^{73}Kr ε decay (27.3 s) 1999Mi17

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen	NDS 158, 1 (2019)	16-May-2019

Parent: ^{73}Kr: E=0.0; J$^{\pi}$=(3/2)$^{-}$; $T_{1/2}$=27.3 s *10*; Q(ε)=7096 *10*; %ε+%β^{+} decay=100.0

^{73}Kr-J$^{\pi}$,$T_{1/2}$: From ^{73}Kr Adopted Levels.

^{73}Kr-Q(ε): From 2017Wa10.

1999Mi17: ^{73}Kr produced by bombarding a niobium target with a 600-MeV proton beam. Measured Eγ, Iγ, $\gamma\gamma$, $\beta\gamma$, delayed protons, and half-life using a 4π β-detector and two Ge counters of 33% and 80% efficiency, and a Si(Li) counter. See also 2000Gi11 for beta-delayed proton spectra and (proton)(γ) coin.

Others:

1973Da22: ^{73}Kr produced by chemical separation and identified by the growth of ^{73}Br product. Measure Eγ, Iγ of 9 γ-rays, out of which 8 were placed in the level scheme.

1974Ro11: ^{73}Kr produced by bombarding a zinc target with 600-MeV proton beam. Measured Eγ, Iγ, Eβ, $\beta\gamma$ coin, $T_{1/2}$ of 16 γ-rays.

For studies of delayed-p emission following ^{73}Kr ε decay, see 1972Ho20, 1978As05, 1981As06, 1981Ha44, 2000Gi11.

For studies which measured Q_{ε}-S_p, see 1972Ho20, 1976Ha29.

Decay scheme constructed using observed energy sums and intensities.

Decay to high-lying proton-emitting levels amounting to 0.68% *12* from 1972Ho20 disagrees with calculations (1981As06,1981Ha44).

^{73}Br Levels

The following levels proposed by 1973Da22 have been omitted here since these are not confirmed by 1999Mi17: 303.6, 329.2, 391.9. The g.s. transitions from these levels proposed by 1973Da22 have been assigned elsewhere by 1999Mi17.

See 1981As06 for level widths, level density parameter and β-strength function.

E(level)[†]	J$^{\pi}$[@]	$T_{1/2}$[@]
0.0	1/2^{-}	3.4 min *2*
26.94 *9*	(5/2)$^{-}$	
178.04 *14*	3/2^{-}	0.35 ns *15*
240.45 *15*	(3/2,5/2)$^{-}$	35.0 ns *14*
286.09 *17*	(5/2)$^{+}$	
419.03 *24*	(1/2^{-},3/2,5/2)	
423.40 *23*	(1/2,3/2,5/2^{-})	
473.4 *3*	(1/2^{-},3/2,5/2^{-})	
481.20 *24*	(5/2^{-})	
635.26 *21*	(1/2^{-},3/2,5/2^{-})	
681.1 *4*	7/2^{-}	15.2 ps *21*
713.3 *3*	(1/2^{-},3/2,5/2^{-})	
1137.52 *21*	(1/2^{-},3/2,5/2)	
1473.0 *4*	(1/2^{-},3/2,5/2)	
1542.4 *4*	(1/2,3/2,5/2)	
2153.9 *4*	(1/2^{-},3/2,5/2)	
2261.5 *5*	(1/2,3/2,5/2^{-})	
2555.0 *5*	(1/2^{-},3/2,5/2)	
3017.3 *4*	(1/2,3/2,5/2)$^{-}$	
3252.1 *8*	(1/2^{-},3/2,5/2)	
3285.1 *8*	(1/2,3/2,5/2)	
3462.3 *6*	(1/2^{-},3/2,5/2)	
3469.1 *8*	(1/2,3/2,5/2)	
4280[‡#]	[‡]	
4330[‡#]	[‡]	

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^{73}Kr ε decay (27.3 s) 1999Mi17 (continued)

^{73}Br Levels (continued)

