^{89}Kr β^- decay (3.15 min) 1973He01,1972Po13

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	NDS 114, 1 (2013)	20-Oct-2012

Parent: ^{89}Kr: E=0.0; $J^\pi=3/2^{(+)}$; $T_{1/2}$=3.15 min *4*; Q(β^-)=5176.5 *59*; %β^- decay=100.0

^{89}Kr-J^π,$T_{1/2}$: From Adopted Levels.

^{89}Kr-Q(β^-): From 2011AuZZ. Other: 4990 *50* (2003Au03).

1973He01 (also 1972HeZE): ^{89}Kr from on-line isotope separation. Measured Eγ, Iγ, $\gamma\gamma$.

1972Po13: ^{89}Kr from chemical separation. Measured Eγ, Iγ, $\gamma\gamma$. Deduced coincidence probabilities.

Others:

γ: 1979Bo26 (energies of five γ rays measured with a curved-crystal spectrometer), 1970Fi04, 1969Ca03 (energies of six γ rays), 1969MaZP (energies of≈40 γ rays) 1967Ki01 (Eγ, Iγ of 114 γ rays), 1962Wa34.

$\gamma\gamma$: 1967Ki01.

β, $\beta\gamma$: 1981Ho17, 1978Wo15, 1976Wo05, 1973Cl02 (also 1972ClZT), 1969Ca03, 1967Ki01, 1951Ko10.

β strength functions: 1982Al01, 1975Al11, 1973Jo02. Theory and syst: 1983En03, 1983Be56, 1982Ma02,

$T_{1/2}$, isotopic identification: 1972Eh02, 1971BrYH, 1970Fi04, 1962Wa34, (also 1961Wa14), 1951Ko10, 1950Di01, 1943Ha09, 1940Gl05, 1940Ha10, 1940Se05.

Energy balance: total decay energy of 5325 keV *163* deduced (using RADLIST code) from proposed decay scheme is in agreement with the expected value of 5177 keV *6*, indicating that the decay scheme is reasonably complete.

^{89}Rb Levels

The 1534, 3100, 3430 and 3457 levels proposed by 1972Po13 have been omitted due to lack of confirmation by 1973He01. γ rays associated with these levels have been reassigned by 1973He01. A doublet proposed by 1972Po13 near 931 is confirmed as a single level only by 1973He01. A level at 4058 is proposed only by 1972Po13.

Additional information 1.

E(level)‡	J^π†	$T_{1/2}$	Comments
0	$3/2^-$	15.32 min *10*	$T_{1/2}$: from Adopted Levels.
220.948 *9*	$5/2^{(-)}$		
497.400 *17*	$(1/2^-)$		
577.07 *5*	$(3/2,5/2,7/2^-)$		
586.00 *3*	$7/2^{(-)}$		
867.11# *6*	$(1/2 \text{ to } 7/2^-)$		E(level): ordering of 1534-867 cascade was reversed in 1972Po13 defining a level at 1534 instead of that at 867. (α,p) data support a level near 867.
931.01 *5*	$(5/2^+,7/2^-)$		E(level): doublet proposed by 1972Po13 (from 710-711 and 931-932 γ-ray doublets) at 930.7 and 931.5 is not confirmed by 1973He01.
997.48 *5*	$(7/2^-)$		
1195.36 *5*	$(9/2^+)$		
1324.35 *4*	$(3/2^-,5/2^-)$		
1340.06# *18*	$(3/2^-,5/2,7/2^-)$		
1488.31# *10*	$(3/2^-,5/2,7/2^-)$		
1530.24 *7*	$(3/2^-,5/2,7/2^-)$		
1693.78 *4*	$(5/2^+)$		
1821.69 *6*	$(5/2^+,7/2^-)$		
1864.74# *8*	$(5/2^+)$		
1998.55 *5*	$(3/2^-,5/2^-)$		
2141.35# *15*	$(3/2^-,5/2,7/2^-)$		
2159.98 *4*	$(5/2^+)$		
2218.71?# *15*			
2269.7# *4*			
2365.25# *16*			

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^{89}Kr β^- decay (3.15 min) 1973He01,1972Po13 (continued)

^{89}Rb Levels (continued)

E(level)‡	Jπ†	E(level)‡	Jπ†	E(level)‡	Jπ†
2387.98# *15*	(1/2⁻ to 7/2⁻)	3532.88 *14*	(3/2⁻,5/2)	4216.9 *4*	1/2,3/2,5/2
2400.90 *5*	1/2,3/2,5/2(⁻)	3717.42 *13*	(5/2⁺)	4230.7# *4*	1/2(+),3/2,5/2
2598.10 *4*	(3/2⁻,5/2)	3719.95# *15*	(3/2⁻,5/2)	4307.2# *4*	(3/2⁻,5/2)
2782.04 *7*	(3/2⁻,5/2)	3833.9# *3*	1/2,3/2,5/2	4338.75# *21*	(3/2⁻,5/2)
2788.73# *25*	(3/2⁻,5/2,7/2⁻)	3898.8# *3*	1/2,3/2,5/2	4340.5 *4*	(1/2⁺,3/2⁺,5/2⁺)
2866.13 *6*	(3/2⁻,5/2)	3965.54# *18*	1/2(+),3/2,5/2	4367.37# *13*	(5/2⁺)
3017.53# *11*	1/2,3/2,5/2	3977.38 *21*	1/2,3/2,5/2	4404.62 *23*	(3/2⁺,5/2⁺)
3249.96# *20*		4048.63# *15*	(3/2⁻,5/2)	4478.15# *22*	(1/2⁺,3/2⁺,5/2⁺)
3327.93 *8*	(3/2⁻,5/2)	4058.5?@ *3*		4487.8 *4*	(5/2⁺)
3361.40 *9*	(3/2⁻,5/2)	4080.90# *15*	(1/2⁺,3/2⁺,5/2⁺)	4631.25# *16*	(5/2⁺)
3370.81 *9*	1/2,3/2,5/2	4143.89 *17*	(1/2⁺,3/2⁺,5/2⁺)	4686.2?# *5*	(1/2⁺,3/2⁺,5/2⁺)
3465.07# *20*	(3/2⁻,5/2)	4198.6# *4*	1/2,3/2,5/2		

† From Adopted Levels, based primarily on log *ft* values.
‡ From least-squares fit to Eγ data.
# Level proposed only by 1973He01.
@ Level proposed by 1972Po13 only.

β^- radiations

E(decay)	E(level)	Iβ⁻†	Log *ft*	Comments
(490‡ *6*)	4686.2?	0.084 *25*	5.5 *1*	av Eβ=154.4 *21*
(545 *6*)	4631.25	0.67 *12*	4.7 *1*	av Eβ=174.7 *21*
(689 *6*)	4487.8	0.7 *3*	5.1 *2*	av Eβ=229.8 *22*
(698 *6*)	4478.15	0.32 *4*	5.42 *6*	av Eβ=233.6 *22*
(772 *6*)	4404.62	0.27 *4*	5.7 *1*	av Eβ=262.8 *23*
(809 *6*)	4367.37	0.59 *5*	5.38 *4*	av Eβ=277.8 *23*
(836 *6*)	4340.5	0.215 *21*	5.87 *5*	av Eβ=288.7 *23*
(838 *6*)	4338.75	0.159 *23*	6.0 *1*	av Eβ=289.4 *23*
(869 *6*)	4307.2	0.14 *3*	6.1 *1*	av Eβ=302.3 *23*
(946 *6*)	4230.7	0.20 *6*	6.1 *1*	av Eβ=334.0 *23*
(960 *6*)	4216.9	0.181 *21*	6.17 *6*	av Eβ=339.7 *23*
(978 *6*)	4198.6	0.18 *9*	6.2 *2*	av Eβ=347.4 *24*
(1033 *6*)	4143.89	0.72 *10*	5.7 *1*	av Eβ=370.4 *24*
(1096 *6*)	4080.90	0.69 *7*	5.81 *5*	av Eβ=397.2 *24*
(1118‡ *6*)	4058.5?	<0.12	>6.6	av Eβ=406.8 *24* Iβ⁻: 0.04 *8*.
(1128 *6*)	4048.63	0.49 *6*	6.00 *6*	av Eβ=411.0 *24*
(1199 *6*)	3977.38	0.35 *12*	6.3 *2*	av Eβ=441.7 *24* E(decay): 1.23×10³ *60* from B(3978γ) (1981Ho17).
(1211 *6*)	3965.54	0.38 *17*	6.2 *2*	av Eβ=446.8 *24*
(1278 *6*)	3898.8	0.19 *4*	6.6 *1*	av Eβ=475.9 *24*
(1343 *6*)	3833.9	0.32 *20*	6.5 *3*	av Eβ=504.4 *25*
(1457 *6*)	3719.95	0.45 *13*	6.5 *1*	av Eβ=554.8 *25*
(1459 *6*)	3717.42	2.6 *3*	5.71 *5*	av Eβ=556.0 *25* E(decay): 1.40×10³ *21* from B(3718γ) (1981Ho17).
(1644 *6*)	3532.88	1.50 *13*	6.16 *4*	av Eβ=638.8 *25* E(decay): 1.62×10³ *25* from B(3533γ) (1981Ho17).
(1711 *6*)	3465.07	0.31 *5*	6.9 *1*	av Eβ=669.5 *25*
(1806 *6*)	3370.81	1.98 *19*	6.20 *5*	av Eβ=712.4 *26*

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^{89}Kr β^- decay (3.15 min) 1973He01,1972Po13 (continued)

β^- radiations (continued)

E(decay)	E(level)	Iβ^-[†]	Log *ft*	Comments
				E(decay): 1.74×10^3 *31* from B(3371γ) (1981Ho17).
(1815 *6*)	3361.40	1.56 *13*	6.31 *4*	av Eβ=716.7 *26*
				E(decay): 1.78×10^3 *31* from B(3362γ) (1981Ho17).
(1849 *6*)	3327.93	2.01 *15*	6.24 *4*	av Eβ=732.0 *26*
				E(decay): 1.84×10^3 *49* from B(1634γ) (1981Ho17).
(1927[‡] *6*)	3249.96	<0.3	>7.1	av Eβ=767.7 *26*
				Iβ^-: 0.13 *17*.
(2159 *6*)	3017.53	0.66 *13*	7.0 *1*	av Eβ=875.1 *26*
(2310 *6*)	2866.13	4.1 *4*	6.32 *5*	av Eβ=945.6 *26*
				E(decay): 2.04×10^3 *19* from B(2866γ) (1981Ho17).
(2388 *6*)	2788.73	0.28 *4*	7.6 *1*	av Eβ=981.8 *26*
(2394 *6*)	2782.04	1.50 *14*	6.83 *5*	av Eβ=984.9 *26*
(2578 *6*)	2598.10	12.9 *10*	6.03 *4*	av Eβ=1071.3 *26*
				E(decay): 2.01×10^3 *11* from B(904γ) (1981Ho17). Others: 2.28×10^3 *48* (from B(2012γ)), 2.23×10^3 *44* (from B(2377γ)) (1981Ho17).
(2776 *6*)	2400.90	6.8 *6*	6.44 *4*	av Eβ=1164.3 *26*
				E(decay): 2.35×10^3 *50* from B(2401γ) (1981Ho17).
(2789 *6*)	2387.98	0.34 *5*	7.8 *1*	av Eβ=1170.4 *26*
(2811[‡] *6*)	2365.25	<0.2	>8.0	av Eβ=1181.1 *26*
				Iβ^-: 0.09 *11*.
(2907 *6*)	2269.7	0.08 *4*	8.5 *2*	av Eβ=1226.4 *27*
(2958[‡] *6*)	2218.71?	0.24 *2*	8.01 *4*	av Eβ=1250.5 *27*
(3017 *6*)	2159.98	3.08 *24*	6.94 *4*	av Eβ=1278.4 *27*
(3035[‡] *6*)	2141.35	<0.04	>8.8	av Eβ=1287.3 *27*
				Iβ^-: 0.01 *3*.
(3178 *6*)	1998.55	2.4 *3*	7.15 *6*	av Eβ=1355.2 *27*
(3312 *6*)	1864.74	0.39 *10*	8.0 *1*	av Eβ=1418.9 *27*
(3355[‡] *6*)	1821.69	0.5 *4*	7.9 *4*	av Eβ=1439.5 *27*
(3483 *6*)	1693.78	10.2 *10*	6.69 *5*	av Eβ=1500.5 *27*
				E(decay): 3.04×10^3 *71* from B(1694γ) (1981Ho17).
(3646 *6*)	1530.24	2.7 *3*	7.35 *5*	av Eβ=1578.7 *27*
(3688[‡] *6*)	1488.31	<0.08	>8.9	av Eβ=1598.8 *27*
				Iβ^-: 0.01 *7*.
(3836 *6*)	1340.06	0.56 *10*	8.1 *1*	av Eβ=1669.9 *27*
(3852 *6*)	1324.35	3.5 *5*	7.4 *1*	av Eβ=1677.4 *27*
(3981 *6*)	1195.36	1.2 *4*	7.9 *2*	av Eβ=1739.3 *27*
(4179[‡] *6*)	997.48	<0.4	>8.4	av Eβ=1834.3 *27*
				Iβ^-: 0.0 *4*.
(4245[‡] *6*)	931.01	<0.6	>8.3	av Eβ=1866.3 *27*
				Iβ^-: 0.2 *4*.
(4309[‡] *6*)	867.11	<0.6	>8.3	av Eβ=1897.0 *27*
				Iβ^-: 0.1 *5*.
(4591 *6*)	586.00	2.3 *11*	7.9 *2*	av Eβ=2032.3 *27*
(4599 *6*)	577.07	4.3 *5*	7.60 *5*	av Eβ=2036.6 *27*
(4679 *6*)	497.400	1.2 *7*	8.2 *3*	av Eβ=2075.0 *27*
(4956[‡] *6*)	220.948	<0.9	>8.4	av Eβ=2208.2 *27*
				Iβ^-: −0.4 *13* from intensity balance.
(5177 *6*)	0	23 *4*	7.1 *1*	av Eβ=2314.8 *27*
				Iβ^-: from simultaneous counting of β rays with a 4π plastic counter and γ rays with a Ge(Li) counter (1976Wo05). Others: 14 *2* (1973He01), 0.1 (1967Ki01).

