^{146}Ba β^- decay 1985Ch16

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}Ba: E=0.0; J$^\pi$=0$^+$; $T_{1/2}$=2.21 s *6*; Q(β^-)=4110 *30*; %β^- decay=100.0

Note: edited by Balraj Singh, Feb 25, 2021, in consultation with A. Rodionov, one of the evaluators of 2016 update: removed quoted experimental total conversion coefficients for 114.90, 121.20, 140.70, 144.70, 175.30 and 197.0 γ rays. The 2016 evaluation did not cite a source reference for these values, but the values are in 1978BlZY, where these are theoretical total conversion coefficients. In general comment for multipolarity assignment, removed assignment from 1978BlZY from ce data. 114.90 gamma: mult=M1 edited to [M1], and reference to 1978BlZY removed.

1985Ch16: ^{146}Ba β^- decay [from ^{235}U(n,F), E=th]; measured Eγ, Iγ, $\gamma\gamma$(t), $\gamma\gamma(\theta)$. ^{146}La; deduced levels, J^π, I_β, δ, log *ft*. Mass-separator TRISTAN, tape transport system, Ge(Li), Ge planar detectors.

1984So18: ^{146}Ba β^- decay (from ^{235}U(n,F), E=th); measured absolute Eγ, Iγ. Mass-separator OSTIS, Ge(Li) detectors.

1978BlZY: ^{146}Ba β^- decay; measured Eγ, Iγ. ^{146}La; deduced levels, log *ft*.

1986Gr11: ^{146}Ba β^- decay; measured Eβ, Iβ, $\beta\gamma$ coin, β-endpoint energies; deduced Q(β). Mass-separator OSTIS, plastic and Ge(Li) detectors.

Decay scheme from 1985Ch16.

^{146}La Levels

E(level)[†‡]	J$^\pi$[#]	$T_{1/2}$[@]	Comments
0.0	(2$^-$)	6.1 s *3*	$T_{1/2}$: weighted average of 6.2 s *6* (1978Mo33,1978MoYW) and 6.0 s *4* (1981GoZN).
0.0+x	(6$^-$)	9.8 s *4*	Additional information 1. E(level): introduced in level scheme by 1998Hw08 (^{252}Cf SF); X=130 *130* keV is evaluated by 2012Au07. No electron peaks corresponding to the E4 or M5 (M3 in 1993Sh10; this is a misprint) transitions of unplaced γ rays had been observed, therefore IT transition must be very weak if present (1993Sh10). $T_{1/2}$,J$^\pi$: from 1978Mo33, 1978MoYW.
121.18 *7*	1$^-$,2$^-$		
140.85 *6*	(2$^-$)		
144.62 *9*	(3$^-$)		
197.03 *6*	(1$^-$)		
294.97 *6*	(2)		
326.70 *9*	(3)		
372.53 *5*	1$^+$		
392.61 *7*	(2$^+$)		J$^\pi$: no direct population in the β-decay but populated by 18 transitions from levels above 600 keV (1985Ch16).
409.91 *11*	(3)		
417.55 *8*	(2)		
429.21 *6*	2$^-$		
439.04 *6*	1$^-$		J$^\pi$: log *ft* value and ground-state γ branch suggest J^π=1$^-$ assignment.
443.59 *12*	(1$^-$)		
466.54 *6*	2$^+$		
488.14 *8*	(1$^-$,2$^-$)		
500.11 *7*	(1$^-$,2$^-$)		
574.50 *6*	(1$^-$,2)		
647.13 *6*	1		J$^\pi$: population (log *ft*=5.7) in β^- decay from 0$^+$, decay pattern.
675.22 *9*	(1$^-$,2$^-$)		
686.90 *10*	(1$^-$,2$^-$)		
708.84 *8*	1$^+$		
722.39 *9*	(1,2$^-$)		
757.88 *12*	(1,2$^-$)		
880.24 *7*	1$^+$		
1005.5 *3*	(1)		
1041.38 *13*	(1)		
1064.51 *6*	1$^+$		

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^{146}Ba β^- decay 1985Ch16 (continued)

^{146}La Levels (continued)

E(level)[†‡]	Jπ[#]	E(level)[†‡]	Jπ[#]	E(level)[†‡]	Jπ[#]	E(level)[†‡]	Jπ[#]
1181.91 *8*	1+	1415.71 *12*	(1)	1534.43 *7*	1+	1722.35 *14*	
1190.18 *9*	1+	1443.45 *7*	1+	1606.47 *24*		1777.68 *14*	1+
1224.10 *11*	1+	1469.15 *8*	1+	1624.43 *9*	1+	1882.15 *21*	
1268.96 *8*	1+	1481.50 *10*	1+	1650.80 *11*		2060.51 *24*	
1308.44 *16*	(1)	1507.73 *15*		1693.36 *13*		2165.91 *17*	1+

† If ΔEγ not given, ±0.50 keV assumed for least-squares fitting.
‡ From a least-squares fit to Eγ′s; normalized χ^2=1.4.
\# From 'Adopted Levels'.
@ From 1978Mo33, 1978MoYW. Some of the measured half-life values are grouped close to $T_{1/2}$=8.0-8.5 s (1974SeZZ,1976AmZW,1969WiZX,1979En02). The evaluators tend to believe that these results were obtained for a mixture of β decays of the ground and isomeric states.

β^- radiations

E(decay)	E(level)	Iβ−[†‡]	Log *ft*	Comments
(1.94×10^3 *3*)	2165.91	0.53 *9*	5.31 *8*	av Eβ=749 *14*
(2.05×10^3 *3*)	2060.51	0.51 *8*	5.41 *8*	av Eβ=796 *14*
(2.23×10^3 *3*)	1882.15	0.41 *8*	5.66 *9*	av Eβ=877 *14*
(2.33×10^3 *3*)	1777.68	0.88 *8*	5.40 *5*	av Eβ=924 *14*
(2.39×10^3 *3*)	1722.35	0.80 *10*	5.49 *6*	av Eβ=949 *14*
(2.42×10^3 *3*)	1693.36	0.80 *8*	5.51 *5*	av Eβ=962 *14*
(2.46×10^3 *3*)	1650.80	0.67 *9*	5.62 *7*	av Eβ=982 *14*
(2.49×10^3 *3*)	1624.43	2.33 *16*	5.09 *4*	av Eβ=994 *14*
(2.50×10^3 *3*)	1606.47	0.36 *6*	5.92 *8*	av Eβ=1002 *14*
(2.58×10^3 *3*)	1534.43	4.30 *23*	4.89 *4*	av Eβ=1035 *14*
(2.60×10^3 *3*)	1507.73	0.70 *8*	5.70 *6*	av Eβ=1047 *14*
(2.63×10^3 *3*)	1481.50	1.83 *13*	5.30 *4*	av Eβ=1059 *14*
(2.64×10^3 *3*)	1469.15	3.5 *3*	5.03 *5*	av Eβ=1065 *14*
(2.67×10^3 *3*)	1443.45	3.31 *22*	5.07 *4*	av Eβ=1076 *14*
(2.69×10^3 *3*)	1415.71	0.64 *7*	5.80 *6*	av Eβ=1089 *14*
(2.80×10^3 *3*)	1308.44	0.87 *15*	5.74 *8*	av Eβ=1138 *14*
(2.84×10^3 *3*)	1268.96	2.39 *18*	5.32 *4*	av Eβ=1157 *14*
(2.89×10^3 *3*)	1224.10	1.70 *23*	5.50 *7*	av Eβ=1177 *14*
(2.92×10^3 *3*)	1190.18	3.21 *23*	5.24 *4*	av Eβ=1193 *14*
(2.93×10^3 *3*)	1181.91	3.15 *24*	5.26 *4*	av Eβ=1197 *14*
(3.05×10^3 *3*)	1064.51	6.3 *4*	5.03 *4*	av Eβ=1251 *14*
(3.07×10^3 *3*)	1041.38	0.62 *14*	6.05 *10*	av Eβ=1262 *14*
(3.10×10^3 *3*)	1005.5	0.30 *10*	6.38 *15*	av Eβ=1278 *14*
(3.23×10^3 *3*)	880.24	8.6 *6*	5.00 *4*	av Eβ=1336 *14* E(decay): 3140 *180* (1986Gr11).
(3.35×10^3 *3*)	757.88	0.23 *13*	8.11[1u] *25*	av Eβ=1376 *14*
(3.39×10^3 *3*)	722.39	0.82 *16*	6.11 *9*	av Eβ=1409 *14*
(3.40×10^3 *3*)	708.84	9.1 *6*	5.07 *4*	av Eβ=1416 *14* E(decay): 3350 *150* (1986Gr11).
(3.42×10^3 *3*)	686.90	0.16 *13*	8.3[1u] *4*	av Eβ=1409 *14*
(3.43×10^3 *3*)	675.22	0.50 *12*	7.84[1u] *11*	av Eβ=1414 *14*
(3.46×10^3 *3*)	647.13	2.37 *22*	5.69 *5*	av Eβ=1444 *14*
(3.54×10^3[#] *3*)	574.50	<0.4	>6.5	av Eβ=1478 *14*

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^{146}Ba β^- decay 1985Ch16 (continued)

β^- radiations (continued)

E(decay)	E(level)	Iβ^- [†‡]	Log *ft*	Comments
(3.61×10^3 [#] *3*)	500.11	≤0.28	≥6.7	av Eβ=1513 *14*
(3.62×10^3 *3*)	488.14	0.50 *19*	6.44 *17*	av Eβ=1518 *14*
(3.64×10^3 *3*)	466.54	<0.6	>6.4	av Eβ=1528 *14*
(3.67×10^3 *3*)	443.59	1.20 *14*	6.09 *6*	av Eβ=1539 *14*
(3.67×10^3 *3*)	439.04	1.4 *4*	6.02 *13*	av Eβ=1541 *14* E(decay): 3550 *210* (1986Gr11).
(3.68×10^3 [#] *3*)	429.21	≤0.5	≥6.5	av Eβ=1546 *14*
(3.69×10^3 [#] *3*)	417.55	<0.21	>6.9	av Eβ=1551 *14*
(3.72×10^3 [#] *3*)	392.61	≤0.8	≥6.3	av Eβ=1563 *14*
(3.74×10^3 *3*)	372.53	28.2 *16*	4.75 *4*	av Eβ=1572 *14* E(decay): 3810 keV *150* in table 1 of 1986Gr11 is a misprint; 3673 keV is obtained by the evaluators using Q(β)=4045 keV of 1986Gr11.
(3.82×10^3 [#] *3*)	294.97	<0.6	>6.5	av Eβ=1608 *14* E(decay): 3720 *200* (1986Gr11).
(3.91×10^3 *3*)	197.03	4.3 *10*	5.65 *11*	av Eβ=1654 *14* E(decay): 3830 *150* (1986Gr11).
(3.97×10^3 *3*)	140.85	<1.6	>6.1	av Eβ=1680 *14* E(decay): 3920 *150* (1986Gr11).
(3.99×10^3 [#] *3*)	121.18	<1.2	>7.9^{1u}	av Eβ=1670 *14*
(4.11×10^3 [#] *3*)	0.0	<6.2	>7.2^{1u}	av Eβ=1726 *14*

† Deduced from transition intensity balance at the levels, assuming [M1] mult for transitions between states with the same parity and ΔJ=1, and assuming [E1] mult for transitions between states with different parity and ΔJ=1, unless there was evidence to support a specific δ value or ΔJ=2 (1985Ch16). Since mults are not known for any low energy γ's therefore Iβ and the corresponding log *ft* for levels below 1 MeV should be considered approximate; *cf* complete list of β feedings in table III of 1985Ch16. Measurements of Q(β): 1981De25, 1979Ke02.

