

Adopted Levels, Gammas

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	H. Iimura, J. Katakura, S. Ohya		NDS 180, 1 (2022)	1-Oct-2021

$Q(\beta^-) = -4150$ 90; $S(n) = 9290$ 90; $S(p) = 2590$ 90; $Q(\alpha) = 750$ 100 [2021Wa16](#)

 ^{126}La LevelsCross Reference (XREF) Flags

A ^{126}Ce ε decay
B (HI,xn γ)

E(level)	J^π	$T_{1/2}$	XREF	Comments
0.0+v	(4,5)	54 s 2	A	$\% \varepsilon + \% \beta^+ > 0$ J^π : from strong β decay to 4 and 5 states (2002Ko02). $T_{1/2}$: from 2002Ko02 . Others: 1988SeZO , 1961Sh17 , 1963Pr02 . High-spin isomer (2002Ko02). $\% \varepsilon + \% \beta^+ = ?$; $\% IT = ?$ J^π : β feeds to 0^+ and 2^+ states (2002Ko02). $T_{1/2}$: from 2002Ko02 . E(level): w=210 410 from $\Delta Q(\beta^+)$ for the low- and high-spin isomers (1998Ko06). Low-spin isomer (2002Ko02).
0.0+w	(0^- , 1, 2 $^-$)	<50 s	A	J^π : From systematics of doubly odd La isotopes (1996Li13). 2000Ti01 suggest 5^+ from comparison with cranked shell model calculation. See also 2013Ma84 who adopt 7^+ . Additional information 1 .
0.0+x [#]	(7 $^+$)		B	J^π : comparison with cranked shell model suggests (4^-) spin (2000Ti01). Additional information 2 .
0.0+y ^a	(4 $^-$)		B	
70.56+x [‡] 24	(8 $^+$)		B	
81.9+y ^a 8	(5 $^-$)		B	
147.1+y ^b 9	(5 $^-$)		B	
186.14+x [#] 24	(9 $^+$)		B	
210.0+y ^a 8	(6 $^-$)		B	
323.0+x [‡] 3	(10 $^+$)		B	
388.8+y ^a 9	(7 $^-$)		B	
454.1+y ^b 9	(7 $^-$)		B	
553.6+x [#] 3	(11 $^+$)		B	
612.1+y ^a 9	(8 $^-$)		B	
764.5+x [‡] 3	(12 $^+$)		B	
872.3+y ^a 10	(9 $^-$)		B	
932.4+y ^b 10	(9 $^-$)		B	
1081.7+x [@] 4	(10 $^+$)		B	
1094.6+x [#] 4	(13 $^+$)		B	
1180.8+y ^a 10	(10 $^-$)		B	
1318.6+x ^{&} 4	(11 $^+$)		B	
1379.7+x [‡] 4	(14 $^+$)		B	
1472.2+x [@] 3	(12 $^+$)		B	J^π : D+Q γ to (11 $^+$); Q γ to (10 $^+$).
1508.7+y ^a 12	(11 $^-$)		B	
1562.6+y ^b 12	(11 $^-$)		B	
1791.4+x [#] 4	(15 $^+$)		B	

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Adopted Levels, Gammas (continued) ^{126}La Levels (continued)

E(level)	J^π [†]	XREF	Comments
1811.5+x& 4	(13 ⁺)	B	J^π : D+Q γ to (12 ⁺); Q γ to (11 ⁺).
1884.5+y ^a 12	(12 ⁻)	B	
2040.8+x@ 4	(14 ⁺)	B	J^π : D+Q γ to (13 ⁺); Q γ to (12 ⁺).
2149.7+x‡ 4	(16 ⁺)	B	
2272.2+y ^a 13	(13 ⁻)	B	
2316.6+y ^b 16	(13 ⁻)	B	
2407.8+x& 4	(15 ⁺)	B	
2627.2+x# 4	(17 ⁺)	B	
2678.3+y ^a 14	(14 ⁻)	B	
2716.3+x@ 4	(16 ⁺)	B	
3059.8+x‡ 5	(18 ⁺)	B	
3100.2+y ^a 17		B	
3120.3+x& 5	(17 ⁺)	B	
3174.6+y? ^b 19		B	
3498.9+x@ 5	(18 ⁺)	B	
3502.3+y ^a 18		B	
3585.3+x# 5	(19 ⁺)	B	
4094.1+x‡ 5	(20 ⁺)	B	
4653.2+x# 5	(21 ⁺)	B	
5245.9+x‡ 6	(22 ⁺)	B	
5811.3+x? [#] 12		B	
6481.9+x? [‡] 12		B	

[†] JPI without comments are based on band structure and γ multiplicities.

