^{78}Rb ε decay (17.66 min) 1981Ba40,1995Gi13

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Ameenah R. Farhan, Balraj Singh	NDS 110, 1917 (2009)	30-Jun-2009

Parent: ^{78}Rb: E=0.0; $J^\pi=0^{(+)}$; $T_{1/2}$=17.66 min *3*; Q(ε)=7243 *8*; %ε+%β^+ decay=100.0

^{78}Rb-Q(ε): from 2009AuZZ, 2003Au03.

1981Ba40 (also 1975BaWR thesis): measured Eγ, Iγ, $\gamma\gamma$, Iβ, $\beta\gamma$, $T_{1/2}$. The data in 1981Ba40 are superior to those in author's earlier work 1975BaWR since ^{78}Kr target enrichment was 99% as compared to 50% in the 1975 work.

1980BaZO is superseded by 1981Ba40.

1995Gi13: Conversion electron spectra. Deduced α(K)exp's for several transitions and observed E0 transition from 0^+ state at 1017 keV.

1999Su02: main study was In-beam γ-rays In ^{78}Kr, but the ^{58}Ni+^{23}Na reaction used In this study populated ^{78}Rb also strongly through $2P_n$ channel, thus some of the γ rays and levels listed by 1999Su02 could Be populated from ^{78}Rb ε decay, mainly from $4^{(-)}$ isomer and less so from $0^{(+)}$ isomer. However, No separate decay data were listed by 1999Su02.

Others:

1979He18: $T_{1/2}$ measurement.

1979ReZW: β^+ radiation is studied from this activity alone by waiting 45 min after bombardment of ^{78}Kr target by protons.

1974Sa32: measured $\gamma\gamma(\theta)$ for two cascades: 664-455 and 562-455.

1973Br32, 1972LiZL, 1972No14.

All data given here are from 1981Ba40 unless otherwise stated.

Measured conversion coefficients are from 1995Gi13.

Two activities (5.74 min and 17.66 min) of ^{78}Rb were identified by most of the authors, but only 1981Ba40 and 1972No14 proposed separate decay schemes.

Total decay energy of 6937 keV *130* calculated (by RADLIST code) from level scheme is somewhat lower than the expected value of 7243 keV *8*.

^{78}Kr Levels

E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡
0.0	0^+	2399.03 *6*	3^-	3575.08 *6*	(1)	5061.69 *17*	(1)
455.04 *3*	2^+	2443.37 *5*	$(1,2)^+$	3662.18 *5*	(1)	5180.74 *8*	(1)
1017.18 *3*	0^+#	2508.02 *9*		3749.15 *10*	$(3,4,5^-)$	5192.51 *11*	(1)
1119.47 *5*	4^+	2573.35 *7*	$1^-,2^-,3^-$	3829.45 *6*	(1)	5222.60 *11*	(1)
1147.92 *3*	2^+	2656.13 *5*	(0,1)	3893.27 *5*	(1)	5243.88 *8*	(1)
1564.74 *4*	3^+	2882.08 *9*	3^-	3937.58 *4*	(1)	5333.04 *12*	(1)
1755.86 *3*	2^+	2882.85 *7*	(1)	4007.80 *5*	(1)	5369.56 *15*	(1)
1772.93 *4*	$(1,2^+)$	2992.56 *7*		4040.39 *5*	(1)	5529.24 *9*	(1)
1977.8?		3064?	$(5)^-$	4089.32 *5*	(1)	5543.69 *16*	(1)
2007.42 *5*	(0 to 3)	3230.49 *5*	(1)	4201.68 *8*	(1)	5567.79 *16*	(1)
2234.20 *4*	$(0\text{ to }4)^+$	3437.42 *5*	(1)	4420.88 *9*	(1)	5586.09 *16*	(1)
2240.69 *5*	$(1,2)^+$	3539.07 *4*	(1)	5011.53 *7*	(1)		

† From least-squares fit to Eγ's.

‡ From 'Adopted Levels'.

J^π from (562γ)(455γ)(θ) (1974Sa32). $T_{1/2}$=7.62 ps *21* (1995Gi13) measured by DSAM in (p,p'γ) reaction; this half-life used in deducing ρ^2 value for E0 transition.

^{78}Rb ε decay (17.66 min) 1981Ba40,1995Gi13 (continued)

