^{82}Rb ε decay (6.472 h) 1983Me08

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	J. K. Tuli, E. Browne	NDS 157, 260 (2019)	1-Mar-2019

Parent: ^{82}Rb: E=69.0 *15*; $J^{\pi}=5^{-}$; $T_{1/2}$=6.472 h *6*; Q(ε)=4404 *3*; %ε+%β^{+} decay=100.0
1983Me08:Ge(Li), measured Eγ, Iγ.
1958Be81: Measured β^{+} spectrum.
Others: 1982Gr07, 1980Va20, 1970Gr01.

^{82}Kr Levels

E(level)†	Jπ#	E(level)†	Jπ#	E(level)†	Jπ#	E(level)†	Jπ#
0	0^{+}	2427.00 *9*	(4^{+})	2849.74 *12*	(4^{+})	3951.5 *4*	$4,5,6^{(+)}$
776.54 *7*	2^{+}	2547.70 *10*	(3^{-})	2920.29 *12*	(6^{+})	3997.91 *13*	$4,5,6^{(+)}$
1474.87 *8*	2^{+}	2556.18 *8*	(4^{+})	3011.25 *10*	$(5)^{-}$	4063.51 *13*	$4,5,6^{(+)}$
1820.55 *8*	4^{+}	2648.43 *9*	4^{-}	3037.83 *14*	(6^{-})	4068.05 *11*	$4,5^{(+)}$
1956.64 *8*	(2^{+})	2797.56?‡ *5*		3392.2?‡ *7*		4135.6?‡ *5*	
2094.01 *9*	3^{+}	2828.09 *10*	$5^{(-)}$	3655.85 *12*	$4^{(+)},5,6^{(+)}$		

† From least-squares fit to Eγ.
‡ Level not shown in decay scheme but given in table ii of 1983Me08.
# From Adopted Levels.

ε,β^{+} radiations

Level feeding from intensity imbalance. No β^{+} branch is expected to 2^{+} levels.

E(decay)	E(level)	Iβ+ †	Iε†	Log *ft*	I(ε+β+)†	Comments
(337‡ *4*)	4135.6?		0.30 *6*	5.83 *11*	0.30 *6*	εK=0.8701; εL=0.1076 *6*; εM+=0.02229 *13*
(405 *3*)	4068.05		0.214 *14*	6.13 *6*	0.214 *14*	εK=0.8715; εL=0.1065 *4*; εM+=0.02202 *9*
(409 *3*)	4063.51		0.118 *12*	6.40 *7*	0.118 *12*	εK=0.8716; εL=0.1064 *4*; εM+=0.02200 *9*
(475 *3*)	3997.91		0.19 *4*	6.32 *11*	0.19 *4*	εK=0.8725; εL=0.1057 *3*; εM+=0.02182 *6*
(522 *3*)	3951.5		0.045 *18*	7.03 *18*	0.045 *18*	εK=0.8730; εL=0.10524 *21*; εM+=0.02172 *5*
(817 *3*)	3655.85		0.49 *6*	6.39 *6*	0.49 *6*	εK=0.8750; εL=0.1037; εM+=0.02135
(1081‡ *4*)	3392.2?		0.17 *9*	7.09 *23*	0.17 *9*	εK=0.8758; εL=0.1030; εM+=0.02119
(1435 *3*)	3037.83	0.002 *2*	0.08 *6*	7.7 *4*	0.08 *6*	av Eβ=186 *11*; εK=0.852 *6*; εL=0.0997 *7*; εM+=0.02049 *14*
(1462 *3*)	3011.25	0.17 *4*	4.81 *11*	5.90 *2*	4.98 *11*	av Eβ=198 *11*; εK=0.846 *7*; εL=0.0990 *8*; εM+=0.02034 *16*
(1553 *3*)	2920.29	0.029 *6*	0.41 *6*	7.02 *7*	0.44 *6*	av Eβ=236 *11*; εK=0.819 *9*; εL=0.0957 *11*; εM+=0.01967 *23*
(1623 *3*)	2849.74	0.042 *7*	0.39 *4*	7.09 *5*	0.43 *4*	av Eβ=266 *11*; εK=0.791 *12*; εL=0.0923 *14*; εM+=0.0190 *3*
(1645 *3*)	2828.09	0.61 *8*	4.94 *14*	5.99 *2*	5.55 *13*	av Eβ=276 *11*; εK=0.781 *12*; εL=0.0911 *14*; εM+=0.0187 *3*
(1675‡ *3*)	2797.56?	0.027 *5*	0.18 *3*	7.44 *7*	0.21 *3*	av Eβ=289 *11*; εK=0.765 *13*; εL=0.0893 *15*; εM+=0.0183 *4*
(1825 *3*)	2648.43	19.7 *16*	66.7 *18*	4.95 *2*	86.4 *11*	av Eβ=353 *11*; εK=0.677 *16*; εL=0.0789 *19*; εM+=0.0162 *4* E(decay): Eβ+=800 *15* (1958Be81).
(1917‡ *3*)	2556.18	<0.042	<0.098	>7.8	<0.14	av Eβ=393 *11*; εK=0.615 *17*; εL=0.0716 *20*; εM+=0.0147 *4*

