^{146}La β^- decay (6.1 s) 1981GoZN,1982ShZV

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Yu. Khazov, A. Rodionov and G. Shulyak	NDS 136, 163 (2016)	14-Jul-2016

Parent: ^{146}La: E=0.0; J^π=(2$^-$); $T_{1/2}$=6.1 s *3*; Q(β^-)=6590 *30*; %β^- decay=100.0

1981GoZN,1982ShZV (published in 1997Pe22): ^{146}La β^- decay; measured Eγ, Iγ, $\gamma\gamma$(t), $\gamma\gamma(\theta)$. Investigations of 1981GoZN and 1982ShZV were performed by the same group ^{146}Ce; deduced levels, J^π. Separator TRISTAN, tape transport system.

1981WaZL,1983Wo03: ^{146}La β^- decay [from ^{146}Ba (β^-)]; measured Eγ, Iγ, $\gamma\gamma(\theta)$. ^{146}Ce; deduced levels, J^π. Multiple detector system.

Others: 1978Mo33, 1977Sk02, 1984So18, 1986Gr11, 1982Br23, 1981De25, 1979Ke02, 1986Gi05.

Low part of the ^{146}Ce level scheme to the level energy below 2031 keV is taken from 1981GoZN, and higher part from the 2031 keV level is taken from 1982ShZV (the same experimental group). Most of levels excited also in 9.8 s decay of ^{146}La. Often the branching ratios differ significantly from each other. In addition, the 924.6 keV level is overpopulated, the 1956.0 keV level is populated, but it does not decays. Proposed ^{146}Ce level scheme excited in the β^- decay of 6.1 s ^{146}La should be considered as not established enough, and the calculated values of β feedings not fully reflect the true value. The evaluators shown the values of log *ft* for Iβ>0.5%.

^{146}Ce Levels

E(level)[†]	J^π	Comments
0.0	0$^+$	
258.47[‡] *5*	2$^+$	g=0.24 *5* (TIPAC, 1986GI05).
668.30[‡] *7*	4$^+$	
924.55[‡] *5*	1$^-$	
960.75[‡] *6*	3$^-$	
1043.14[‡] *7*	0$^+$	
1171.21[‡] *12*	6$^+$	
1183.01[‡] *21*	5$^-$	
1274.26[‡] *6*	2$^+$	
1381.86[‡] *6*	(2$^+$)	
1576.59[‡] *10*	(3$^+$)	
1627.44[‡] *18*	4$^+$	E(level): the level was determined in 1981GoZN, and was not observed in 1982ShZV; the level is suggested in 9.8 s β decay (1993Sh10).
1657.66[‡] *14*	(0$^+$)	
1753.80[‡] *15*		
1756.59[‡] *11*	(2$^+$)	
1802.49[‡] *22*	(4$^+$)	
1808.33[‡] *14*		
1831.92 *11*		
1955.9[‡] *4*		
1989.20[‡] *15*	(2)	
2031.05[‡] *11*		
2051.45[‡] *11*		
2071.67[‡] *13*		
2126.40[‡] *12*		
2155.99[‡] *11*		
2179.45 *18*		
2222.82[‡] *14*		
2233.65 *17*		
2261.1 *3*		

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^{146}La β^- decay (6.1 s) 1981GoZN,1982ShZV (continued)

^{146}Ce Levels (continued)

E(level)†	E(level)†	E(level)†	E(level)†
2311.02‡ *13*	2511.74‡ *18*	2868.82‡ *12*	3399.50 *13*
2318.60‡ *13*	2543.76‡ *17*	2953.32‡ *11*	3457.74 *13*
2368.01‡ *10*	2551.8‡ *4*	2996.2 *3*	3534.91‡ *18*
2397.69‡ *10*	2569.79‡ *14*	3166.56 *17*	3956.70 *21*
2399.08‡ *19*	2639.49 *19*	3255.36‡ *21*	4089.61 *21*
2414.27‡ *13*	2713.33‡ *14*	3283.01‡ *10*	4410.86 *21*
2442.38 *23*	2841.03‡ *14*	3328.92‡ *11*	4690.00 *23*
2446.74‡ *9*	2861.80‡ *10*	3341.90‡ *12*	

† From a least-squares fit to Eγ, normalized χ^2=1.2.
‡ The level is excited in 9.8 s decay.