‡ Absolute intensity per 100 decays.

\# Existence of this branch is questionable.

γ(^{146}La)

Iγ normalization, I(γ+ce) normalization: from Rajeval technique of I(140.7γ)=22.6% 30, I(121.2γ)=14.2% 14, I(197.0γ)=12.7% 13, I(231.6γ)=10.6% 11, I(251.2γ)=18.0% 20 (1984So18).

E_γ [†]	I_γ [†b]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [#]	δ [&]	α [a]	Comments
4.0	0.18 3	144.62	(3⁻)	140.85	(2⁻)	[M1]		450	α(M)=358 5 α(N)=78.5 11; α(O)=12.69 18; α(P)=0.968 14 E_γ: from level energy difference. Existence is required by $\gamma\gamma$. I_γ: from intensities balance at the level, assuming M1 mult; I(γ+ce)=87 2 (the evaluators). I(γ+ce)=170 11 from $\gamma\gamma$ (1985Ch16).
56.4 1	53 5	197.03	(1⁻)	140.85	(2⁻)	(M1+E2)		11 6	α(K)=5.1 3; α(L)=5 4; α(M)=1.0 9 α(N)=0.22 19; α(O)=0.03 3; α(P)=0.00033 5 Mult.: α estimated from intensity balance at the level (1985Ch16).
75.90 14	9 1	197.03	(1⁻)	121.18	1⁻,2⁻	[M1]		2.39	α(K)=2.04 3; α(L)=0.277 5; α(M)=0.0576 9 α(N)=0.01266 19; α(O)=0.00206 3; α(P)=0.0001589 24
77.70 14	64 7	372.53	1⁺	294.97	(2)	[E1]		0.471	α(K)=0.400 6; α(L)=0.0567 9; α(M)=0.01171 18 α(N)=0.00253 4; α(O)=0.000391 6; α(P)=2.36×10^{-5} 4
94.00 14	9 1	466.54	2⁺	372.53	1⁺	[M1+E2]	0.4 6	1.5 5	α(K)=1.15 13; α(L)=0.24 24; α(M)=0.05 6 α(N)=0.011 12; α(O)=0.0017 16; α(P)=8.5×10^{-5} 4
97.70 14	26 2	294.97	(2)	197.03	(1⁻)	[M1]		1.155	α(K)=0.987 15; α(L)=0.1338 20; α(M)=0.0278 4 α(N)=0.00611 9; α(O)=0.000993 15; α(P)=7.69×10^{-5} 12
107.90 14	8 1	574.50	(1⁻,2)	466.54	2⁺	[E1]		0.191	α(K)=0.1626 24; α(L)=0.0222 4; α(M)=0.00459 7 α(N)=0.000995 15; α(O)=0.0001560 23; α(P)=1.004×10^{-5} 15
114.90 14	68 2	409.91	(3)	294.97	(2)	[M1]		0.728	α(K)=0.622 9; α(L)=0.0842 13; α(M)=0.0175 3 α(N)=0.00385 6; α(O)=0.000625 9; α(P)=4.85×10^{-5} 7
121.20 12	1000 20	121.18	1⁻,2⁻	0.0	(2⁻)	M1+E2	+0.04 10	0.627 12	α(K)=0.535 8; α(L)=0.073 4; α(M)=0.0151 8 α(N)=0.00332 17; α(O)=0.000539 23; α(P)=4.17×10^{-5} 6 I_γ: 14.2% 14 (1984So18). δ: the 2nd value δ=−3.9 +12−26; both δ values were derived from A_2=−0.060 39, A_4=−0.069 74 for the cascade 251γ-121γ assuming δ(251γ)=0.
139.80 14	63 2	466.54	2⁺	326.70	(3)	[E1]		0.0931	α(K)=0.0797 12; α(L)=0.01068 16; α(M)=0.00220 4 α(N)=0.000479 7; α(O)=7.57×10^{-5} 11; α(P)=5.08×10^{-6} 8
140.70 14	1421 31	140.85	(2⁻)	0.0	(2⁻)	M1+E2	−0.66 +11−15	0.468 19	α(K)=0.373 9; α(L)=0.075 9; α(M)=0.0160 19 α(N)=0.0035 4; α(O)=0.00053 6; α(P)=2.65×10^{-5} 5 δ: the 2nd value δ=−6.0 +23−58; both δ values were derived from A_2=0.119 38, A_4=0.046 72 for the cascade 232γ-140γ assuming δ(232γ)=0. I_γ: 22.6% 30 (1984So18).

γ(^{146}La) (continued)

E_γ[†]	I_γ[†b]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	δ[&]	α[a]	Comments
144.10 *14*	22 *3*	439.04	1^-	294.97	(2)	[M1]		0.385	α(K)=0.329 *5*; α(L)=0.0444 *7*; α(M)=0.00922 *14* α(N)=0.00203 *3*; α(O)=0.000330 *5*; α(P)=2.56×10^{-5} *4*
144.70 *14*	189 *5*	144.62	(3^-)	0.0	(2^-)	M1+E2[@]	+0.61 *10*	0.424 *12*	α(K)=0.342 *7*; α(L)=0.065 *6*; α(M)=0.0139 *12* α(N)=0.00300 *25*; α(O)=0.00046 *4*; α(P)=2.46×10^{-5} *4* δ: The 2nd value δ=−5.4 +*19*−*60*; both δ values were derived from A_2=0.119 *38*, A_4=0.046 *72* for the cascade 232γ-140γ assuming δ(232γ)=0.
145.30 *14*	17 *3*	574.50	$(1^-,2)$	429.21	2^-	[M1]		0.377	α(K)=0.322 *5*; α(L)=0.0434 *7*; α(M)=0.00901 *13* α(N)=0.00198 *3*; α(O)=0.000322 *5*; α(P)=2.51×10^{-5} *4*
146.90 *14*	15 *3*	647.13	1	500.11	$(1^-,2^-)$	[E1]		0.0812	α(K)=0.0695 *10*; α(L)=0.00929 *14*; α(M)=0.00192 *3* α(N)=0.000417 *6*; α(O)=6.60×10^{-5} *10*; α(P)=4.46×10^{-6} *7*
148.7	6 *1*	443.59	(1^-)	294.97	(2)	[M1]		0.353	α(K)=0.302 *5*; α(L)=0.0406 *6*; α(M)=0.00844 *12* α(N)=0.00186 *3*; α(O)=0.000302 *5*; α(P)=2.35×10^{-5} *4*
158.90 *14*	26 *2*	647.13	1	488.14	$(1^-,2^-)$	[M1]		0.294	α(K)=0.251 *4*; α(L)=0.0338 *5*; α(M)=0.00701 *10* α(N)=0.001542 *22*; α(O)=0.000251 *4*; α(P)=1.95×10^{-5} *3*
164.60 *14*	29 *4*	574.50	$(1^-,2)$	409.91	(3)	[M1]		0.266	α(K)=0.228 *4*; α(L)=0.0306 *5*; α(M)=0.00636 *9* α(N)=0.001398 *20*; α(O)=0.000227 *4*; α(P)=1.77×10^{-5} *3*
171.60 *14*	27 *4*	466.54	2^+	294.97	(2)	[E1]		0.0530	α(K)=0.0454 *7*; α(L)=0.00601 *9*; α(M)=0.001241 *18* α(N)=0.000270 *4*; α(O)=4.30×10^{-5} *6*; α(P)=2.96×10^{-6} *5*
173.3	9 *1*	500.11	$(1^-,2^-)$	326.70	(3)				
175.30 *14*	338 *8*	372.53	1^+	197.03	(1^-)	[E1]		0.0500	α(K)=0.0428 *6*; α(L)=0.00567 *8*; α(M)=0.001170 *17* α(N)=0.000255 *4*; α(O)=4.05×10^{-5} *6*; α(P)=2.80×10^{-6} *4* Mult.: balance of I(γ+ce) at the 326.5 keV level depends little on α for this γ; present level scheme conforms to E1 mult for this transition but not M1 as follows from assumption of 1978BlZY.
180.3	12 *2*	647.13	1	466.54	2^+	[E1+M2]	0.18 +*3*−*4*	0.085 *15*	α(K)=0.071 *13*; α(L)=0.0109 *23*; α(M)=0.0023 *5* α(N)=0.00051 *11*; α(O)=8.1×10^{-5} *17*; α(P)=5.7×10^{-6} *12*
182.20 *22*	19 *5*	326.70	(3)	144.62	(3^-)	[M1]		0.201	α(K)=0.1723 *25*; α(L)=0.0231 *4*; α(M)=0.00480 *7* α(N)=0.001054 *16*; α(O)=0.0001716 *25*; α(P)=1.339×10^{-5} *20*
185.90 *14*	106 *3*	326.70	(3)	140.85	(2^-)	[M1+E2]	−0.01 +*10*−*9*	0.191	α(K)=0.1631 *24*; α(L)=0.0218 *4*; α(M)=0.00454 *8* α(N)=0.000998 *18*; α(O)=0.000162 *3*; α(P)=1.267×10^{-5} *18* δ: the 2nd value δ=2.7 +*10*−*6*; both δ values were derived from A_2=0.122 *45*, A_4=0.033 *94* for the cascade 185γ-140γ.
193.3	5 *1*	488.14	$(1^-,2^-)$	294.97	(2)	[M1]		0.1714	α(K)=0.1466 *21*; α(L)=0.0196 *3*; α(M)=0.00407 *6* α(N)=0.000896 *13*; α(O)=0.0001458 *21*; α(P)=1.139×10^{-5} *16*
197.00 *14*	890 *26*	197.03	(1^-)	0.0	(2^-)	M1+E2[@]	0.10 +*13*−*15*	0.163 *3*	α(K)=0.1393 *20*; α(L)=0.0188 *7*; α(M)=0.00390 *16* α(N)=0.00086 *4*; α(O)=0.000139 *5*; α(P)=1.079×10^{-5} *18* I_γ: 12.7% *13* (1984So18). δ: the 2nd value δ=27 +∞−*18*; both δ values were derived from A_2=0.013 *41*, A_4=0.06 *78* for the 269γ-197γ cascade assuming δ(269γ)=0.