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^{89}Kr β^- decay (3.15 min) 1973He01,1972Po13 (continued)

β^- radiations (continued)

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

$\gamma(^{89}Rb)$

Iγ normalization: from Ti(γ rays to g.s.)=77 *4*, Iβ(g.s.)=23 *4* (1976Wo05).

E_γ †	I_γ †d	E_i(level)	J_i^π	E_f	J_f^π	Mult.	Comments
x74.9@ *5*	0.06@ *10*						
x76.0@ *6*	0.04@ *2*						
79.4@g *5*	0.14@ *2*	577.07	(3/2,5/2,7/2$^-$)	497.400	(1/2$^-$)		
83.4@g *6*	0.06@ *2*	2866.13	(3/2$^-$,5/2)	2782.04	(3/2$^-$,5/2)		
197.1 *3*	2.5 *5*	2598.10	(3/2$^-$,5/2)	2400.90	1/2,3/2,5/2$^{(-)}$		Eγ, Iγ and placement from 1972Po13. 1973He01 give Eγ=197.5 *3*, Iγ=9.1 *7*. See also comment for 197.7γ.
197.7 *3*	7.5 *15*	1195.36	(9/2$^+$)	997.48	(7/2$^-$)	[E1]	Eγ, Iγ and placement from 1972Po13. 1973He01 give Eγ=196.2 *5*, Iγ=1.1 *5*. Least-squares fit of the level scheme supports 1972Po13.
205.03# *20*	0.62 *12*	1693.78	(5/2$^+$)	1488.31	(3/2$^-$,5/2,7/2$^-$)		Placement suggested from 1530 level (1972Po13) fits poorly.
220.948‡ *9*	100 *6*	220.948	5/2$^{(-)}$	0	3/2$^-$		
242.2 *11*	0.06 *4*	2400.90	1/2,3/2,5/2$^{(-)}$	2159.98	(5/2$^+$)		
264.348‡ *14*	3.3 *2*	1195.36	(9/2$^+$)	931.01	(5/2$^+$,7/2$^-$)		
267.7 *3*	0.42 *9*	2866.13	(3/2$^-$,5/2)	2598.10	(3/2$^-$,5/2)		
286.3 *4*	0.13 *4*	4367.37	(5/2$^+$)	4080.90	(1/2$^+$,3/2$^+$,5/2$^+$)		
295.5 *7*	0.08 *6*	2159.98	(5/2$^+$)	1864.74	(5/2$^+$)		
304.7 *7*	0.11 *6*	1998.55	(3/2$^-$,5/2$^-$)	1693.78	(5/2$^+$)		
318.3 *3*	0.22 *7*	4367.37	(5/2$^+$)	4048.63	(3/2$^-$,5/2)		
338.20 *10*	1.71 *14*	2159.98	(5/2$^+$)	1821.69	(5/2$^+$,7/2$^-$)		Additional information 7.
345.03 *10*	5.9 *4*	931.01	(5/2$^+$,7/2$^-$)	586.00	7/2$^{(-)}$		
354.1@g *4*	0.67@ *15*	931.01	(5/2$^+$,7/2$^-$)	577.07	(3/2,5/2,7/2$^-$)		
356.16& *9*	20.7 *11*	577.07	(3/2,5/2,7/2$^-$)	220.948	5/2$^{(-)}$		
364.88 *10*	4.5 *3*	586.00	7/2$^{(-)}$	220.948	5/2$^{(-)}$		
369.30 *10*	6.9 *4*	1693.78	(5/2$^+$)	1324.35	(3/2$^-$,5/2$^-$)		
380.7 *3*	0.23 *6*	2782.04	(3/2$^-$,5/2)	2400.90	1/2,3/2,5/2$^{(-)}$		
402.25 *20*	1.59 *18*	2400.90	1/2,3/2,5/2$^{(-)}$	1998.55	(3/2$^-$,5/2$^-$)		
411.42 *10*	12.8 *7*	997.48	(7/2$^-$)	586.00	7/2$^{(-)}$		
419.2 *3*	0.19 *5*	3017.53	1/2,3/2,5/2	2598.10	(3/2$^-$,5/2)		
428.5@g *4*	0.54@ *13*	4487.8	(5/2$^+$)	4058.5?			
x435.8@ *6*	0.48@ *12*						Placed from 3533 to 3100 level (1972Po13).
438.08 *10*	4.8 *3*	2598.10	(3/2$^-$,5/2)	2159.98	(5/2$^+$)		
465.4@g *5*	1.2@ *2*	2866.13	(3/2$^-$,5/2)	2400.90	1/2,3/2,5/2$^{(-)}$		
466.13# *10*	4.0 *3*	2159.98	(5/2$^+$)	1693.78	(5/2$^+$)		
468.4@g *6*	0.48@ *12*	1998.55	(3/2$^-$,5/2$^-$)	1530.24	(3/2$^-$,5/2,7/2$^-$)		
488.5 *6*	0.39 *17*	4631.25	(5/2$^+$)	4143.89	(1/2$^+$,3/2$^+$,5/2$^+$)		
490.76 *20*	1.61 *21*	1488.31	(3/2$^-$,5/2,7/2$^-$)	997.48	(7/2$^-$)		

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^{89}Kr β^- decay (3.15 min) 1973He01,1972Po13 (continued)

$\gamma(^{89}Rb)$ (continued)

E_γ [†]	I_γ [†d]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	Comments
497.383[‡] *18*	33 *3*	497.400	$(1/2^-)$	0	$3/2^-$		
498.6 *2*	5.7 *10*	1693.78	$(5/2^+)$	1195.36	$(9/2^+)$		E_γ: uncertainty from 1972Po13.
509.1[@g] *5*	0.76[@] *20*	4487.8	$(5/2^+)$	3977.38	1/2,3/2,5/2		
[x]510.1[@] *5*	0.60[@] *20*						
523.5 *4*	0.17 *6*	2387.98	$(1/2^-$ to $7/2^-)$	1864.74	$(5/2^+)$		
542.2 *5*	0.15 *6*	4686.2?	$(1/2^+,3/2^+,5/2^+)$	4143.89	$(1/2^+,3/2^+,5/2^+)$		
546.9 *5*	0.15 *6*	4080.90	$(1/2^+,3/2^+,5/2^+)$	3532.88	$(3/2^-,5/2)$		
557.30 *20*	0.80 *8*	1488.31	$(3/2^-,5/2,7/2^-)$	931.01	$(5/2^+,7/2^-)$		
576.96 *10*	28.2 *16*	577.07	$(3/2,5/2,7/2^-)$	0	$3/2^-$		
586.03[a] *4*	83 *5*	586.00	$7/2^{(-)}$	0	$3/2^-$		
599.52 *20*	0.44 *6*	2598.10	$(3/2^-,5/2)$	1998.55	$(3/2^-,5/2^-)$		I_γ: 1.4 *2* (1972Po13).
610.2 *7*	0.09 *5*	1195.36	$(9/2^+)$	586.00	$7/2^{(-)}$	[E1]	
626.20 *10*	3.0 *2*	1821.69	$(5/2^+,7/2^-)$	1195.36	$(9/2^+)$		
629.75 *20*	1.71 *13*	2159.98	$(5/2^+)$	1530.24	$(3/2^-,5/2,7/2^-)$		
652.6 *5*	0.19 *7*	3249.96		2598.10	$(3/2^-,5/2)$		
[x]660.5 *6*	0.24 *8*						
662.9 *4*	0.39 *9*	1530.24	$(3/2^-,5/2,7/2^-)$	867.11	(1/2 to $7/2^-$)		
665.72 *20*	0.57 *8*	4631.25	$(5/2^+)$	3965.54	$1/2^{(+)}$,3/2,5/2		
668.6 *6*	0.21 *7*	1864.74	$(5/2^+)$	1195.36	$(9/2^+)$		
671.40 *20*	0.53 *10*	2365.25		1693.78	$(5/2^+)$		
674.11 *20*	1.16 *11*	1998.55	$(3/2^-,5/2^-)$	1324.35	$(3/2^-,5/2^-)$		
687.3 *4*	0.35 *9*	4048.63	$(3/2^-,5/2)$	3361.40	$(3/2^-,5/2)$		
696.24 *10*	8.9 *6*	1693.78	$(5/2^+)$	997.48	$(7/2^-)$		
707.01 *20*	2.49 *17*	2400.90	$1/2,3/2,5/2^{(-)}$	1693.78	$(5/2^+)$		
710.05 *20*	3.9 *3*	931.01	$(5/2^+,7/2^-)$	220.948	$5/2^{(-)}$		Additional information 3.
716.2[@cg] *5*	1.3[@] *3*	3965.54	$1/2^{(+)}$,3/2,5/2	3249.96			1972Po13 placed it from 4144 to a 3430 level.
729.63 *20*	1.48 *16*	3327.93	$(3/2^-,5/2)$	2598.10	$(3/2^-,5/2)$		
738.39 *7*	21.0 *11*	1324.35	$(3/2^-,5/2^-)$	586.00	$7/2^{(-)}$		
747.4 *3*	0.57 *13*	1324.35	$(3/2^-,5/2^-)$	577.07	$(3/2,5/2,7/2^-)$		
753.5 *4*	0.46 *12*	1340.06	$(3/2^-,5/2,7/2^-)$	586.00	$7/2^{(-)}$		
762.7 *5*	4.6 *6*	1693.78	$(5/2^+)$	931.01	$(5/2^+,7/2^-)$		E_γ: from 1972Po13. Eγ=762.9 *3* for doublet (1973He01).
763.3 *5*	2.0 *4*	1340.06	$(3/2^-,5/2,7/2^-)$	577.07	$(3/2,5/2,7/2^-)$		E_γ: from 1972Po13. Placement from 1973He01 (Eγ=762.9 *3* for doublet). Additional information 5.
776.49[#] *20*	5.6 *9*	997.48	$(7/2^-)$	220.948	$5/2^{(-)}$		
783.5 *9*	0.11 *7*	2782.04	$(3/2^-,5/2)$	1998.55	$(3/2^-,5/2^-)$		
826.75 *10*	3.8 *3*	1324.35	$(3/2^-,5/2^-)$	497.400	$(1/2^-)$		
835.53 *10*	5.5 *4*	2159.98	$(5/2^+)$	1324.35	$(3/2^-,5/2^-)$		E_γ: doublet proposed at 834-836 by 1972Po13.
[x]844.7[@b] *6*	2.6[@] *5*						
857.37 *15*	1.43 *12*	3017.53	1/2,3/2,5/2	2159.98	$(5/2^+)$		
867.08 *7*	29.6 *15*	867.11	(1/2 to $7/2^-$)	0	$3/2^-$		
870.42 *20*	0.80 *9*	2400.90	$1/2,3/2,5/2^{(-)}$	1530.24	$(3/2^-,5/2,7/2^-)$		
[x]886.3[@b] *10*	1.0[@] *5*						
[x]887.9[@b] *6*	3.2[@] *6*						
891.0[@g] *10*	2.5[@] *7*	1821.69	$(5/2^+,7/2^-)$	931.01	$(5/2^+,7/2^-)$		Eγ: average of 890.4 and 891.6. Iγ: Iγ(890.4+891.6) (1972Po13).

