$^{140}_{57}\mathrm{La}_{83}$

1 Decay Scheme

La-140 decays by beta minus emission to the Ce-140 excited levels.
Le lanthane 140 se désintègre par émission bêta moins vers des niveaux excités de cerium 140. La transition bêta moins vers le niveau fondamental n' a pas été mise en évidence d'une manière significative (0,0008 %).

2 Nuclear Data

$T_{1/2}(^{140}\mathrm{La}\ )$: 1,67850 (17) d
$Q^{-}(^{140}\mathrm{La}\ )$: 3761,9 (19) keV

2.1 β^- Transitions

	Energy keV	Probability × 100	Nature	lg ft
$\beta^-_{0,19}$	241,1 (19)	0,0102 (13)	1st forbidden	8,66
$\beta^-_{0,18}$	288,3 (19)	0,051 (4)	Allowed	8,21
$\beta^-_{0,17}$	367,1 (10)	0,019 (3)	Allowed	8,98
$\beta^-_{0,16}$	442,3 (20)	0,00392 (19)	1st forbidden	9,94
$\beta^-_{0,15}$	643,4 (19)	0,0256 (5)	1st forbidden	9,68
$\beta^-_{0,14}$	761,0 (19)	0,084 (6)	1st forbidden	9,42
$\beta^-_{0,13}$	862,2 (19)	0,111 (4)	1st forbidden	9,49
$\beta^-_{0,12}$	1214,7 (19)	0,635 (5)	Unique 1st forbidden	9,96
$\beta^-_{0,11}$	1240,5 (19)	11,12 (6)	1st forbidden	8,07
$\beta^-_{0,10}$	1246,2 (19)	5,79 (3)	1st forbidden	8,36
$\beta^-_{0,9}$	1281,0 (19)	1,15 (3)	1st forbidden	9,11
$\beta^-_{0,8}$	1297,8 (19)	5,59 (3)	Allowed	8,44
$\beta^-_{0,7}$	1349,9 (19)	44,9 (4)	1st forbidden	7,6
$\beta^-_{0,6}$	1412,1 (19)	0,25 (3)	Unique 1st forbidden	10,72
$\beta^-_{0,5}$	1414,0 (19)	5,03 (4)	1st forbidden	8,63
$\beta^-_{0,3}$	1678,7 (19)	20,7 (20)	1st forbidden	8,3
$\beta^-_{0,1}$	2165,7 (19)	4,5 (20)	1st forbidden	9,4