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^{82}Rb ε decay (6.472 h) 1983Me08 (continued)

ε,β+ radiations (continued)

E(decay)	E(level)	Iβ+ †	Iε†	Log *ft*	I(ε+β+)†	Comments
						I(ε+β+): −0.36 *14* from intensity balance.
(1925‡ *3*)	2547.70	0.18 *3*	0.41 *6*	7.21 *7*	0.59 *8*	av Eβ=397 *11*; εK=0.609 *17*; εL=0.0709 *20*; εM+=0.0146 *4* I(ε+β+): log *ft* is too large for a second-forbidden transition probably due to incompleteness of the decay scheme.
(2046‡ *3*)	2427.00	<0.056	<0.084	>8.0	<0.14	av Eβ=450 *11*; εK=0.527 *17*; εL=0.0613 *19*; εM+=0.0126 *4* I(ε+β+): −0.31 *14* from intensity balance.
(2379‡ *3*)	2094.01	<0.36	<0.74	>8.5[1u]	<1.1	av Eβ=625 *11*; εK=0.593 *13*; εL=0.0697 *15*; εM+=0.0143 *3* I(ε+β+): −0.1 *11* from intensity balance.
(2516‡ *3*)	1956.64					I(ε+β+): I(γ+ce)=0.18 *2* from intensity balance seems high for ΔJ=3.
(2652‡ *3*)	1820.55	<0.4	<0.2	>7.9	<0.6	av Eβ=722 *11*; εK=0.221 *8*; εL=0.0257 *9*; εM+=0.00528 *19* I(ε+β+): −0.6 *6* from intensity balance.

† Absolute intensity per 100 decays.
‡ Existence of this branch is questionable.

γ(^{82}Kr)

Iγ normalization: Σ I(γ+ce) to g.s.=100 since g.s. β transition is highly forbidden.