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

E_γ[†]	I_γ[†b]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ[&]	α[a]	Comments
198.4	8 1	686.90	(1⁻,2⁻)	488.14	(1⁻,2⁻)	[M1]		0.1597	α(K)=0.1366 20; α(L)=0.0183 3; α(M)=0.00379 6 α(N)=0.000834 12; α(O)=0.0001357 19; α(P)=1.060×10^{-5} 15
208.50 22	11 3	647.13	1	439.04	1⁻	[M1]		0.1395	α(K)=0.1194 17; α(L)=0.01594 23; α(M)=0.00331 5 α(N)=0.000728 11; α(O)=0.0001185 17; α(P)=9.26×10^{-6} 14
209.1	10 2	708.84	1⁺	500.11	(1⁻,2⁻)				
218.00 22	21 2	647.13	1	429.21	2⁻	[M1]		0.1237	α(K)=0.1059 15; α(L)=0.01412 21; α(M)=0.00293 5 α(N)=0.000644 10; α(O)=0.0001049 15; α(P)=8.21×10^{-6} 12
220.70 14	16 1	417.55	(2)	197.03	(1⁻)	[M1]		0.1196	α(K)=0.1024 15; α(L)=0.01365 20; α(M)=0.00283 4 α(N)=0.000623 9; α(O)=0.0001015 15; α(P)=7.94×10^{-6} 12
231.60 14	756 16	372.53	1⁺	140.85	(2⁻)	(E1)		0.0235	α(K)=0.0202 3; α(L)=0.00264 4; α(M)=0.000545 8 α(N)=0.0001188 17; α(O)=1.90×10^{-5} 3; α(P)=1.357×10^{-6} 20 I_γ: 10.6% 11 (1984So18).
241.8 3	199 6	439.04	1⁻	197.03	(1⁻)	(M1+E2)[@]	−0.22 8	0.0936	α(K)=0.0799 12; α(L)=0.01089 25; α(M)=0.00227 6 α(N)=0.000497 12; α(O)=8.06×10^{-5} 16; α(P)=6.14×10^{-6} 11 δ: the 2nd value δ=−61 +51−∞; both δ values were derived from A_2=0.060 44, A_4=−0.076 85 for the cascade 242γ-197γ.
246.6 3	48 3	443.59	(1⁻)	197.03	(1⁻)	[M1]		0.0888	α(K)=0.0761 11; α(L)=0.01011 15; α(M)=0.00210 3 α(N)=0.000461 7; α(O)=7.51×10^{-5} 11; α(P)=5.89×10^{-6} 9
247.5	12 2	686.90	(1⁻,2⁻)	439.04	1⁻	[M1]		0.0880	α(K)=0.0753 11; α(L)=0.01001 14; α(M)=0.00208 3 α(N)=0.000457 7; α(O)=7.44×10^{-5} 11; α(P)=5.83×10^{-6} 9
247.8 3	50 4	574.50	(1⁻,2)	326.70	(3)				
251.20 14	1379 37	372.53	1⁺	121.18	1⁻,2⁻	[E1]		0.0189	α(K)=0.01628 23; α(L)=0.00212 3; α(M)=0.000438 7 α(N)=9.55×10^{-5} 14; α(O)=1.530×10^{-5} 22; α(P)=1.102×10^{-6} 16 I_γ: 18.0% 20 (1984So18).
254.4	15 3	647.13	1	392.61	(2⁺)				
269.6 3	303 10	466.54	2⁺	197.03	(1⁻)	[E1]		0.01573	α(K)=0.01352 20; α(L)=0.00176 3; α(M)=0.000362 6 α(N)=7.91×10^{-5} 12; α(O)=1.270×10^{-5} 19; α(P)=9.21×10^{-7} 14
270.9[‡] 3	94 5	708.84	1⁺	439.04	1⁻				E_γ: poor fit: the energy level difference equals 269.79 9.
272.9 3	19 4	417.55	(2)	144.62	(3⁻)				
274.30 14	64 8	647.13	1	372.53	1⁺				
279.50[c] 14	22[c] 3	574.50	(1⁻,2)	294.97	(2)				
279.50[c] 14	277[c] 12	708.84	1⁺	429.21	2⁻	D			
283.2 3	11 3	722.39	(1,2⁻)	439.04	1⁻				

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

E_γ[†]	I_γ[†b]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	δ[&]	α[a]	Comments
284.5 *3*	192 *6*	429.21	2⁻	144.62	(3⁻)	(M1+E2)[@]	+0.39 *+15−35*	0.0601 *11*	α(K)=0.0511 *12*; α(L)=0.00712 *25*; α(M)=0.00148 *6* α(N)=0.000325 *12*; α(O)=5.24×10⁻⁵ *15*; α(P)=3.88×10⁻⁶ *15* δ: the 2nd value δ=−1.7 *7*; both δ values were derived from A_2=0.139 *77*, A_4=−0.05 *19* for the cascade 279γ-284γ assuming δ(279γ)=0.
290.6 *3*	41 *5*	488.14	(1⁻,2⁻)	197.03	(1⁻)	[M1]		0.0575	α(K)=0.0493 *7*; α(L)=0.00651 *10*; α(M)=0.001351 *20* α(N)=0.000297 *5*; α(O)=4.84×10⁻⁵ *7*; α(P)=3.80×10⁻⁶ *6*
291.5 *3*	69 *12*	708.84	1⁺	417.55	(2)				
294.9 *3*	384 *13*	294.97	(2)	0.0	(2⁻)	[M1]		0.0553	α(K)=0.0474 *7*; α(L)=0.00626 *9*; α(M)=0.001299 *19* α(N)=0.000286 *4*; α(O)=4.65×10⁻⁵ *7*; α(P)=3.66×10⁻⁶ *6* A_2=0.046 *55*, A_4=0.03 *12* for the cascade 172γ-294γ; A_2=−0.019 *82*, A_4=−0.12 *18* for the cascade 114γ-294γ.
296.5	8 *5*	1005.5	(1)	708.84	1⁺				
298.00 *14*	300 *7*	439.04	1⁻	140.85	(2⁻)	M1(+E2)	−0.009 *+10−9*	0.0538	α(K)=0.0461 *7*; α(L)=0.00609 *9*; α(M)=0.001263 *18* α(N)=0.000278 *4*; α(O)=4.53×10⁻⁵ *7*; α(P)=3.56×10⁻⁶ *5* E_γ: other: E_γ=298.794 *16* (1979Bo26). δ: the 2nd value δ=2.7 *+9−6*; both δ values were derived from A_2=0.126 *41*, A_4=0.000 *80* for the cascade 298γ-140γ assuming δ(232γ)=0.
301.4 *3*	15 *3*	1181.91	1⁺	880.24	1⁺				
[x]310.70 *2*	2								
314.00 *14*	31 *3*	686.90	(1⁻,2⁻)	372.53	1⁺				
316.30 *14*	188 *11*	708.84	1⁺	392.61	(2⁺)	D			
317.9 *3*	28 *6*	439.04	1⁻	121.18	1⁻,2⁻				
322.20 *22*	25 *4*	443.59	(1⁻)	121.18	1⁻,2⁻				
326.30 *22*	24 *7*	326.70	(3)	0.0	(2⁻)	[M1]		0.0424	α(K)=0.0364 *6*; α(L)=0.00479 *7*; α(M)=0.000994 *14* α(N)=0.000219 *3*; α(O)=3.56×10⁻⁵ *5*; α(P)=2.81×10⁻⁶ *4*
335.80 *22*	18 *4*	708.84	1⁺	372.53	1⁺				
342.30 *14*	57 *4*	1064.51	1⁺	722.39	(1,2⁻)				
343.7 *3*	11 *1*	488.14	(1⁻,2⁻)	144.62	(3⁻)				
347.6 *4*	26 *5*	757.88	(1,2⁻)	409.91	(3)				
349.5 *3*	50 *6*	722.39	(1,2⁻)	372.53	1⁺				
352.00 *14*	27 *3*	647.13	1	294.97	(2)				
355.6[c] *3*	71[c] *4*	500.11	(1⁻,2⁻)	144.62	(3⁻)				
355.6[c] *3*	14[c] *2*	1064.51	1⁺	708.84	1⁺				
359.10 *22*	25 *5*	500.11	(1⁻,2⁻)	140.85	(2⁻)				
360.2 *3*	14 *5*	686.90	(1⁻,2⁻)	326.70	(3)				
372.50 *14*	70 *10*	372.53	1⁺	0.0	(2⁻)	[E1]		0.00690	α(K)=0.00594 *9*; α(L)=0.000762 *11*; α(M)=0.0001573 *22* α(N)=3.44×10⁻⁵ *5*; α(O)=5.55×10⁻⁶ *8*; α(P)=4.14×10⁻⁷ *6*
377.50 *14*	83 *4*	574.50	(1⁻,2)	197.03	(1⁻)				
380.1 *3*	24 *5*	880.24	1⁺	500.11	(1⁻,2⁻)				