ε,β$^+$ radiations

E(decay)	E(level)	Iβ$^+$ #	Iε#	Log *ft*	I(ε+β$^+$)‡#	Comments
(1657 *8*)	5586.09	0.024 *3*	0.19 *3*	6.08 *7*	0.21 *3*	av Eβ=277.4 *35*; εK=0.778 *4*; εL=0.0908 *5*; εM+=0.01867 *10*
(1675 *8*)	5567.79	0.049 *5*	0.35 *4*	5.81 *5*	0.40 *4*	av Eβ=285.2 *35*; εK=0.769 *5*; εL=0.0898 *5*; εM+=0.01845 *10*
(1699 *8*)	5543.69	0.030 *6*	0.19 *3*	6.1 *1*	0.22 *4*	av Eβ=295.6 *35*; εK=0.757 *5*; εL=0.0883 *6*; εM+=0.01814 *11*
(1714 *8*)	5529.24	0.13 *1*	0.73 *5*	5.51 *4*	0.86 *6*	av Eβ=301.8 *35*; εK=0.749 *5*; εL=0.0873 *6*; εM+=0.01795 *11*
(1873 *8*)	5369.56	0.080 *11*	0.23 *3*	6.09 *6*	0.31 *4*	av Eβ=371.0 *35*; εK=0.650 *6*; εL=0.0757 *7*; εM+=0.01555 *13*
(1910 *8*)	5333.04	0.17 *1*	0.41 *4*	5.86 *4*	0.58 *5*	av Eβ=386.9 *35*; εK=0.625 *6*; εL=0.0728 *7*; εM+=0.01496 *14*
(1999 *8*)	5243.88	0.22 *2*	0.39 *4*	5.92 *5*	0.61 *6*	av Eβ=425.9 *36*; εK=0.564 *6*; εL=0.0656 *7*; εM+=0.01348 *14*
(2020 *8*)	5222.60	0.16 *2*	0.26 *3*	6.10 *6*	0.42 *5*	av Eβ=435.3 *36*; εK=0.549 *6*; εL=0.0639 *7*; εM+=0.01313 *14*
(2050 *8*)	5192.51	0.44 *8*	0.66 *12*	5.7 *1*	1.1 *2*	av Eβ=448.5 *36*; εK=0.529 *6*; εL=0.0615 *7*; εM+=0.01264 *13*
(2062 *8*)	5180.74	0.35 *2*	0.52 *3*	5.83 *3*	0.87 *5*	av Eβ=453.7 *36*; εK=0.521 *6*; εL=0.0606 *7*; εM+=0.01245 *13*
(2181 *8*)	5061.69	0.24 *2*	0.24 *2*	6.20 *4*	0.48 *4*	av Eβ=506.4 *36*; εK=0.444 *5*; εL=0.0516 *6*; εM+=0.01059 *12*
(2231 *8*)	5011.53	0.40 *3*	0.35 *2*	6.06 *3*	0.75 *5*	av Eβ=528.7 *36*; εK=0.413 *5*; εL=0.0480 *6*; εM+=0.00987 *12*
(2822 *8*)	4420.88	0.59 *3*	0.15 *1*	6.64 *3*	0.74 *4*	av Eβ=795.5 *37*; εK=0.1761 *20*; εL=0.02042 *23*; εM+=0.00419 *5*
(3041 *8*)	4201.68	0.52 *4*	0.091 *8*	6.92 *4*	0.61 *5*	av Eβ=896.2 *37*; εK=0.1312 *14*; εL=0.01520 *16*; εM+=0.00312 *4*
(3154 *8*)	4089.32	2.6 *2*	0.39 *3*	6.32 *3*	3.0 *2*	av Eβ=948.1 *37*; εK=0.1136 *12*; εL=0.01316 *14*; εM+=0.00270 *3*
(3203 *8*)	4040.39	3.3 *2*	0.46 *3*	6.26 *3*	3.8 *2*	av Eβ=970.8 *37*; εK=0.1069 *11*; εL=0.01238 *13*; εM+=0.00254 *3*
(3235 *8*)	4007.80	2.0 *1*	0.27 *1*	6.50 *2*	2.3 *1*	av Eβ=985.9 *38*; εK=0.1027 *11*; εL=0.01189 *12*; εM+=0.002442 *25*
(3305 *8*)	3937.58	3.0 *2*	0.37 *2*	6.39 *3*	3.4 *2*	av Eβ=1018.5 *38*; εK=0.0943 *9*; εL=0.01092 *11*; εM+=0.002242 *22*
(3350 *8*)	3893.27	15.9 *7*	1.80 *8*	5.71 *2*	17.7 *8*	av Eβ=1039.1 *38*; εK=0.0895 *9*; εL=0.01036 *10*; εM+=0.002127 *21*
(3414 *8*)	3829.45	2.70 *15*	0.282 *17*	6.53 *3*	2.98 *17*	av Eβ=1068.9 *38*; εK=0.0830 *8*; εL=0.00962 *9*; εM+=0.001974 *19*
(3581 *8*)	3662.18	3.59 *20*	0.306 *18*	6.54 *3*	3.90 *22*	av Eβ=1147.1 *38*; εK=0.0688 *6*; εL=0.00796 *7*; εM+=0.001635 *15*
(3668 *8*)	3575.08	2.54 *14*	0.196 *11*	6.75 *3*	2.74 *15*	av Eβ=1187.9 *38*; εK=0.0626 *6*; εL=0.00725 *7*; εM+=0.001488 *13*
(3704 *8*)	3539.07	6.5 *4*	0.48 *3*	6.37 *3*	7.0 *4*	av Eβ=1204.8 *38*; εK=0.0603 *6*; εL=0.00698 *6*; εM+=0.001432 *13*
(3806 *8*)	3437.42	14.9 *7*	0.98 *4*	6.08 *2*	15.9 *7*	av Eβ=1252.6 *38*; εK=0.0543 *5*; εL=0.00628 *6*; εM+=0.001289 *11*
(4013 *8*)	3230.49	1.57 *7*	0.083 *4*	7.20 *2*	1.65 *7*	av Eβ=1350.2 *38*; εK=0.0442 *4*; εL=0.00512 *4*; εM+=0.001050 *8*
(4250 *8*)	2992.56	0.46 *5*	0.019 *2*	7.88 *5*	0.48 *5*	av Eβ=1462.9 *38*; εK=0.0355 *3*; εL=0.00411 *3*; εM+=0.000843 *6*
(4360 *8*)	2882.85	0.92 *6*	0.035 *2*	7.65 *3*	0.96 *6*	av Eβ=1515.1 *38*; εK=0.03225 *23*; εL=0.00373 *3*; εM+=0.000765 *6*
(4587 *8*)	2656.13	1.00 *5*	0.0313 *16*	7.74 *2*	1.03 *5*	av Eβ=1623.1 *39*; εK=0.02667 *18*; εL=0.003082 *21*; εM+=0.000633 *5*