E_γ†	I_γ‡d	E_i(level)	J_i^π	E_f	J_f^π	Mult.#	α[c]	Comments
92.19 *10*	0.77 *7*	2648.43	4−	2556.18	(4+)	[E1]	0.1147	α(K)=0.1017 *15*; α(L)=0.01103 *16*; α(M)=0.00177 *3* α(N)=0.0001734 *25*
100.89 *10*	0.13 *1*	2648.43	4−	2547.70	(3−)	[M1+E2]	0.51 *39*	α(K)=0.44 *33*; α(L)=0.063 *51*; α(M)=0.0102 *82* α(N)=9.3×10^{-4} *73*
129.29 *10*	0.15 *1*	2556.18	(4+)	2427.00	(4+)	[M1+E2]	0.21 *15*	α(K)=0.18 *13*; α(L)=0.024 *18*; α(M)=0.0039 *29* α(N)=3.6×10^{-4} *27*
137.15@f *10*	0.14 *1*	2094.01	3+	1956.64	(2+)	[M1+E2]	0.17 *12*	α(K)=0.15 *10*; α(L)=0.019 *14*; α(M)=0.0031 *23* α(N)=2.9×10^{-4} *21*
183.27 *10*	2.52 *5*	3011.25	(5)−	2828.09	5(−)			
221.46 *10*	2.45 *5*	2648.43	4−	2427.00	(4+)	[E1]	0.00870	α(K)=0.00773 *11*; α(L)=0.000826 *12*; α(M)=0.0001332 *19* α(N)=1.329×10^{-5} *19*
273.48 *10*	1.23 *7*	2094.01	3+	1820.55	4+	[M1+E2]	0.0163 *72*	α(K)=0.0144 *63*; α(L)=0.00165 *77*; α(M)=2.7×10^{-4} *13* α(N)=2.6×10^{-5} *12*
389.4 *1*	0.10 *7*	3037.83	(6−)	2648.43	4−	[E2]	0.00705	α(K)=0.00622 *9*; α(L)=0.000701 *10*; α(M)=0.0001134 *16* α(N)=1.119×10^{-5} *16*
401.16 *10*	0.6 *1*	2828.09	5(−)	2427.00	(4+)			
455.28 *10*	1.5 *1*	3011.25	(5)−	2556.18	(4+)			
x499.31 *10*	0.25 *7*							
554.35 *10*	74 *1*	2648.43	4−	2094.01	3+			
583.80 *10*	1.58 *5*	3011.25	(5)−	2427.00	(4+)			
606.37 *10*	2.38 *7*	2427.00	(4+)	1820.55	4+			

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^{82}Rb ε decay (6.472 h) 1983Me08 (continued)

γ(^{82}Kr) (continued)