2.2 Gamma Transitions and Internal Conversion Coefficients

	Energy keV	$P_{\gamma+ce}$ × 100	Multipolarity	α_K	α_L	α_M	α_T	α_π (10^{-4})
$\gamma_{4,3}$(Ce)	24,595 (4)	0,52 (3)	E2		560 (18)	114 (4)	712 (21)	
$\gamma_{7,5}$(Ce)	64,129 (4)	0,0746 (17)	M1	3,72 (11)	0,514 (16)	0,11	4,37 (13)	
$\gamma_{9,7}$(Ce)	68,923 (5)	0,3499 (18)	M1	3,02 (9)	0,417 (13)	0,08	3,55 (11)	
$\gamma_{11,7}$(Ce)	109,417 (4)	0,421 (6)	M1	0,799 (24)	0,110 (3)	0,03	0,939 (28)	
$\gamma_{9,6}$(Ce)	131,121 (4)	0,734 (14)	M1+E2	0,480 (14)	0,068 (2)	0,004	0,566 (18)	
$\gamma_{11,5}$(Ce)	173,546 (5)	0,159 (5)	M1	0,220 (7)	0,0299 (9)	0,008	0,258 (8)	
$\gamma_{6,4}$(Ce)	241,959 (6)	0,481 (10)	M1+E2	0,0892 (27)	0,0120 (4)	0,003	0,104 (3)	
$\gamma_{6,3}$(Ce)	266,554 (5)	0,527 (9)	M1+E2	0,0564 (17)	0,0118 (4)	0,0033	0,0715 (22)	
$\gamma_{2,1}$(Ce)	307,08 (4)	0,023 (3)	E2	0,0365 (11)	0,0071 (2)	0,002	0,0456 (14)	
$\gamma_{7,3}$(Ce)	328,761 (4)	21,8 (3)	M1+E2	0,0396 (12)	0,0053 (2)	0,0015	0,0464 (14)	
$\gamma_{9,3}$(Ce)	397,674 (6)	0,0764 (24)	E2	0,0170 (5)	0,0029 (1)	0,0009	0,0208 (6)	
$\gamma_{10,3}$(Ce)	432,513 (8)	3,059 (16)	M1+E2	0,0182 (5)	0,0025 (1)	0,0007	0,0214 (7)	
$\gamma_{11,3}$(Ce)	438,178 (6)	0,017 (10)	M1	0,0129 (4)	0,00214 (6)	0,0006	0,0156 (5)	
$\gamma_{5,2}$(Ce)	444,57 (4)	0,0033 (7)	[E2]	0,0124 (4)	0,00205 (6)	0,0006	0,0150 (5)	
$\gamma_{3,1}$(Ce)	487,022 (6)	46,6 (4)	E2	0,00970 (29)	0,00155 (5)	0,0004	0,0117 (4)	
$\gamma_{11,2}$(Ce)	618,12 (4)	0,041 (3)	[E2]	0,00524 (16)	0,00078 (2)	0,00021	0,00623 (19)	
$\gamma_{5,1}$(Ce)	751,655 (7)	4,417 (24)	M1+E2	0,00484 (15)	0,00063 (2)	0,00017 (1)	0,00564 (17)	
$\gamma_{7,1}$(Ce)	815,784 (6)	23,83 (12)	M1+E2	0,00415 (12)	0,00054 (2)	0,00013	0,00482 (14)	
$\gamma_{8,1}$(Ce)	867,842 (16)	5,59 (3)	E1+M2	0,00098 (3)	0,00012	0,00004	0,00114 (4)	
$\gamma_{10,1}$(Ce)	919,536 (10)	2,801 (23)	M1+E2	0,00211 (8)	0,00030 (1)	0,00008	0,02590 (9)	
$\gamma_{11,1}$(Ce)	925,201 (7)	7,07 (4)	M1+E2	0,00307 (9)	0,00040 (1)	0,0001	0,00357 (11)	
$\gamma_{12,1}$(Ce)	950,991 (20)	0,532 (5)	[M1,E2]	0,0024 (5)	0,00032 (6)	0,0001	0,0028 (6)	
$\gamma_{18,9}$(Ce)	992,64 (18)	0,0100 (25)	[E1]	0,000744 (22)	0,000093 (3)	0,000024	0,000861 (25)	
$\gamma_{17,6}$(Ce)	1045,02 (9)	0,020 (3)	[E1]	0,000676 (20)	0,000084 (2)	0,000022	0,000782 (23)	
$\gamma_{14,2}$(Ce)	1097,58 (9)	0,023 (5)	[E2]	0,00143 (3)	0,00019 (1)	0,00005	0,00167 (5)	
$\gamma_{13,1}$(Ce)	1303,35 (7)	0,045 (4)	[M1,E2,E0]	0,0012 (2)	0,00016 (1)		0,00140 (23)	
$\gamma_{14,1}$(Ce)	1404,67 (9)	0,062 (5)	M1,E2	0,00108 (3)	0,00017 (1)		0,00125 (4)	
$\gamma_{1,0}$(Ce)	1596,213 (13)	95,49 (8)	E2	0,00068 (2)	0,00009	0,00002	0,00079 (2)	1,06 (1)
$\gamma_{18,1}$(Ce)	1877,34 (18)	0,041 (3)	[E1]	0,000247 (8)	0,000038 (1)		0,000285 (8)	
$\gamma_{2,0}$(Ce)	1903,29 (4)	0,0146 (15)	E0					
$\gamma_{19,1}$(Ce)	1924,5 (2)	0,011 (3)	[E2]	0,00481 (15)	0,000072 (2)		0,000553 (16)	
$\gamma_{3,0}$(Ce)	2083,236 (14)	0,036 (7)	E4	0,00117 (4)	0,00020 (1)		0,00137 (4)	
$\gamma_{5,0}$(Ce)	2347,868 (14)	0,845 (7)	E2	0,000335 (10)	0,000050 (2)		0,000385 (11)	
$\gamma_{8,0}$(Ce)	2464,054 (20)	0,0097 (13)	[E3]	0,00044	0,00007		0,00051	
$\gamma_{11,0}$(Ce)	2521,410 (14)	3,413 (24)	E2	0,000295 (9)	0,000042 (1)		0,000337 (10)	
$\gamma_{12,0}$(Ce)	2547,200 (23)	0,1017 (12)	M1	0,000327 (10)	0,000052 (2)		0,000379 (11)	
$\gamma_{13,0}$(Ce)	2899,56 (7)	0,0660 (6)	E2	0,000232 (7)	0,000032 (1)		0,000264 (80)	
$\gamma_{15,0}$(Ce)	3118,53 (10)	0,0256 (5)	(E2)	0,000205 (6)	0,000026 (1)		0,000231 (7)	
$\gamma_{16,0}$(Ce)	3319,56 (24)	0,00392 (18)	(E2)	0,000184 (5)	0,000024 (1)		0,000208 (6)	