Continued on next page (footnotes at end of table)

^{78}Rb ε decay (17.66 min) 1981Ba40,1995Gi13 (continued)

ϵ,β^+ radiations (continued)

E(decay)	E(level)	Iβ^+ [#]	Iε[#]	Log *ft*	I($\varepsilon+\beta^+$)[‡#]	Comments
(4670 *8*)	2573.35	0.90 *6*	0.026 *2*	7.83 *3*	0.93 *6*	av Eβ=1662.7 *39*; εK=0.02495 *16*; εL=0.002883 *19*; εM+=0.000592 *4*
(4735 *8*)	2508.02	0.54 *4*	0.015 *1*	8.08 *4*	0.56 *4*	av Eβ=1693.9 *39*; εK=0.02370 *15*; εL=0.002738 *18*; εM+=0.000562 *4*
(4800 *8*)	2443.37	2.37 *10*	0.062 *3*	7.48 *2*	2.43 *10*	av Eβ=1724.8 *39*; εK=0.02254 *14*; εL=0.002604 *17*; εM+=0.000534 *4*
(5002 *8*)	2240.69	1.36 *12*	0.031 *3*	7.83 *4*	1.39 *12*	av Eβ=1822.0 *39*; εK=0.01936 *12*; εL=0.002236 *14*; εM+=0.000459 *3*
(5009 *8*)	2234.20	0.7 *2*		8.1 *1*	0.7 *2*	av Eβ=1825.1 *39*; εK=0.01927 *12*; εL=0.002226 *13*; εM+=0.000457 *3*
(5236[@] *8*)	2007.42	<0.49	<0.0093	>8.4	<0.50	av Eβ=1934.1 *39*; εK=0.01640 *10*; εL=0.001894 *11*; εM+=0.0003887 *2*
(5470 *8*)	1772.93	0.26 *4*	0.0041 *6*	8.8 *1*	0.26 *4*	av Eβ=2047.1 *39*; εK=0.01400 *8*; εL=0.001617 *9*; εM+=0.0003318 *1*
(6095[@] *8*)	1147.92	<3.2	<0.04	>7.9	<3.2	av Eβ=2349.5 *39*; εK=0.00953 *5*; εL=0.001100 *6*; εM+=0.0002257 *1*
(6226 *8*)	1017.18	2.0 *7*	0.020 *7*	8.2 *2*	2.0 *7*	av Eβ=2412.9 *39*; εK=0.00885 *4*; εL=0.001021 *5*; εM+=0.0002095 *1*
(6788[@] *8*)	455.04	<2.4	<0.018	>8.3	<2.4	av Eβ=2686.4 *39*; εK=0.00655 *3*; εL=0.000756 *3*; εM+=0.0001550 *7*
7240 *20*	0.0	8[†] *2*	0.05 *1*	8.0 *1*	8 *2*	av Eβ=2908.5 *40*; εK=0.005241 *20*; εL=0.0006045 *2*; εM+=0.0001240 *5* E(decay): from 1979ReZW (E(β^+)=6221 *20*). Isospin forbidden transition.

[†] 1979ReZW deduce this from singles β^+ spectrum.

[‡] Because of the large Q value and the probable large number of unobserved transitions, $\varepsilon+\beta^+$ branches with intensities less than a few percent should be considered tentative.

[#] Absolute intensity per 100 decays.

[@] Existence of this branch is questionable.

γ(^{78}Kr)

Iγ normalization: from intensity balance of γ-rays and assuming g.s. β^+ feeding to ^{78}Kr 8% 2 (1979ReZW, from singles β^+ spectrum). I($\gamma^\pm$)/I(454γ)=2.74 *3*.
Intensity of annihilation radiation=274 *3* (1981Ba40), relative to 100 for 455γ.

E_γ	I_γ‡	E_i(level)	J^π_i	E_f	J^π_f	Mult.†	δ	α#	Comments
416.77 *5*	0.32 *2*	1564.74	3^+	1147.92	2^+				
445.28 *5*	0.10 *2*	1564.74	3^+	1119.47	4^+				
454.99 *5*	100.0	455.04	2^+	0.0	0^+	E2		0.00428	α(K)=0.00378 *6*; α(L)=0.000421 *6*; α(M)=6.81×10^{-5} *10*; α(N+..)=6.75×10^{-6} *10* α(N)=6.75×10^{-6} *10* Mult.: from 'Adopted Gammas'.
562.15 *5*	18.15 *15*	1017.18	0^+	455.04	2^+	E2		0.00225	α(K)exp=0.00199 *6* α(K)=0.00199 *3*; α(L)=0.000219 *3*; α(M)=3.54×10^{-5} *5*; α(N+..)=3.53×10^{-6} *5* α(N)=3.53×10^{-6} *5* Additional information 1. (562γ)(455γ)(θ): A_2=+0.41 *21*, A_4=+0.73 *35* (1974Sa32), consistent with J(1017 level)=0.
607.94 *8*	0.24 *5*	1755.86	2^+	1147.92	2^+	E2+M1	4.0 *35*	0.0018 *4*	α(K)exp=0.0016 *3* α(K)=0.0016 *3*; α(L)=0.00017 *4*; α(M)=2.8×10^{-5} *6*; α(N+..)=2.8×10^{-6} *5* α(N)=2.8×10^{-6} *5*
636.27 *10*	0.61 *2*	1755.86	2^+	1119.47	4^+	E2		1.58×10^{-3}	α(K)exp=0.00145 *23* α(K)=0.001398 *20*; α(L)=0.0001525 *22*; α(M)=2.47×10^{-5} *4*; α(N+..)=2.47×10^{-6} *4* α(N)=2.47×10^{-6} *4*
664.42 *5*	1.86 *6*	1119.47	4^+	455.04	2^+	E2		1.40×10^{-3}	α(K)=0.001240 *18*; α(L)=0.0001350 *19*; α(M)=2.18×10^{-5} *3*; α(N+..)=2.19×10^{-6} *3* α(N)=2.19×10^{-6} *3* Mult.: from 'Adopted Gammas'.
675.89 *9*	0.56 *4*	2240.69	$(1,2)^+$	1564.74	3^+				
687.55 *8*	0.85 *5*	2443.37	$(1,2)^+$	1755.86	2^+	E2,M1		0.00116 *12*	α(K)exp=0.0011 *3* α(K)=0.00103 *11*; α(L)=0.000110 *13*; α(M)=1.79×10^{-5} *20*; α(N+..)=1.80×10^{-6} *19* α(N)=1.80×10^{-6} *19*
692.88 *5*	20.03 *12*	1147.92	2^+	455.04	2^+	M1+E2	+0.45 *10*	1.06×10^{-3} *2*	α(K)exp=0.00116 *3* α(K)=0.000941 *19*; α(L)=0.0001006 *21*; α(M)=1.63×10^{-5} *4*; α(N+..)=1.64×10^{-6} *4* α(N)=1.64×10^{-6} *4*
738.66 *5*	2.64 *4*	1755.86	2^+	1017.18	0^+	E2		1.05×10^{-3}	α(K)exp=0.00094 *5* α(K)=0.000933 *13*; α(L)=0.0001010 *15*; α(M)=1.633×10^{-5}