E_γ †	I_γ ‡ d	E_i(level)	J_i^π	E_f	J_f^π
619.11 *10*	45.00 *1*	2094.01	3^+	1474.87	2^+
698.37 *10*	31.2 *8*	1474.87	2^+	776.54	2^+
703.56 @ f *10*	0.17 *3*	2797.56?		2094.01	3^+
735.64 e *10*	0.13 e *6*	2556.18	(4^+)	1820.55	4^+
735.64 e *10*	0.37 e b *6*	3655.85	$4^{(+)},5,6^{(+)}$	2920.29	(6^+)
755.76 *10*	0.37 *2*	2849.74	(4^+)	2094.01	3^+
776.52 *10*	100	776.54	2^+	0	0^+
827.83 *10*	24.9 a *7*	2648.43	4^-	1820.55	4^+
836.0 @ f *7*	0.2 *1*	3392.2?		2556.18	(4^+)
952.02 *15*	0.76 *5*	2427.00	(4^+)	1474.87	2^+
x963.7 *3*	0.11 *3*				
976.9 @ f *2*	0.08 *1*	2797.56?		1820.55	4^+
987.1 *5*	0.04 *3*	3997.91	$4,5,6^{(+)}$	3011.25	$(5)^-$
1007.59 *10*	8.5 *1*	2828.09	$5^{(-)}$	1820.55	4^+
1044.08 *10*	38.00 *1*	1820.55	4^+	776.54	2^+
1072.99 *10*	0.86 *6*	2547.70	(3^-)	1474.87	2^+
1081.29 *10*	1.55 b *5*	2556.18	(4^+)	1474.87	2^+
x1086 *1*	0.03 *1*				
1099.81 *10*	0.89 *4*	2920.29	(6^+)	1820.55	4^+
1180.1 *1*	0.14 *2*	1956.64	(2^+)	776.54	2^+
1190.81 *10*	0.34 *2*	3011.25	$(5)^-$	1820.55	4^+
1218 & f *1*	0.05 & *4*	4068.05	$4,5^{(+)}$	2849.74	(4^+)
1228.9 *4*	0.07 *3*	3655.85	$4^{(+)},5,6^{(+)}$	2427.00	(4^+)
1317.43 *10*	28.1 *7*	2094.01	3^+	776.54	2^+
x1330.8 *5*	0.62 *2*				
1374.8 *2*	0.11 *3*	2849.74	(4^+)	1474.87	2^+
1395.4 *5*	0.03 *2*	3951.5	$4,5,6^{(+)}$	2556.18	(4^+)
1441.7 *1*	0.19 *3*	3997.91	$4,5,6^{(+)}$	2556.18	(4^+)
1474.88 *10*	18.4 *3*	1474.87	2^+	0	0^+
1506.8 *5*	0.02 *1*	4063.51	$4,5,6^{(+)}$	2556.18	(4^+)
x1543.0 *4*	0.05 *2*				
x1555.3 *4*	0.04 *1*				
1641.3 *4*	0.03 *1*	4068.05	$4,5^{(+)}$	2427.00	(4^+)
1650.37 *10*	1.40 *3*	2427.00	(4^+)	776.54	2^+
x1707.8 *3*	0.04 *1*				
1771.0 *5*	0.03 *3*	2547.70	(3^-)	776.54	2^+
1779.66 *10*	0.31 *2*	2556.18	(4^+)	776.54	2^+
1835.20 *10*	0.14 *1*	3655.85	$4^{(+)},5,6^{(+)}$	1820.55	4^+
1871.5 *3*	0.032 *9*	2648.43	4^-	776.54	2^+
1956.6 *1*	0.07 *1*	1956.64	(2^+)	0	0^+
x1961.3 *5*	0.02 *1*				
1974.0 *1*	0.13 *1*	4068.05	$4,5^{(+)}$	2094.01	3^+
x1996.5 *2*	0.056 *9*				
x2002.0 *3*	0.032 *9*				
2073.0 *3*	0.028 *8*	2849.74	(4^+)	776.54	2^+
2130.8 *4*	0.023 *7*	3951.5	$4,5,6^{(+)}$	1820.55	4^+
2242.95 *10*	0.12 *1*	4063.51	$4,5,6^{(+)}$	1820.55	4^+
2247.47 *13*	0.093 *8*	4068.05	$4,5^{(+)}$	1820.55	4^+
x2305 *1*	0.010 *7*				
2315.0 @ f *5*	0.36 *7*	4135.6?		1820.55	4^+

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^{82}Rb ε decay (6.472 h) 1983Me08 (continued)

γ(^{82}Kr) (continued)