3 Atomic Data

3.1 Ce

ω_K : 0,910 (4)
$\bar{\omega}_L$: 0,125 (5)
n_{KL} : 0,876 (4)
$\bar{n}_{LM}$: 1,57 (3)

3.1.1 X Radiations

		Energy keV		Relative probability
X_K				
	$K\alpha_2$	34,2793		54,6
	$K\alpha_1$	34,72		100
	$K\beta_3$	39,1705	}	
	$K\beta_1$	39,2578	}	
	$K\beta_5''$	39,549	}	30,31
	$K\beta_2$	40,233	}	
	$K\beta_4$	40,337	}	9,8

4 Electron Emissions

		Energy keV		Electrons per 100 disint.
e_{AL}	(Ce)	2,8 - 6,5		2,4 (1)
e_{AK}	(Ce)			0,19 (6)
	KLL	27,190 - 28,828	}	
	KLX	32,392 - 34,700	}	
	KXY	37,57 - 40,40	}	
$ec_{4,3\ L}$	(Ce)	18,046 - 18,872		0,39 (2)
$ec_{4,3\ M}$	(Ce)	23,16 - 23,41		0,081 (5)
$ec_{7,5\ K}$	(Ce)	23,686	(4)	0,052 (6)
$ec_{9,7\ K}$	(Ce)	28,480	(5)	0,232 (9)
$ec_{11,7\ K}$	(Ce)	68,974	(4)	0,173 (7)
$ec_{9,6\ K}$	(Ce)	90,678	(4)	0,225 (9)
$ec_{7,3\ K}$	(Ce)	288,318	(4)	0,80 (3)
$ec_{7,3\ L}$	(Ce)	322,212 - 322,597		0,100 (4)
$ec_{10,3\ K}$	(Ce)	392,070	(8)	0,055 (3)
$ec_{3,1\ K}$	(Ce)	446,579	(6)	0,447 (14)
$ec_{3,1\ L}$	(Ce)	480,473 - 481,299		0,071 (2)
$ec_{7,1\ K}$	(Ce)	775,341	(6)	0,100 (3)
$ec_{1,0\ K}$	(Ce)	1555,760	(13)	0,065 (2)
$\beta^-_{0,19}$	max:	241,1	(19)	0,0102 (13)
$\beta^-_{0,19}$	avg:	67,1	(6)	
$\beta^-_{0,18}$	max:	288,3	(19)	0,051 (4)
$\beta^-_{0,18}$	avg:	81,7	(8)	