[‡] Band(A): band 1, Configuration= $((\pi h_{11/2})(\nu h_{11/2}))$, signature partner of band 2.

Band(a): band 2, Configuration= $((\pi h_{11/2})(\nu h_{11/2}))$, signature partner of band 1.

@ Band(B): band 3, Configuration= $((\pi h_{11/2})(\nu h_{11/2}))$, signature partner of band 4.

& Band(b): band 4, Configuration= $((\pi h_{11/2})(\nu h_{11/2}))$, signature partner of band 3.

^a Band(C): band 5, Configuration= $((\pi h_{11/2})(\nu d_{5/2})+(\pi h_{11/2})(\nu g_{7/2}))$.

^b Band(D): band 6.

 $\gamma(^{126}\text{La})$

All γ data from (HI,xny) data set.

$E_i(\text{level})$	J^π_i	E_γ	I_γ	E_f	J^π_f	Mult.
70.56+x	(8 ⁺)	70.5		0.0+x	(7 ⁺)	M1
81.9+y	(5 ⁻)	82		0.0+y	(4 ⁻)	M1+E2
147.1+y	(5 ⁻)	147		0.0+y	(4 ⁻)	
186.14+x	(9 ⁺)	115.5	100 9	70.56+x	(8 ⁺)	M1
		186.2	6.6 19	0.0+x	(7 ⁺)	Q
210.0+y	(6 ⁻)	128		81.9+y	(5 ⁻)	M1
		210		0.0+y	(4 ⁻)	
323.0+x	(10 ⁺)	136.7	100 8	186.14+x	(9 ⁺)	M1
		252.5	22 5	70.56+x	(8 ⁺)	Q

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Adopted Levels, Gammas (continued)