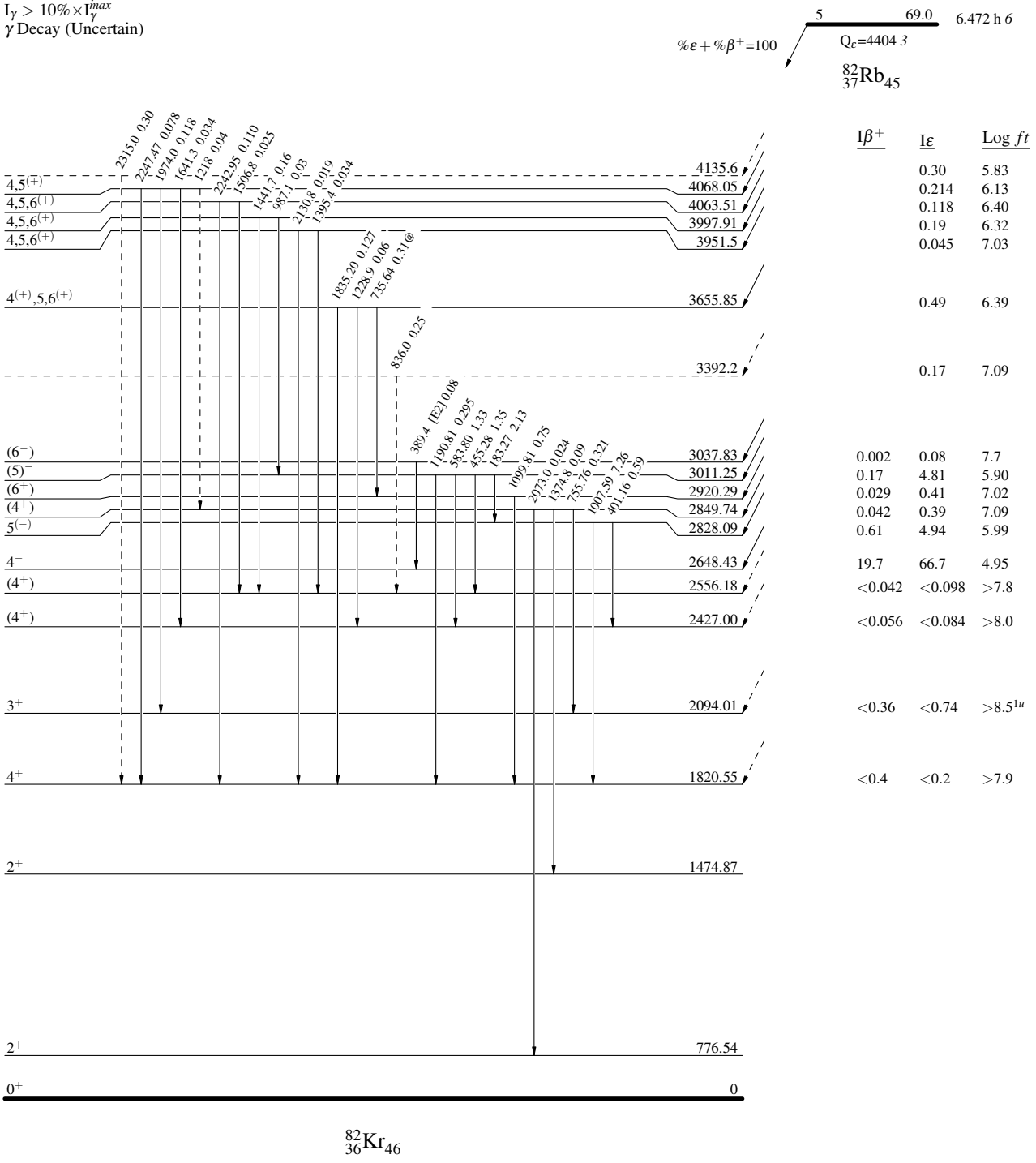
† From 1983Me08. Uncertainties of 1983Me08 are underestimated as indicated by Ritz combination principle. ΔE set by the evaluators to at least 0.1 keV.
‡ From 1983Me08.
# Deduced from J^{π}. For mixed multipolarities, δ=1.0 *10* has been assumed to calculate α.
@ Not shown in decay scheme, but placement is indicated in table-ii of 1983Me08.
& Assignment to ^{82}Rb decay uncertain.
a Masked by contamination peak.
b Intensities separated using the branching ratio of the 1956 level as known from ^{82}Br β^- decay.
c Additional information 1.
d For absolute intensity per 100 decays, multiply by 0.8439 *21*.
e Multiply placed with intensity suitably divided.
f Placement of transition in the level scheme is uncertain.
x γ ray not placed in level scheme.

^{82}Rb ε decay (6.472 h) 1983Me08

Decay Scheme

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
@ Multiply placed: intensity suitably divided

Legend
$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$
γ Decay (Uncertain)