E(level)[†]	Jπ[@]	Comments
4380[‡#]	‡	
4430[‡#]	‡	
4460[‡#]	‡	
4500[‡#]	‡	
4530[‡#]	‡	
4600[‡#]	‡	
4640[‡#]	‡	
4670[‡#]	‡	
4710[‡#]	‡	
4740[‡#]	‡	
4780[‡#]	‡	
4830[‡#]	‡	
4890[‡#]	‡	
4960[‡#]	‡	
5040[‡#]	‡	
5090[‡]	‡	E(level): decays 94% to ^{72}Se g.s.
5170[‡]	‡	E(level): decays 95% to ^{72}Se g.s.
5230[‡]	‡	E(level): decays 98% to ^{72}Se g.s.
5270[‡]	‡	E(level): decays 90% to ^{72}Se g.s.
5310[‡]	‡	E(level): decays 88% to ^{72}Se g.s.
5340[‡]	‡	E(level): decays 95% to ^{72}Se g.s.
5390[‡]	‡	E(level): decays 91% to ^{72}Se g.s.
5450[‡]	‡	E(level): decays 78% to ^{72}Se g.s.
5500[‡]	‡	E(level): decays 81% to ^{72}Se g.s.
5560[‡]	‡	E(level): decays 80% to ^{72}Se g.s.
5610[‡]	‡	E(level): decays 77% to ^{72}Se g.s.
5650[‡]	‡	E(level): decays 71% to ^{72}Se g.s.
5700[‡]	‡	E(level): decays 73% to ^{72}Se g.s.
5750[‡]	‡	E(level): decays 65% to ^{72}Se g.s.
5790[‡]	‡	E(level): decays 74% to ^{72}Se g.s.
5830[‡]	‡	E(level): decays 65% to ^{72}Se g.s.
5890[‡]	‡	E(level): decays 56% to ^{72}Se g.s.
5960[‡]	‡	E(level): decays 51% to ^{72}Se g.s.
6060[‡]	‡	E(level): decays 47% to ^{72}Se g.s.
6140[‡]	‡	E(level): decays 56% to ^{72}Se g.s.
6190[‡]	‡	E(level): decays 49% to ^{72}Se g.s.
6240[‡]	‡	E(level): decays 52% to ^{72}Se g.s.
6290[‡]	‡	E(level): decays 36% to ^{72}Se g.s.
6380[‡]	‡	E(level): decays 35% to ^{72}Se g.s.
6480[‡]	‡	E(level): decays 43% to ^{72}Se g.s.

† From least-squares fit to Eγ data.

‡ Excitation energy centroids from delayed proton spectrum. From log *ft* values, J=(1/2,3/2,5/2). For log *ft*<5.9, parity is expected

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^{73}Kr ε decay (27.3 s) 1999Mi17 (continued)

^{73}Br Levels (continued)

to be negative. See also Adopted Levels.
Decays 100% to ^{72}Se ground state.
@ From Adopted Levels.

ε,β^+ radiations

B(GT) values are from 1999Mi17.
1981Ha44: Measured Q(ε)-S(p), E(p), I(p), pγ, p(x ray), and γ(x ray).
εp decay to ^{72}Se states: 80.4% *15* to g.s.; 19.1% *15* to 860 level; 0.5% *1* to 1310 level (1999Mi17). %εp values from 1981Ha44 are in agreement but less precise.