Continued on next page (footnotes at end of table)

^{89}Kr β^- decay (3.15 min) 1973He01,1972Po13 (continued)

$\gamma(^{89}Rb)$ (continued)

E_γ †	I_γ †d	E_i(level)	J_i^π	E_f	J_f^π	Mult.	Comments
x895.3@ 10	1.5@ 5						
x897.0@ 6	2.4@ 5						
x902.8@ 6	4.0@ 7						
904.27 7	35.9 20	2598.10	(3/2$^-$,5/2)	1693.78	(5/2$^+$)		
917.78 20	0.37 6	2782.04	(3/2$^-$,5/2)	1864.74	(5/2$^+$)		
930.95 10	3.1 2	931.01	(5/2$^+$,7/2$^-$)	0	3/2$^-$		Additional information 4.
934.6 5	0.19 6	1864.74	(5/2$^+$)	931.01	(5/2$^+$,7/2$^-$)		
939.4 3	0.33 7	4404.62	(3/2$^+$,5/2$^+$)	3465.07	(3/2$^-$,5/2)		
944.19 15	0.82 8	1530.24	(3/2$^-$,5/2,7/2$^-$)	586.00	7/2$^{(-)}$		Additional information 6.
953.18 20	0.53 8	1530.24	(3/2$^-$,5/2,7/2$^-$)	577.07	(3/2,5/2,7/2$^-$)		
960.42 10	1.61 13	3361.40	(3/2$^-$,5/2)	2400.90	1/2,3/2,5/2$^{(-)}$		
964.2 4	0.29 7	2159.98	(5/2$^+$)	1195.36	(9/2$^+$)		
969.7 3	0.47 7	3370.81	1/2,3/2,5/2	2400.90	1/2,3/2,5/2$^{(-)}$		
974.39 10	4.9 3	1195.36	(9/2$^+$)	220.948	5/2$^{(-)}$	(M2)	
x976.4@b 6	2.4@ 4						
997.37 10	3.3 2	997.48	(7/2$^-$)	0	3/2$^-$		E_γ: 999.4 7 (1972Po13).
1010.84 20	0.54 7	4338.75	(3/2$^-$,5/2)	3327.93	(3/2$^-$,5/2)		
x1038.3 5	0.15 6						Additional information 2.
1044.40 10	2.04 14	2866.13	(3/2$^-$,5/2)	1821.69	(5/2$^+$,7/2$^-$)		
1048.2 3	0.31 6	2387.98	(1/2$^-$ to 7/2$^-$)	1340.06	(3/2$^-$,5/2,7/2$^-$)		
1058.6 8	0.15 8	3327.93	(3/2$^-$,5/2)	2269.7			
1063.1 4	0.35 8	2387.98	(1/2$^-$ to 7/2$^-$)	1324.35	(3/2$^-$,5/2$^-$)		
1067.7 4	0.34 8	1998.55	(3/2$^-$,5/2$^-$)	931.01	(5/2$^+$,7/2$^-$)		
1076.48 20	1.18 13	2400.90	1/2,3/2,5/2$^{(-)}$	1324.35	(3/2$^-$,5/2$^-$)		
1088.07 10	1.79 16	2782.04	(3/2$^-$,5/2)	1693.78	(5/2$^+$)		
1098.1 5	0.32 12	4631.25	(5/2$^+$)	3532.88	(3/2$^-$,5/2)		
1103.18 20	4.5 3	1324.35	(3/2$^-$,5/2$^-$)	220.948	5/2$^{(-)}$		
1107.78 10	14.6 9	1693.78	(5/2$^+$)	586.00	7/2$^{(-)}$		
1115.0@g 8	0.8@ 3	4487.8	(5/2$^+$)	3370.81	1/2,3/2,5/2		
1116.61 7	8.3 5	1693.78	(5/2$^+$)	577.07	(3/2,5/2,7/2$^-$)		I_γ: 5.1 7 (1972Po13).
1119.6@g 7	1.9@ 5	3717.42	(5/2$^+$)	2598.10	(3/2$^-$,5/2)		
1131.51 20	0.80 11	1998.55	(3/2$^-$,5/2$^-$)	867.11	(1/2 to 7/2$^-$)		1972Po13 placed it from 3533 level.
1152.2 4	0.32 8	3017.53	1/2,3/2,5/2	1864.74	(5/2$^+$)		
1162.50 10	1.07 10	2159.98	(5/2$^+$)	997.48	(7/2$^-$)		
1167.4 6	0.17 7	3327.93	(3/2$^-$,5/2)	2159.98	(5/2$^+$)		
1172.33 20	4.9 4	2866.13	(3/2$^-$,5/2)	1693.78	(5/2$^+$)		
1182.38 20	0.83 11	4048.63	(3/2$^-$,5/2)	2866.13	(3/2$^-$,5/2)		
1186.54 20	0.92 9	3327.93	(3/2$^-$,5/2)	2141.35	(3/2$^-$,5/2,7/2$^-$)		
1195.1 3	0.42 7	1195.36	(9/2$^+$)	0	3/2$^-$	[E3]	
1200.6 11	0.09 6	3361.40	(3/2$^-$,5/2)	2159.98	(5/2$^+$)		
1210.2 9	0.11 7	3370.81	1/2,3/2,5/2	2159.98	(5/2$^+$)		
1228.8# 3	0.72 9	2159.98	(5/2$^+$)	931.01	(5/2$^+$,7/2$^-$)		
1235.62 10	2.97 23	1821.69	(5/2$^+$,7/2$^-$)	586.00	7/2$^{(-)}$		
x1241.5 4	0.44 8						
1251.0e 7	0.19e 8	2782.04	(3/2$^-$,5/2)	1530.24	(3/2$^-$,5/2,7/2$^-$)		
1251.0ecg 7	0.19e 8	3249.96		1998.55	(3/2$^-$,5/2$^-$)		
1267.2 6	0.12 9	1488.31	(3/2$^-$,5/2,7/2$^-$)	220.948	5/2$^{(-)}$		
1273.73 10	6.8 4	2598.10	(3/2$^-$,5/2)	1324.35	(3/2$^-$,5/2$^-$)		
1278.5 8	0.16 9	1864.74	(5/2$^+$)	586.00	7/2$^{(-)}$		
1298.0 5	0.22 7	4080.90	(1/2$^+$,3/2$^+$,5/2$^+$)	2782.04	(3/2$^-$,5/2)		
1302.7 3	0.50 7	4631.25	(5/2$^+$)	3327.93	(3/2$^-$,5/2)		

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^{89}Kr β^- decay (3.15 min) 1973He01,1972Po13 (continued)

$\gamma(^{89}Rb)$ (continued)

E_γ †	I_γ †d	E_i(level)	J_i^π	E_f	J_f^π	Mult.	Comments
1308.9 *3*	0.34 *7*	1530.24	(3/2$^-$,5/2,7/2$^-$)	220.948	5/2$^{(-)}$		
1324.28 *7*	15.3 *9*	1324.35	(3/2$^-$,5/2$^-$)	0	3/2$^-$		
1335.4 *3*	0.66 *13*	2866.13	(3/2$^-$,5/2)	1530.24	(3/2$^-$,5/2,7/2$^-$)		
1340.6 *3*	0.97 *12*	1340.06	(3/2$^-$,5/2,7/2$^-$)	0	3/2$^-$		
1367.48 *20*	0.74 *9*	1864.74	(5/2$^+$)	497.400	(1/2$^-$)	[M2]	
1372.16 *20*	0.63 *8*	3370.81	1/2,3/2,5/2	1998.55	(3/2$^-$,5/2$^-$)		
1381.9 *5*	0.29 *8*	4631.25	(5/2$^+$)	3249.96			
1412.59 *15*	1.32 *11*	1998.55	(3/2$^-$,5/2$^-$)	586.00	7/2$^{(-)}$		
1421.64 *20*	1.12 *10*	1998.55	(3/2$^-$,5/2$^-$)	577.07	(3/2,5/2,7/2$^-$)		
1441.3 *8*	0.10 *5*	4307.2	(3/2$^-$,5/2)	2866.13	(3/2$^-$,5/2)		
x1455.3 *7*	0.26 *11*						
1458.3 *7*	0.37 *12*	2782.04	(3/2$^-$,5/2)	1324.35	(3/2$^-$,5/2$^-$)		1972Po13 placed it from a 3457 level.
1461.3 *5*	0.61 *12*	4478.15	(1/2$^+$,3/2$^+$,5/2$^+$)	3017.53	1/2,3/2,5/2		
1464.2 *3*	0.89 *12*	2788.73	(3/2$^-$,5/2,7/2$^-$)	1324.35	(3/2$^-$,5/2$^-$)		
1468.5[ecg] *3*	0.94[e] *13*	3833.9	1/2,3/2,5/2	2365.25			
1468.5[e] *3*	0.94[e] *13*	4487.8	(5/2$^+$)	3017.53	1/2,3/2,5/2		E_γ: poor fit. Level energy difference=1470.3 *4*.
1472.76[#] *10*	34.4 *19*	1693.78	(5/2$^+$)	220.948	5/2$^{(-)}$		
1481.9 *6*	0.22 *10*	4080.90	(1/2$^+$,3/2$^+$,5/2$^+$)	2598.10	(3/2$^-$,5/2)		
1488.1 *4*	0.47 *10*	1488.31	(3/2$^-$,5/2,7/2$^-$)	0	3/2$^-$		
1500.96[#] *10*	6.6 *5*	1998.55	(3/2$^-$,5/2$^-$)	497.400	(1/2$^-$)		
1506.2 *3*	0.56 *10*	3327.93	(3/2$^-$,5/2)	1821.69	(5/2$^+$,7/2$^-$)		
1530.04 *15*	16.6 *10*	1530.24	(3/2$^-$,5/2,7/2$^-$)	0	3/2$^-$		
1533.68 *15*	25.6 *14*	2400.90	1/2,3/2,5/2$^{(-)}$	867.11	(1/2 to 7/2$^-$)		E_γ: ordering of 1534-867 cascade was reversed in 1972Po13.
1545.2[@cg] *15*	0.50[@] *20*	4143.89	(1/2$^+$,3/2$^+$,5/2$^+$)	2598.10	(3/2$^-$,5/2)		
1555.28 *20*	0.76 *9*	2141.35	(3/2$^-$,5/2,7/2$^-$)	586.00	7/2$^{(-)}$		
x1571.8[@] *10*	0.34[@] *10*						
1573.78 *20*	0.95 *9*	2159.98	(5/2$^+$)	586.00	7/2$^{(-)}$		
1582.9 *3*	0.45 *7*	2159.98	(5/2$^+$)	577.07	(3/2,5/2,7/2$^-$)		
1600.7 *3*	0.36 *7*	1821.69	(5/2$^+$,7/2$^-$)	220.948	5/2$^{(-)}$		
1634.06 *10*	4.1 *3*	3327.93	(3/2$^-$,5/2)	1693.78	(5/2$^+$)		
1643.82[#] *10*	1.69 *13*	1864.74	(5/2$^+$)	220.948	5/2$^{(-)}$		
1657.6[cg] *5*	0.20 *6*	4058.5?		2400.90	1/2,3/2,5/2$^{(-)}$		
1667.51 *20*	0.64 *7*	3361.40	(3/2$^-$,5/2)	1693.78	(5/2$^+$)		
1676.9 *3*	0.70 *11*	3370.81	1/2,3/2,5/2	1693.78	(5/2$^+$)		
1680.3 *5*	0.42 *10*	4080.90	(1/2$^+$,3/2$^+$,5/2$^+$)	2400.90	1/2,3/2,5/2$^{(-)}$		
1683.8 *4*	0.66 *12*	2269.7		586.00	7/2$^{(-)}$		
1692.0 *12*	1.3 *5*	3017.53	1/2,3/2,5/2	1324.35	(3/2$^-$,5/2$^-$)		
1693.70 *10*	21.9 *14*	1693.78	(5/2$^+$)	0	3/2$^-$		
1707.9 *8*	0.12 *5*	3977.38	1/2,3/2,5/2	2269.7			
1710.7 *6*	0.17 *6*	3532.88	(3/2$^-$,5/2)	1821.69	(5/2$^+$,7/2$^-$)		
1721.29[eg] *15*	1.12[e] *9*	2218.71?		497.400	(1/2$^-$)		
1721.29[eg] *15*	1.12[e] *9*	3719.95	(3/2$^-$,5/2)	1998.55	(3/2$^-$,5/2$^-$)		Placement from 1972Po13.
1729.9[cg] *6*	0.15 *6*	2598.10	(3/2$^-$,5/2)	867.11	(1/2 to 7/2$^-$)		
x1735.5 *4*	0.28 *6*						
1766.1 *4*	0.24 *6*	4631.25	(5/2$^+$)	2866.13	(3/2$^-$,5/2)		
1777.60 *10*	3.8 *3*	1998.55	(3/2$^-$,5/2$^-$)	220.948	5/2$^{(-)}$		
1788.2 *3*	0.53 *8*	2365.25		577.07	(3/2,5/2,7/2$^-$)		
1791.4 *6*	0.23 *7*	2788.73	(3/2$^-$,5/2,7/2$^-$)	997.48	(7/2$^-$)		
1804.4[cg] *6*	0.15 *6*	3965.54	1/2$^{(+)}$,3/2,5/2	2159.98	(5/2$^+$)		
1810.73 *20*	0.70 *8*	2387.98	(1/2$^-$ to 7/2$^-$)	577.07	(3/2,5/2,7/2$^-$)		