		Energy keV		Electrons per 100 disint.
$\beta^-_{0,17}$	max:	367,1	(10)	0,019 (3)
$\beta^-_{0,17}$	avg:	107,1	(7)	
$\beta^-_{0,16}$	max:	442,3	(20)	0,00392 (19)
$\beta^-_{0,16}$	avg:	132,4	(7)	
$\beta^-_{0,15}$	max:	643,4	(19)	0,0256 (5)
$\beta^-_{0,15}$	avg:	204,1	(7)	
$\beta^-_{0,14}$	max:	761,0	(19)	0,084 (6)
$\beta^-_{0,14}$	avg:	248,4	(8)	
$\beta^-_{0,13}$	max:	862,2	(19)	0,111 (4)
$\beta^-_{0,13}$	avg:	287,8	(8)	
$\beta^-_{0,12}$	max:	1214,7	(19)	0,635 (5)
$\beta^-_{0,12}$	avg:	438,9	(8)	
$\beta^-_{0,11}$	max:	1240,5	(19)	11,12 (6)
$\beta^-_{0,11}$	avg:	441,9	(8)	
$\beta^-_{0,10}$	max:	1246,2	(19)	5,79 (3)
$\beta^-_{0,10}$	avg:	444,3	(8)	
$\beta^-_{0,9}$	max:	1281,0	(19)	1,15 (3)
$\beta^-_{0,9}$	avg:	458,9	(8)	
$\beta^-_{0,8}$	max:	1297,8	(19)	5,59 (3)
$\beta^-_{0,8}$	avg:	466,1	(8)	
$\beta^-_{0,7}$	max:	1349,9	(19)	44,9 (4)
$\beta^-_{0,7}$	avg:	488,1	(8)	
$\beta^-_{0,6}$	max:	1412,1	(19)	0,25 (3)
$\beta^-_{0,6}$	avg:	519,3	(8)	
$\beta^-_{0,5}$	max:	1414,0	(19)	5,03 (4)
$\beta^-_{0,5}$	avg:	515,5	(9)	
$\beta^-_{0,3}$	max:	1678,7	(19)	20,7 (20)
$\beta^-_{0,3}$	avg:	630,2	(9)	
$\beta^-_{0,1}$	max:	2165,7	(19)	4,5 (20)
$\beta^-_{0,1}$	avg:	846,9	(9)	

5 Photon Emissions

5.1 X-Ray Emissions

		Energy keV	Photons per 100 disint.	
XKα_2	(Ce)	34,2793	0,60 (1)	} Kα
XKα_1	(Ce)	34,72	1,11 (2)	}

		Energy keV		Photons per 100 disint.	
$XK\beta_3$	(Ce)	39,1705	}		
$XK\beta_1$	(Ce)	39,2578	}	0,301 (13)	$K'\beta_1$
$XK\beta_5''$	(Ce)	39,549	}		
$XK\beta_2$	(Ce)	40,233	}		
$XK\beta_4$	(Ce)	40,337	}	0,098 (2)	$K'\beta_2$

5.2 Gamma Emissions

	Energy keV	Photons per 100 disint.
$\gamma_{4,3}$(Ce)	24,595 (4)	0,001
$\gamma_{7,5}$(Ce)	64,129 (4)	0,0139 (17)
$\gamma_{9,7}$(Ce)	68,923 (5)	0,0769 (18)
$\gamma_{11,7}$(Ce)	109,417 (4)	0,217 (6)
$\gamma_{9,6}$(Ce)	131,121 (4)	0,469 (14)
$\gamma_{11,5}$(Ce)	173,546 (5)	0,126 (5)
$\gamma_{6,4}$(Ce)	241,959 (6)	0,436 (10)
$\gamma_{6,3}$(Ce)	266,554 (5)	0,492 (9)
$\gamma_{2,1}$(Ce)	307,08 (4)	0,022 (3)
$\gamma_{7,3}$(Ce)	328,761 (4)	20,8 (3)
$\gamma_{9,3}$(Ce)	397,674 (6)	0,0748 (24)
$\gamma_{10,3}$(Ce)	432,513 (8)	2,995 (16)
$\gamma_{11,3}$(Ce)	438,178 (6)	0,017 (10)
$\gamma_{5,2}$(Ce)	444,57 (4)	0,0033 (7)
$\gamma_{3,1}$(Ce)	487,022 (6)	46,1 (4)
$\gamma_{11,2}$(Ce)	618,12 (4)	0,041 (3)
$\gamma_{5,1}$(Ce)	751,653 (7)	4,392 (24)
$\gamma_{7,1}$(Ce)	815,781 (6)	23,72 (12)
$\gamma_{8,1}$(Ce)	867,839 (16)	5,58 (3)
$\gamma_{10,1}$(Ce)	919,533 (10)	2,730 (23)
$\gamma_{11,1}$(Ce)	925,198 (7)	7,04 (4)
$\gamma_{12,1}$(Ce)	950,988 (20)	0,531 (5)
$\gamma_{18,9}$(Ce)	992,64 (18)	0,0100 (25)
$\gamma_{17,6}$(Ce)	1045,02 (9)	0,020 (3)
$\gamma_{14,2}$(Ce)	1097,58 (9)	0,023 (5)
$\gamma_{13,1}$(Ce)	1303,34 (7)	0,045 (4)
$\gamma_{14,1}$(Ce)	1404,66 (9)	0,062 (5)
$\gamma_{1,0}$(Ce)	1596,203 (13)	95,40 (8)
$\gamma_{18,1}$(Ce)	1877,33 (18)	0,041 (3)
$\gamma_{19,1}$(Ce)	1924,5 (2)	0,011 (3)
$\gamma_{3,0}$(Ce)	2083,219 (14)	0,036 (7)
$\gamma_{5,0}$(Ce)	2347,847 (14)	0,845 (7)
$\gamma_{8,0}$(Ce)	2464,031 (20)	0,0097 (13)
$\gamma_{11,0}$(Ce)	2521,390 (14)	3,412 (24)