E(decay)	E(level)	Iβ^+ ‡	Iε‡	Log *ft*	I($\varepsilon+\beta^+$)†‡	Comments
(616 *10*)	6480		0.0021 *3*	5.5 *1*	0.0021 *3*	εK=0.8756; εL=0.10361 *6*; εM+=0.02082 *2* B(GT)=0.195 *195*.
(716 *10*)	6380		0.0036 *4*	5.4 *1*	0.0036 *4*	εK=0.8762; εL=0.10312 *5*; εM+=0.02071 *1* B(GT)=0.114 *109*.
(806 *10*)	6290		0.0038 *5*	5.5 *1*	0.0038 *5*	εK=0.8766; εL=0.10278 *4*; εM+=0.020629 *8* B(GT)=0.063 *53*.
(856 *10*)	6240		0.0022 *3*	5.8 *1*	0.0022 *3*	εK=0.8768; εL=0.10263 *3*; εM+=0.020594 *7* B(GT)=0.028 *22*.
(906 *10*)	6190		0.0040 *5*	5.6 *1*	0.0040 *5*	εK=0.8769; εL=0.10249 *3*; εM+=0.020562 *6* B(GT)=0.039 *29*.
(956 *10*)	6140		0.0029 *3*	5.8 *1*	0.0029 *3*	εK=0.8771; εL=0.10237 *3*; εM+=0.020534 *6* B(GT)=0.023 *15*.
(1036 *10*)	6060		0.0105 *13*	5.3 *1*	0.0105 *13*	εK=0.8773; εL=0.10220 *2*; εM+=0.020494 *5* B(GT)=0.062 *38*.
(1136 *10*)	5960		0.0058 *7*	5.6 *1*	0.0058 *7*	εK=0.8774; εL=0.10200 *3*; εM+=0.020450 *6* B(GT)=0.024 *14*.
(1206 *10*)	5890	1.2×10^{-5} *3*	0.0098 *12*	5.5 *1*	0.0098 *12*	av Eβ=85.0 *43*; εK=0.8766 *3*; εL=0.10179 *5*; εM+=0.02040 *1* B(GT)=0.034 *18*.
(1266 *10*)	5830	1.7×10^{-5} *4*	0.0044 *5*	5.8 *1*	0.0044 *5*	av Eβ=110.6 *43*; εK=0.8744 *6*; εL=0.10144 *9*; εM+=0.02033 *2* B(GT)=0.013 *7*.
(1306 *10*)	5790	4.7×10^{-5} *9*	0.0067 *8*	5.7 *1*	0.0067 *8*	av Eβ=127.5 *43*; εK=0.8717 *9*; εL=0.10106 *12*; εM+=0.020255 *24* B(GT)=0.018 *9*.
(1346 *10*)	5750	9.3×10^{-5} *16*	0.0079 *10*	5.6 *1*	0.0080 *10*	av Eβ=144.4 *43*; εK=0.8676 *13*; εL=0.10054 *16*; εM+=0.02015 *4* B(GT)=0.020 *9*.
(1396 *10*)	5700	0.00019 *3*	0.0093 *11*	5.6 *1*	0.0095 *11*	av Eβ=165.6 *43*; εK=0.8603 *18*; εL=0.09963 *23*; εM+=0.01996 *5* B(GT)=0.021 *9*.
(1446 *10*)	5650	0.00027 *4*	0.0081 *10*	5.7 *1*	0.0084 *10*	av Eβ=186.7 *43*; εK=0.8500 *25*; εL=0.0984 *3*; εM+=0.01971 *6* B(GT)=0.017 *7*.
(1486 *10*)	5610	0.00018 *3*	0.0040 *5*	6.0 *1*	0.0042 *5*	av Eβ=203.7 *43*; εK=0.839 *3*; εL=0.0971 *4*; εM+=0.01946 *8* B(GT)=0.0079 *33*.
(1536 *10*)	5560	0.00112 *15*	0.0167 *20*	5.4 *1*	0.0178 *21*	av Eβ=224.9 *43*; εK=0.823 *4*; εL=0.0952 *5*; εM+=0.01906 *9* B(GT)=0.030 *12*.
(1596 *10*)	5500	0.00104 *14*	0.0105 *13*	5.7 *1*	0.0115 *14*	av Eβ=250.5 *43*; εK=0.798 *5*; εL=0.0923 *6*; εM+=0.01849 *11*

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^{73}Kr ε decay (27.3 s) 1999Mi17 (continued)

ε,β^+ radiations (continued)