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^{89}Kr β^- decay (3.15 min) 1973He01,1972Po13 (continued)

$\gamma(^{89}Rb)$ (continued)

E_γ †	I_γ †d	E_i(level)	J_i^π	E_f	J_f^π	Comments
1823.6 *4*	0.33 *7*	2400.90	1/2,3/2,5/2$^{(-)}$	577.07	(3/2,5/2,7/2$^-$)	
x1827.3 *4*	0.32 *6*					
1831.3 *3*	0.43 *6*	3361.40	(3/2$^-$,5/2)	1530.24	(3/2$^-$,5/2,7/2$^-$)	
x1837.5 *4*	0.59 *14*					
1839.72 *25*	1.75 *17*	3327.93	(3/2$^-$,5/2)	1488.31	(3/2$^-$,5/2,7/2$^-$)	1972Po13 placed it from 3533 level.
1850.6 *4*	0.25 *6*	2782.04	(3/2$^-$,5/2)	931.01	(5/2$^+$,7/2$^-$)	
1865.2 *5*	0.40 *7*	1864.74	(5/2$^+$)	0	3/2$^-$	
1868.47 *25*	0.98 *9*	2866.13	(3/2$^-$,5/2)	997.48	(7/2$^-$)	
1879.80 *25*	0.79 *8*	4478.15	(1/2$^+$,3/2$^+$,5/2$^+$)	2598.10	(3/2$^-$,5/2)	
x1886.5 *6*	0.17 *6*					
1897.8 *7*	0.15 *6*	3719.95	(3/2$^-$,5/2)	1821.69	(5/2$^+$,7/2$^-$)	
1903.40 *10*	5.2 *5*	2400.90	1/2,3/2,5/2$^{(-)}$	497.400	(1/2$^-$)	
1925.3 *9*	0.08 *6*	3249.96		1324.35	(3/2$^-$,5/2$^-$)	
x1927.5@ *10*	0.55@ *7*					Placed from a 3457 level (1972Po13).
1935.1 *6*	0.17 *6*	2866.13	(3/2$^-$,5/2)	931.01	(5/2$^+$,7/2$^-$)	
1939.11# *15*	3.2 *2*	2159.98	(5/2$^+$)	220.948	5/2$^{(-)}$	
1966.55 *20*	0.66 *7*	4367.37	(5/2$^+$)	2400.90	1/2,3/2,5/2$^{(-)}$	
1977.7 *5*	0.19 *6*	3465.07	(3/2$^-$,5/2)	1488.31	(3/2$^-$,5/2,7/2$^-$)	
1998.6 *5*	0.59 *11*	1998.55	(3/2$^-$,5/2$^-$)	0	3/2$^-$	
2001.6 *9*	0.18 *8*	3532.88	(3/2$^-$,5/2)	1530.24	(3/2$^-$,5/2,7/2$^-$)	
2012.23 *10*	7.8 *5*	2598.10	(3/2$^-$,5/2)	586.00	7/2$^{(-)}$	
2021.04 *15*	1.22 *10*	2598.10	(3/2$^-$,5/2)	577.07	(3/2,5/2,7/2$^-$)	
2039.5 *10*	0.09 *5*	4404.62	(3/2$^+$,5/2$^+$)	2365.25		
2046.47 *15*	1.31 *10*	3370.81	1/2,3/2,5/2	1324.35	(3/2$^-$,5/2$^-$)	
x2079.3 *9*	0.15 *6*					
2082.5 *5*	0.29 *7*	4080.90	(1/2$^+$,3/2$^+$,5/2$^+$)	1998.55	(3/2$^-$,5/2$^-$)	
2100.63 *8*	4.7 *3*	2598.10	(3/2$^-$,5/2)	497.400	(1/2$^-$)	
2140.5 *6*	0.31 *6*	2141.35	(3/2$^-$,5/2,7/2$^-$)	0	3/2$^-$	
2143.8 *4*	0.32 *6*	3965.54	1/2$^{(+)}$,3/2,5/2	1821.69	(5/2$^+$,7/2$^-$)	
2150.1 *8*	0.10 *6*	3017.53	1/2,3/2,5/2	867.11	(1/2 to 7/2$^-$)	
2160.02 *9*	2.64 *18*	2159.98	(5/2$^+$)	0	3/2$^-$	
2167.9cg *6*	0.21 *7*	2387.98	(1/2$^-$ to 7/2$^-$)	220.948	5/2$^{(-)}$	
2190.0 *9*	0.13 *7*	3719.95	(3/2$^-$,5/2)	1530.24	(3/2$^-$,5/2,7/2$^-$)	
2195.8# *4*	0.6 *3*	2782.04	(3/2$^-$,5/2)	586.00	7/2$^{(-)}$	
2207.2 *5*	0.23 *7*	4367.37	(5/2$^+$)	2159.98	(5/2$^+$)	
2232.6 *8*	0.12 *5*	4230.7	1/2$^{(+)}$,3/2,5/2	1998.55	(3/2$^-$,5/2$^-$)	
x2239.8@ *15*	0.26@ *15*					
x2249.0@ *10*	0.42@ *15*					
2280.2 *3*	1.02 *20*	2866.13	(3/2$^-$,5/2)	586.00	7/2$^{(-)}$	
2285.6 *8*	0.23 *10*	4686.2?	(1/2$^+$,3/2$^+$,5/2$^+$)	2400.90	1/2,3/2,5/2$^{(-)}$	
2321.7 *5*	0.26 *7*	4143.89	(1/2$^+$,3/2$^+$,5/2$^+$)	1821.69	(5/2$^+$,7/2$^-$)	
2330.0 *8*	0.18 *7*	3327.93	(3/2$^-$,5/2)	997.48	(7/2$^-$)	
2335.2@cg *20*	0.5@ *3*	4198.6	1/2,3/2,5/2	1864.74	(5/2$^+$)	
x2352.7@ *15*	1.4@ *4*					
2377.4 *9*	4.0 *3*	2598.10	(3/2$^-$,5/2)	220.948	5/2$^{(-)}$	
2400.99 *9*	3.6 *3*	2400.90	1/2,3/2,5/2$^{(-)}$	0	3/2$^-$	
2440.9 *4*	0.23 *8*	3017.53	1/2,3/2,5/2	577.07	(3/2,5/2,7/2$^-$)	
2467.3 *11*	0.08 *5*	3465.07	(3/2$^-$,5/2)	997.48	(7/2$^-$)	
2487.8 *8*	0.12 *5*	4631.25	(5/2$^+$)	2141.35	(3/2$^-$,5/2,7/2$^-$)	
2503.0 *5*	0.25 *6*	3370.81	1/2,3/2,5/2	867.11	(1/2 to 7/2$^-$)	
2510.8@cg *20*	1.2@ *5*	3833.9	1/2,3/2,5/2	1324.35	(3/2$^-$,5/2$^-$)	
2522.0 *5*	0.25 *6*	3717.42	(5/2$^+$)	1195.36	(9/2$^+$)	
2534.9 *3*	0.47 *7*	3532.88	(3/2$^-$,5/2)	997.48	(7/2$^-$)	

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^{89}Kr β^- decay (3.15 min) 1973He01,1972Po13 (continued)

$\gamma(^{89}Rb)$ (continued)