	Energy keV	Photons per 100 disint.
$\gamma_{12,0}$(Ce)	2547,180 (23)	0,1017 (12)
$\gamma_{13,0}$(Ce)	2899,53 (7)	0,0660 (6)
$\gamma_{15,0}$(Ce)	3118,49 (10)	0,0256 (5)
$\gamma_{16,0}$(Ce)	3319,52 (24)	0,00392 (18)

6 Main Production Modes

$\left\{ \begin{array}{l} \text{Separate from Ba} - 140 + \text{La} - 140 \\ \text{Possible impurities : Ba} - 140 \end{array} \right.$

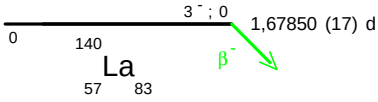
$\left\{ \begin{array}{ll} \text{La} - 139(\text{n},\gamma)\text{La} - 140 & \sigma : 8{,}93\ (4)\ \text{barns} \\ \text{Possible impurities : La} - 141 & \end{array} \right.$

7 References

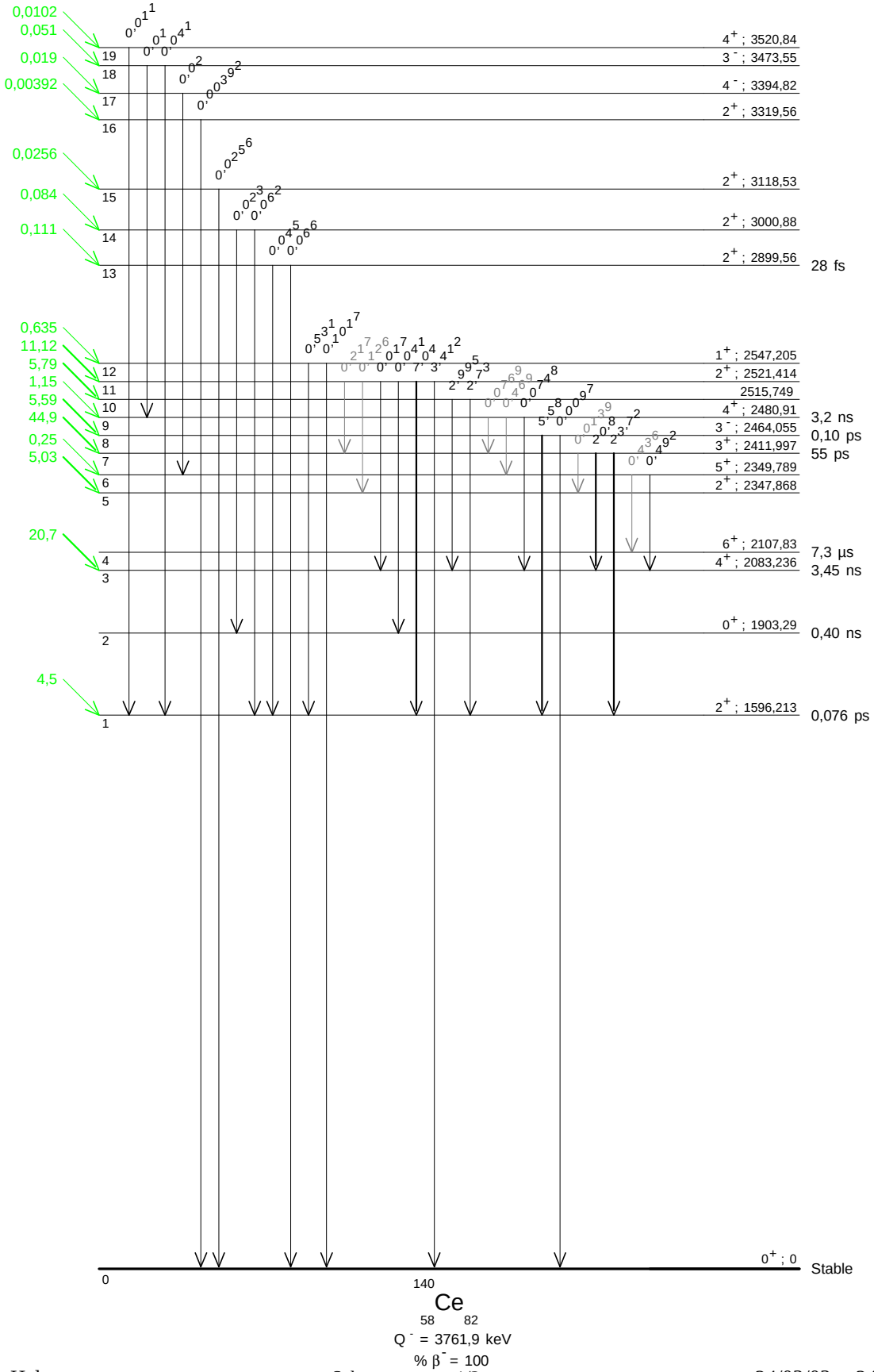
- H. W. Kirby, M. L. Salutsky. Phys. Rev. 93 (1954) 1051
  (Half-life)
- L. Yaffe, H. G. Thode, W. F. Merritt, R. C. Hawkings, F. Brown,R. M. Bartholomew. Can. J. Chem. 32 (1954) 1017
  (Half-life)
- D. F. Peppard, G. W. Mason, S. W. Moline. J. Inorg. Nuclear Chem. 5 (1957) 141
  (Half-life)
- S. F. Antonova, S. S. Vasilenko, M. G. Kaganskii, D. L. Kaminskii. Soviet Phys.JETP 11 (1960) 554
  (Gamma-ray emission intensities)