E(decay)	E(level)	Iβ^+ ‡	Iε‡	Log *ft*	I(ε+β^+)†‡	Comments
						B(GT)=0.017 7.
(1646 10)	5450	0.0011 1	0.0079 10	5.8 1	0.0090 11	av Eβ=271.9 43; εK=0.774 6; εL=0.0894 7; εM+=0.01791 13 B(GT)=0.012 5.
(1706 10)	5390	0.0024 3	0.0132 16	5.6 1	0.0156 19	av Eβ=297.6 43; εK=0.741 6; εL=0.0855 7; εM+=0.01713 14 B(GT)=0.019 7.
(1756 10)	5340	0.0013 2	0.0055 7	6.0 1	0.0068 9	av Eβ=319.2 44; εK=0.710 7; εL=0.0819 8; εM+=0.01641 15 B(GT)=0.0078 29.
(1786 10)	5310	0.0014 2	0.0053 7	6.1 1	0.0067 9	av Eβ=332.1 44; εK=0.690 7; εL=0.0797 8; εM+=0.01595 16 B(GT)=0.0073 27.
(1826 10)	5270	0.0022 3	0.0068 8	6.0 1	0.0090 11	av Eβ=349.5 44; εK=0.663 7; εL=0.0765 8; εM+=0.01532 17 B(GT)=0.0091 33.
(1866 10)	5230	0.0025 3	0.0066 9	6.0 1	0.0091 12	av Eβ=366.9 44; εK=0.635 7; εL=0.0733 9; εM+=0.01467 17 B(GT)=0.0086 32.
(1926 10)	5170	0.0033 4	0.0069 9	6.0 1	0.0102 13	av Eβ=393.0 44; εK=0.592 8; εL=0.0683 9; εM+=0.01367 17 B(GT)=0.0087 32.
(2006 10)	5090	0.0033 4	0.0052 7	6.2 1	0.0085 11	av Eβ=428.1 44; εK=0.535 7; εL=0.0617 9; εM+=0.01235 17 B(GT)=0.0065 24.
(2056 10)	5040	0.0049 7	0.0065 9	6.1 1	0.0114 15	av Eβ=450.0 44; εK=0.500 7; εL=0.0576 8; εM+=0.01154 16 B(GT)=0.0079 30.
(2136 10)	4960	0.0038 5	0.0039 6	6.3 1	0.0077 11	av Eβ=485.4 45; εK=0.447 7; εL=0.0514 8; εM+=0.01030 15 B(GT)=0.0046 18.
(2206 10)	4890	0.0018 3	0.0016 3	6.8 1	0.0034 6	av Eβ=516.4 45; εK=0.403 6; εL=0.0464 7; εM+=0.00929 14 B(GT)=0.0018 8.
(2266 10)	4830	0.0037 5	0.0026 4	6.6 1	0.0063 9	av Eβ=543.1 45; εK=0.368 6; εL=0.0424 7; εM+=0.00849 13 B(GT)=0.0029 12.
(2316 10)	4780	0.0025 4	0.0016 2	6.8 1	0.0041 6	av Eβ=565.5 45; εK=0.341 6; εL=0.0393 6; εM+=0.00786 12 B(GT)=0.0017 7.
(2356 10)	4740	0.0017 3	0.00099 15	7.0 1	0.0027 4	av Eβ=583.4 45; εK=0.321 5; εL=0.0369 6; εM+=0.00740 12 B(GT)=0.0010 4.
(2386 10)	4710	0.0018 3	0.00094 18	7.1 1	0.0027 5	av Eβ=596.9 45; εK=0.307 5; εL=0.0353 6; εM+=0.00706 11 B(GT)=0.0009 4.
(2426 10)	4670	0.0024 3	0.0011 2	7.0 1	0.0035 5	av Eβ=614.8 45; εK=0.289 5; εL=0.0332 6; εM+=0.00664 11 B(GT)=0.0011 5.
(2456 10)	4640	0.0025 3	0.0011 2	7.0 1	0.0036 5	av Eβ=628.3 45; εK=0.276 5; εL=0.0317 5; εM+=0.00635 10 B(GT)=0.0011 5.
(2496 10)	4600	0.0030 4	0.0012 2	7.0 1	0.0042 6	av Eβ=646.4 46; εK=0.259 4; εL=0.0298 5; εM+=0.00597 10 B(GT)=0.0011 5.
(2566 10)	4530	0.0032 4	0.0011 2	7.0 1	0.0043 6	av Eβ=678.0 46; εK=0.233 4; εL=0.0268 4; εM+=0.00537 9

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^{73}Kr ε decay (27.3 s) 1999Mi17 (continued)

ϵ,β^+ radiations (continued)