β^- radiations

E(decay)	E(level)	Iβ⁻†	Log *ft*	Comments
(3.13×10^3 *3*)	3457.74	0.68 *4*	6.51 *4*	av Eβ=1289 *14*
(3.19×10^3 *3*)	3399.50	0.62 *4*	6.59 *4*	av Eβ=1316 *14*
(3.25×10^3 *3*)	3341.90	1.08 *5*	6.38 *3*	av Eβ=1342 *14*
(3.26×10^3 *3*)	3328.92	1.63 *8*	6.21 *3*	av Eβ=1348 *14*
(3.31×10^3 *3*)	3283.01	3.31 *8*	5.926 *21*	av Eβ=1370 *14*
(3.33×10^3 *3*)	3255.36	0.72 *4*	6.60 *3*	av Eβ=1382 *14*
(3.64×10^3 *3*)	2953.32	1.83 *6*	6.358 *22*	av Eβ=1523 *14*
(3.72×10^3 *3*)	2868.82	0.54 *3*	6.93 *3*	av Eβ=1562 *14*
(3.73×10^3 *3*)	2861.80	1.28 *7*	6.56 *3*	av Eβ=1565 *14*
(3.75×10^3 *3*)	2841.03	0.92 *6*	6.71 *4*	av Eβ=1575 *14*
(3.88×10^3 *3*)	2713.33	0.59 *4*	6.97 *4*	av Eβ=1634 *14*
(4.08×10^3 *3*)	2511.74	0.69 *4*	6.99 *3*	av Eβ=1728 *14*
(4.14×10^3 *3*)	2446.74	2.82 *22*	6.41 *4*	av Eβ=1758 *14*
(4.19×10^3 *3*)	2397.69	0.97 *4*	6.897 *24*	av Eβ=1781 *14*
(4.27×10^3 *3*)	2318.60	0.89 *9*	6.97 *5*	av Eβ=1818 *14*
(4.28×10^3 *3*)	2311.02	1.88 *8*	6.648 *24*	av Eβ=1822 *14*
(4.43×10^3 *3*)	2155.99	0.67 *4*	7.16 *3*	av Eβ=1894 *14*
(4.46×10^3 *3*)	2126.40	1.20 *8*	6.92 *4*	av Eβ=1908 *14*
(4.56×10^3 *3*)	2031.05	0.54 *5*	7.31 *5*	av Eβ=1952 *14*
(4.60×10^3 *3*)	1989.20	0.72 *5*	7.20 *4*	av Eβ=1972 *14*
(4.76×10^3 *3*)	1831.92	0.97 *5*	7.13 *3*	av Eβ=2045 *14*
(4.78×10^3 *3*)	1808.33	0.89 *6*	7.18 *4*	av Eβ=2057 *14*
(4.79×10^3 *3*)	1802.49	0.57 *5*	7.38 *4*	av Eβ=2059 *14*
(4.83×10^3 *3*)	1756.59	1.92 *17*	6.87 *4*	av Eβ=2081 *14*
(4.84×10^3 *3*)	1753.80	1.62 *24*	6.94 *7*	av Eβ=2082 *14*
(4.93×10^3 *3*)	1657.66	0.15 *6*	8.01^{1u} *18*	av Eβ=2127 *14*
(4.96×10^3 *3*)	1627.44	0.36 *5*	7.64 *7*	av Eβ=2141 *14*
(5.01×10^3 *3*)	1576.59	0.67 *16*	7.39 *11*	av Eβ=2165 *14*
(5.21×10^3 *3*)	1381.86	3.40 *21*	6.76 *3*	av Eβ=2256 *14*
(5.32×10^3 *3*)	1274.26	2.3 *3*	6.97 *6*	av Eβ=2306 *14*
(5.55×10^3 *3*)	1043.14	2.17 *21*	8.96^{1u} *5*	av Eβ=2392 *14*
(5.63×10^3 *3*)	960.75	15 *7*	6.26 *21*	av Eβ=2453 *14*
(5.67×10^3 *3*)	924.55	≤5	≥6.8	av Eβ=2470 *14*
(5.92×10^3 *3*)	668.30	1.2 *6*	9.39^{1u} *22*	av Eβ=2568 *14*

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^{146}La β^- decay (6.1 s) 1981GoZN,1982ShZV (continued)

β^- radiations (continued)

E(decay)	E(level)	Iβ^-†	Log *ft*	Comments
(6.33×10^3 *3*)	258.47	27.7 *8*	6.220 *17*	av Eβ=2781 *14*
(6.59×10^3 *3*)	0.0	17.2 *8*	8.532^{1u} *25*	av Eβ=2882 *15*

† Absolute intensity per 100 decays.

γ(^{146}Ce)

Iγ normalization: from I(258.5γ)=63.7% *30* (1984So18).

E$_\gamma$†	I$_\gamma$†&	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.‡	α@	Comments
36.2 *3*	1.7 *10*	960.75	3$^-$	924.55	1$^-$	[E2]	103 *5*	α(L)=80 *4*; α(M)=18.1 *8* α(N)=3.84 *17*; α(O)=0.525 *23*; α(P)=0.000581 *11*
107.60 *5*	0.15 *15*	1381.86	(2$^+$)	1274.26	2$^+$			
118.6 *3*	1.2 *5*	1043.14	0$^+$	924.55	1$^-$			I$_\gamma$: Iγ(118.2)/Iγ(784.8)<0.017 in ^{146}La (9.8 s) decay.
194.8 *5*	0.52 *25*	1576.59	(3$^+$)	1381.86	(2$^+$)			
231.2 *5*	0.73 *30*	1274.26	2$^+$	1043.14	0$^+$			
258.47 *6*	1000	258.47	2$^+$	0.0	0$^+$	E2	0.0785	α(K)=0.0620 *9*; α(L)=0.01302 *19*; α(M)=0.00281 *4* α(N)=0.000612 *9*; α(O)=9.21×10^{-5} *13*; α(P)=3.99×10^{-6} *6* I$_\gamma$: 1000; 63.7% *30* (1984So18). Mult.: from $\gamma\gamma(\theta)$ (1983Wo03) and RUL.
275.5 *3*	0.64 *30*	1657.66	(0$^+$)	1381.86	(2$^+$)			
292.4 *1*	11 *1*	960.75	3$^-$	668.30	4$^+$			
294.70 *25*	<1	2051.45		1756.59	(2$^+$)			
302.4 *3*	0.32 *20*	1576.59	(3$^+$)	1274.26	2$^+$			
313.5 *1*	3.0 *3*	1274.26	2$^+$	960.75	3$^-$			I$_\gamma$: Iγ(314.8)/Iγ(1015.9)=0.11 in ^{146}La (9.8 s) decay.
316.70 *34*	<1	2368.01		2051.45				
338.8 *3*	0.48 *15*	1381.86	(2$^+$)	1043.14	0$^+$			
346.29 *17*	4.4 *3*	2397.69		2051.45				
349.7 *2*	2.6 *3*	1274.26	2$^+$	924.55	1$^-$			
366.68 *17*	3.8 *3*	2397.69		2031.05				
383.1 *3*	0.91 *35*	1657.66	(0$^+$)	1274.26	2$^+$			I$_\gamma$: Iγ(383.4)/Iγ(1398.7)=0.94 in ^{146}La (9.8 s) decay.
409.85 *6*	70 *5*	668.30	4$^+$	258.47	2$^+$	E2	0.0189	α(K)=0.01557 *22*; α(L)=0.00262 *4*; α(M)=0.000557 *8* α(N)=0.0001221 *18*; α(O)=1.89×10^{-5} *3*; α(P)=1.072×10^{-6} *15* I$_\gamma$: 62; 3.9% *4* (1984So18).
421.1 *1*	5.4 *4*	1381.86	(2$^+$)	960.75	3$^-$			
457.3 *1*	12 *1*	1381.86	(2$^+$)	924.55	1$^-$			
466.80 *25*	<1	3328.92		2861.80				
502.9 *1*	5.4 *5*	1171.21	6$^+$	668.30	4$^+$			
514.7 *2*	6.7 *3*	1183.01	5$^-$	668.30	4$^+$			
533.7 *2*	1.8 *3*	1808.33		1274.26	2$^+$			
549.80 *34*	1.7 *2*	2126.40		1576.59	(3$^+$)			
595.87 *17*	4.7 *3*	2551.8		1955.9				
607.1 *4*	1.3 *5*	1274.26	2$^+$	668.30	4$^+$			