$\gamma(^{126}\text{La})$ (continued)						
$E_i(\text{level})$	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.
388.8+y	(7 ⁻)	179		210.0+y	(6 ⁻)	M1,E2
		307		81.9+y	(5 ⁻)	
454.1+y	(7 ⁻)	244		210.0+y	(6 ⁻)	
		307		147.1+y	(5 ⁻)	
553.6+x	(11 ⁺)	230.7	100.0 23	323.0+x	(10 ⁺)	M1,E2
		367.6	23.1 21	186.14+x	(9 ⁺)	Q
612.1+y	(8 ⁻)	158		454.1+y	(7 ⁻)	
		223		388.8+y	(7 ⁻)	M1,E2
		402		210.0+y	(6 ⁻)	
764.5+x	(12 ⁺)	211.0	100 9	553.6+x	(11 ⁺)	M1,E2
		441	68 7	323.0+x	(10 ⁺)	Q
872.3+y	(9 ⁻)	260		612.1+y	(8 ⁻)	
		484		388.8+y	(7 ⁻)	
932.4+y	(9 ⁻)	320		612.1+y	(8 ⁻)	
		478		454.1+y	(7 ⁻)	
1081.7+x	(10 ⁺)	895.6		186.14+x	(9 ⁺)	
1094.6+x	(13 ⁺)	330.2	100 9	764.5+x	(12 ⁺)	M1,E2
		541.0	60 12	553.6+x	(11 ⁺)	Q
1180.8+y	(10 ⁻)	248		932.4+y	(9 ⁻)	
		309		872.3+y	(9 ⁻)	
		569		612.1+y	(8 ⁻)	
1318.6+x	(11 ⁺)	237.0		1081.7+x	(10 ⁺)	
		995.6	100 30	323.0+x	(10 ⁺)	D+Q
1379.7+x	(14 ⁺)	285.0	45 5	1094.6+x	(13 ⁺)	M1,E2
		615.2	100 12	764.5+x	(12 ⁺)	Q
1472.2+x	(12 ⁺)	153.5	15 4	1318.6+x	(11 ⁺)	D+Q
		390.5	44 17	1081.7+x	(10 ⁺)	
		707.5	29 9	764.5+x	(12 ⁺)	D+Q
		918.5	100 34	553.6+x	(11 ⁺)	D+Q
		1149.2	46 15	323.0+x	(10 ⁺)	Q
1508.7+y	(11 ⁻)	328		1180.8+y	(10 ⁻)	
		636		872.3+y	(9 ⁻)	
1562.6+y	(11 ⁻)	382		1180.8+y	(10 ⁻)	
		630		932.4+y	(9 ⁻)	
1791.4+x	(15 ⁺)	411.7	59 8	1379.7+x	(14 ⁺)	D+Q
		696.8	100 12	1094.6+x	(13 ⁺)	Q
1811.5+x	(13 ⁺)	339.4	100 27	1472.2+x	(12 ⁺)	D+Q
		493.0	90 29	1318.6+x	(11 ⁺)	Q
		1047.0	73 25	764.5+x	(12 ⁺)	D+Q
		1258.0	48 17	553.6+x	(11 ⁺)	Q
1884.5+y	(12 ⁻)	376		1508.7+y	(11 ⁻)	
		704		1180.8+y	(10 ⁻)	
2040.8+x	(14 ⁺)	229.3	34 12	1811.5+x	(13 ⁺)	D+Q
		568.5	100 34	1472.2+x	(12 ⁺)	Q
		661.2	20 8	1379.7+x	(14 ⁺)	D+Q
		946.2	48 17	1094.6+x	(13 ⁺)	D+Q
		1276.3	34 12	764.5+x	(12 ⁺)	Q
2149.7+x	(16 ⁺)	358.2	21 8	1791.4+x	(15 ⁺)	D+Q
		770.0	100 13	1379.7+x	(14 ⁺)	Q
2272.2+y	(13 ⁻)	388		1884.5+y	(12 ⁻)	
		763		1508.7+y	(11 ⁻)	
2316.6+y	(13 ⁻)	754		1562.6+y	(11 ⁻)	
2407.8+x	(15 ⁺)	367.0	61 19	2040.8+x	(14 ⁺)	
		596.5	100 34	1811.5+x	(13 ⁺)	Q
		1028.0		1379.7+x	(14 ⁺)	
2627.2+x	(17 ⁺)	477.5	39 11	2149.7+x	(16 ⁺)	D+Q

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Adopted Levels, Gammas (continued)

$\gamma(^{126}\text{La})$ (continued)						
$E_i(\text{level})$	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.
2627.2+x	(17 ⁺)	836.0	100 14	1791.4+x	(15 ⁺)	Q
2678.3+y	(14 ⁻)	406		2272.2+y	(13 ⁻)	
		794		1884.5+y	(12 ⁻)	
2716.3+x	(16 ⁺)	308.5	37 12	2407.8+x	(15 ⁺)	
		675.5	100 34	2040.8+x	(14 ⁺)	
		925.0	39 12	1791.4+x	(15 ⁺)	
3059.8+x	(18 ⁺)	432.5	9 5	2627.2+x	(17 ⁺)	D+Q
		910.0	100 13	2149.7+x	(16 ⁺)	Q
3100.2+y		828		2272.2+y	(13 ⁻)	
3120.3+x	(17 ⁺)	712.5		2407.8+x	(15 ⁺)	
3174.6+y?		858 [†]		2316.6+y	(13 ⁻)	
3498.9+x	(18 ⁺)	782.5	100	2716.3+x	(16 ⁺)	Q
3502.3+y		824		2678.3+y	(14 ⁻)	
3585.3+x	(19 ⁺)	525.5	27 8	3059.8+x	(18 ⁺)	D+Q
		958.2	100 27	2627.2+x	(17 ⁺)	Q
4094.1+x	(20 ⁺)	509.0		3585.3+x	(19 ⁺)	
		1034.0		3059.8+x	(18 ⁺)	Q
4653.2+x	(21 ⁺)	559.0		4094.1+x	(20 ⁺)	
		1068.0		3585.3+x	(19 ⁺)	Q
5245.9+x	(22 ⁺)	592.5		4653.2+x	(21 ⁺)	
		1152.0		4094.1+x	(20 ⁺)	Q
5811.3+x?		1158 [†]		4653.2+x	(21 ⁺)	
6481.9+x?		1236 [†]		5245.9+x	(22 ⁺)	