- R. G. Wille, R. W. Fink. Phys. Rev. 118 (1960) 242
  (Half-life)
- P. G. Hansen, K. Wilsky. Nucl. Phys. 30 (1962) 405
  (Gamma-ray emission intensities)
- J. J. Reidy. report TID-21826 (1964)
  (Gamma ray energies)
- P. Simonet, G. Boile, G. Simonet. Report CEA-R-2461 (1965)
  (Half-life)
- G. I. Harris, D. V. Breitenbecher. Phys. Rev. 145 (1966) 866
  (Gamma-ray emission intensities)
- H. W. Baer, J. J. Reidy, M. L. Wiedenbeck. Nucl. Phys. 86 (1966) 332
  (Gamma ray energies)
- S.-E. Karlsson, B. Svahn, H. Pettersson, G. Malmsten, E. Y. De Aisenberg. Nucl. Phys. A100 (1967) 113
  (Gamma-ray energies and emission intensities)
- B. S. Dzelepov, N. N. Zhukovskii, A. G. Maloyan, V. P. Prikhodtseva. Bull. Acad. Sci. USSR, Phys. Ser. 30 (1967) 410
  (Gamma-ray emission intensities)
- A. Reynolds, J. F. Emery, E. I. Wyatt. Nucl. Sci. Eng. 32 (1968) 46
  (Half-life)
- W. Baer, J. J. Reidy, M. L. Wiedenbeck. Nucl. Phys. A113 (1968) 33
  (Gamma-ray energies and emission intensities)
- R.Gunnink, R. A. Meyer, J. B. Niday, R. P. Anderson. Nucl. Instr. Methods 65 (1968) 26
  (Gamma ray energies)