E_γ †	I_γ †d	E_i(level)	J_i^π	E_f	J_f^π	Comments
2545.4 *6*	0.25 *7*	4367.37	(5/2$^+$)	1821.69	(5/2$^+$,7/2$^-$)	
2549.9 *9*	0.15 *6*	4080.90	(1/2$^+$,3/2$^+$,5/2$^+$)	1530.24	(3/2$^-$,5/2,7/2$^-$)	
x2555.3 *8*	0.17 *6*					
2597.92 *20*	0.54 *8*	2598.10	(3/2$^-$,5/2)	0	3/2$^-$	
2622.8 *10*	0.11 *6*	4487.8	(5/2$^+$)	1864.74	(5/2$^+$)	
2630.1@cg *15*	0.69@ *23*	4631.25	(5/2$^+$)	1998.55	(3/2$^-$,5/2$^-$)	
2645.26 *15*	2.10 *15*	2866.13	(3/2$^-$,5/2)	220.948	5/2$^{(-)}$	
x2659.1 *5*	0.43 *8*					
2703.2cg *9*	0.17 *7*	3898.8	1/2,3/2,5/2	1195.36	(9/2$^+$)	
2721.9 *7*	0.18 *7*	3719.95	(3/2$^-$,5/2)	997.48	(7/2$^-$)	
2742.3 *8*	0.14 *6*	3327.93	(3/2$^-$,5/2)	586.00	7/2$^{(-)}$	
2750.9 *3*	0.62 *7*	3327.93	(3/2$^-$,5/2)	577.07	(3/2,5/2,7/2$^-$)	
2756.6 *5*	0.33 *7*	4080.90	(1/2$^+$,3/2$^+$,5/2$^+$)	1324.35	(3/2$^-$,5/2$^-$)	
x2760.3 *7*	0.23 *8*					
2775.7 *11*	0.15 *10*	3361.40	(3/2$^-$,5/2)	586.00	7/2$^{(-)}$	
2782.11 *10*	3.8 *3*	2782.04	(3/2$^-$,5/2)	0	3/2$^-$	
2789.2 *6*	0.26 *9*	2788.73	(3/2$^-$,5/2,7/2$^-$)	0	3/2$^-$	
2793.75 *20*	3.4 *2*	3370.81	1/2,3/2,5/2	577.07	(3/2,5/2,7/2$^-$)	
2804.1cg *8*	0.20 *8*	4143.89	(1/2$^+$,3/2$^+$,5/2$^+$)	1340.06	(3/2$^-$,5/2,7/2$^-$)	Placement from a 1534 level (1972Po13).
2819.58 *25*	0.66 *8*	4143.89	(1/2$^+$,3/2$^+$,5/2$^+$)	1324.35	(3/2$^-$,5/2$^-$)	
2853.3 *3*	1.20 *17*	3719.95	(3/2$^-$,5/2)	867.11	(1/2 to 7/2$^-$)	1972Po13 placed it from a 3430 level.
2858.9@cg *15*	0.27@ *4*	4198.6	1/2,3/2,5/2	1340.06	(3/2$^-$,5/2,7/2$^-$)	
2866.23 *10*	8.7 *5*	2866.13	(3/2$^-$,5/2)	0	3/2$^-$	
2873.8e *4*	0.48e *9*	3370.81	1/2,3/2,5/2	497.400	(1/2$^-$)	Placement from 1973He01. Alternative placement from 4405 (1972Po13).
2873.8e *4*	0.48e *9*	4404.62	(3/2$^+$,5/2$^+$)	1530.24	(3/2$^-$,5/2,7/2$^-$)	Placement from 1972Po13.
2878.69 *25*	1.62 *15*	3465.07	(3/2$^-$,5/2)	586.00	7/2$^{(-)}$	1972Po13 placed it from a 3100 level.
2917.4 *7*	0.15 *5*	4404.62	(3/2$^+$,5/2$^+$)	1488.31	(3/2$^-$,5/2,7/2$^-$)	
2946.9# *4*	0.39 *7*	3532.88	(3/2$^-$,5/2)	586.00	7/2$^{(-)}$	
2998.4 *6*	0.22 *6*	4487.8	(5/2$^+$)	1488.31	(3/2$^-$,5/2,7/2$^-$)	
3017.9 *3*	1.27 *14*	3017.53	1/2,3/2,5/2	0	3/2$^-$	
3029.16 *25*	1.35 *12*	3249.96		220.948	5/2$^{(-)}$	
x3049.7 *7*	0.20 *6*					
3098.8 *7*	0.19 *6*	3965.54	1/2$^{(+)}$,3/2,5/2	867.11	(1/2 to 7/2$^-$)	1972Po13 placed it from a 3100 level.
3107.26 *25*	0.97 *9*	3327.93	(3/2$^-$,5/2)	220.948	5/2$^{(-)}$	
3140.26# *20*	5.2 *4*	3717.42	(5/2$^+$)	577.07	(3/2,5/2,7/2$^-$)	
3154.4 *10*	0.13 *7*	4478.15	(1/2$^+$,3/2$^+$,5/2$^+$)	1324.35	(3/2$^-$,5/2$^-$)	
x3159.8 *6*	0.31 *6*					
3172.1 *3*	0.50 *7*	4367.37	(5/2$^+$)	1195.36	(9/2$^+$)	
3213.2 *9*	0.16 *6*	4143.89	(1/2$^+$,3/2$^+$,5/2$^+$)	931.01	(5/2$^+$,7/2$^-$)	
3219.84 *20*	2.14 *16*	3717.42	(5/2$^+$)	497.400	(1/2$^-$)	
3257.0 *5*	0.26 *6*	3833.9	1/2,3/2,5/2	577.07	(3/2,5/2,7/2$^-$)	
x3271.3 *5*	0.27 *6*					
3300.0 *6*	0.19 *6*	4230.7	1/2$^{(+)}$,3/2,5/2	931.01	(5/2$^+$,7/2$^-$)	
x3317.9 *6*	0.41 *9*					
3321.9 *5*	0.35 *8*	3898.8	1/2,3/2,5/2	577.07	(3/2,5/2,7/2$^-$)	
3340.8 *9*	0.18 *7*	4338.75	(3/2$^-$,5/2)	997.48	(7/2$^-$)	
x3347.4 *6*	0.34 *8*					
x3351.9 *9*	0.21 *7*					
3361.70 *20*	5.2 *4*	3361.40	(3/2$^-$,5/2)	0	3/2$^-$	
3371.1 *4*	3.1 *3*	3370.81	1/2,3/2,5/2	0	3/2$^-$	
3399.9 *3*	0.68 *7*	3977.38	1/2,3/2,5/2	577.07	(3/2,5/2,7/2$^-$)	
3439.6 *6*	0.22 *6*	4307.2	(3/2$^-$,5/2)	867.11	(1/2 to 7/2$^-$)	
3463.3 *12*	0.21 *12*	4048.63	(3/2$^-$,5/2)	586.00	7/2$^{(-)}$	

Continued on next page (footnotes at end of table)

^{89}Kr β^- decay (3.15 min) 1973He01,1972Po13 (continued)

$\gamma(^{89}Rb)$ (continued)

E_γ [†]	I_γ [†d]	E_i(level)	J_i^π	E_f	J_f^π	Comments
3503.6 *14*	0.10 *6*	4080.90	(1/2$^+$,3/2$^+$,5/2$^+$)	577.07	(3/2,5/2,7/2$^-$)	
3532.88 *20*	6.7 *4*	3532.88	(3/2$^-$,5/2)	0	3/2$^-$	
3567.9 *7*	0.28 *9*	4143.89	(1/2$^+$,3/2$^+$,5/2$^+$)	577.07	(3/2,5/2,7/2$^-$)	Placement from 1972Po13, unplaced in 1973He01.
x3574.0[@] *15*	0.32[@] *15*					
3583.9 *3*	1.29 *10*	4080.90	(1/2$^+$,3/2$^+$,5/2$^+$)	497.400	(1/2$^-$)	
x3629.2 *5*	0.40 *7*					
3634.4 *9*	0.19 *6*	4631.25	(5/2$^+$)	997.48	(7/2$^-$)	
3639.1 *8*	0.19 *6*	4216.9	1/2,3/2,5/2	577.07	(3/2,5/2,7/2$^-$)	
x3652.3 *5*	0.29 *6*					
x3665.4 *4*	0.42 *6*					
3677.7 *4*	0.33 *6*	3898.8	1/2,3/2,5/2	220.948	5/2$^{(-)}$	
3717.8 *4*	4.2 *3*	3717.42	(5/2$^+$)	0	3/2$^-$	
3721.5 *9*	0.24 *10*	4307.2	(3/2$^-$,5/2)	586.00	7/2$^{(-)}$	
3732.5 *6*	0.69 *25*	4230.7	1/2$^{(+)}$,3/2,5/2	497.400	(1/2$^-$)	
3756.5 *13*	0.08 *5*	3977.38	1/2,3/2,5/2	220.948	5/2$^{(-)}$	
3781.4 *4*	0.66 *6*	4367.37	(5/2$^+$)	586.00	7/2$^{(-)}$	
3809.5 *8*	0.10 *4*	4307.2	(3/2$^-$,5/2)	497.400	(1/2$^-$)	
3827.4 *4*	0.69 *8*	4048.63	(3/2$^-$,5/2)	220.948	5/2$^{(-)}$	
3837.6 *5*	0.41 *5*	4058.5?		220.948	5/2$^{(-)}$	Placement from $\gamma\gamma$ in 1972Po13, unplaced in 1973He01.
3842.7 *4*	0.55 *6*	4340.5	(1/2$^+$,3/2$^+$,5/2$^+$)	497.400	(1/2$^-$)	
x3882.5 *6*	0.20 *4*					
3898.4 *10*	0.17 *9*	3898.8	1/2,3/2,5/2	0	3/2$^-$	
3901.7 *4*	0.67 *10*	4487.8	(5/2$^+$)	586.00	7/2$^{(-)}$	
3923.0 *4*	2.07 *14*	4143.89	(1/2$^+$,3/2$^+$,5/2$^+$)	220.948	5/2$^{(-)}$	
3965.5 *4*	1.04 *8*	3965.54	1/2$^{(+)}$,3/2,5/2	0	3/2$^-$	
3977.5[f] *4*	1.35[f] *25*	3977.38	1/2,3/2,5/2	0	3/2$^-$	
3977.5[f] *4*	0.35[f] *6*	4198.6	1/2,3/2,5/2	220.948	5/2$^{(-)}$	
3996.0 *4*	0.71 *6*	4216.9	1/2,3/2,5/2	220.948	5/2$^{(-)}$	
x4004.9 *7*	0.14 *4*					
4043.8 *10*	0.10 *4*	4631.25	(5/2$^+$)	586.00	7/2$^{(-)}$	
4048.0 *5*	0.58 *6*	4048.63	(3/2$^-$,5/2)	0	3/2$^-$	
4081.4 *5*	0.37 *5*	4080.90	(1/2$^+$,3/2$^+$,5/2$^+$)	0	3/2$^-$	
4117.7 *11*	0.07 *3*	4338.75	(3/2$^-$,5/2)	220.948	5/2$^{(-)}$	
4143.0 *12*	0.13 *4*	4143.89	(1/2$^+$,3/2$^+$,5/2$^+$)	0	3/2$^-$	
4146.9 *13*	0.08 *4*	4367.37	(5/2$^+$)	220.948	5/2$^{(-)}$	
x4162.6 *6*	0.14 *3*					
x4176.2 *11*	0.06 *3*					
4184.3 *6*	0.25 *4*	4404.62	(3/2$^+$,5/2$^+$)	220.948	5/2$^{(-)}$	
x4253.3 *10*	0.07 *3*					
4267.7 *6*	0.14 *3*	4487.8	(5/2$^+$)	220.948	5/2$^{(-)}$	
x4279.4 *7*	0.10 *3*					
4307.4 *11*	0.05 *3*	4307.2	(3/2$^-$,5/2)	0	3/2$^-$	
x4321.2 *11*	0.05 *2*					
4341.1 *6*	0.52 *5*	4340.5	(1/2$^+$,3/2$^+$,5/2$^+$)	0	3/2$^-$	
4368.4 *8*	0.21 *3*	4367.37	(5/2$^+$)	0	3/2$^-$	
4405.1 *12*	0.04 *2*	4404.62	(3/2$^+$,5/2$^+$)	0	3/2$^-$	
x4448.1 *12*	0.05 *2*					
4478.3 *9*	0.07 *2*	4478.15	(1/2$^+$,3/2$^+$,5/2$^+$)	0	3/2$^-$	
4489.2 *8*	0.67 *6*	4487.8	(5/2$^+$)	0	3/2$^-$	
4631.5 *8*	0.14 *3*	4631.25	(5/2$^+$)	0	3/2$^-$	
x4655.6 *7*	0.05 *2*					
4685.6 *12*	0.04 *2*	4686.2?	(1/2$^+$,3/2$^+$,5/2$^+$)	0	3/2$^-$	
x4701.5 *9*	0.05 *2*					

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^{89}Kr β^- decay (3.15 min) 1973He01,1972Po13 (continued)

$\gamma(^{89}Rb)$ (continued)