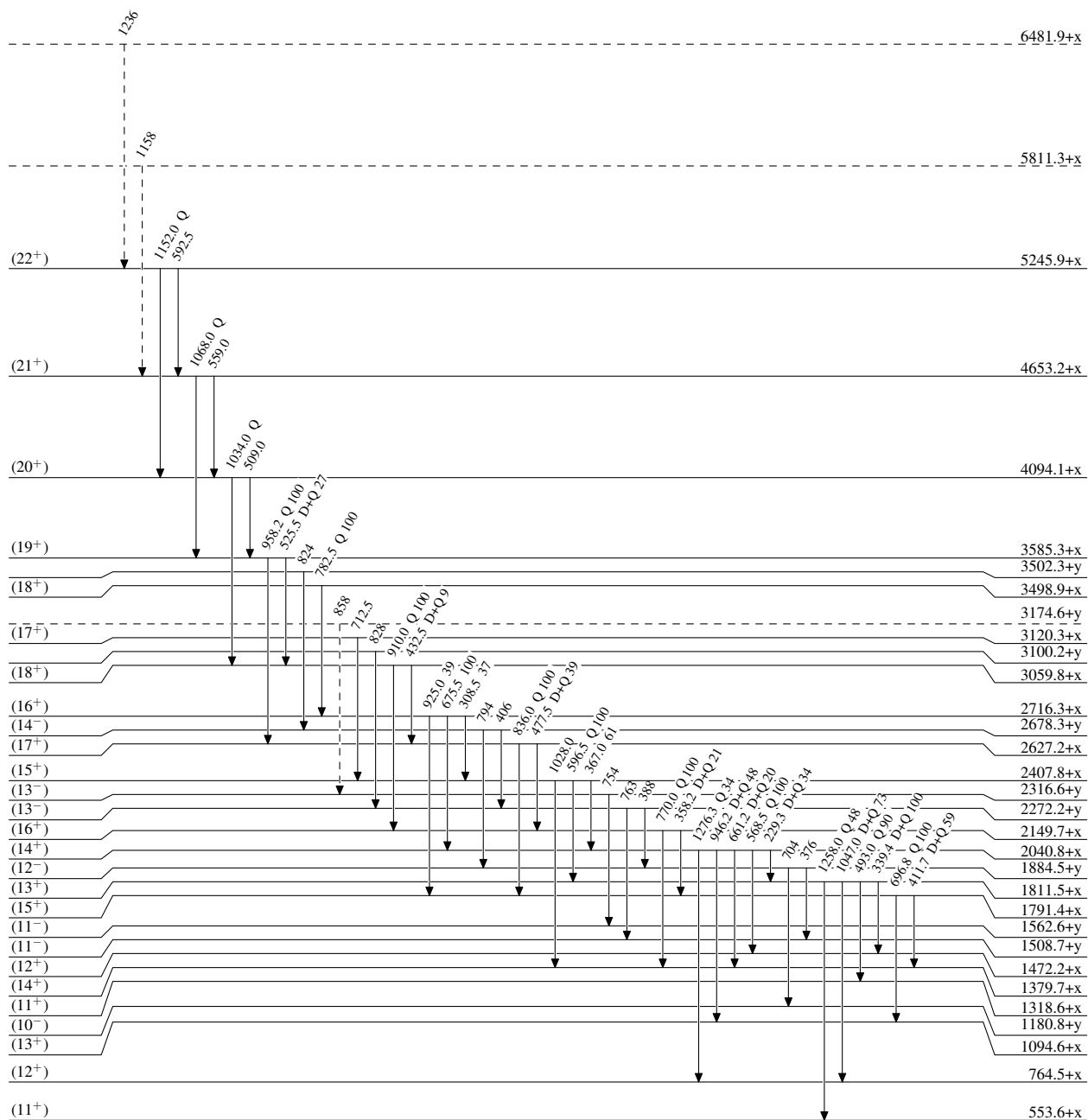
[†] Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas