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^{146}La β^- decay (6.1 s) 1981GoZN,1982ShZV (continued)

$\gamma(^{146}Ce)$ (continued)

E_γ[†]	I_γ[†&]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	α[@]	Comments
646.10 *34*	<1	2222.82		1576.59	(3^+)			
666.07 *6*	98 *5*	924.55	1^-	258.47	2^+	E1	0.00191 *4*	α(K)=0.00164 *3*; α(L)=0.000208 *4*; α(M)=4.31×10^{-5} *8* α(N)=9.55×10^{-6} *17*; α(O)=1.54×10^{-6} *3*; α(P)=1.159×10^{-7} *21* Very small value of A_4 in the cascade 666γ-258γ indicates pure dipole transition (1983Wo03). I_γ: 90; 5.7% *6* (1984So18) Iγ(666.1)/Iγ(924.6)=1.28 in ^{146}La (9.8 s) decay.
693.00 *42*	5 *3*	2446.74		1753.80				
702.28 *6*	100 *5*	960.75	3^-	258.47	2^+	E1	0.00170 *5*	α(K)=0.00147 *5*; α(L)=0.000185 *6*; α(M)=3.85×10^{-5} *13* α(N)=8.5×10^{-6} *3*; α(O)=1.38×10^{-6} *5*; α(P)=1.04×10^{-7} *4* Very small value of A_4 in the cascade 702γ-258γ indicates pure dipole transition (1983Wo03). I_γ: 101; 6.4% *6* (1984So18).
713.5[a] *5*	7.6[a] *20*	1381.86	(2^+)	668.30	4^+			
713.5[a] *5*	1.9[a] *10*	1756.59	(2^+)	1043.14	0^+			I_γ: Iγ(713.4)/Iγ(1498.1)=0.15 in ^{146}La (9.8 s) decay.
744.80 *34*	1.6 *4*	2126.40		1381.86	(2^+)			
756.90 *25*	2.7 *3*	2031.05		1274.26	2^+			
784.66 *6*	48 *3*	1043.14	0^+	258.47	2^+	E2	0.00347	α(K)=0.00294 *5*; α(L)=0.000412 *6*; α(M)=8.63×10^{-5} *12* α(N)=1.91×10^{-5} *3*; α(O)=3.05×10^{-6} *5*; α(P)=2.12×10^{-7} *3*
787.20 *34*	<1	2543.76		1756.59	(2^+)			I_γ: Iγ(787.7)/Iγ(1619.0)=1.93 in ^{146}La (9.8 s) decay.
793.0 *2*	15 *1*	1753.80		960.75	3^-			I_γ: Iγ(793.0)/Iγ(929.2)=1.21 in ^{146}La (9.8 s) decay.
797.50 *25*	<1	2071.67		1274.26	2^+			
[x]808.79 *9*	2.4 *3*							
829.3 *2*	15 *2*	1753.80		924.55	1^-			
832. *2*	6.8 *8*	1756.59	(2^+)	924.55	1^-			
836.03 *17*	2.2 *4*	3283.01		2446.74				
852.26 *18*	6.3 *6*	2126.40		1274.26	2^+			I_γ: Iγ(851.9)/Iγ(1868.5)=0.6 in ^{146}La (9.8 s) decay.
870.00 *18*	6.3 *9*	2446.74		1576.59	(3^+)			
881.70 *25*	<1	2155.99		1274.26	2^+			
881.70 *25*	<1	2953.32		2071.67				
908.2 *3*	4.7 *4*	1576.59	(3^+)	668.30	4^+			I_γ: Iγ(908.0)/Iγ(1318.1)=0.14 in ^{146}La (9.8 s) decay.
915.10 *25*	1.3 *3*	3283.01		2368.01				
924.56 *8*	125 *6*	924.55	1^-	0.0	0^+			I_γ: 121; 7.7% *8* (1984So18).
927.60 *25*	2.6 *4*	3341.90		2414.27				
948.46 *18*	2.7 *3*	2222.82		1274.26	2^+			
959.2 *2*	4.0 *5*	1627.44	4^+	668.30	4^+			
993.00 *25*	2.0 *5*	2569.79		1576.59	(3^+)			
1015.9 *1*	52 *3*	1274.26	2^+	258.47	2^+			
1028.5 *2*	3.7 *4*	1989.20	(2)	960.75	3^-			
1028.5 *2*	3.7 *4*	2071.67		1043.14	0^+			
1037.62[#] *16*	8.6 *5*	2311.02		1274.26	2^+			E_γ: poor fit, the energy difference between

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^{146}La β^- decay (6.1 s) 1981GoZN,1982ShZV (continued)

$\gamma(^{146}Ce)$ (continued)