γ(^{78}Kr) (continued)

E_γ	I_γ‡	E_i(level)	J^π_i	E_f	J^π_f	Mult.†	δ	α#	Comments
									23; α(N+..)=1.638×10^{-6} *23* α(N)=1.638×10^{-6} *23*
859.56 *10*	4.53 *6*	2007.42	(0 to 3)	1147.92	2$^+$				
1017		1017.18	0$^+$	0.0	0$^+$	E0			E_γ: from electron detection (1995Gi13). q^2_K(E0/E2)=0.136 *6*, X(E0/E2)=0.024 *1*, ρ^2(E0)=0.047 *13* (1995Gi13).
1086.79 *7*	0.08 *3*	3064?	(5)$^-$	1977.8?					
1109.72 *5*	1.91 *3*	1564.74	3$^+$	455.04	2$^+$				
1147.87 *5*	12.61 *12*	1147.92	2$^+$	0.0	0$^+$	E2		3.65×10^{-4}	α(K)exp=0.000327 *15* α(K)=0.000322 *5*; α(L)=3.42×10^{-5} *5*; α(M)=5.53×10^{-6} *8*; α(N+..)=3.33×10^{-6} *5* α(N)=5.58×10^{-7} *8*; α(IPF)=2.77×10^{-6} *4*
1203.13 *5*	0.14 *2*	3437.42	(1)	2234.20	(0 to 4)$^+$				
1295.45 *8*	0.75 *5*	2443.37	(1,2)$^+$	1147.92	2$^+$	M1,E2		2.99×10^{-4} *8*	α(K)exp=0.00023 *3* α(K)=0.000245 *5*; α(L)=2.59×10^{-5} *5*; α(M)=4.19×10^{-6} *9*; α(N+..)=2.4×10^{-5} *3* α(N)=4.24×10^{-7} *8*; α(IPF)=2.4×10^{-5} *3*
1300.83 *5*	5.11 *8*	1755.86	2$^+$	455.04	2$^+$	M1+E2	−1.32 *+12−55*	3.00×10^{-4}	α(K)exp=0.000226 *16* α(K)=0.000244 *4*; α(L)=2.58×10^{-5} *4*; α(M)=4.17×10^{-6} *6*; α(N+..)=2.60×10^{-5} *10* α(N)=4.22×10^{-7} *6*; α(IPF)=2.55×10^{-5} *10*
1317.90 *5*	0.34 *2*	1772.93	(1,2$^+$)	455.04	2$^+$				
1350.11 *8*	0.17 *3*	3749.15	(3,4,5$^-$)	2399.03	3$^-$				
1425.56 *14*	0.41 *4*	2573.35	1$^-$,2$^-$,3$^-$	1147.92	2$^+$	E1		3.06×10^{-4}	α(K)=0.0001005 *14*; α(L)=1.051×10^{-5} *15*; α(M)=1.698×10^{-6} *24*; α(N+..)=0.000193 *3* α(N)=1.720×10^{-7} *24*; α(IPF)=0.000193 *3*
1428.08 *12*	0.24 *15*	3662.18	(1)	2234.20	(0 to 4)$^+$				
1467.24 *18*	0.10 *2*	4040.39	(1)	2573.35	1$^-$,2$^-$,3$^-$				
1508.22 *6*	0.55 *2*	2656.13	(0,1)	1147.92	2$^+$				
1595.32 *7*	0.67 *3*	3829.45	(1)	2234.20	(0 to 4)$^+$				
1652.68 *20*	0.92 *3*	3893.27	(1)	2240.69	(1,2)$^+$				
1734.93 *7*	1.05 *6*	2882.85	(1)	1147.92	2$^+$				
1755.94 *10*	1.30 *4*	1755.86	2$^+$	0.0	0$^+$				
1767.05 *8*	0.69 *8*	4007.80	(1)	2240.69	(1,2)$^+$				
1772.89 *5*	0.08 *3*	1772.93	(1,2$^+$)	0.0	0$^+$				
1779.11 *5*	4.72 *5*	2234.20	(0 to 4)$^+$	455.04	2$^+$	M1,E2		3.35×10^{-4} *18*	α(K)exp=0.00015 *4* α(K)=0.0001312 *19*; α(L)=1.377×10^{-5} *20*; α(M)=2.23×10^{-6} *4*; α(N+..)=0.000188 *17* α(N)=2.26×10^{-7} *4*; α(IPF)=0.000187 *17*
1785.55 *12*	1.36 *4*	2240.69	(1,2)$^+$	455.04	2$^+$	M1,E2		3.37×10^{-4} *18*	α(K)exp=0.00029 *10* α(K)=0.0001303 *19*; α(L)=1.368×10^{-5} *20*;