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

E_γ [†]	I_γ [†b]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [#]	δ [&]	α [a]	Comments
385.40 *14*	26 *4*	757.88	(1,2$^-$)	372.53	1$^+$				
388.50 *22*	25 *6*	1268.96	1$^+$	880.24	1$^+$				
389.70 *22*	27 *6*	1064.51	1$^+$	675.22	(1$^-$,2$^-$)				
392.50 *14*	435 *14*	392.61	(2$^+$)	0.0	(2$^-$)	[E1+M2]	−0.28 *+9−10*	0.013 *5*	α(K)=0.011 *4*; α(L)=0.0015 *7*; α(M)=0.00032 *14* α(N)=7.E−5 *3*; α(O)=1.1×10^{-5} *5*; α(P)=8.E−7 *4* δ: the 2nd value δ=6.6 *+91−25*; both δ values were derived from A_2=−0.019 *49*, A_4=0.081 *90* for the 316γ-392γ cascade. Values δ=−0.42 *+16−19* and δ=38 *+∞−32* from A_2=0.041 *79*, A_4=0.00 *16* for the 488γ-392γ cascade.
413.60 *14*	160 *6*	880.24	1$^+$	466.54	2$^+$	M1+E2 [@]	−0.33 *+8−9*	0.0225 *5*	α(K)=0.0193 *4*; α(L)=0.00257 *4*; α(M)=0.000533 *8* α(N)=0.0001171 *17*; α(O)=1.90×10^{-5} *3*; α(P)=1.47×10^{-6} *4* δ: the 2nd value δ=21 *+∞−13*; both δ values were derived from A_2=0.096 *67*, A_4=0.04 *15* for the cascade 414γ-269γ assuming δ(269γ)=0.
417.50 *14*	95 *6*	417.55	(2)	0.0	(2$^-$)				
429.30 *14*	427 *11*	429.21	2$^-$	0.0	(2$^-$)	M1+E2 [@]	+0.66 *+10−12*	0.0194 *5*	α(K)=0.0165 *5*; α(L)=0.00228 *4*; α(M)=0.000475 *8* α(N)=0.0001041 *17*; α(O)=1.68×10^{-5} *3*; α(P)=1.24×10^{-6} *4* δ: the 2nd value δ=−6.1 *+21−49*; both δ values were derived from A_2=0.129 *31*, A_4=−0.002 *88* for the cascade 279γ-429γ assuming δ(279γ)=0.
431.4 *3*	22 *2*	1190.18	1$^+$	757.88	(1,2$^-$)				
433.6 *4*	13 *7*	574.50	(1$^-$,2)	140.85	(2$^-$)				
436.40 *22*	23 *6*	880.24	1$^+$	443.59	(1$^-$)				
439.00 *14*	96 *4*	439.04	1$^-$	0.0	(2$^-$)				
441.20 *14*	138 *6*	880.24	1$^+$	439.04	1$^-$				
443.50 *22*	22 *4*	443.59	(1$^-$)	0.0	(2$^-$)				
450.00 *14*	70 *4*	647.13	1	197.03	(1$^-$)				
462.60 *22*	16 *3*	880.24	1$^+$	417.55	(2)				
466.80 [c] *14*	61 [c] *21*	466.54	2$^+$	0.0	(2$^-$)				
466.80 [c] *14*	31 [c] *5*	1041.38	(1)	574.50	(1$^-$,2)				
478.80 *22*	18 *3*	675.22	(1$^-$,2$^-$)	197.03	(1$^-$)				
487.7	57 *7*	880.24	1$^+$	392.61	(2$^+$)	D			
488.00 *14*	97 *9*	488.14	(1$^-$,2$^-$)	0.0	(2$^-$)				
489.80 *14*	57 *4*	1064.51	1$^+$	574.50	(1$^-$,2)				
500.10 *14*	26 *4*	500.11	(1$^-$,2$^-$)	0.0	(2$^-$)				
502.80 *22*	17 *6*	1190.18	1$^+$	686.90	(1$^-$,2$^-$)				
506.2	12 *2*	647.13	1	140.85	(2$^-$)				
507.8 *3*	74 *13*	880.24	1$^+$	372.53	1$^+$	M1+E2 [@]	+0.37 *+18−13*	0.0133 *5*	α(K)=0.0114 *5*; α(L)=0.00150 *4*; α(M)=0.000311 *8* α(N)=6.84×10^{-5} *17*; α(O)=1.11×10^{-5} *3*; α(P)=8.7×10^{-7} *4* δ: the 2nd value δ=2.7 *+14−9*; both δ values were derived from A_2=−0.134 *74*, A_4=−0.10 *16* for the cascade 508γ-251γ.

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

E_γ †	I_γ †b	E_i(level)	J^π_i	E_f	J^π_f	Comments
x509.5	3					
511.9	32 *3*	708.84	1^+	197.03	(1^-)	
525.70 *22*	10 *4*	722.39	$(1,2^-)$	197.03	(1^-)	
530.60 *14*	25 *2*	675.22	$(1^-,2^-)$	144.62	(3^-)	
534.10 *14*	24 *4*	675.22	$(1^-,2^-)$	140.85	(2^-)	
546.4 *3*	8 *3*	1268.96	1^+	722.39	$(1,2^-)$	
550.9	7 *1*	1308.44	(1)	757.88	$(1,2^-)$	
564.40 *14*	39 *5*	1064.51	1^+	500.11	$(1^-,2^-)$	
565.4 *5*	6 *2*	1606.47		1041.38	(1)	
568.20 *22*	20 *5*	708.84	1^+	140.85	(2^-)	
574.50 *14*	49 *4*	574.50	$(1^-,2)$	0.0	(2^-)	marked as coinciding with 488γ (1985Ch16); this is a misprint, should be 489.8γ (evaluators).
576.30 *22*	14 *4*	1064.51	1^+	488.14	$(1^-,2^-)$	
585.60 *22*	22 *3*	880.24	1^+	294.97	(2)	
x588.5 *2*	16 *3*					
598.40 *22*	19 *5*	1064.51	1^+	466.54	2^+	
607.80 *14*	27 *5*	1181.91	1^+	574.50	$(1^-,2)$	
612.9 *3*	13 *4*	1005.5	(1)	392.61	(2^+)	
617.0	10 *2*	757.88	$(1,2^-)$	140.85	(2^-)	
621.60 *22*	21 *3*	1268.96	1^+	647.13	1	
635.20 *14*	40 *4*	1064.51	1^+	429.21	2^-	
669.10 *22*	19 *8*	1041.38	(1)	372.53	1^+	
672.0	11 *3*	1064.51	1^+	392.61	(2^+)	
681.8 *4*	13 *4*	1181.91	1^+	500.11	$(1^-,2^-)$	
683.40 *22*	18 *4*	880.24	1^+	197.03	(1^-)	
692.00 *14*	99 *4*	1064.51	1^+	372.53	1^+	
702.0	28 *3*	1190.18	1^+	488.14	$(1^-,2^-)$	
715.30 *22*	18 *4*	1181.91	1^+	466.54	2^+	
722.50 *14*	52 *5*	722.39	$(1,2^-)$	0.0	(2^-)	
724.00 *14*	83 *5*	1190.18	1^+	466.54	2^+	
733.9 *3*	11 *4*	1308.44	(1)	574.50	$(1^-,2)$	
735.80 *22*	24 *4*	1224.10	1^+	488.14	$(1^-,2^-)$	
742.80 *22*	21 *3*	1181.91	1^+	439.04	1^-	
745.20‡ *22*	12 *3*	1624.43	1^+	880.24	1^+	E_γ: poor fit: the energy level difference equals 744.19 *10*.
750.8 *3*	21 *6*	1190.18	1^+	439.04	1^-	
752.60 *14*	62 *6*	1181.91	1^+	429.21	2^-	
759.10 *14*	62 *6*	880.24	1^+	121.18	$1^-,2^-$	
760.8 *3*	6 *1*	1190.18	1^+	429.21	2^-	
764.3	10 *2*	1181.91	1^+	417.55	(2)	
768.90 *22*	15 *4*	1064.51	1^+	294.97	(2)	
773.0 *4*	10 *4*	1481.50	1^+	708.84	1^+	
785.2	44 *13*	1224.10	1^+	439.04	1^-	
788.80 *22*	10 *2*	1181.91	1^+	392.61	(2^+)	
795.20 *22*	32 *6*	1224.10	1^+	429.21	2^-	

$^{146}_{57}La_{89}$-9

^{146}Ba β^- decay 1985Ch16 (continued)

γ(^{146}La) (continued)

E_γ[†]	I_γ[†b]	E_i(level)	J_i^π	E_f	J_f^π
802.50 22	44 5	1268.96	1^+	466.54	2^+
809.00 22	29 6	1181.91	1^+	372.53	1^+
814.2 4	10 4	1693.36		880.24	1^+
818.00 22	18 2	1190.18	1^+	372.53	1^+
821.80 14	45 2	1469.15	1^+	647.13	1
829.9	4 1	1268.96	1^+	439.04	1^-
834.20 22	19 4	1481.50	1^+	647.13	1
841.00 22	19 3	1415.71	(1)	574.50	$(1^-,2)$
842.00 22	26 3	1308.44	(1)	466.54	2^+
847.30 14	38 2	1534.43	1^+	686.90	$(1^-,2^-)$
851.50[c] 14	20[c] 2	1224.10	1^+	372.53	1^+
851.50[c] 14	5[c] 1	1268.96	1^+	417.55	(2)
867.00 22	17 5	1624.43	1^+	757.88	$(1,2^-)$
868.80 22	42 8	1443.45	1^+	574.50	$(1^-,2)$
869.1 3	17 8	1308.44	(1)	439.04	1^-
876.50 14	16 1	1268.96	1^+	392.61	(2^+)
880.20 14	67 4	880.24	1^+	0.0	(2^-)
887.10 14	35 2	1534.43	1^+	647.13	1
894.60 14	90 15	1469.15	1^+	574.50	$(1^-,2)$
896.70 22	22 2	1268.96	1^+	372.53	1^+
915.50 22	16 2	1624.43	1^+	708.84	1^+
943.40 14	21 1	1443.45	1^+	500.11	$(1^-,2^-)$
949.00 15	5 1	1624.43	1^+	675.22	$(1^-,2^-)$
955.3 3	10 2	1443.45	1^+	488.14	$(1^-,2^-)$
973.80 14	10 1	1268.96	1^+	294.97	(2)
976.80 14	22 2	1443.45	1^+	466.54	2^+
981.2	3 1	1469.15	1^+	488.14	$(1^-,2^-)$
993.20 22	25 2	1190.18	1^+	197.03	(1^-)
1002.0 3	6 2	1469.15	1^+	466.54	2^+
1003.80 22	10 1	1443.45	1^+	439.04	1^-
1013.40 22	13 5	1722.35		708.84	1^+
[x]1021.4 7	2 2				
1023.00 22	9 2	1415.71	(1)	392.61	(2^+)
1040.10 14	24 1	1469.15	1^+	429.21	2^-
1043.30 14	17 1	1415.71	(1)	372.53	1^+
1049.2 4	6 3	1190.18	1^+	140.85	(2^-)
1050.9 4	23 3	1443.45	1^+	392.61	(2^+)
1052.40 22	28 1	1481.50	1^+	429.21	2^-
1061.4 3	11 1	1181.91	1^+	121.18	$1^-,2^-$
1064.70 14	57 12	1064.51	1^+	0.0	(2^-)
1068.00 14	56 2	1534.43	1^+	466.54	2^+
1068.9	12 2	1507.73		439.04	1^-
1070.80 14	85 4	1443.45	1^+	372.53	1^+