E_γ †	I_γ †&	E_i(level)	J_i^π	E_f	J_f^π	Comments
						corresponding level energies equals 1036.75 *13*.
1043.30 *25*	2.2 *4*	3457.74		2414.27		
1064.6[a] *2*	7.6[a] *5*	1989.20	(2)	924.55	1^-	I_γ: from 1981GoZN. Iγ<1 in 6.1 s β^- decay (1982ShZV). In 9.8 s β^- decay (1993Sh10) the transition 1064.6 keV was not determined from as this level but depopulates 2446 keV level with Iγ=3.1. In 6.1 s β^- decay, Eγ=1064 keV depopulates also the 2446 keV level with Iγ<1.
1064.6[a] *2*	<1[a]	2446.74		1381.86	(2^+)	
1084.25[#] *16*	5.9 *3*	2126.40		1043.14	0^+	E_γ: poor fit, the energy difference between corresponding level energy equals 1083.25 *12*.
1114.90 *25*	2.2 *5*	3166.56		2051.45		
1123.4 *2*	6.5 *5*	1381.86	(2^+)	258.47	2^+	
1129.2 *91*	4.5 *4*	3255.36		2126.40		
1134.2 *3*	2.9 *4*	1802.49	(4^+)	668.30	4^+	
1140.2 *2*	6.1 *5*	1808.33		668.30	4^+	
1167.2 *2*	3.4 *4*	3534.91		2368.01		
1172.78 *16*	13.4 *7*	2446.74		1274.26	2^+	
1188.70 *25*	<1	2569.79		1381.86	(2^+)	
1195.40 *25*	1.7 *3*	2155.99		960.75	3^-	I_γ: Iγ(1195.2)/Iγ(1898.5)=3.1 *9* in ^{146}La (9.8 s) decay.
1201.60 *18*	2.6 *4*	2126.40		924.55	1^-	I_γ: Iγ(1201.9)/Iγ(1868.7)=0.38 in ^{146}La (9.8 s) decay.
1240.00 *43*	<1	2996.2		1756.59	(2^+)	
1262.50 *25*	1.2 *2*	2222.82		960.75	3^-	
1274.4 *2*	20 *2*	1274.26	2^+	0.0	0^+	
1318.3 *2*	19 *2*	1576.59	(3^+)	258.47	2^+	
1324.80 *34*	1.2 *4*	2368.01		1043.14	0^+	
1336.50 *25*	3.1 *4*	2261.1		924.55	1^-	
1348.40 *34*	<1	3399.50		2051.45		
1350.50 *34*	2.4 *4*	2311.02		960.75	3^-	
1354.40 *18*	1.4 *1*	2397.69		1043.14	0^+	
1362.60 *18*	2.6 *3*	2031.05		668.30	4^+	
1368.8[a] *3*	1.7[a] *5*	1627.44	4^+	258.47	2^+	
1368.8[a] *3*	1.5[a] *3*	2551.8		1183.01	5^-	
1377.00 *25*	<1	2953.32		1576.59	(3^+)	
1382.1 *2*	27 *2*	1381.86	(2^+)	0.0	0^+	
1386.40 *18*	3.3 *4*	2311.02		924.55	1^-	
1398.9 *3*	7.0 *6*	1657.66	(0^+)	258.47	2^+	
1407.60 *25*	1.5 *3*	2368.01		960.75	3^-	
1443.70 *18*	4.4 *4*	2368.01		924.55	1^-	
1485.10 *34*	3.2 *5*	2446.74		960.75	3^-	
1489.50 *25*	2.8 *4*	2414.27		924.55	1^-	E_γ: the transition connects the levels with J^π's (4^+) and 1^-, it is likely doubtful transition as it should be seen in the ^{146}La β decay (9.8 s), but it is not measured (1993Sh10).
1495.2 *3*	<1	1753.80		258.47	2^+	
1498.2 *2*	22 *2*	1756.59	(2^+)	258.47	2^+	
1508.70 *34*	1.7 *4*	3166.56		1657.66	(0^+)	
1544.0 *3*	6.1 *6*	1802.49	(4^+)	258.47	2^+	
1550.3 *3*	6.1 *6*	1808.33		258.47	2^+	
1573.60 *13*	12.5 *6*	1831.92		258.47	2^+	
[x]1581.4 *2*	1.9 *4*					
1585.20 *43*	0.8 *2*	3341.90		1756.59	(2^+)	
1587.70 *18*	2.2 *2*	2861.80		1274.26	2^+	
1595.10 *43*	0.6 *2*	2868.82		1274.26	2^+	
1619.20 *18*	4.6 *4*	2543.76		924.55	1^-	
1625.00 *34*	1.1 *2*	3283.01		1657.66	(0^+)	
1643.00 *18*	2.3 *2*	3399.50		1756.59	(2^+)	

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^{146}La β^- decay (6.1 s) 1981GoZN,1982ShZV (continued)

$\gamma(^{146}Ce)$ (continued)

E_γ †	I_γ †&	E_i(level)	J_i^π	E_f	J_f^π	Comments
1673.10# *25*	2.3 *2*	3328.92		1657.66	(0^+)	E_γ: poor fit, the energy difference between corresponding level energy equals 1671.25 *17*.
1678.70 *34*	2.5 *3*	3255.36		1576.59	(3^+)	
x1685.5 *2*	1.3 *2*					
1701.20 *18*	2.3 *2*	3457.74		1756.59	(2^+)	
1734.20 *34*	0.6 *1*	3956.70		2222.82		
1741.50 *25*	1.1 *2*	3399.50		1657.66	(0^+)	
1752.50 *18*	1.6 *3*	2713.33		960.75	3^-	I_γ: Iγ(1753.2)/Iγ(2455.3)=2.4 in ^{146}La (9.8 s) decay.
1752.90 *25*	<1	3328.92		1576.59	(3^+)	
1756.7 *3*	12 *1*	1756.59	(2^+)	0.0	0^+	
1772.66 *16*	7.0 *5*	2031.05		258.47	2^+	
1793.12 *17*	9.7 *4*	2051.45		258.47	2^+	
x1803.8 *1*	3.3 *3*					
1813.20 *25*	<1	2071.67		258.47	2^+	
1826.60 *62*	0.6 *2*	4690.00		2861.80		
1831.60 *18*	2.7 *3*	1831.92		0.0	0^+	
1868.00 *25*	5.2 *7*	2126.40		258.47	2^+	E_γ: author's value of 1864.0 (1982ShZV) could be a misprint.
1892.60 *25*	1.8 *2*	3166.56		1274.26	2^+	
1897.60 *18*	3.2 *2*	2155.99		258.47	2^+	
1907.90 *34*	0.7 *2*	2868.82		960.75	3^-	
1916.40 *18*	1.9 *2*	2841.03		924.55	1^-	
1920.80 *25*	2.9 *2*	2179.45		258.47	2^+	
1937.20 *18*	2.2 *2*	2861.80		924.55	1^-	
1944.51 *17*	3.2 *3*	2868.82		924.55	1^-	
1960.10 *18*	1.5 *1*	3341.90		1381.86	(2^+)	
1964.20 *42*	0.4 *1*	4410.86		2446.74		
1968.20 *42*	<1	4410.86		2442.38		
1975.10 *18*	2.3 *2*	2233.65		258.47	2^+	
1981.30 *34*	1.0 *2*	3255.36		1274.26	2^+	
1992.49 *17*	3.6 *3*	2953.32		960.75	3^-	
2028.60 *25*	7.7 *5*	2953.32		924.55	1^-	
2051.70# *18*	12.8 *8*	2311.02		258.47	2^+	E_γ: poor fit, the energy difference between corresponding level energies equals 2052.54 *13*.
x2054.1 *1*	4.1 *4*					
2060.10 *18*	5.8 *13*	2318.60		258.47	2^+	
x2073.00 *18*	1.5 *1*					
2109.40 *34*	0.8 *2*	2368.01		258.47	2^+	
x2127.4 *2*	1.3 *2*					
2140.60 *18*	3.2 *2*	2399.08		258.47	2^+	
2155.80 *18*	5.1 *3*	2155.99		0.0	0^+	
2155.80 *18*	5.1 *3*	2414.27		258.47	2^+	
2179.60 *25*	4.0 *3*	2179.45		0.0	0^+	
2183.80 *25*	2.1 *2*	2442.38		258.47	2^+	
2188.20 *18*	18.5 *9*	2446.74		258.47	2^+	
2233.90 *34*	<1	2233.65		0.0	0^+	
2253.25 *17*	10.8 *6*	2511.74		258.47	2^+	
x2291.1 *1*	1.1 *1*					
x2293.00 *25*	2.6 *2*					
2311.00 *18*	2.4 *4*	2311.02		0.0	0^+	
2311.00 *18*	2.4 *2*	2569.79		258.47	2^+	
2318.60 *18*	8.1 *4*	2318.60		0.0	0^+	
2322.30 *18*	5.7 *3*	3283.01		960.75	3^-	
2333.00 *18*	5.6 *4*	4089.61		1756.59	(2^+)	
2358.56 *17*	32.0 *8*	3283.01		924.55	1^-	
2367.80 *18*	3.2 *2*	3328.92		960.75	3^-	

