^{141}La β^- decay   1977TaZZ

	Type	Author	History Citation	Literature Cutoff Date
	Full Evaluation	N. Nica	NDS 187,1 (2023)	12-Oct-2022

Parent: ^{141}La: E=0.0; J^π=7/2$^{(+)}$; $T_{1/2}$=3.92 h 3; Q(β^-)=2501 4; %β^- decay=100
^{141}La-Q(β^-): From 2021Wa16.
Measured: γ, $\gamma\gamma$ (1977TaZZ), β (1959Sc36,1951Du19).
Decay scheme is from 1977TaZZ.

^{141}Ce Levels

E(level)[†]	J^{π}[‡]	$T_{1/2}$[‡]	E(level)[†]	J^{π}[‡]	E(level)[†]	J^{π}[‡]
0.0	7/2⁻	32.504 d 13	1626.5 4	(3/2)⁺	2171.1 3	9/2⁻
662.06 6	3/2⁻		1693.31 10	11/2⁻	2174.02 16	5/2⁻
1137.0 9	1/2⁻		1739.01 10	7/2⁻	2207.40 14	(7/2⁺)
1354.50 9	9/2⁻		1943.9 3		2266.95 15	(5/2⁺)
1368.71 18	13/2⁺	5.3 ns 3	2030.22 20		2328.9 11	7/2⁻
1497.01 9	5/2⁻		2049.3 3			

[†] From least-squares fit to Eγ's.
[‡] Adopted values.

β^- radiations

Level feedings were derived from intensity imbalance for each level and I(1354γ)=1.64% 7 (1981Ge04).
E(β)=2430 30, I$\beta\approx$95% (1951Du19); 2500 100, I$\beta\approx$98% (1959Sc36).

E(decay)	E(level)	Iβ^-[†]	Log ft	Comments
(172 4)	2328.9	0.0005 3	8.5 3	av Eβ=46.5 12
(234 4)	2266.95	0.050 3	6.92 4	av Eβ=64.9 13
(294 4)	2207.40	0.0153 14	7.75 5	av Eβ=83.4 13
(327 4)	2174.02	0.029 3	7.62 5	av Eβ=94.0 13
(330 4)	2171.1	0.0203 22	7.79 5	av Eβ=95.0 13
(452 4)	2049.3	0.0034 8	9.02 11	av Eβ=135.6 14
(471 4)	2030.22	0.0051 5	8.90 5	av Eβ=142.2 14
(557 4)	1943.9	0.0043 7	9.22 8	av Eβ=172.6 15
(762 4)	1739.01	0.0149 13	9.16 4	av Eβ=248.8 16
(808 4)	1693.31	0.075 5	8.54 3	av Eβ=266.4 16
(1004 4)	1497.01	0.0157 17	9.56 5	av Eβ=344.3 17
(1132 4)	1368.71	0.0036 7	10.40 9	av Eβ=396.8 17
(1147 4)	1354.50	1.63 11	7.76 3	av Eβ=402.7 17
(1839 4)	662.06	0.0042 22	12.13^{1u} 23	av Eβ=698.9 18
2430 30	0.0	98.12 12	7.305 5	av Eβ=998.9 19

[†] Absolute intensity per 100 decays.

$\gamma(^{141}$Ce)

Iγ normalization: I(1354γ)=1.64% 7 (1981Ge04).

Continued on next page (footnotes at end of table)

^{141}La β^- decay   **1977TaZZ** (continued)

$\gamma(^{141}$Ce) (continued)