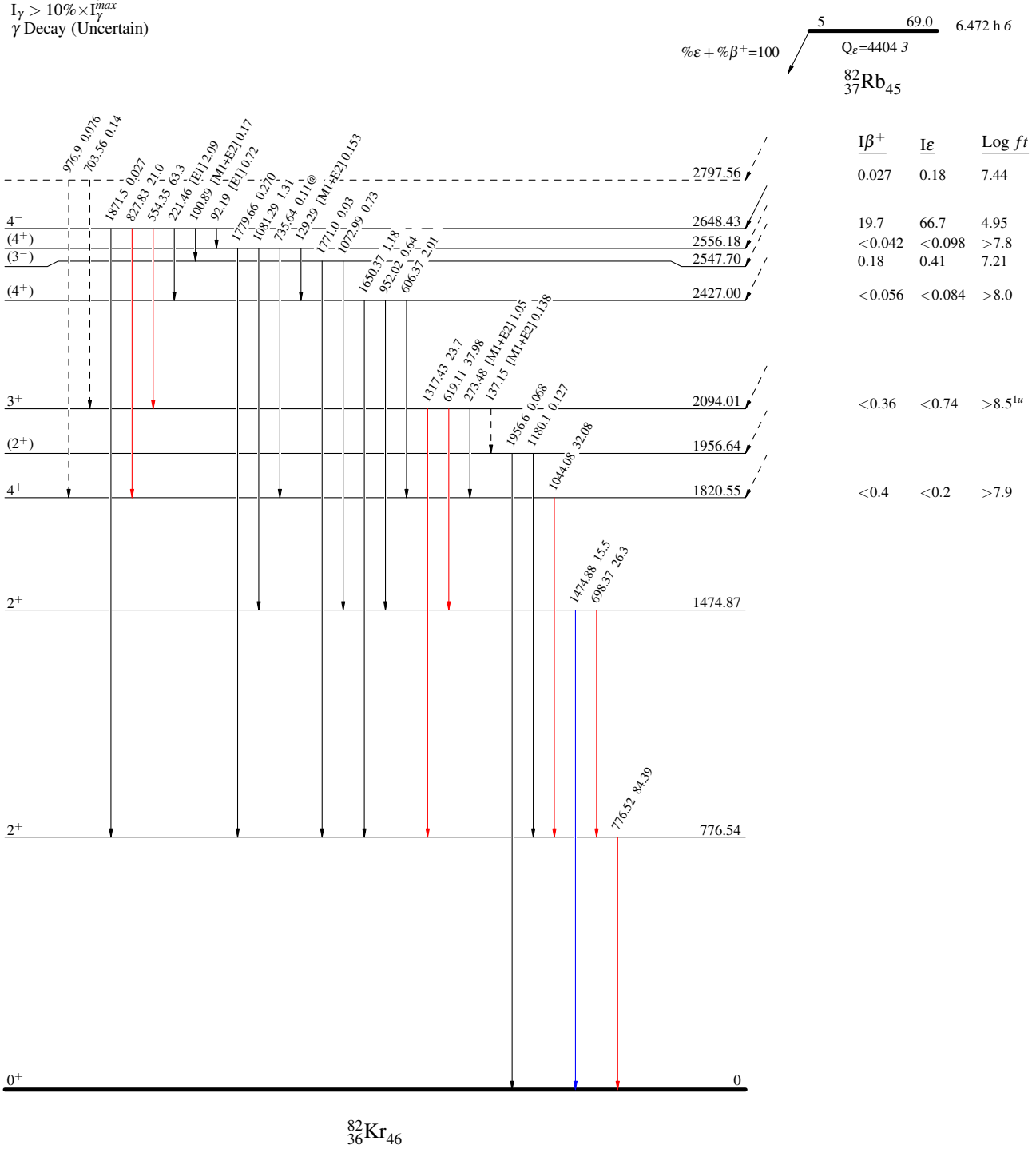
	Iβ+	Iε	Log ft
		0.30	5.83
		0.214	6.13
		0.118	6.40
		0.19	6.32
		0.045	7.03
		0.49	6.39
		0.17	7.09
	0.002	0.08	7.7
	0.17	4.81	5.90
	0.029	0.41	7.02
	0.042	0.39	7.09
	0.61	4.94	5.99
	19.7	66.7	4.95
	<0.042	<0.098	>7.8
	<0.056	<0.084	>8.0
	<0.36	<0.74	>8.5[1u]
	<0.4	<0.2	>7.9

^{82}Rb ε decay (6.472 h) 1983Me08

Decay Scheme (continued)

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
@ Multiply placed: intensity suitably divided

Legend
$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$
γ Decay (Uncertain)



$^{82}_{36}Kr_{46}$