Continued on next page (footnotes at end of table)

^{146}La β^- decay (6.1 s) 1981GoZN,1982ShZV (continued)

$\gamma(^{146}Ce)$ (continued)

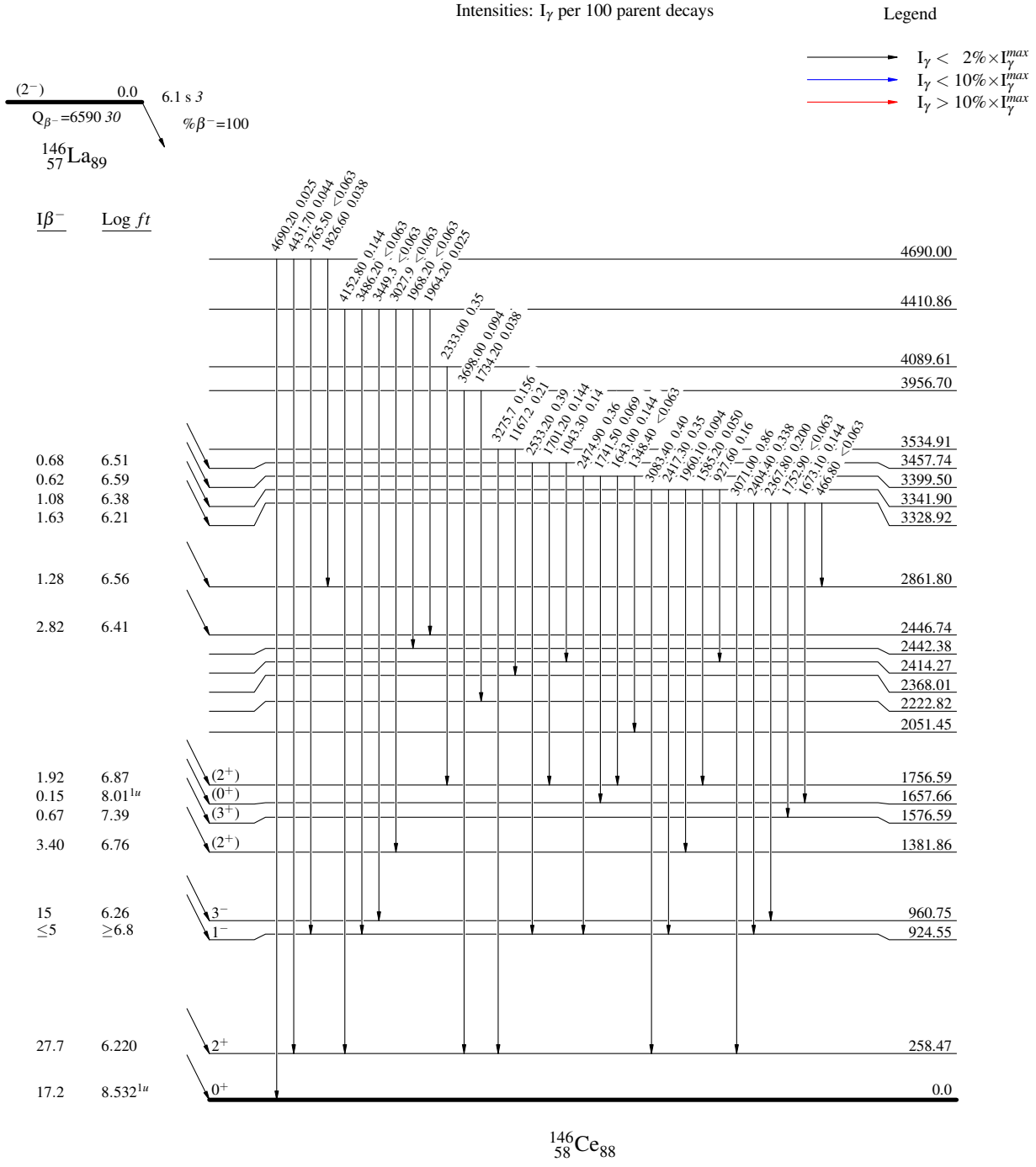
E_γ †	I_γ †&	E_i(level)	J_i^π	E_f	J_f^π	E_γ †	I_γ †&	E_i(level)	E_f	J_f^π
2367.90 *18*	3.2 *2*	2368.01		0.0	0^+	[x]2906.0 *2*	3.5 *2*			
2381.00 *18*	4.0 *9*	2639.49		258.47	2^+	[x]2910.3 *2*	1.8 *2*			
[x]2395.4 *1*	2.2 *2*					2996.00 *34*	3.4 *2*	2996.2	0.0	0^+
2397.70 *18*	5.7 *4*	2397.69		0.0	0^+	2996.70 *34*	3.4 *2*	3255.36	258.47	2^+
2404.40 *18*	5.4 *3*	3328.92		924.55	1^-	[x]2998.2 *2*	2.1 *2*			
[x]2411.0 *1*	2.7 *3*					3024.70 *25*	9.7 *6*	3283.01	258.47	2^+
2417.30 *18*	5.6 *3*	3341.90		924.55	1^-	3027.9 *8*	<1	4410.86	1381.86	(2^+)
2454.90 *18*	7.7 *4*	2713.33		258.47	2^+	3071.00 *34*	13.7 *10*	3328.92	258.47	2^+
2474.90 *18*	5.8 *4*	3399.50		924.55	1^-	3083.40 *34*	6.4 *4*	3341.90	258.47	2^+
[x]2520.5 *2*	6.2 *4*					3275.7 *3*	2.5 *2*	3534.91	258.47	2^+
2533.20 *18*	6.2 *4*	3457.74		924.55	1^-	3449.3 *8*	<1	4410.86	960.75	3^-
[x]2559.0 *2*	2.1 *3*					3486.20 *52*	<1	4410.86	924.55	1^-
2582.60 *18*	12.5 *8*	2841.03		258.47	2^+	3698.00 *25*	1.5 *2*	3956.70	258.47	2^+
2603.00 *18*	15.6 *9*	2861.80		258.47	2^+	3765.50 *52*	<1	4690.00	924.55	1^-
2610.00 *18*	3.9 *2*	2868.82		258.47	2^+	4152.80 *34*	2.3 *2*	4410.86	258.47	2^+
2694.80 *18*	16.5 *5*	2953.32		258.47	2^+	4431.70 *42*	0.7 *1*	4690.00	258.47	2^+
2861.50 *25*	1.2 *2*	2861.80		0.0	0^+	4690.20 *34*	0.4 *1*	4690.00	0.0	0^+