E_γ	$I_\gamma^\ddagger$	E_i(level)	J_i^π	E_f	J_f^π	Mult.	$\alpha^\dagger$	Comments
324.6 *4*	0.8 *3*	1693.31	11/2$^-$	1368.71	13/2$^+$	[E1]	0.01019	α(K)=0.00875 *13*; α(L)=0.001139 *17*; α(M)=0.000237 *4* α(N)=5.22×10^{-5} *8*; α(O)=8.36×10^{-6} *12*; α(P)=5.97×10^{-7} *9* %Iγ=0.0013 *5*
435.0 *8*	0.4 *3*	2174.02	5/2$^-$	1739.01	7/2$^-$			%Iγ=0.0007 *5*
474.9 *9*	0.4 *3*	1137.0	1/2$^-$	662.06	3/2$^-$			%Iγ=0.0007 *5*
547.1 *5*	0.6 *3*	2174.02	5/2$^-$	1626.5	(3/2)$^+$	[E1]	0.00292	α(K)=0.00252 *4*; α(L)=0.000321 *5*; α(M)=6.66×10^{-5} *10* α(N)=1.474×10^{-5} *21*; α(O)=2.38×10^{-6} *4*; α(P)=1.765×10^{-7} *25* %Iγ=0.0010 *5*
^{x}561.8 *6*	0.6 *3*							%Iγ=0.0010 *5*
581.1 *5*	0.7 *3*	2207.40	(7/2$^+$)	1626.5	(3/2)$^+$	[E2]	0.00723	α(K)=0.00608 *9*; α(L)=0.000912 *13*; α(M)=0.000192 *3* α(N)=4.24×10^{-5} *6*; α(O)=6.69×10^{-6} *10*; α(P)=4.32×10^{-7} *7* %Iγ=0.0012 *5*
589.9 *6*	0.6 *3*	1943.9		1354.50	9/2$^-$			%Iγ=0.0010 *5*
662.06 *6*	15.8 *9*	662.06	3/2$^-$	0.0	7/2$^-$	[E2]	0.00520	α(K)=0.00440 *7*; α(L)=0.000638 *9*; α(M)=0.0001342 *19* α(N)=2.96×10^{-5} *5*; α(O)=4.70×10^{-6} *7*; α(P)=3.15×10^{-7} *5* %Iγ=0.0259 *19*
676.8 *5*	0.8 *3*	2174.02	5/2$^-$	1497.01	5/2$^-$			%Iγ=0.0013 *5*
694.9 *6*	0.7 *4*	2049.3		1354.50	9/2$^-$			%Iγ=0.0012 *7*
710.4 *2*	1.9 *4*	2207.40	(7/2$^+$)	1497.01	5/2$^-$	[E1]	1.66×10^{-3}	α(K)=0.001435 *21*; α(L)=0.000181 *3*; α(M)=3.75×10^{-5} *6* α(N)=8.31×10^{-6} *12*; α(O)=1.344×10^{-6} *19*; α(P)=1.013×10^{-7} *15* %Iγ=0.0031 *7*
834.8 *4*	1.2 *4*	1497.01	5/2$^-$	662.06	3/2$^-$			%Iγ=0.0020 *7*
853.0 *3*	1.9 *4*	2207.40	(7/2$^+$)	1354.50	9/2$^-$	[E1]	1.15×10^{-3}	α(K)=0.000992 *14*; α(L)=0.0001242 *18*; α(M)=2.57×10^{-5} *4* α(N)=5.70×10^{-6} *8*; α(O)=9.24×10^{-7} *13*; α(P)=7.03×10^{-8} *10* %Iγ=0.0031 *7*
964.0 *8*	0.9 *5*	1626.5	(3/2)$^+$	662.06	3/2$^-$	[E1]	9.06×10^{-4}	α(K)=0.000783 *11*; α(L)=9.76×10^{-5} *14*; α(M)=2.02×10^{-5} *3* α(N)=4.48×10^{-6} *7*; α(O)=7.27×10^{-7} *11*; α(P)=5.56×10^{-8} *8* %Iγ=0.0015 *8*
1354.52 *9*	1000 *54*	1354.50	9/2$^-$	0.0	7/2$^-$			%Iγ=1.64 *7*
1368.7 *2*	3.0 *3*	1368.71	13/2$^+$	0.0	7/2$^-$	[E3]	0.00206	α(K)=0.001738 *25*; α(L)=0.000243 *4*; α(M)=5.10×10^{-5} *8* α(N)=1.128×10^{-5} *16*; α(O)=1.81×10^{-6} *3*; α(P)=1.300×10^{-7} *19*; α(IPF)=1.293×10^{-5} *19* %Iγ=0.0049 *5*
1497.0 *1*	11.1 *7*	1497.01	5/2$^-$	0.0	7/2$^-$			%Iγ=0.0182 *14*

^{141}La β^- decay   1977TaZZ (continued)

$\gamma(^{141}$Ce) (continued)