From ENSDF

$^{78}_{36}Kr_{42}$-5

γ(^{78}Kr) (continued)

E_γ	I_γ‡	E_i(level)	J^π_i	E_f	J^π_f	Mult.†	α#	Comments
								α(M)=2.21×10^{-6} *4*; α(N+..)=0.000190 *18* α(N)=2.24×10^{-7} *4*; α(IPF)=0.000190 *18*
1806.22 *10*	0.61 *2*	4040.39	(1)	2234.20	(0 to 4)$^+$			
1822.00 *15*	1.52 *15*	3829.45	(1)	2007.42	(0 to 3)			
1844.66 *7*	0.46 *2*	2992.56		1147.92	2$^+$			
1855.06 *8*	0.96 *3*	4089.32	(1)	2234.20	(0 to 4)$^+$			
1885.97 *20*	0.27 *4*	3893.27	(1)	2007.42	(0 to 3)			
1906.28 *7*	0.39 *2*	3662.18	(1)	1755.86	2$^+$			
1930.07 *7*	0.38 *3*	3937.58	(1)	2007.42	(0 to 3)			
1943.97 *5*	0.59 *4*	2399.03	3$^-$	455.04	2$^+$			
1988.20 *15*	1.22 *4*	2443.37	(1,2)$^+$	455.04	2$^+$	M1,E2	4.01×10^{-4} *23*	α(K)exp=0.0003 *1* α(K)=0.0001066 *15*; α(L)=1.118×10^{-5} *16*; α(M)=1.81×10^{-6} *3*; α(N+..)=0.000282 *22* α(N)=1.83×10^{-7} *3*; α(IPF)=0.000282 *22*
2000.45 *12*	0.23 *5*	4007.80	(1)	2007.42	(0 to 3)			
2052.96 *8*	0.89 *6*	2508.02		455.04	2$^+$			
2082.60 *6*	0.88 *3*	3230.49	(1)	1147.92	2$^+$			
2118.28 *8*	1.17 *3*	2573.35	1$^-$,2$^-$,3$^-$	455.04	2$^+$			
2137.41 *8*	2.78 *4*	3893.27	(1)	1755.86	2$^+$			
2201.04 *6*	1.09 *4*	2656.13	(0,1)	455.04	2$^+$			
2213.24 *6*	0.51 *3*	3230.49	(1)	1017.18	0$^+$			
2240.69 *7*	2.17 *7*	2240.69	(1,2)$^+$	0.0	0$^+$			
2284.64 *17*	0.42 *3*	4040.39	(1)	1755.86	2$^+$			
2289.66 *15*	2.42 *4*	3437.42	(1)	1147.92	2$^+$			
2333.32 *8*	1.46 *6*	4089.32	(1)	1755.86	2$^+$			
2391.26 *12*	0.50 *2*	3539.07	(1)	1147.92	2$^+$			
2420.27 *6*	7.34 *10*	3437.42	(1)	1017.18	0$^+$			
2427.00 *8*	0.98 *3*	2882.08	3$^-$	455.04	2$^+$			
2443.32 *8*	1.05 *2*	2443.37	(1,2)$^+$	0.0	0$^+$			
2514.13 *8*	5.28 *9*	3662.18	(1)	1147.92	2$^+$			
2521.80 *12*	0.30 *4*	3539.07	(1)	1017.18	0$^+$			
2537.37 *11*	0.30 *4*	2992.56		455.04	2$^+$			
2557.85 *10*	0.47 *4*	3575.08	(1)	1017.18	0$^+$			
2681.33 *14*	1.19 *4*	3829.45	(1)	1147.92	2$^+$			
2745.19 *12*	0.93 *6*	3893.27	(1)	1147.92	2$^+$			
2789.59 *7*	0.59 *3*	3937.58	(1)	1147.92	2$^+$			
2882.75 *12*	0.48 *4*	2882.85	(1)	0.0	0$^+$			
2892.36 *8*	3.41 *9*	4040.39	(1)	1147.92	2$^+$			
2920.36 *7*	1.06 *4*	3937.58	(1)	1017.18	0$^+$			
2941.40 *7*	1.86 *3*	4089.32	(1)	1147.92	2$^+$			
2982.37 *16*	8.28 *15*	3437.42	(1)	455.04	2$^+$			
2990.38 *12*	1.17 *6*	4007.80	(1)	1017.18	0$^+$			
3023.20 *16*	0.92 *6*	4040.39	(1)	1017.18	0$^+$			

γ(^{78}Kr) (continued)