$^{146}_{57}La_{89}$-10

γ(^{146}La) (continued)

E_γ †	I_γ †b	E_i(level)	J_i^π	E_f	J_f^π	Comments
1076.50 *14*	32 *2*	1469.15	1$^+$	392.61	(2$^+$)	
1078.50 *14*	37 *4*	1507.73		429.21	2$^-$	
1088.90 *14*	22 *1*	1481.50	1$^+$	392.61	(2$^+$)	
1095.50 *14*	90 *3*	1534.43	1$^+$	439.04	1$^-$	
1097.10 *22*	21 *9*	1469.15	1$^+$	372.53	1$^+$	
1102.0 *3*	8 *1*	2165.91	1$^+$	1064.51	1$^+$	
1105.30 *14*	51 *1*	1534.43	1$^+$	429.21	2$^-$	
1108.90 *14*	29 *1*	1481.50	1$^+$	372.53	1$^+$	
1128.1	13 *2*	1268.96	1$^+$	140.85	(2$^-$)	
1142.2 *5*	5 *2*	1534.43	1$^+$	392.61	(2$^+$)	
1148.70 *14*	10 *1*	1443.45	1$^+$	294.97	(2)	
^{x}1155.70 *22*	13 *2*					
1162.00 *14*	22 *1*	1534.43	1$^+$	372.53	1$^+$	
1174.5 *3*	18 *3*	1469.15	1$^+$	294.97	(2)	
1182.3 *4*	6 *2*	1181.91	1$^+$	0.0	(2$^-$)	
1184.20 *14*	16 *1*	1650.80		466.54	2$^+$	
1186.70‡ *14*	27 *1*	1624.43	1$^+$	439.04	1$^-$	E_γ: poor fit: the energy level difference equals 1185.38 *10*.
1195.4	20 *2*	1624.43	1$^+$	429.21	2$^-$	
1203.40 *22*	11 *2*	1777.68	1$^+$	574.50	(1$^-$,2)	
1207.2	11 *2*	1624.43	1$^+$	417.55	(2)	
1211.80 *14*	18 *5*	1650.80		439.04	1$^-$	
1213.8	11 *2*	1606.47		392.61	(2$^+$)	
1226.80 *22*	5 *1*	1693.36		466.54	2$^+$	
1231.60 *22*	7 *1*	1624.43	1$^+$	392.61	(2$^+$)	
1247.00 *22*	10 *1*	1443.45	1$^+$	197.03	(1$^-$)	
1253.70 *22*	14 *1*	1693.36		439.04	1$^-$	
1258.2	6 *1*	1650.80		392.61	(2$^+$)	
1283.4 *3*	9 *1*	1722.35		439.04	1$^-$	
1311.4 *3*	8 *2*	1606.47		294.97	(2)	
1321.10 *22*	15 *1*	1693.36		372.53	1$^+$	
1328.5	5 *1*	1469.15	1$^+$	140.85	(2$^-$)	
1337.1 *6*	6 *2*	1534.43	1$^+$	197.03	(1$^-$)	
1339.0 *3*	14 *2*	1777.68	1$^+$	439.04	1$^-$	
1341.2	21 *3*	1481.50	1$^+$	140.85	(2$^-$)	
1350.1 *3*	20 *3*	1722.35		372.53	1$^+$	
1384.9	14 *2*	1777.68	1$^+$	392.61	(2$^+$)	
1405.0 *3*	7 *2*	1777.68	1$^+$	372.53	1$^+$	
1427.2 *3*	9 *1*	1722.35		294.97	(2)	
1443.10 *22*	22 *5*	1882.15		439.04	1$^-$	
1453.7	7 *1*	1650.80		197.03	(1$^-$)	
1456.8	9 *2*	2165.91	1$^+$	708.84	1$^+$	
1481.8 *4*	10 *2*	1777.68	1$^+$	294.97	(2)	
1484.0	22 *3*	1624.43	1$^+$	140.85	(2$^-$)	

γ(^{146}La) (continued)

E_γ[†]	I_γ[†b]	E_i(level)	J_i^π	E_f	J_f^π	Comments
1489.5	7 *1*	1882.15		392.61	(2$^+$)	
[x]1492.8	3					
1495.00[‡] *22*	12 *2*	1693.36		197.03	(1$^-$)	E_γ: poor fit: the energy level difference equals 1496.32 *13*.
1503.30 *14*	27 *2*	1624.43	1$^+$	121.18	1$^-$,2$^-$	
1525.2	5 *1*	1722.35		197.03	(1$^-$)	
[x]1581.80 *22*	9 *1*					
1642.9 *3*	26 *5*	2060.51		417.55	(2)	
[x]1650.2 *6*	4 *2*					
1656.2	6 *1*	1777.68	1$^+$	121.18	1$^-$,2$^-$	
[x]1667.4 *3*	7 *2*					
[x]1708.8 *3*	14 *2*					
[x]1767.3	8					
1773.2	4 *1*	2165.91	1$^+$	392.61	(2$^+$)	
1870.5 *3*	8 *2*	2165.91	1$^+$	294.97	(2)	
[x]1899.8 *4*	8 *2*					
[x]1903.6 *3*	8 *2*					
1919.8	4 *1*	2060.51		140.85	(2$^-$)	
1939.3	6 *1*	2060.51		121.18	1$^-$,2$^-$	
[x]1964.5	5					
[x]1992.8	5					
[x]2030.60 *2*	2					
2044.6 *4*	8 *2*	2165.91	1$^+$	121.18	1$^-$,2$^-$	

[†] From 1985Ch16. Fitting of the level scheme of 1985Ch16 by a least-squares method gave a result of normalized χ^2=2.9. For this reason the evaluators added quadratically 0.1 keV to all the $\Delta E\gamma$ taken from 1985Ch16 to fit the level scheme. $E\gamma$'s deduced from coincidences are given without uncertainties, the evaluators assumed $\Delta E\gamma$=0.5 keV for such cases.

[‡] Energy of γ ray is not used in a least-squares fitting.

[#] From $\gamma\gamma(\theta)$ (1985Ch16).

[@] D+Q from $\gamma\gamma(\theta)$, large δ rules out E1+M2.

[&] From $\gamma\gamma(\theta)$ (1985Ch16).

[a] Additional information 2.

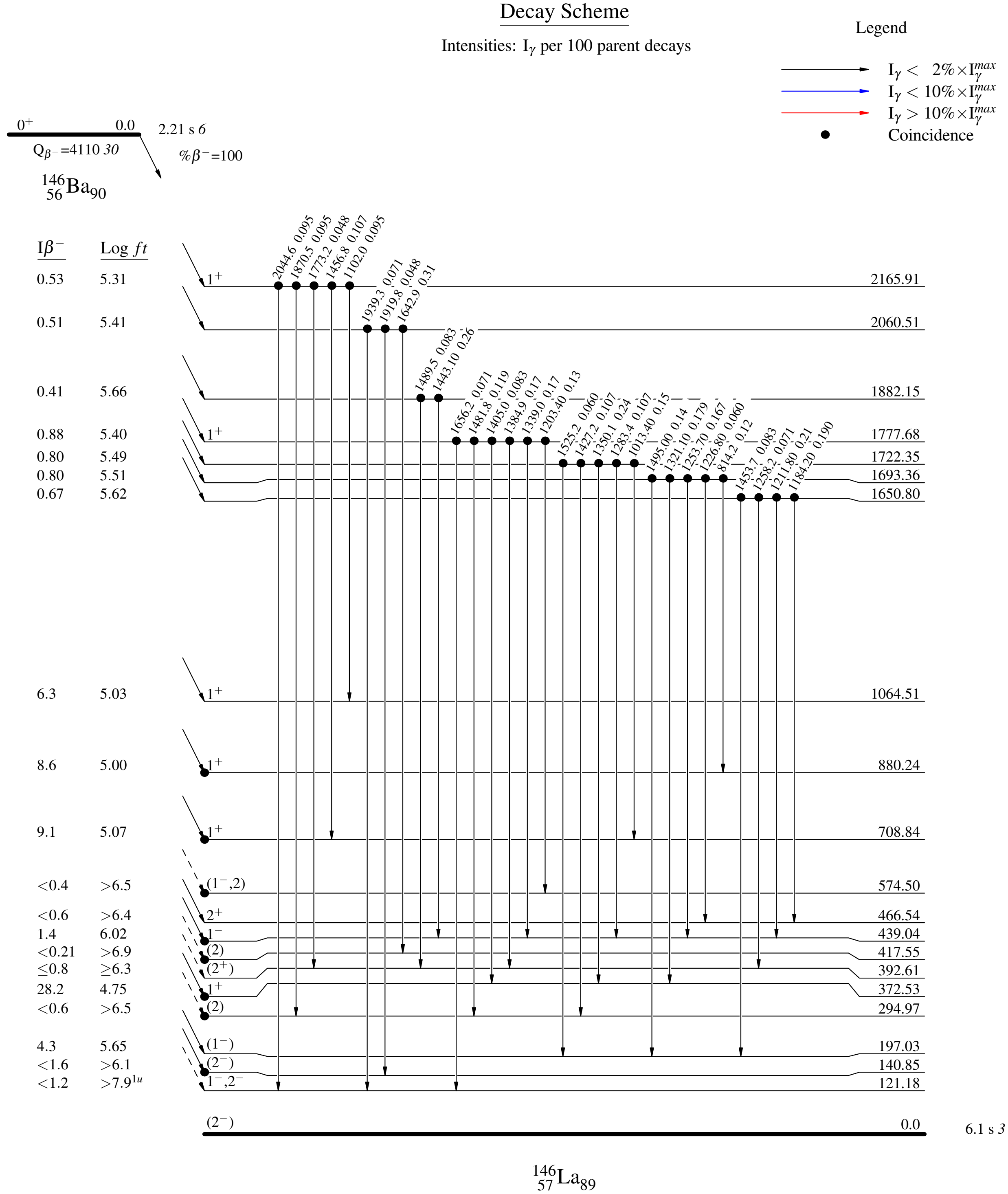
[b] For absolute intensity per 100 decays, multiply by 0.0142 *7*.