E_γ	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	α[†]	Comments
1512.1 2	5.6 5	2174.02	5/2$^-$	662.06	3/2$^-$			%Iγ=0.0092 9
1604.8 2	5.2 5	2266.95	(5/2$^+$)	662.06	3/2$^-$	[E1]	6.61×10^{-4}	α(K)=0.000317 5; α(L)=3.89×10^{-5} 6; α(M)=8.05×10^{-6} 12
								α(N)=1.786×10^{-6} 25; α(O)=2.90×10^{-7} 4; α(P)=2.26×10^{-8} 4; α(IPF)=0.000295 5
								%Iγ=0.0085 9
1693.3 1	45.0 25	1693.31	11/2$^-$	0.0	7/2$^-$	[E2]	8.55×10^{-4}	α(K)=0.000605 9; α(L)=7.68×10^{-5} 11; α(M)=1.596×10^{-5} 23
								α(N)=3.54×10^{-6} 5; α(O)=5.74×10^{-7} 8; α(P)=4.40×10^{-8} 7; α(IPF)=0.0001526 22
								%Iγ=0.074 5
1739.0 1	9.5 6	1739.01	7/2$^-$	0.0	7/2$^-$			%Iγ=0.0156 12
1943.7 3	2.0 3	1943.9		0.0	7/2$^-$			%Iγ=0.0033 5
2030.2 2	3.1 3	2030.22		0.0	7/2$^-$			%Iγ=0.0051 5
2049.2 3	1.4 2	2049.3		0.0	7/2$^-$			%Iγ=0.0023 4
2171.1 3	12.4 12	2171.1	9/2$^-$	0.0	7/2$^-$			%Iγ=0.0203 22
2173.9 3	10.0 12	2174.02	5/2$^-$	0.0	7/2$^-$			%Iγ=0.0164 21
2207.3 2	4.8 4	2207.40	(7/2$^+$)	0.0	7/2$^-$	[E1]	9.51×10^{-4}	α(K)=0.000190 3; α(L)=2.32×10^{-5} 4; α(M)=4.79×10^{-6} 7
								α(N)=1.064×10^{-6} 15; α(O)=1.732×10^{-7} 25; α(P)=1.358×10^{-8} 19; α(IPF)=0.000731 11
								%Iγ=0.0079 7
2267.0 2	25.2 15	2266.95	(5/2$^+$)	0.0	7/2$^-$	[E1]	9.82×10^{-4}	α(K)=0.000183 3; α(L)=2.23×10^{-5} 4; α(M)=4.60×10^{-6} 7
								α(N)=1.020×10^{-6} 15; α(O)=1.662×10^{-7} 24; α(P)=1.304×10^{-8} 19; α(IPF)=0.000771 11
								%Iγ=0.041 3
2328.9 11	0.3 2	2328.9	7/2$^-$	0.0	7/2$^-$			%Iγ=0.0005 3

[†] Additional information 1.

[‡] For absolute intensity per 100 decays, multiply by 0.00164 7.

[x] γ ray not placed in level scheme.

${}^{141}\text{La}\ \beta^-$ decay 1977TaZZ

Decay Scheme

Intensities: I_γ per 100 parent decays

Legend

$I_\gamma <\ \ 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$

$7/2^{(+)}$ 0.0 3.92 h *3*
$Q_{\beta^-}=2501$ *4* $\%\beta^-=100$
${}^{141}_{57}\text{La}_{84}$

$I\beta^-$	Log *ft*		
0.0005	8.5	$7/2^-$	2328.9
0.050	6.92	$(5/2^+)$	2266.95
0.0153	7.75	$(7/2^+)$	2207.40
0.029	7.62	$5/2^-$	2174.02
0.0203	7.79	$9/2^-$	2171.1
0.0034	9.02		2049.3
0.0051	8.90		2030.22
0.0043	9.22		1943.9
0.0149	9.16	$7/2^-$	1739.01
0.075	8.54	$11/2^-$	1693.31
		$(3/2)^+$	1626.5
0.0157	9.56	$5/2^-$	1497.01
0.0036	10.40	$13/2^+$	1368.71 5.3 ns *3*
1.63	7.76	$9/2^-$	1354.50
		$1/2^-$	1137.0
0.0042	12.13^{1u}	$3/2^-$	662.06
98.12	7.305	$7/2^-$	0.0 32.504 d *13*

Gamma transitions (labels):

2328.9 0.00049
2267.0 [E1] 0.0413
1604.8 [E1] 0.0085
2207.3 [E1] 0.0079
853.0 [E1] 0.0031
710.4 [E1] 0.0031
581.1 [E2] 0.0012
2173.9 0.0164
1512.1 0.0092
676.8 0.0013
547.1 [E1] 0.0010
435.0 0.0007
2171.1 0.0203
2049.2 0.00230
694.9 0.0012
2030.2 0.0051
1943.7 0.0033
589.9 0.0010
1739.0 0.0156
1693.3 [E2] 0.074
324.6 [E1] 0.0013
964.0 [E1] 0.0015
1497.0 0.0182
834.8 0.0020
1368.7 [E3] 0.0049
1354.52 1.64
474.9 0.0007
662.06 [E2] 0.0259

${}^{141}_{58}\text{Ce}_{83}$