E_γ	I_γ‡	E_i(level)	J^π_i	E_f	J^π_f
3053.61 *20*	0.26 *4*	4201.68	(1)	1147.92	2^+
3083.95 *5*	7.45 *10*	3539.07	(1)	455.04	2^+
3173.36 *14*	0.37 *4*	5180.74	(1)	2007.42	(0 to 3)
3215.22 *15*	0.25 *3*	5222.60	(1)	2007.42	(0 to 3)
3230.37 *8*	1.24 *5*	3230.49	(1)	0.0	0^+
3272.88 *10*	0.30 *3*	4420.88	(1)	1147.92	2^+
3288.33 *18*	0.27 *5*	5529.24	(1)	2240.69	$(1,2)^+$
3294.66 *25*	0.31 *4*	5529.24	(1)	2234.20	$(0\text{ to }4)^+$
3309.41 *15*	0.35 *5*	5543.69	(1)	2234.20	$(0\text{ to }4)^+$
3325.65 *15*	0.31 *5*	5333.04	(1)	2007.42	(0 to 3)
3351.81 *15*	0.33 *3*	5586.09	(1)	2234.20	$(0\text{ to }4)^+$
3361.99 *20*	0.33 *5*	5369.56	(1)	2007.42	(0 to 3)
3374.06 *16*	1.38 *6*	3829.45	(1)	455.04	2^+
3437.38 *15*	7.2 *3*	3437.42	(1)	0.0	0^+
3438.16 *15*	17.2 *5*	3893.27	(1)	455.04	2^+
3482.50 *7*	1.53 *6*	3937.58	(1)	455.04	2^+
3521.60 *25*	0.15 *4*	5529.24	(1)	2007.42	(0 to 3)
3539.00 *7*	2.90 *7*	3539.07	(1)	0.0	0^+
3552.70 *9*	0.94 *3*	4007.80	(1)	455.04	2^+
3574.99 *6*	3.88 *4*	3575.08	(1)	0.0	0^+
3634.28 *20*	0.22 *4*	4089.32	(1)	455.04	2^+
3662.13 *8*	0.29 *2*	3662.18	(1)	0.0	0^+
3746.58 *8*	0.44 *2*	4201.68	(1)	455.04	2^+
3773.37 *12*	0.35 *3*	5529.24	(1)	1755.86	2^+
3829.41 *17*	0.23 *2*	3829.45	(1)	0.0	0^+
3863.51 *9*	0.53 *4*	5011.53	(1)	1147.92	2^+
3893.15 *6*	6.08 *8*	3893.27	(1)	0.0	0^+
3913.67 *16*	0.76 *5*	5061.69	(1)	1147.92	2^+
3937.50 *7*	1.78 *6*	3937.58	(1)	0.0	0^+
3994.23 *9*	0.43 *4*	5011.53	(1)	1017.18	0^+
4007.77 *9*	0.60 *3*	4007.80	(1)	0.0	0^+
4040.20 *9*	0.59 *3*	4040.39	(1)	0.0	0^+
4044.31 *15*	1.15 *4*	5192.51	(1)	1147.92	2^+
4074.45 *15*	0.42 *6*	5222.60	(1)	1147.92	2^+
4089.36 *12*	0.30 *4*	4089.32	(1)	0.0	0^+
4095.98 *10*	0.20 *8*	5243.88	(1)	1147.92	2^+
4175.38 *19*	0.28 *2*	5192.51	(1)	1017.18	0^+
4201.44 *20*	0.27 *3*	4201.68	(1)	0.0	0^+
4420.75 *15*	0.88 *4*	4420.88	(1)	0.0	0^+
4556.38 *19*	0.23 *3*	5011.53	(1)	455.04	2^+
4725.60 *11*	0.44 *4*	5180.74	(1)	455.04	2^+
4737.44 *22*	0.33 *3*	5192.51	(1)	455.04	2^+
4877.76 *25*	0.11 *2*	5333.04	(1)	455.04	2^+
5112.70 *25*	0.23 *3*	5567.79	(1)	455.04	2^+
5180.40 *13*	0.57 *3*	5180.74	(1)	0.0	0^+
5243.85 *12*	0.77 *3*	5243.88	(1)	0.0	0^+
5332.70 *22*	0.50 *4*	5333.04	(1)	0.0	0^+
5369.46 *22*	0.17 *2*	5369.56	(1)	0.0	0^+
5529.28 *22*	0.29 *3*	5529.24	(1)	0.0	0^+
5567.50 *20*	0.41 *4*	5567.79	(1)	0.0	0^+