[c] Multiply placed with undivided intensity.

[x] γ ray not placed in level scheme.

^{146}Ba β^- decay 1985Ch16

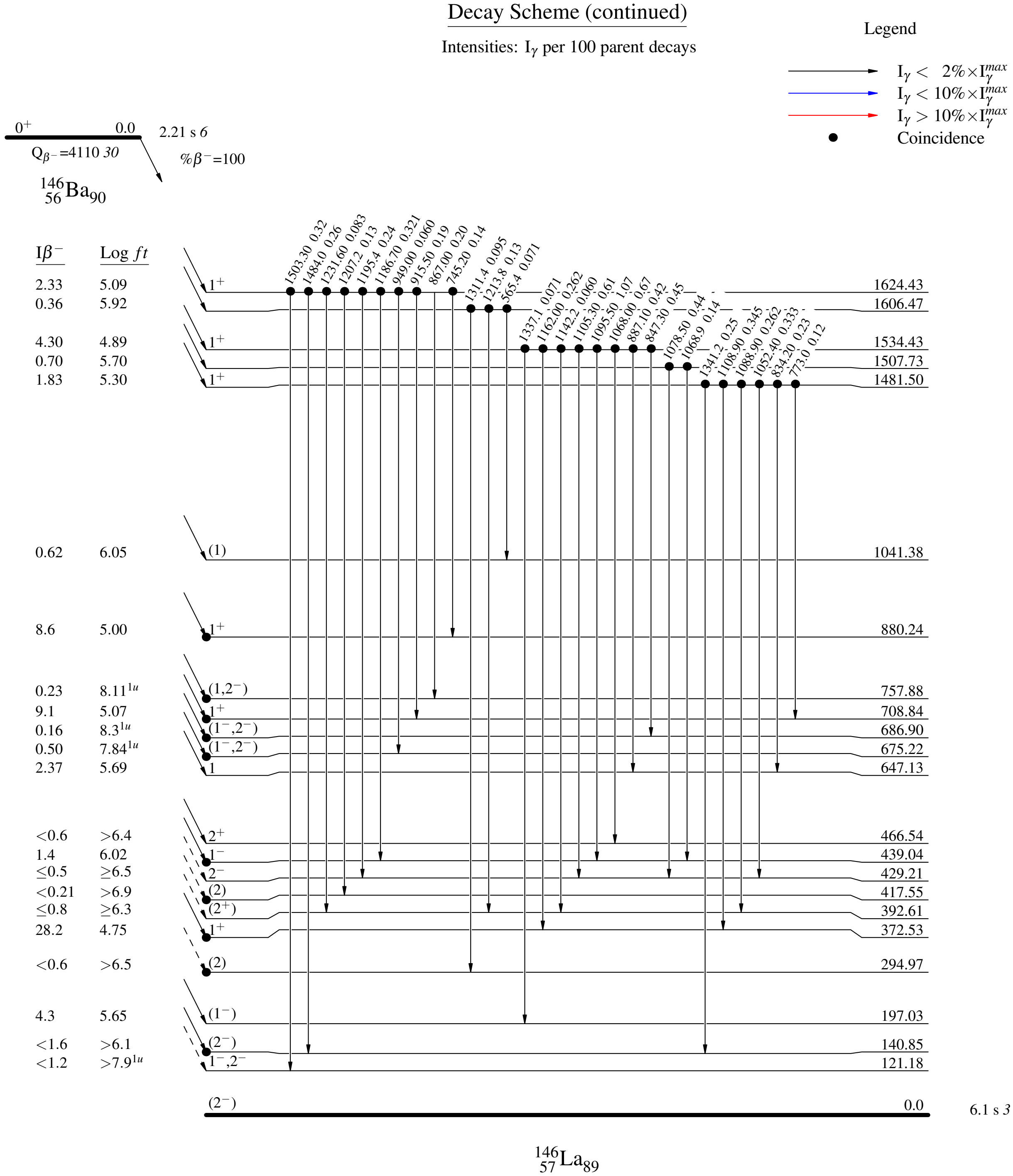
Decay Scheme



^{146}Ba β^- decay 1985Ch16

Decay Scheme (continued)

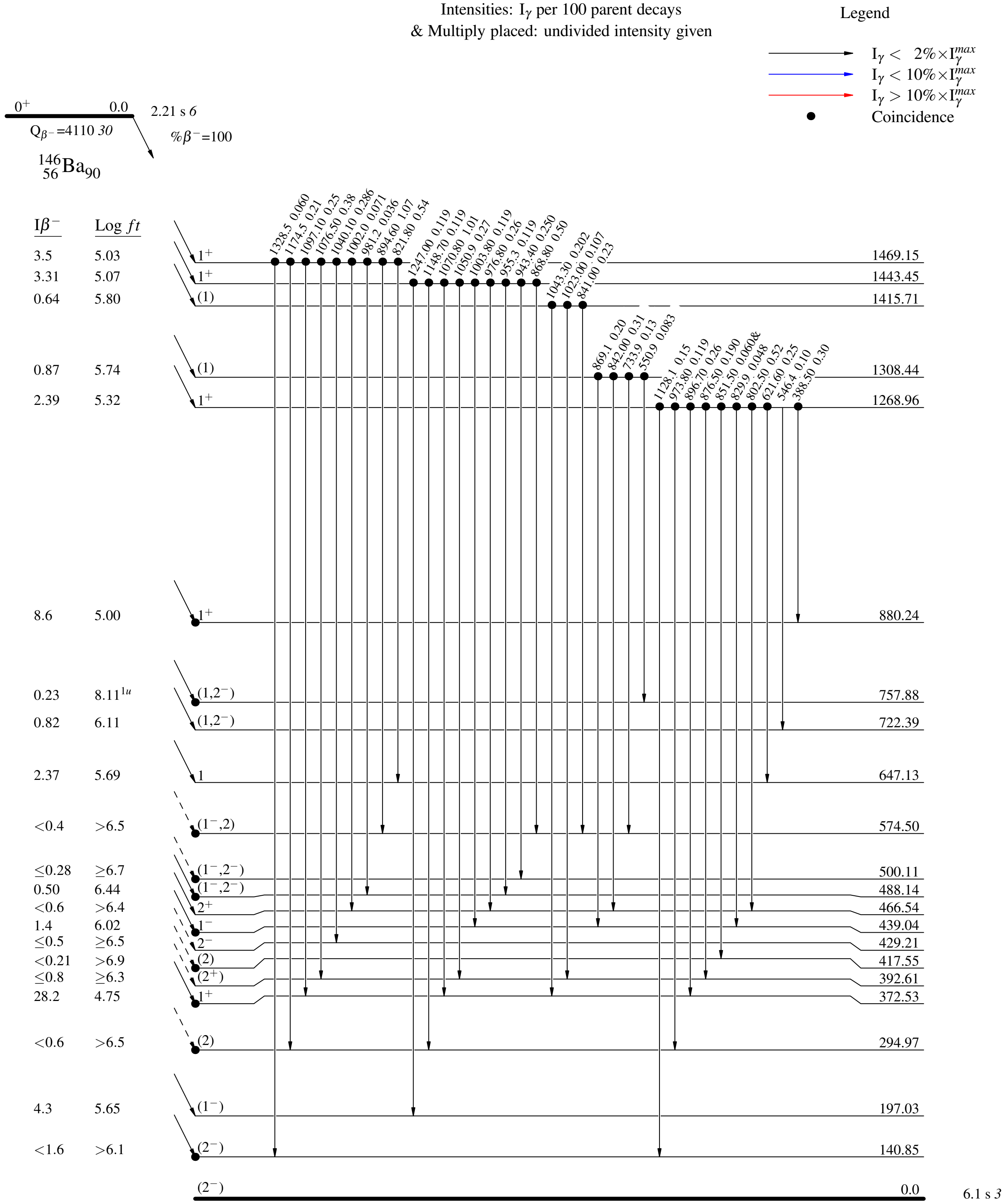
Intensities: I_γ per 100 parent decays



^{146}Ba β^- decay 1985Ch16

Decay Scheme (continued)