- N. Belyaev, S. S. Vasienko, V. S. Gvozdev. Soviet J. Nucl. Phys. 8 (1969) 135
  (Internal-pair formation coefficient)
- R.Gunnink, J. B. Niday, R. P. Anderson, R. A. Meyer. Report UCID-15439 (1969)
  (Gamma-ray emission intensities)
- J. Kern. Nucl. Instr. Methods 79 (1970) 233
  (Gamma ray energies)
- G. Kalinnikov, H. L. Ravn, H. G. Hansen, N. A. Lebedev. Bull. Acad. Sci. USSR, Phys. Ser. 34 (1971) 815
  (Gamma-ray energies and emission intensities)
- R. J. Gehrke. Report ANCR-1088 (1972) 392
  (Gamma energy)
- R. L. Heath. Report ANCR-1000-2 (1974)
  (Gamma-ray emission intensities)
- J. T. Harvey, J. L. Meason, J. C. Hogan, H. L. Wright. Nucl. Sci. Eng. 58 (1975) 431
  (Gamma-ray emission intensities)
- I. M. Band, M. B. Trzhaskovskaya, M. A. Listengarten. Atomic Data Nucl. Data Tables 18 (1976) 433
  (ICC)
- C.-C. Lin. J. Inorg. Nucl. Chem. 38 (1976) 1409
  (Gamma-ray emission intensities)
- K. Debertin, U. Schötzig, K. F. Walz. Nucl. Sci. Eng. 64 (1977) 784
  (Gamma-ray emission intensities)
- K. Debertin, U. Schötzig and K. F. Walz. INDC Ger-10/L+Special (1977) 83
  (Half-life)
- R. J. Gehrke, R. G. Helmer, R. C. Greenwood. Nucl. Instrum. Methods 147 (1977) 405
  (Gamma-ray emission intensities)
- G. Ardisson. Nucl. Instr. Methods 151 (1978) 505
  (Gamma-ray energies and emission intensities)
- M. C. Davis, W. C. Bowman, J. C. Robertson. Int. J. Appl. Radiat. Isotop. 29 (1978) 331
  (Half-life)
- F. Rösel, H. M. Fries, K. Alder, H. C. Pauli. Atomic Data Nucl. Data Tables 21 (1978) 269
  (ICC)
- H. G. Börner, W. F. Davidson, J. Almeida, J. Blachot, J. A. Pinston, P. H. M.Van Assche. Nucl. Instr. Methods 164 (1979) 579
  (Gamma ray energies)
- P. Schlüter, G. Soff. Atomic Data Nucl. Data Tables 24 (1979) 509
  (Internal-pair formation coefficient)
- R. Kaur, A. K. Sharma, S. S. Sooch, P. N. Trehan. J. Phys. Soc. Japan. 49 (1980) 2122
  (Gamma-ray energies and emission intensities)
- J. B. Olomo, T. D. MacMahon. J. Phys. London G6 (1980) 367
  (Half-life)
- H. Houtermans, O. Milosevic, F. Reichel. Int. J. Appl. Radiat. Isotop. 31 (1980) 153
  (Half-life)
- I. Adam, N. M. Antoneva, V. B. Brudanin, M. Budzynski, Ts. Vylov, V. A. Dzhashi, A. Zhumamuratov, A. I. Ivanov, V. G. Kalinnikov, A. Kugler, V. V. Kuznetsov, Li Zon Sik, T. M. Muminov, A. F. Novgorodov, Yu. N. Izv. Akad. Nauk SSSR, Ser. Fiz. 46 (1982) 2
  (Gamma energy and probability)
- D. D. Hoppes, J. M. R. Hutchinson, F. J. Schima, M. P. Unterweger. Report NBS-SP-626 (1982) 85
  (Half-life)
- K. F. Walz, K. Debertin, H. Schrader. Int. J. Appl. Radiat. Isotop. 34 (1983) 1191
  (Half-life)
- A. Abzouzi, M. S. Antony, V. B. Ndocko Ndongue. J. Radioanal. Nucl. Chem. 137 (1989) 381
  (Half-life)
- B. Chand, J. Goswamy, D. Mehta, N. Singh, P. N. Trehan. Can. J. Phys. 69 (1991) 90
  (Gamma probability)
- M. P. Unterweger, D. D. Hoppes, F. J. Schima. Nucl. Instr. Methods Phys. Res. A312 (1992) 349
  (Half-life)
- L. K. Peker. Nucl. Data Sheets 73 (1994) 261
  (Multipolarities, Spin and Parity)
- G. Audi, A. H. Wapstra. Nucl. Phys. A595 (1995) 409
  (Q)