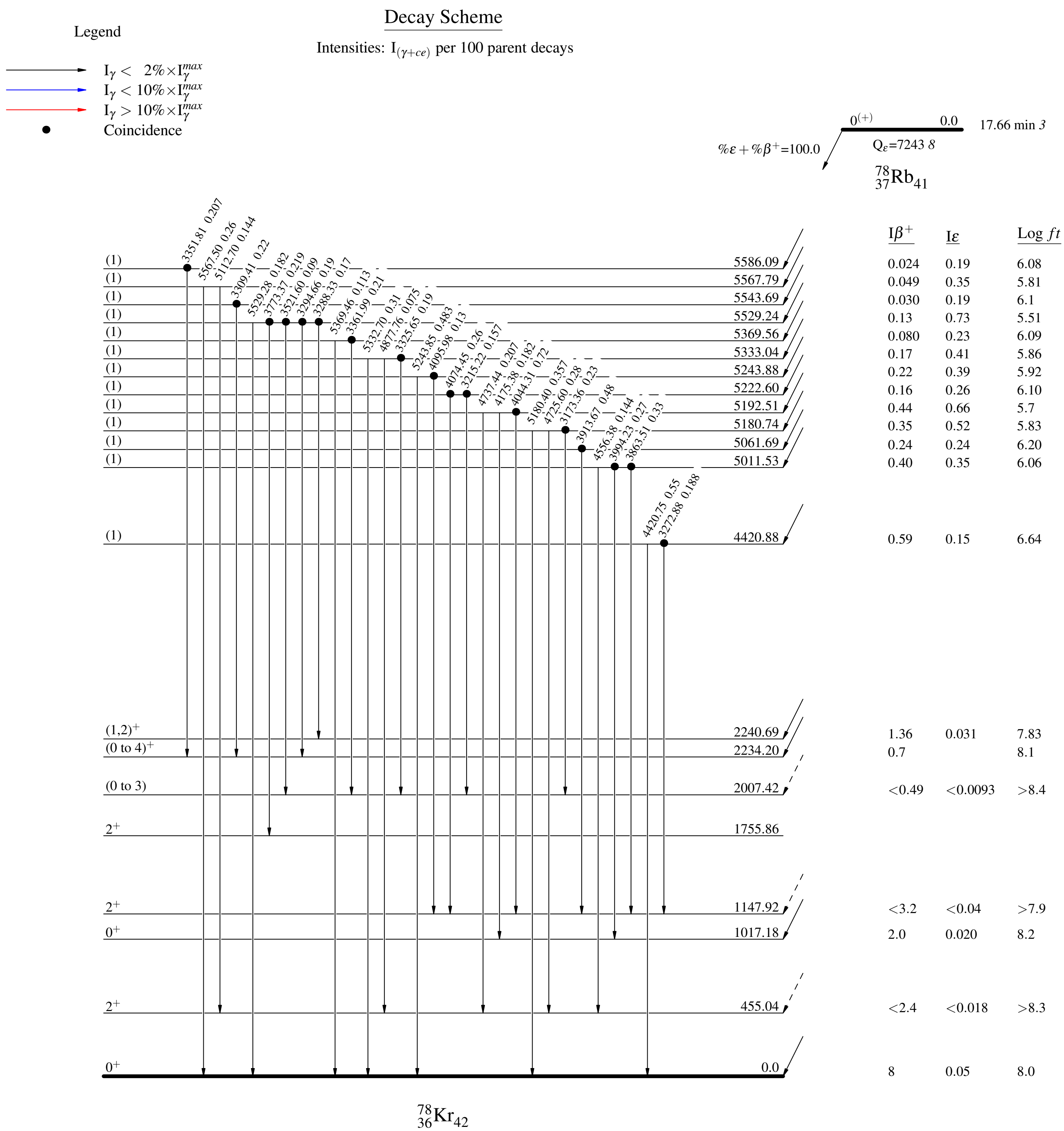
† From measured α(K)exp values of 1995Gi13, some of the α(K)exp values are measured in the decay of 5.74-min isomer of ^{78}Rb.

‡ For absolute intensity per 100 decays, multiply by 0.627 *14*.

Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

$^{78}_{36}$Kr$_{42}$-7

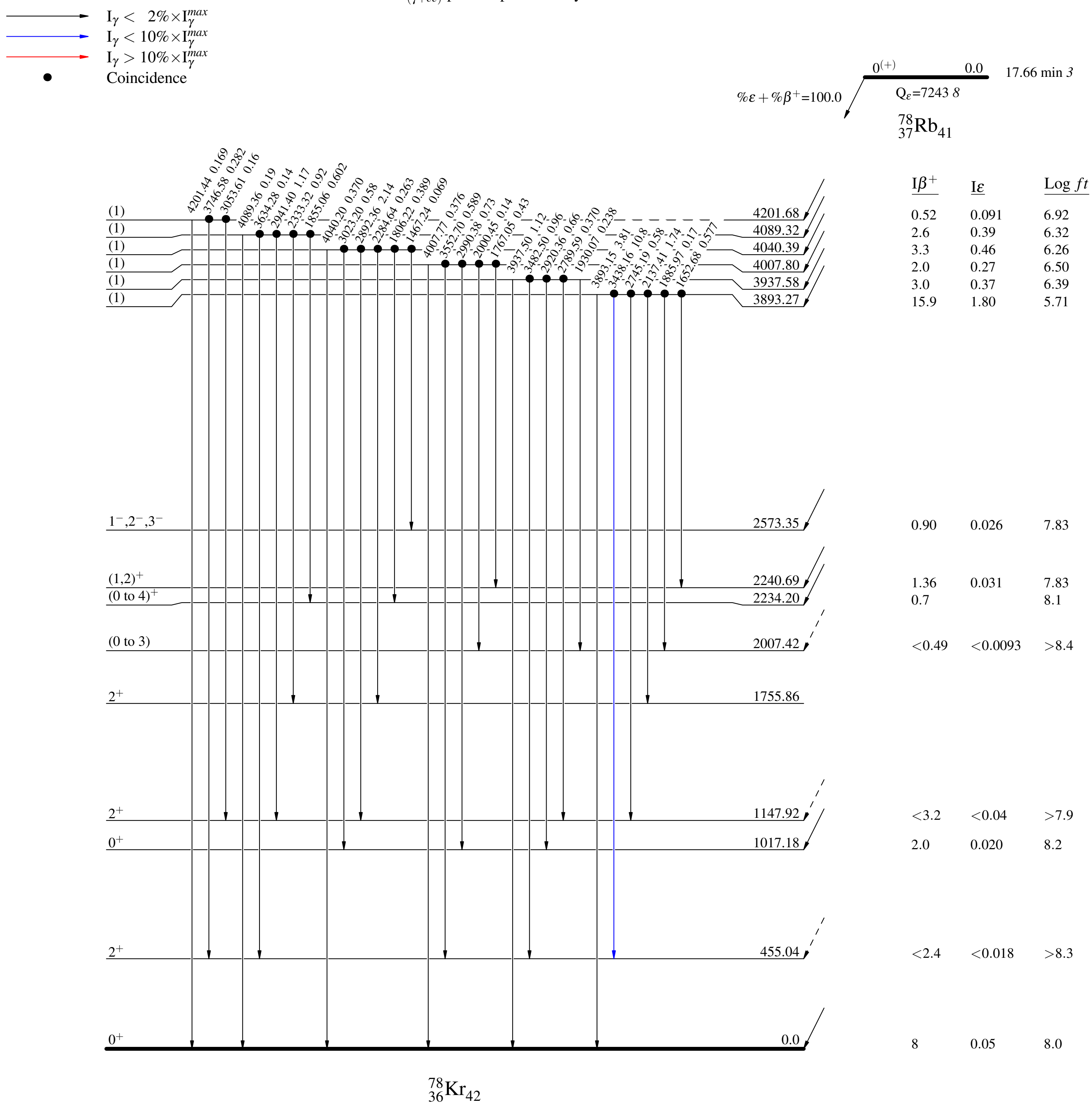
^{78}Rb ε decay (17.66 min) 1981Ba40,1995Gi13