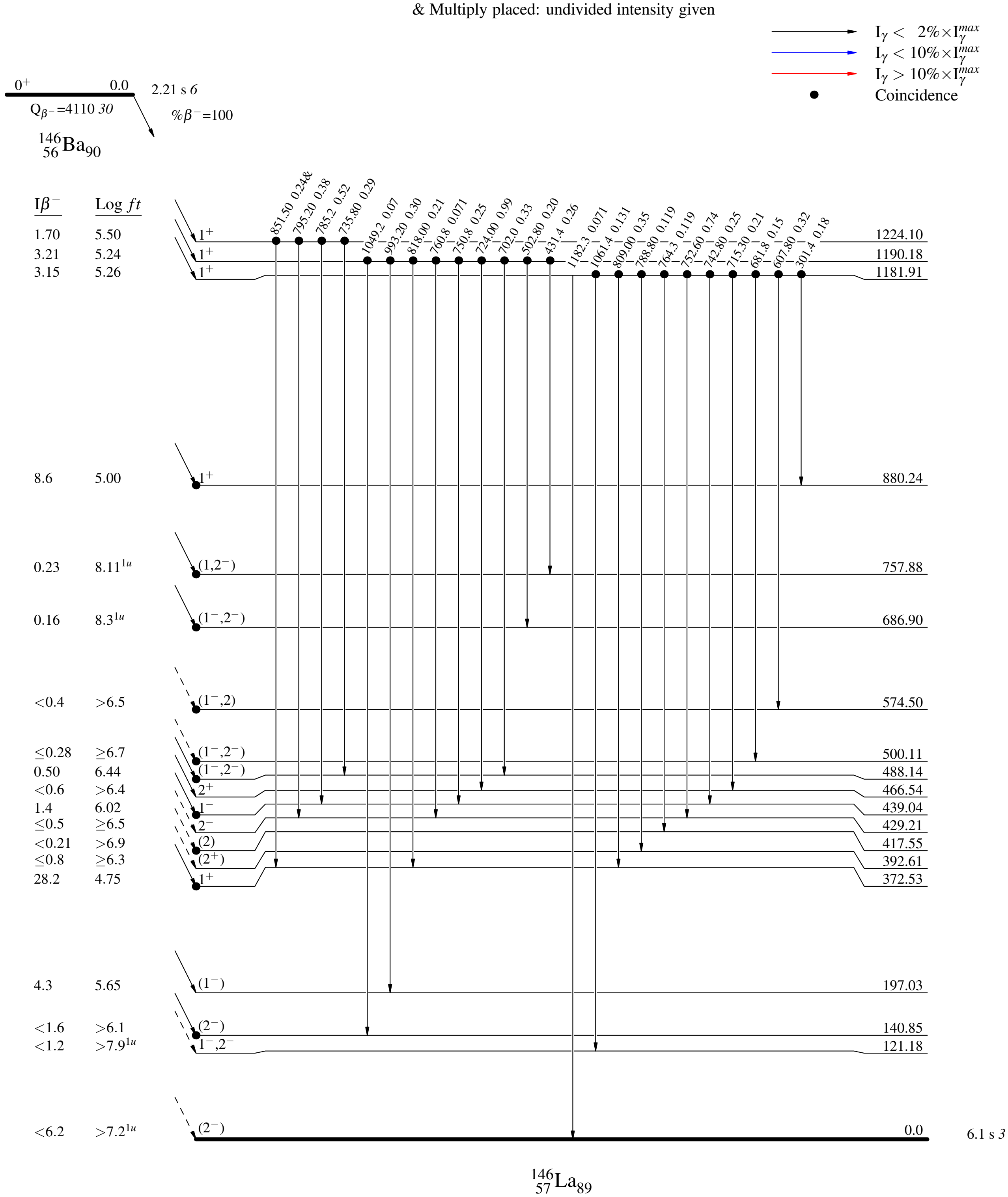
Intensities: I_γ per 100 parent decays
& Multiply placed: undivided intensity given



^{146}Ba β^- decay 1985Ch16

Decay Scheme (continued)

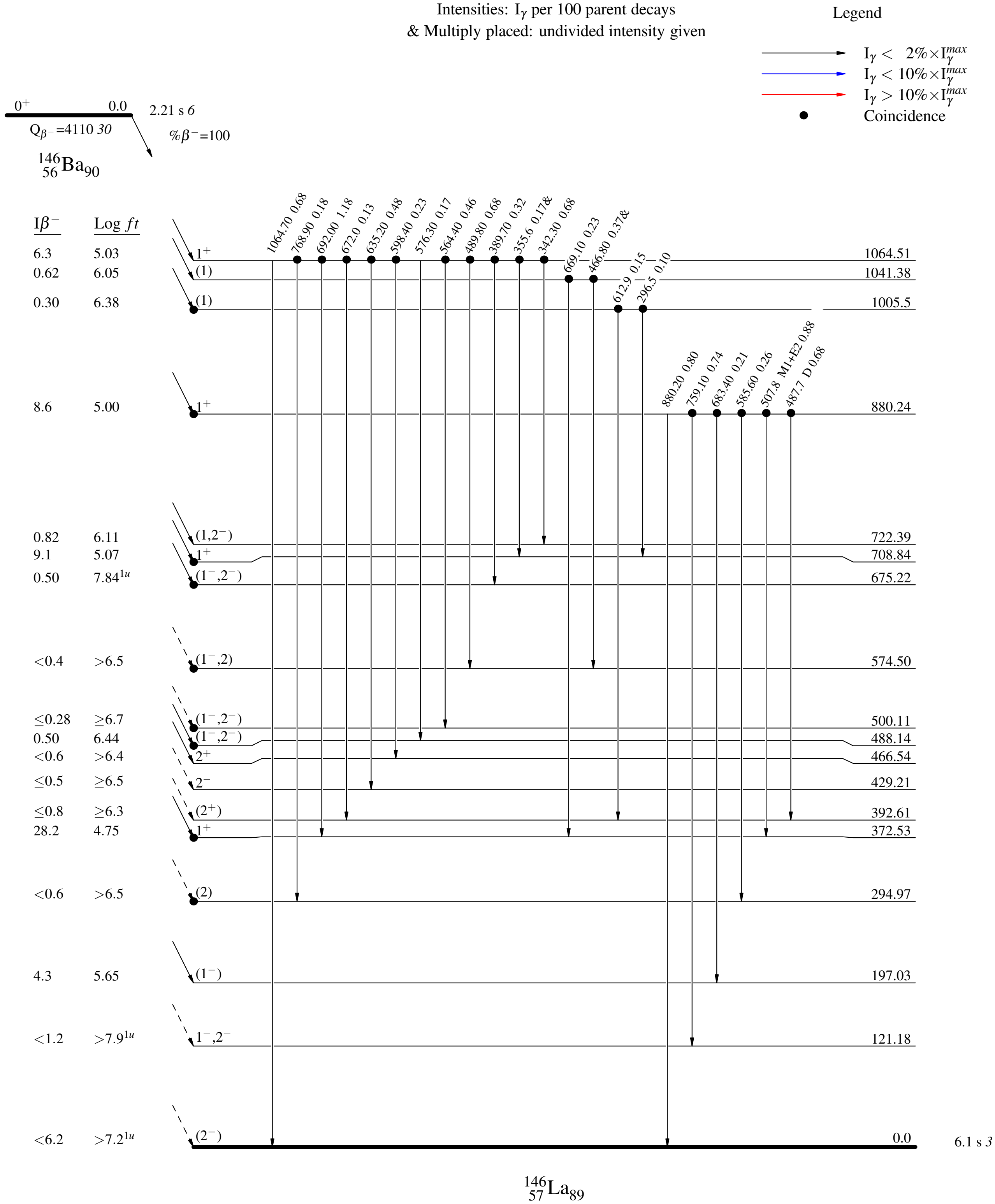
Intensities: I_γ per 100 parent decays
& Multiply placed: undivided intensity given



^{146}Ba β^- decay 1985Ch16

Decay Scheme (continued)

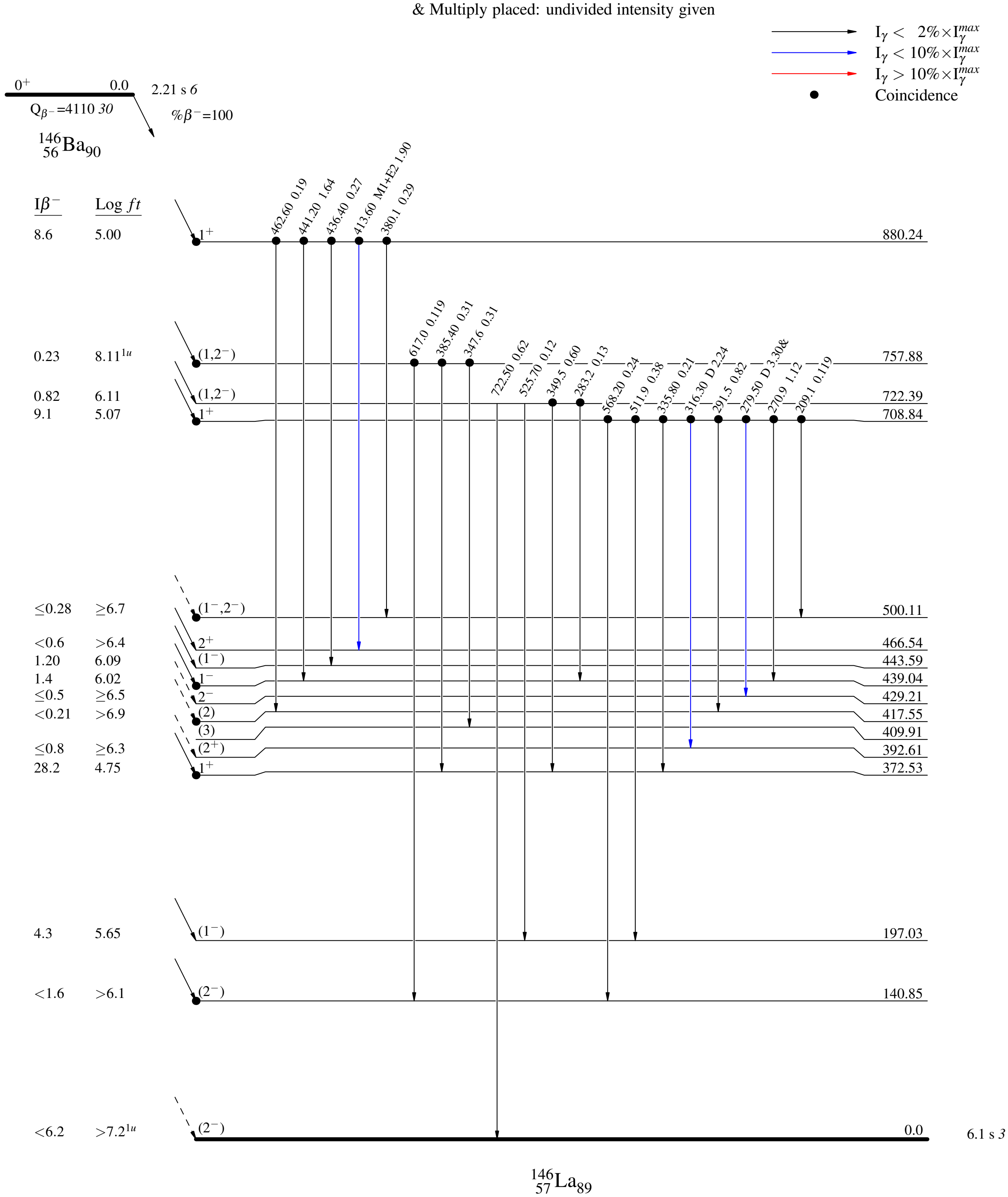
Intensities: I_γ per 100 parent decays
& Multiply placed: undivided intensity given