† From 1981GoZN and 1982ShZV. The evaluators added quadratically 0.15 keV to all the $\Delta E\gamma$ taken from 1982ShZV to fit the level scheme.
‡ From $\gamma\gamma(\theta)$ (1983Wo03,1981WaZL).
# Energy of γ ray is not used in a least-squares fitting.
@ Additional information 1.
& For absolute intensity per 100 decays, multiply by 0.0637 *30*.
[a] Multiply placed with intensity suitably divided.
[x] γ ray not placed in level scheme.

^{146}La β^- decay (6.1 s) 1981GoZN,1982ShZV

Decay Scheme

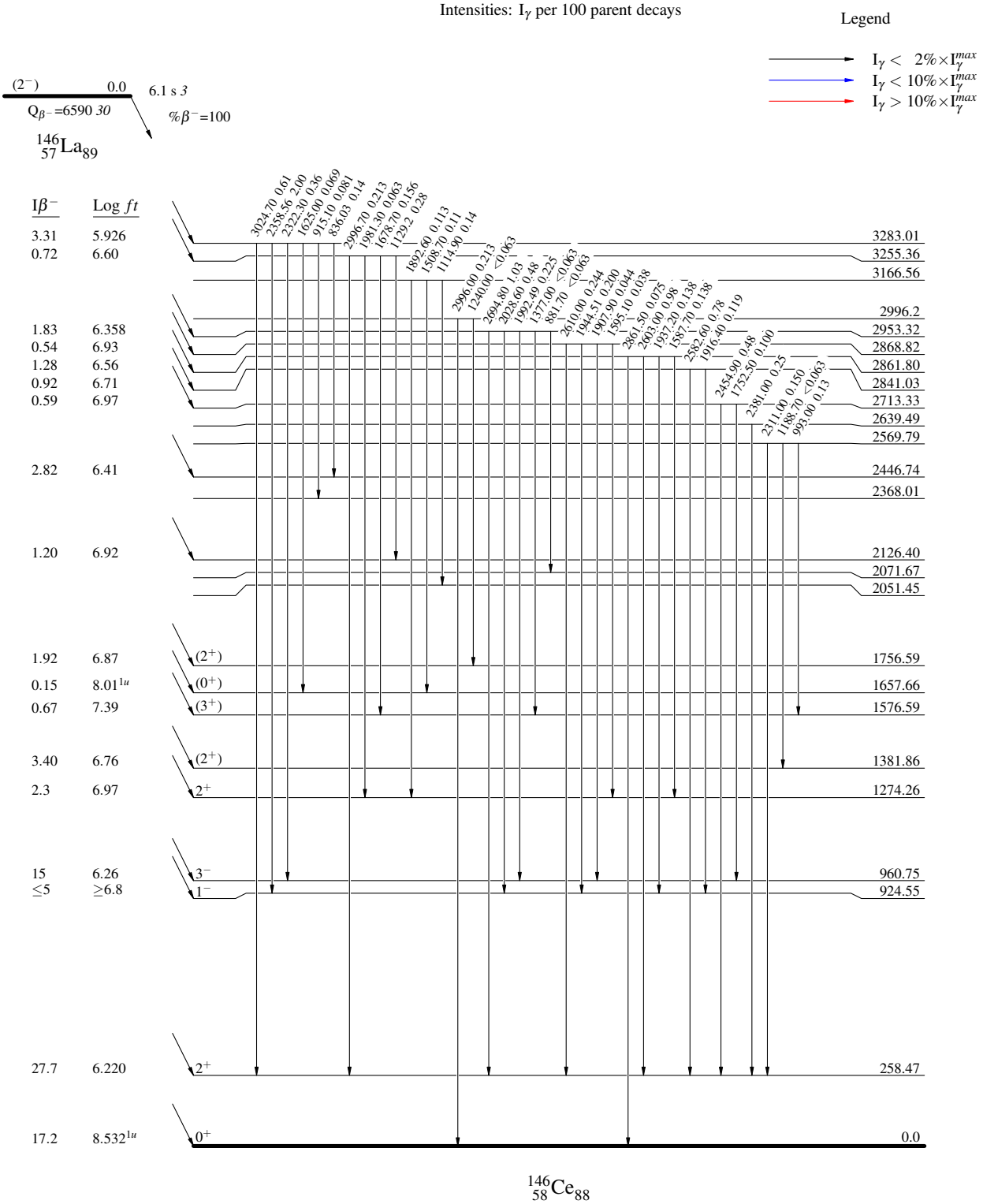
Intensities: I_γ per 100 parent decays



^{146}La β^- decay (6.1 s) 1981GoZN,1982ShZV

Decay Scheme (continued)