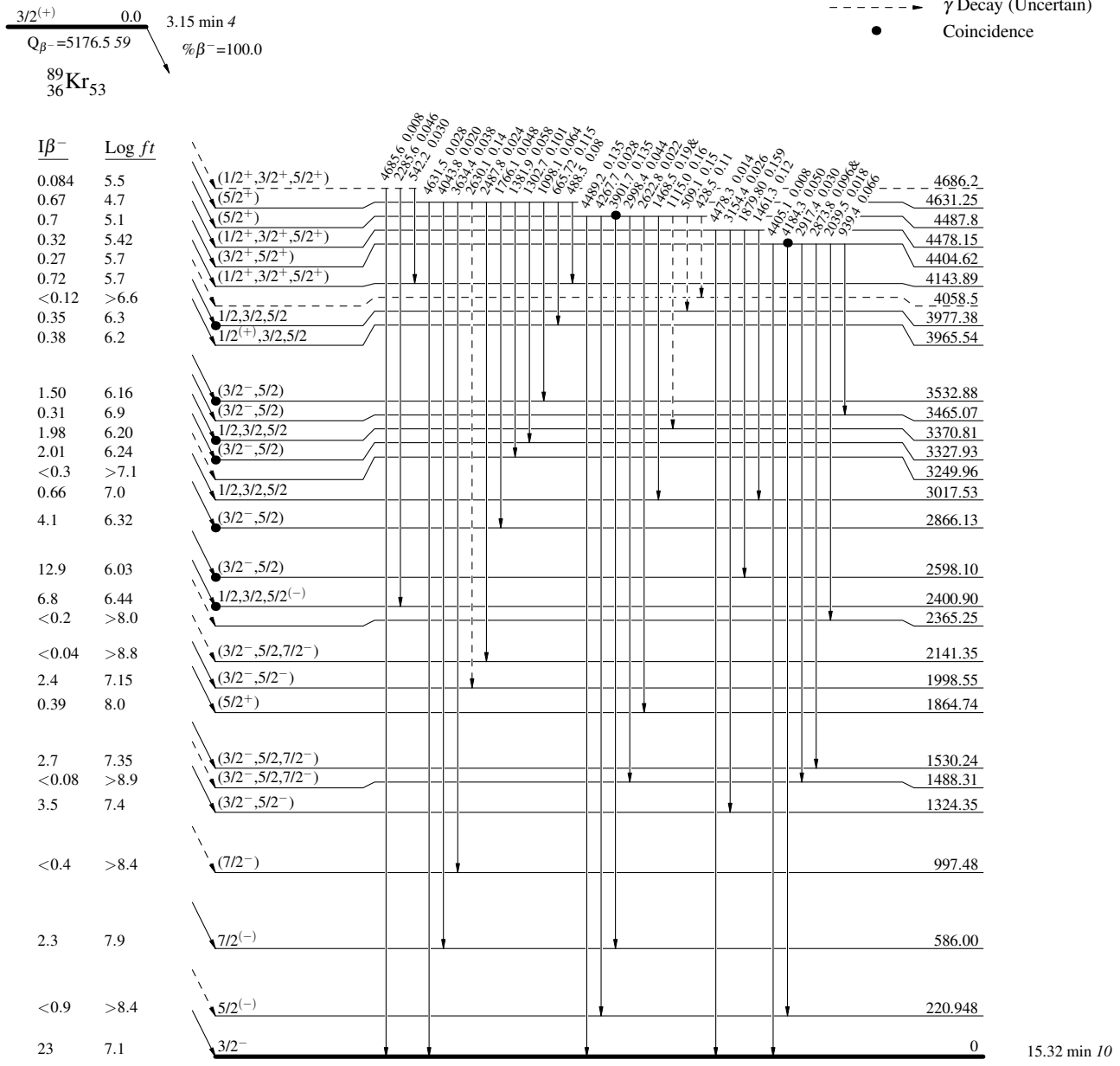
† From 1973He01, unless indicated otherwise.
‡ From 1979Bo26; 1973He01 and 1972Po13 give values with less precision.
# A photopeak with nearly the same energy appears in ^{89}Rb β^- decay.
@ From 1972Po13 only. γ ray is considered uncertain since it is not confirmed by the higher detection efficiency work of 1973He01.
& Weighted average of 356.24 *6* (1979Bo26) and 356.06 *7* (1973He01).
a Weighted average of 586.047 *19* (1979Bo26) and 585.80 *7* (1973He01).
b 844.7γ, 887.9γ placed from 4217 level and 886.3γ, 976.4γ from 4340 level (1972Po13), but the γ rays are considered suspect since quoted (1972Po13) Iγ values are too intense to have missed detection by 1973He01.
c Tentative placement (evaluator) from level energy difference.
d For absolute intensity per 100 decays, multiply by 0.201 *12*.
e Multiply placed with undivided intensity.
f Multiply placed with intensity suitably divided.
g Placement of transition in the level scheme is uncertain.
x γ ray not placed in level scheme.

^{89}Kr β^- decay (3.15 min) 1973He01,1972Po13

Decay Scheme

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

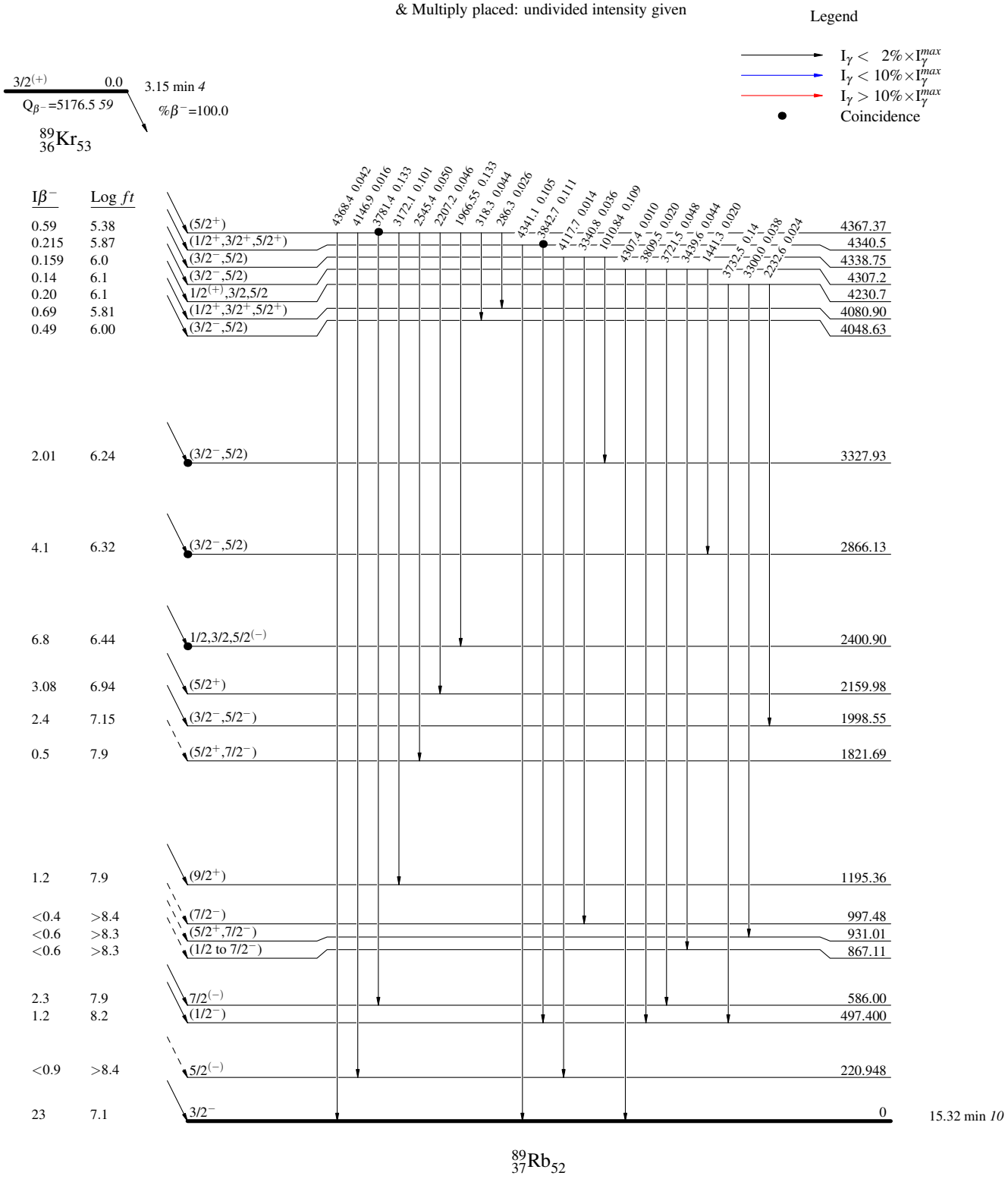
Legend
- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$
- γ Decay (Uncertain)
- Coincidence



^{89}Kr β^- decay (3.15 min) 1973He01,1972Po13

Decay Scheme (continued)

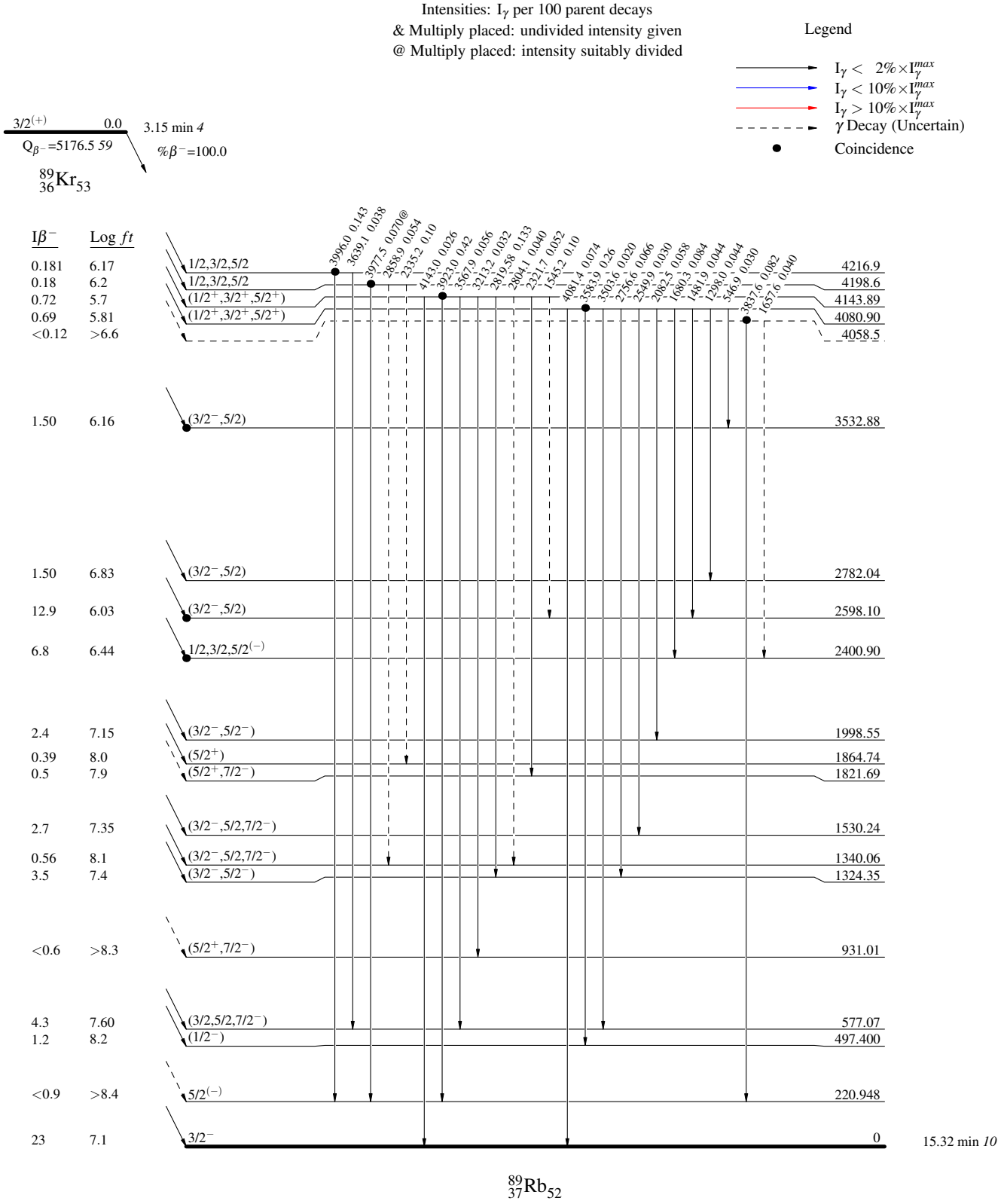
Intensities: I_γ per 100 parent decays
& Multiply placed: undivided intensity given



^{89}Kr β^- decay (3.15 min) 1973He01,1972Po13

Decay Scheme (continued)