^{146}Ba β^- decay 1985Ch16

Decay Scheme (continued)

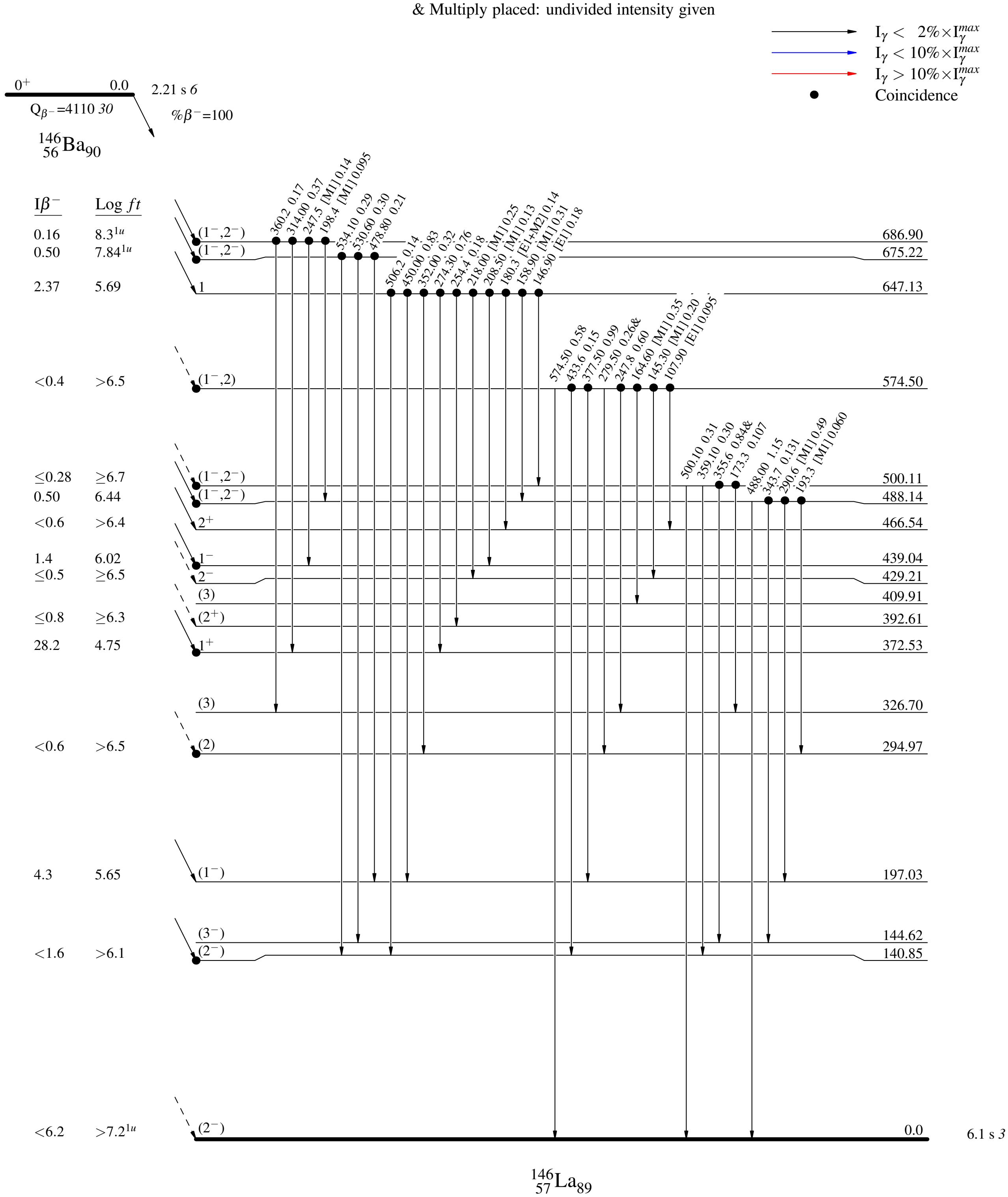
Intensities: I_γ per 100 parent decays
& Multiply placed: undivided intensity given

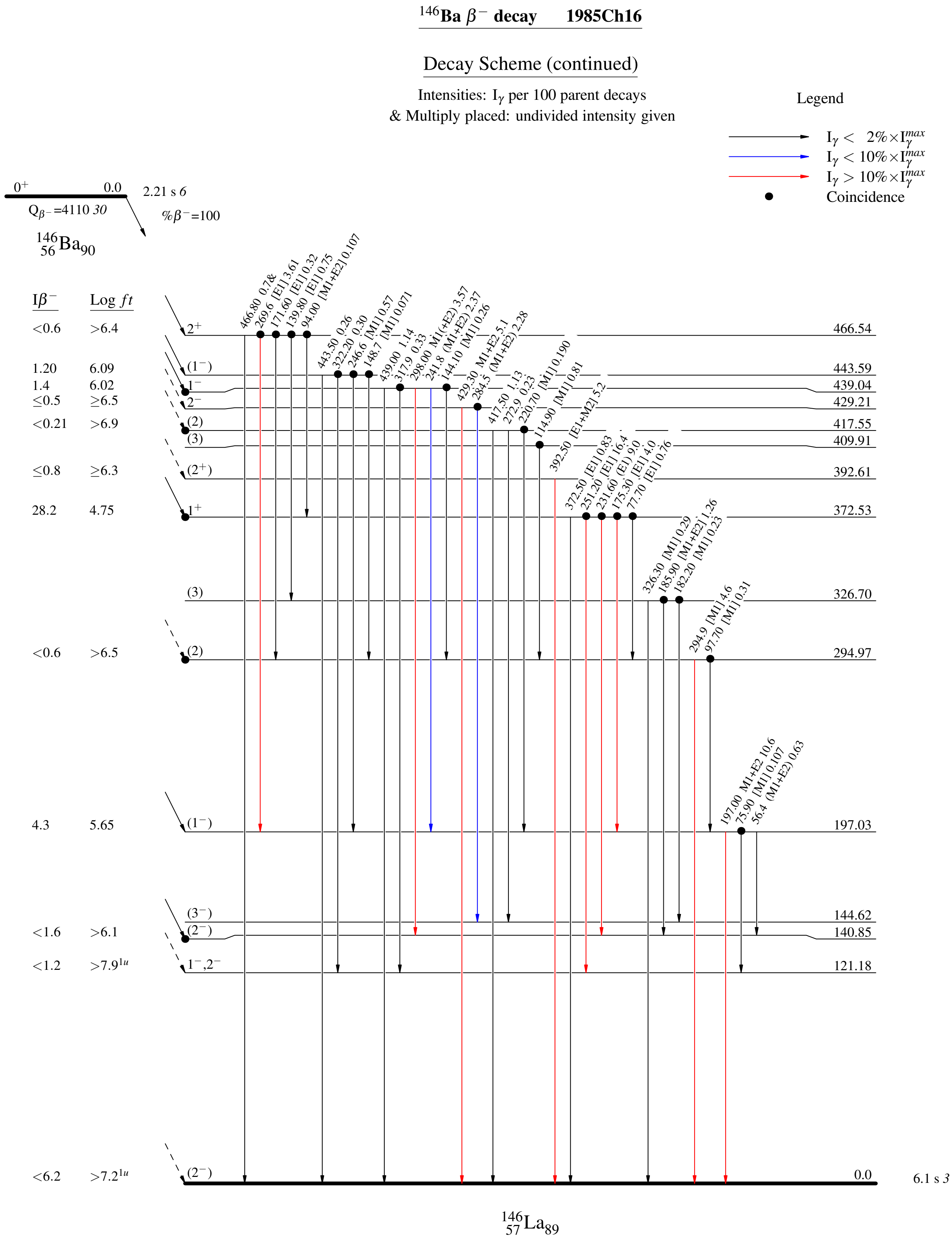


^{146}Ba β^- decay 1985Ch16

Decay Scheme (continued)

Intensities: I_γ per 100 parent decays
& Multiply placed: undivided intensity given





146Ba β− decay 1985Ch16
Decay Scheme (continued)
Intensities: Iγ per 100 parent decays
& Multiply placed: undivided intensity given
Legend
Iγ < 2%×Iγmax
Iγ < 10%×Iγmax
Iγ > 10%×Iγmax
Coincidence
0+ 0.0 2.21 s 6
Qβ−=4110 30
%β−=100
146 56Ba90
Iβ− Log ft
<0.6 >6.4 2+ 466.54
1.20 6.09 (1−) 443.59
1.4 6.02 1− 439.04
≤0.5 ≥6.5 2− 429.21
<0.21 >6.9 (2) 417.55
(3) 409.91
≤0.8 ≥6.3 (2+) 392.61
28.2 4.75 1+ 372.53
(3) 326.70
<0.6 >6.5 (2) 294.97
4.3 5.65 (1−) 197.03
(3−) 144.62
<1.6 >6.1 (2−) 140.85
<1.2 >7.9 1u 1−,2− 121.18
<6.2 >7.2 1u (2−) 0.0 6.1 s 3
466.80 0.78&
269.6 [E1] 3.61
171.60 [E1] 0.32
139.80 [E1] 0.75
94.00 [M1+E2] 0.107
443.50 0.26
322.20 0.30
246.6 [M1] 0.57
148.7 [M1] 0.071
439.00 1.14
317.9 0.33
298.00 M1(+E2) 3.57
241.8 (M1+E2) 2.37
144.10 [M1] 0.26
429.30 M1+E2 5.1
284.5 (M1+E2) 2.28
417.50 1.13
272.9 0.23
220.70 [M1] 0.190
114.90 [M1] 0.81
392.50 [E1+M2] 5.2
372.50 [E1] 0.83
251.20 [E1] 16.4
231.60 (E1) 9.0
175.30 [E1] 4.0
77.70 [E1] 0.76
326.30 [M1] 0.29
185.90 [M1+E2] 1.26
182.20 [M1] 0.23
294.9 [M1] 4.6
97.70 [M1] 0.31
197.00 M1+E2 10.6
75.90 [M1] 0.107
56.4 (M1+E2) 0.63
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^{146}Ba β^- decay 1985Ch16

Decay Scheme (continued)

Intensities: I_γ per 100 parent decays
& Multiply placed: undivided intensity given