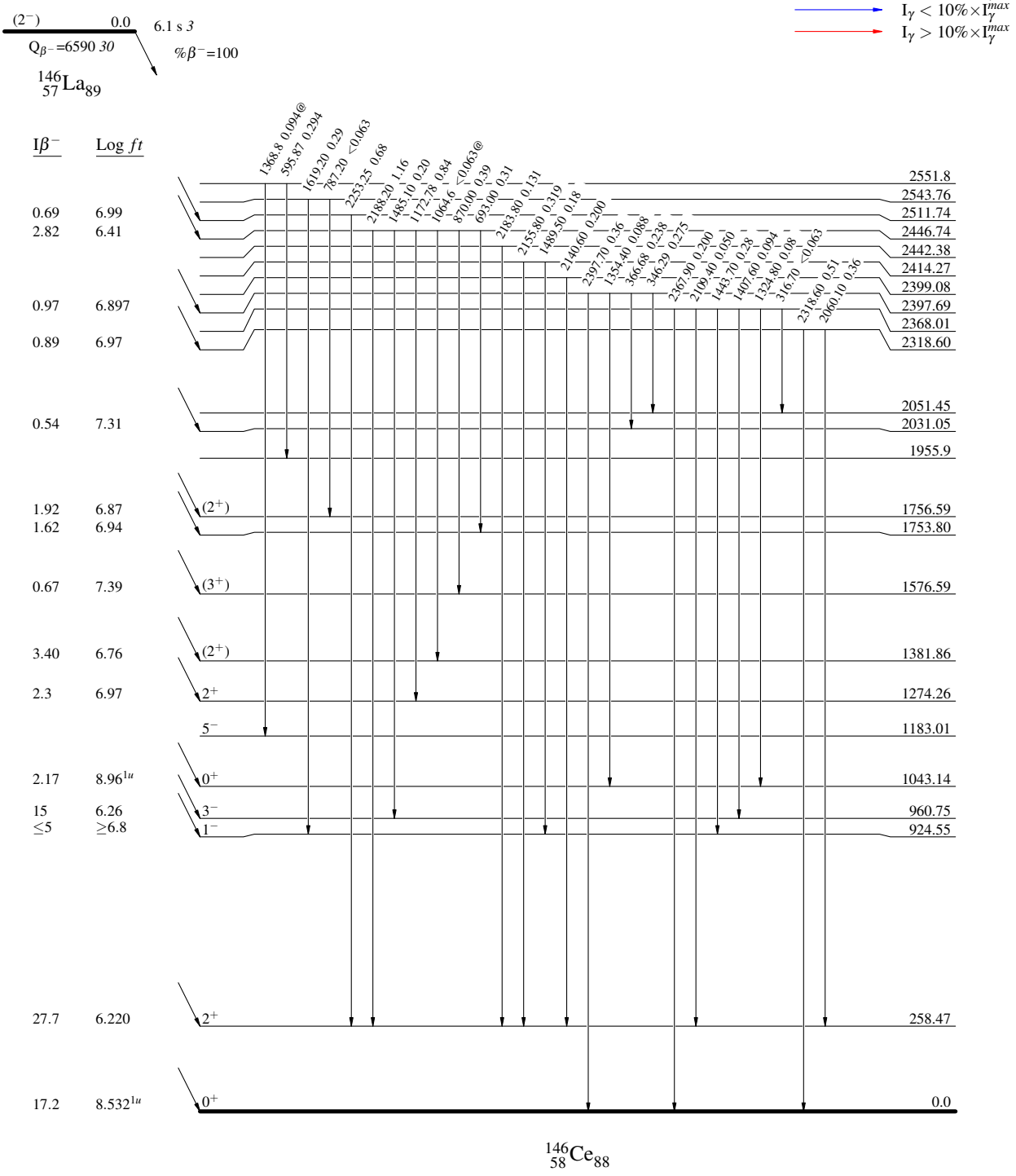
Intensities: I_γ per 100 parent decays



^{146}La β^- decay (6.1 s) 1981GoZN,1982ShZV

Decay Scheme (continued)

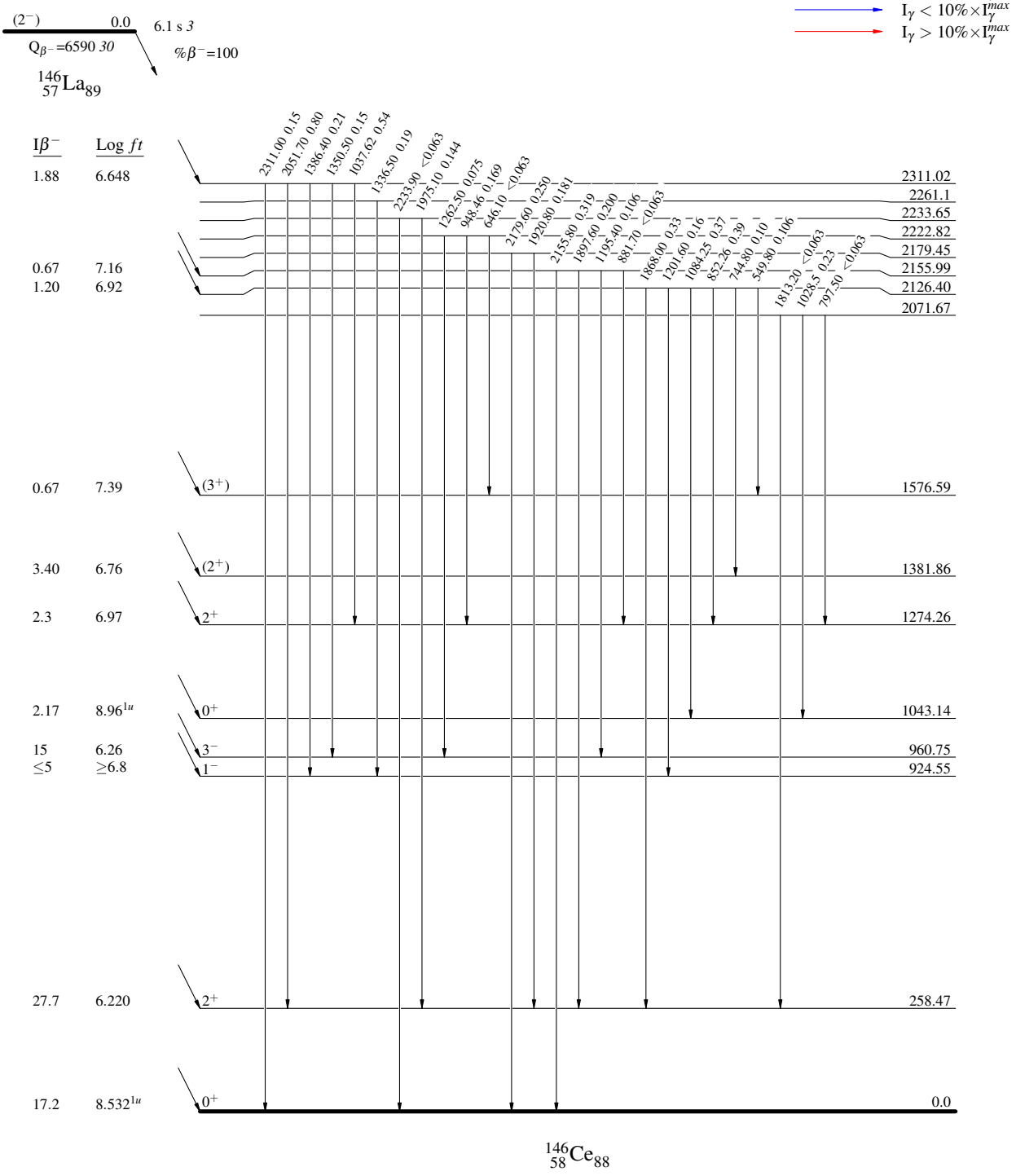
Intensities: I_γ per 100 parent decays
@ Multiply placed: intensity suitably divided