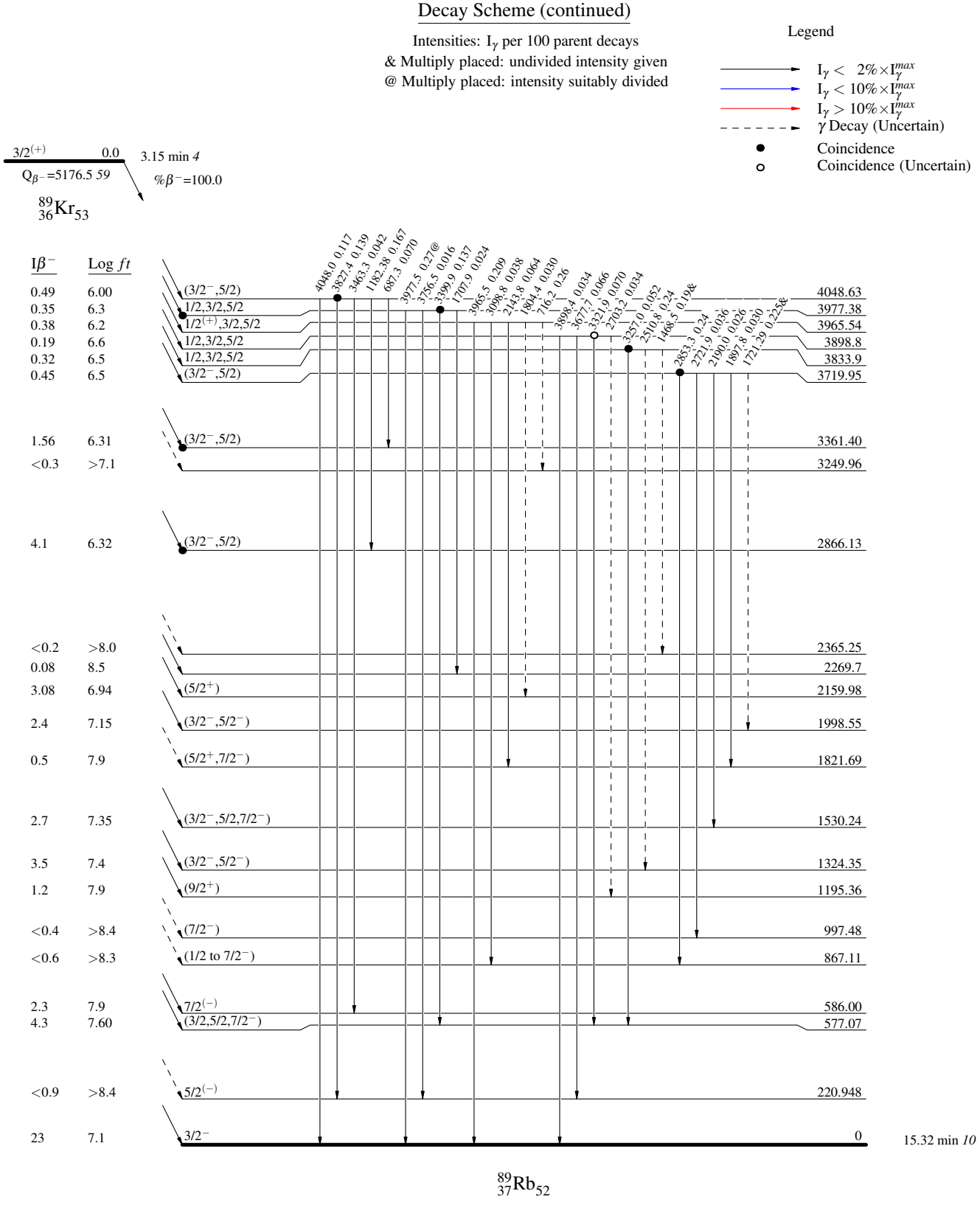
Intensities: I_γ per 100 parent decays
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided



^{89}Kr β^- decay (3.15 min) 1973He01,1972Po13

Decay Scheme (continued)

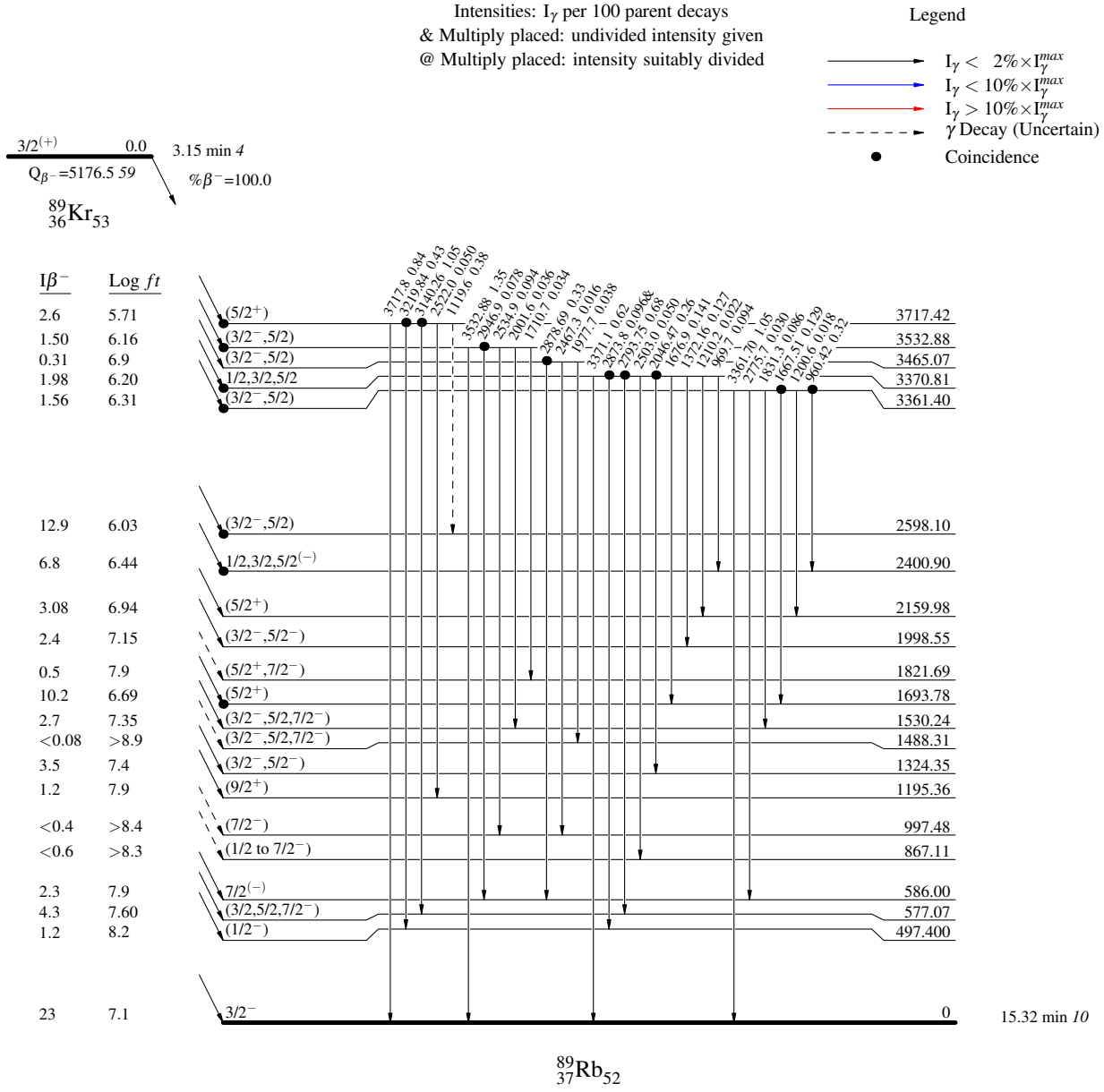
Intensities: I_γ per 100 parent decays
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided



^{89}Kr β^- decay (3.15 min) 1973He01,1972Po13

Decay Scheme (continued)

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

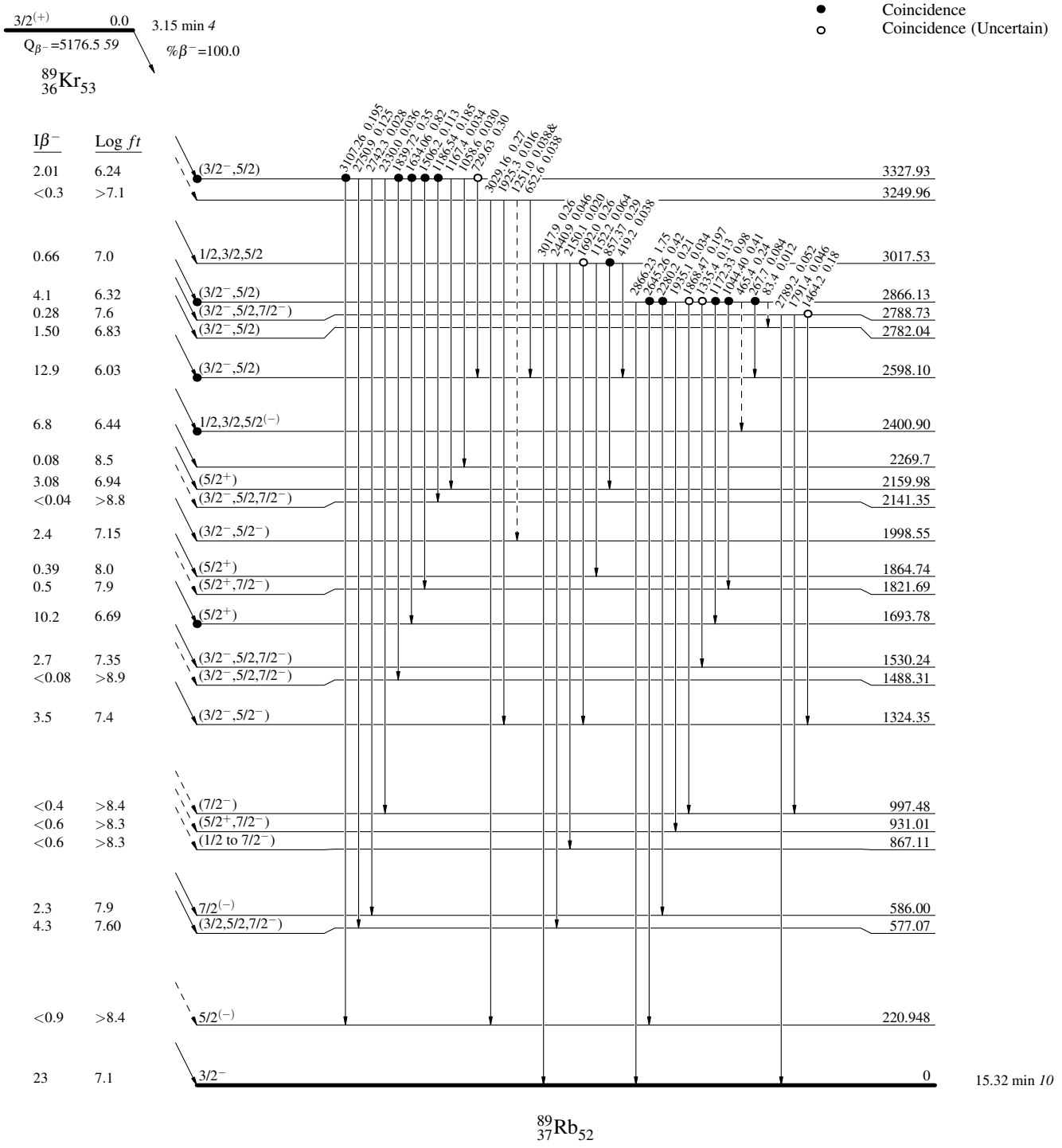


^{89}Kr β^- decay (3.15 min) 1973He01,1972Po13

Decay Scheme (continued)

Intensities: I_γ per 100 parent decays
& Multiply placed: undivided intensity given
@ 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)
Coincidence
Coincidence (Uncertain)