Legend

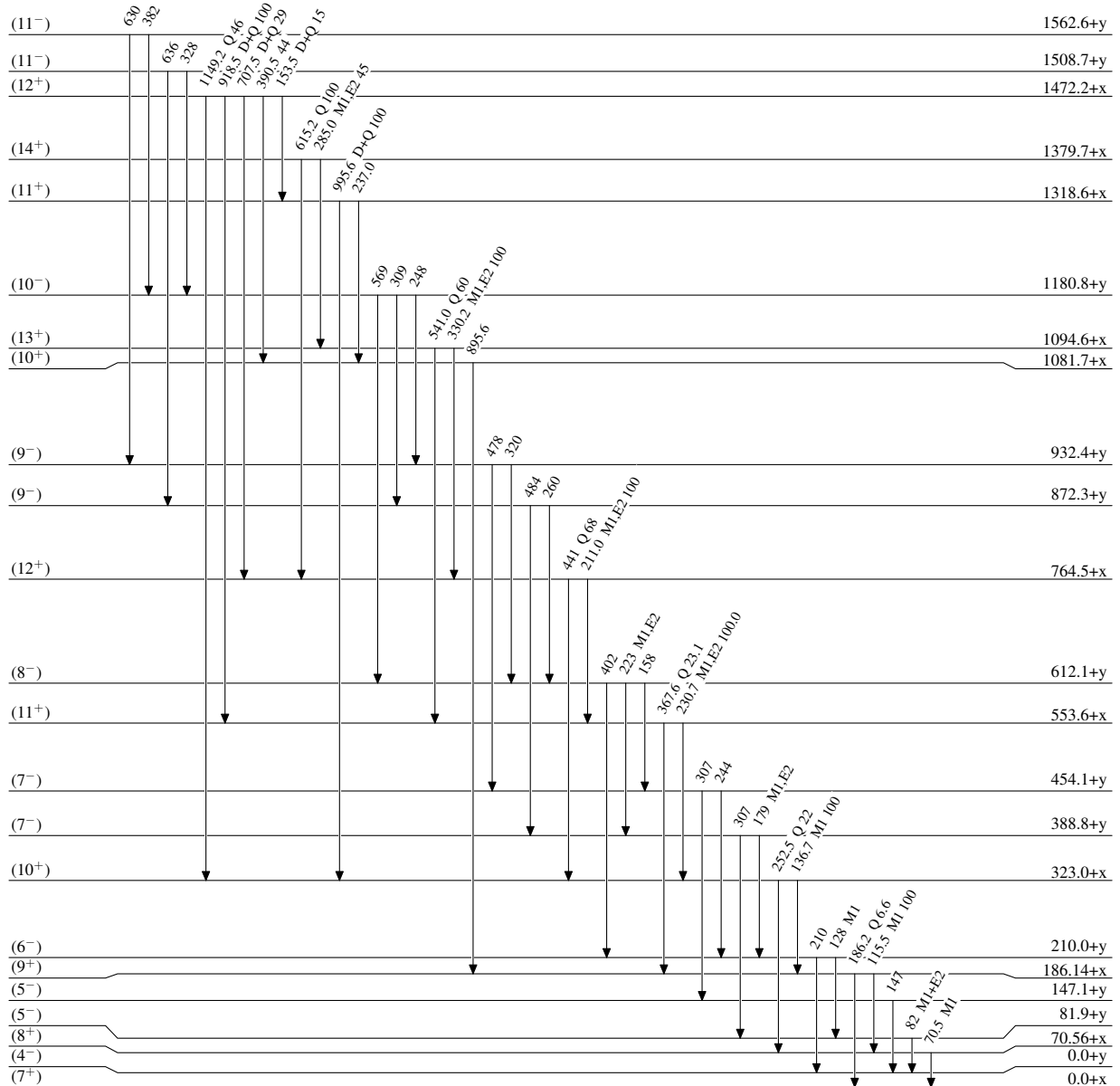
Level Scheme

Intensities: Relative photon branching from each level

-----► γ Decay (Uncertain) $^{126}_{57}\text{La}_{69}$

Adopted Levels, GammasLevel Scheme (continued)

Intensities: Relative photon branching from each level



Adopted Levels, Gammas