- E. Schönfeld, H. Janssen. Nucl. Instr. Methods Phys. Res. A 369 (1996) 527
(Fluorescence yields)
- B. Singh, J. L. Rodriguez, S. S. M. Wong, J. K. Tuli. Nucl. Data Sheets 84 (1998) 565
(log ft systematics)
- E. Schönfeld, H. Janssen. Report PTB-6.11 1999-1 (1999)
(PX)

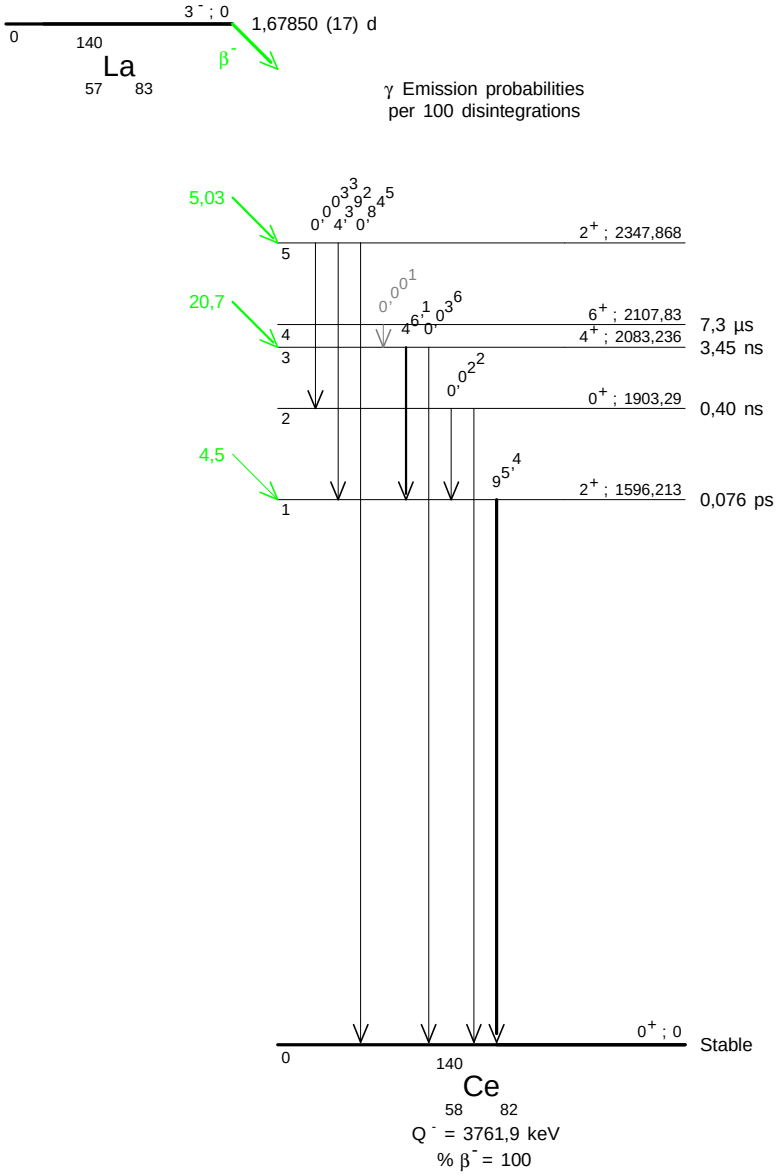


γ Emission probabilities per 100 disintegrations



Q⁻ = 3761,9 keV

% β⁻ = 100


3⁻ ; 0
1,67850 (17) d
0
140
La
57
83
β⁻
γ Emission probabilities
per 100 disintegrations
5,03
20,7
4,5
2⁺ ; 2347,868
6⁺ ; 2107,83
4⁺ ; 2083,236
7,3 µs
3,45 ns
0⁺ ; 1903,29
0,40 ns
2⁺ ; 1596,213
0,076 ps
0⁺ ; 0
Stable
Ce
58
82
Q⁻ = 3761,9 keV
% β⁻ = 100