^{78}Rb ε decay (17.66 min) 1981Ba40,1995Gi13

Decay Scheme (continued)

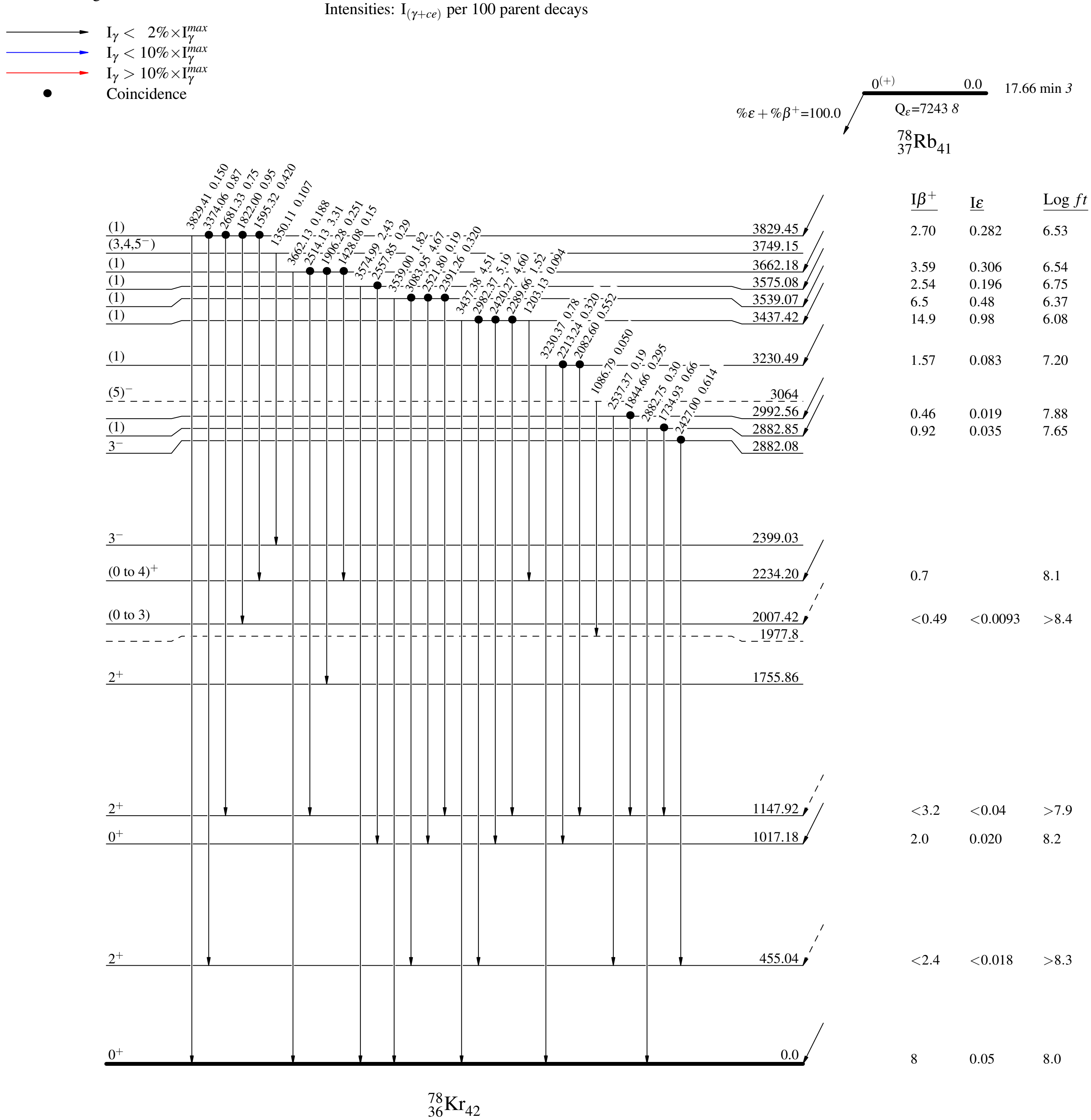
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays



^{78}Rb ε decay (17.66 min) 1981Ba40,1995Gi13

Decay Scheme (continued)

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays



^{78}Rb ε decay (17.66 min) 1981Ba40,1995Gi13

Decay Scheme (continued)

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays

Legend