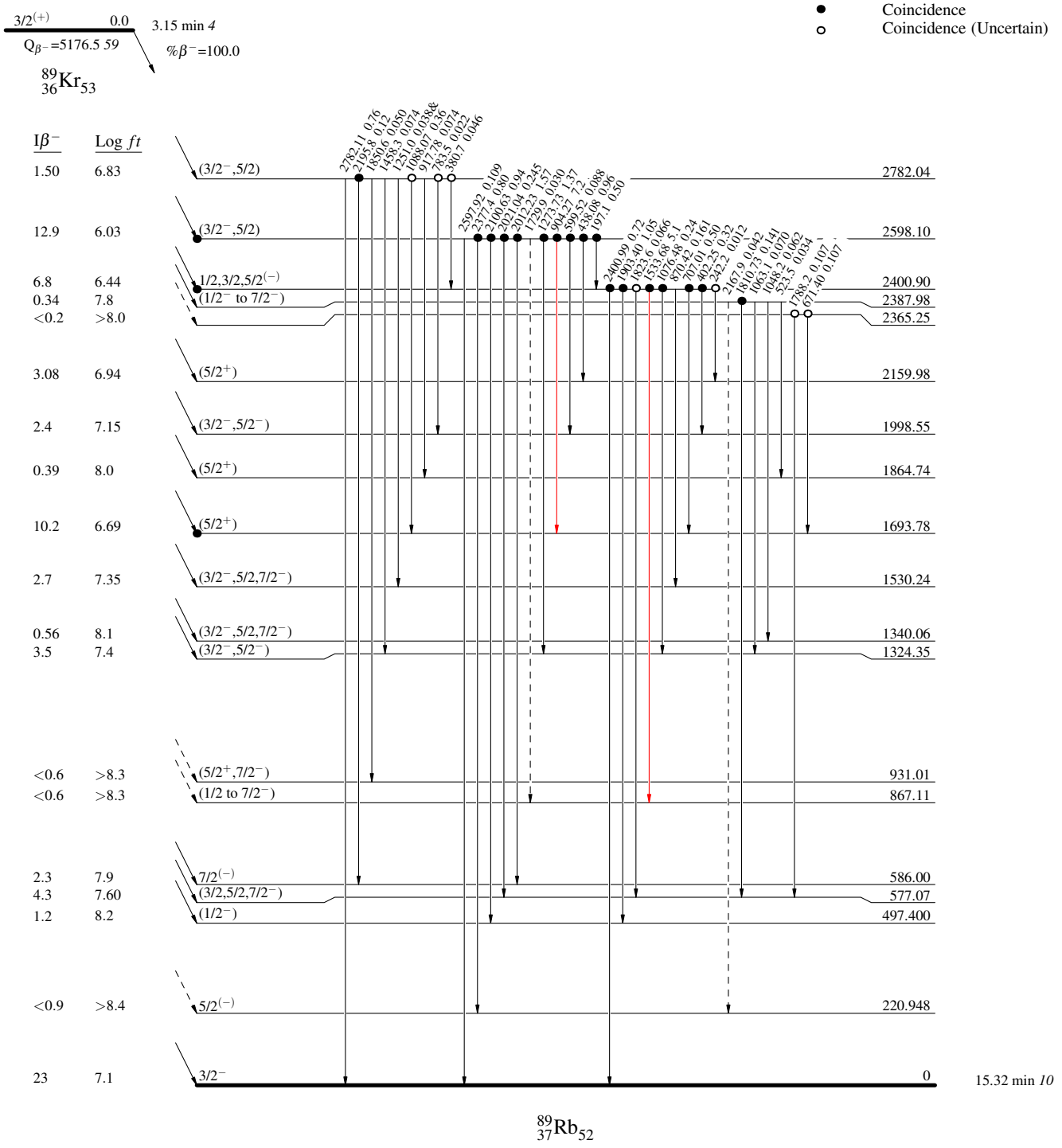


^{89}Kr β^- decay (3.15 min) 1973He01,1972Po13

Decay Scheme (continued)

Intensities: I_γ per 100 parent decays
& Multiply placed: undivided intensity given
@ 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)
Coincidence
Coincidence (Uncertain)



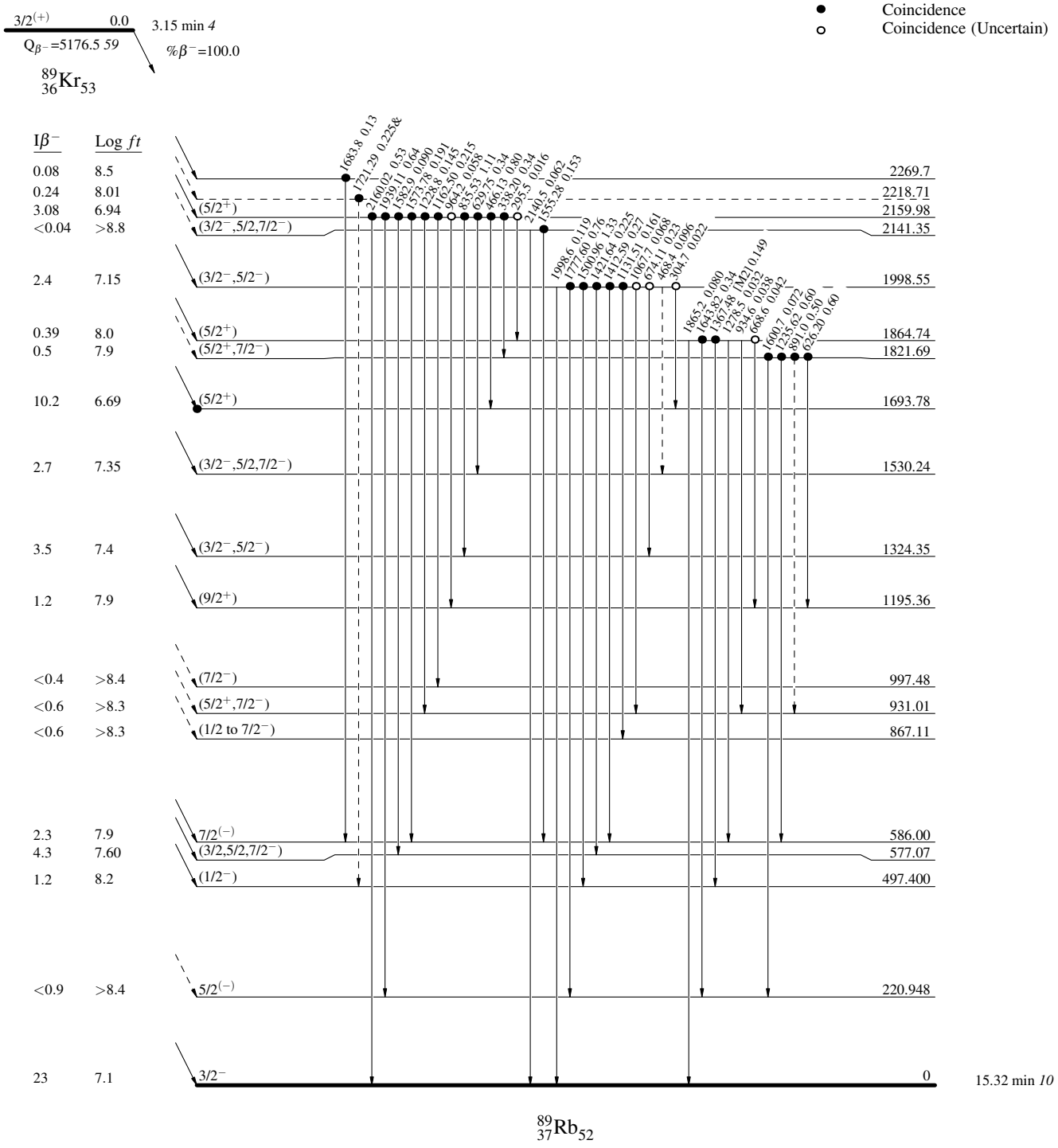
$^{89}_{37}Rb_{52}$

^{89}Kr β^- decay (3.15 min) 1973He01,1972Po13

Decay Scheme (continued)

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

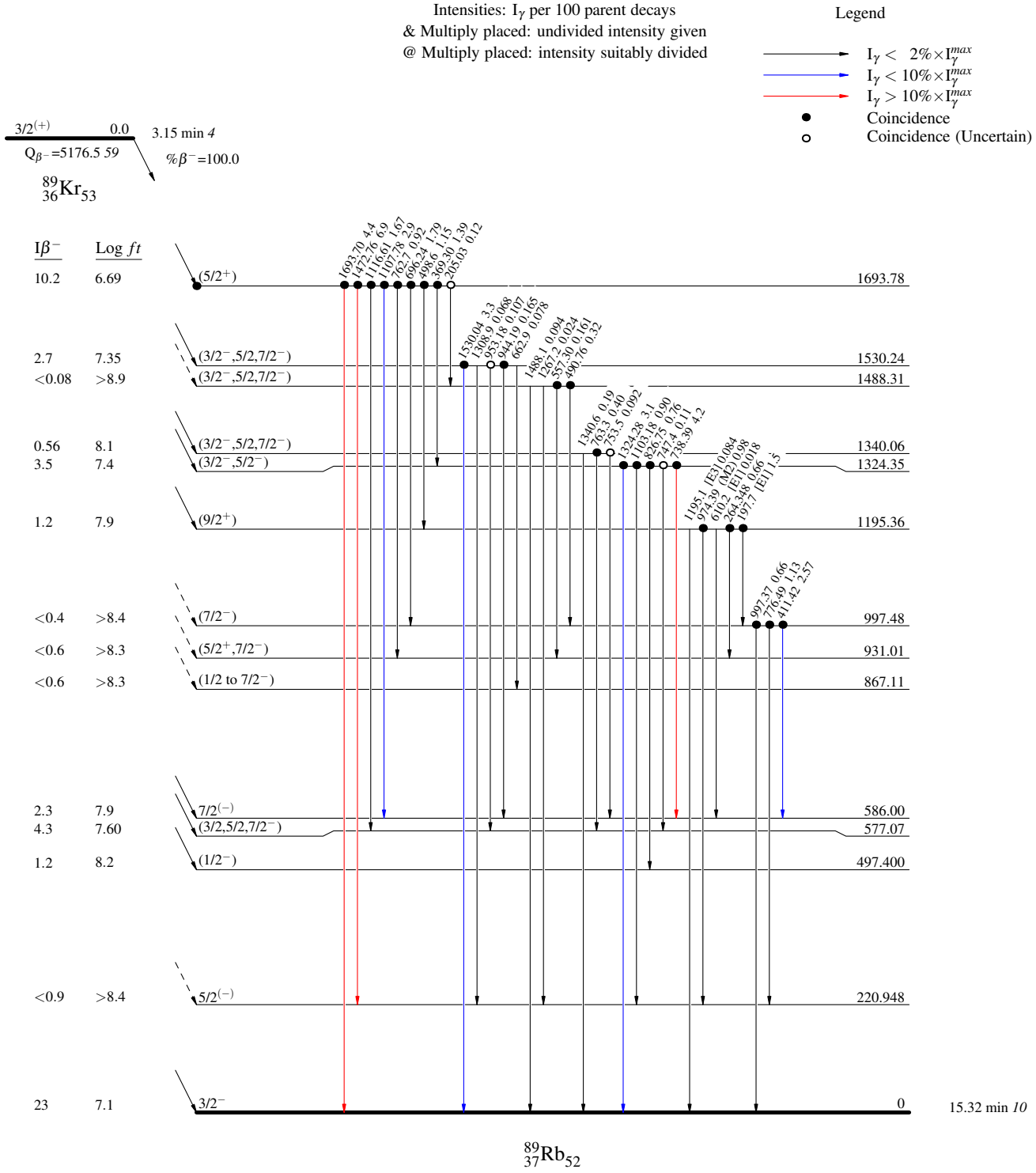
Legend
$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$
γ Decay (Uncertain)
Coincidence
Coincidence (Uncertain)



^{89}Kr β^- decay (3.15 min) 1973He01,1972Po13

Decay Scheme (continued)

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



^{89}Kr β^- decay (3.15 min) 1973He01,1972Po13

Decay Scheme (continued)

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