^{146}La β^- decay (6.1 s) 1981GoZN,1982ShZV

Decay Scheme (continued)

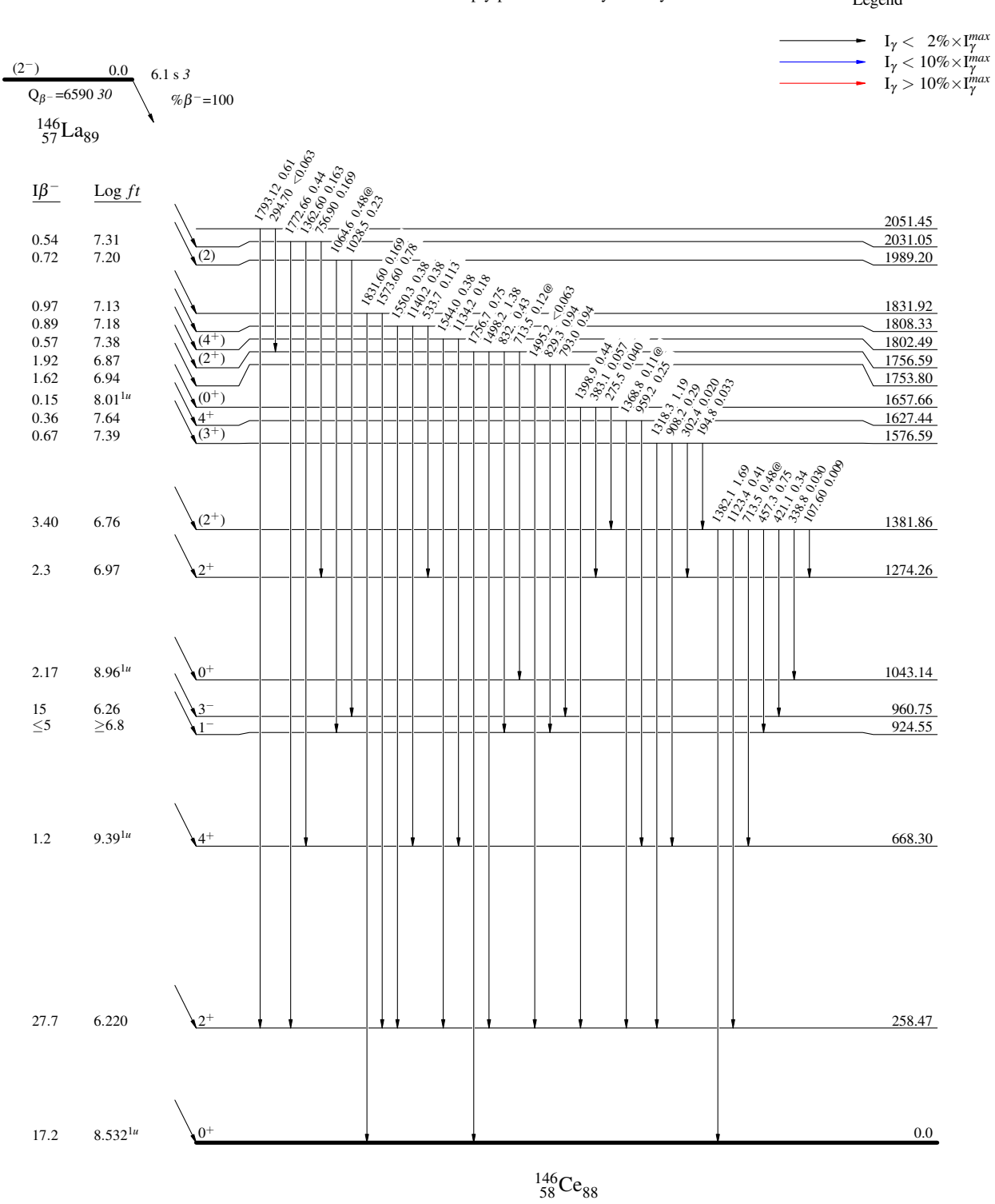
Intensities: I_γ per 100 parent decays
@ Multiply placed: intensity suitably divided



^{146}La β^- decay (6.1 s) 1981GoZN,1982ShZV

Decay Scheme (continued)

Intensities: I_γ per 100 parent decays
@ Multiply placed: intensity suitably divided



^{146}La β^- decay (6.1 s) 1981GoZN,1982ShZV

Decay Scheme (continued)

Intensities: I_γ per 100 parent decays
@ Multiply placed: intensity suitably divided