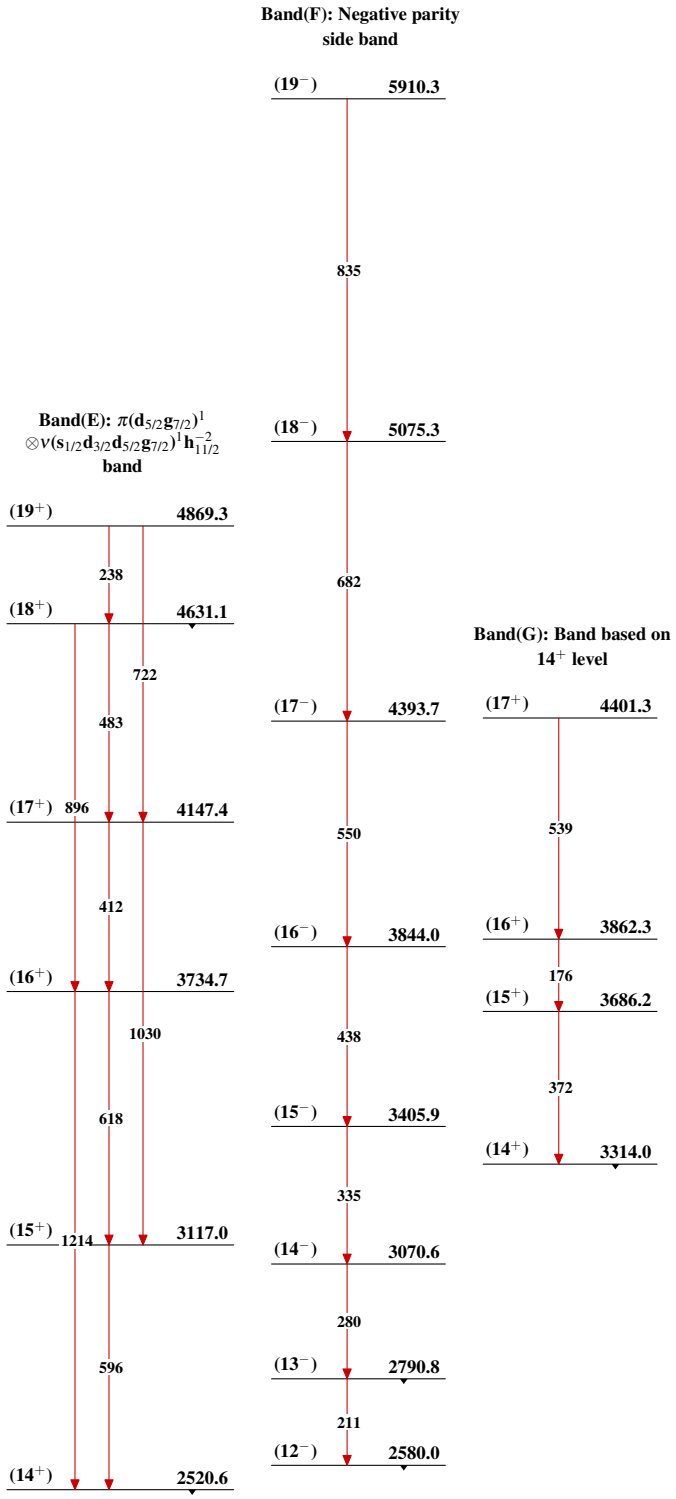
$^{136}_{57}La_{79}$

Adopted Levels, Gammas (continued)



$^{136}_{57}La_{79}$

Adopted Levels, Gammas (continued)



$^{136}_{57}La_{79}$