E(decay)	E(level)	$I\beta^+$ [‡]	$I\varepsilon$ [‡]	Log *ft*	$I(\varepsilon+\beta^+)$ [†‡]	Comments
						B(GT)=0.00096 *43*.
(2596 *10*)	4500	0.00082 *15*	0.00028 *5*	7.7 *1*	0.0011 *2*	av Eβ=691.6 *46*; εK=0.223 *4*; εL=0.0256 *4*; εM+=0.00513 *8* B(GT)=0.00023 *11*.
(2636 *10*)	4460	0.0012 *2*	0.00038 *5*	7.5 *1*	0.0016 *2*	av Eβ=709.8 *46*; εK=0.210 *4*; εL=0.0241 *4*; εM+=0.00483 *8* B(GT)=0.00031 *14*.
(2666 *10*)	4430	0.0005 *2*	0.0002 *1*	7.9 *2*	0.0007 *3*	av Eβ=723.4 *46*; εK=0.201 *3*; εL=0.0231 *4*; εM+=0.00462 *7* B(GT)=0.00012 *7*.
(2716 *10*)	4380	0.0006 *2*	0.0001	8.0 *1*	0.0007 *2*	av Eβ=746.2 *46*; εK=0.187 *3*; εL=0.0215 *4*; εM+=0.00430 *7* B(GT)=0.00011 *6*.
(2766 *10*)	4330	0.0005 *1*	0.0001	8.1 *1*	0.0006 *1*	av Eβ=769.0 *46*; εK=0.174 *3*; εL=0.0200 *3*; εM+=0.00400 *6* B(GT)=0.00009 *4*.
(2816 *10*)	4280	0.0002 *2*	$6.\times10^{-5}$ *4*	8.4 *3*	0.0003 *2*	av Eβ=791.9 *46*; εK=0.1618 *24*; εL=0.0186 *3*; εM+=0.00372 *6* B(GT)=0.00004 *3*.
(3627 *10*)	3469.1	0.23 *6*	0.017 *4*	6.2 *1*	0.25 *6*	av Eβ=1168.1 *47*; εK=0.0588 *7*; εL=0.00674 *8*; εM+=0.001349 *15* B(GT)=0.0055 *22*.
(3634 *10*)	3462.3	0.47 *11*	0.033 *8*	5.9 *1*	0.50 *12*	av Eβ=1171.2 *47*; εK=0.0584 *7*; εL=0.00669 *8*; εM+=0.001339 *15* B(GT)=0.011 *4*.
(3811 *10*)	3285.1	0.33 *9*	0.019 *5*	6.2 *1*	0.35 *9*	av Eβ=1254.6 *48*; εK=0.0484 *5*; εL=0.00555 *6*; εM+=0.001110 *12* B(GT)=0.0054 *20*.
(3844 *10*)	3252.1	0.22 *6*	0.012 *3*	6.4 *1*	0.23 *6*	av Eβ=1270.1 *48*; εK=0.0468 *5*; εL=0.00536 *6*; εM+=0.001074 *11* B(GT)=0.0033 *12*.
(4079 *10*)	3017.3	2.3 *6*	0.10 *3*	5.5 *1*	2.4 *6*	av Eβ=1381.1 *48*; εK=0.0372 *4*; εL=0.00426 *4*; εM+=0.000853 *9* B(GT)=0.024 *8*.
(4541 *10*)	2555.0	0.76 *17*	0.022 *5*	6.3 *1*	0.78 *17*	av Eβ=1600.9 *48*; εK=0.02476 *21*; εL=0.002834 *24*; εM+=0.000567 *5* B(GT)=0.0038 *13*.
(4835 *10*)	2261.5	0.9 *2*	0.02	6.4 *1*	0.9 *2*	av Eβ=1741.3 *48*; εK=0.01961 *15*; εL=0.002244 *18*; εM+=0.000449 *4* B(GT)=0.0029 *9*.
(4942 *10*)	2153.9	1.3 *3*	0.027 *6*	6.2 *1*	1.3 *3*	av Eβ=1792.9 *48*; εK=0.01808 *14*; εL=0.002069 *16*; εM+=0.000414 *4* B(GT)=0.0036 *11*.
(5554 *10*)	1542.4	1.7 *4*	0.023 *5*	6.4 *1*	1.7 *4*	av Eβ=2087.3 *49*; εK=0.01184 *8*; εL=0.001354 *9*; εM+=0.0002708 *1* B(GT)=0.0022 *6*.
(5623 *10*)	1473.0	0.9 *2*	0.01	6.7 *1*	0.9 *2*	av Eβ=2120.9 *49*; εK=0.01132 *8*; εL=0.001295 *9*; εM+=0.0002590 *1* B(GT)=0.0011 *3*.
(5958 *10*)	1137.52	4.5 *10*	0.047 *10*	6.2 *1*	4.5 *10*	av Eβ=2283.3 *49*; εK=0.00921 *6*; εL=0.001053 *7*; εM+=0.0002107 *1* B(GT)=0.0040 *11*.
(6383 *10*)	713.3	2.9 *7*	0.024 *6*	6.5 *1*	2.9 *7*	av Eβ=2489.3 *49*; εK=0.00723 *4*; εL=0.000827 *5*; εM+=0.0001654 *9* B(GT)=0.0017 *5*.
(6415 *10*)	681.1	2.0 *10*	0.016 *8*	6.7 *2*	2.0 *10*	av Eβ=2505.0 *49*; εK=0.00711 *4*; εL=0.000812 *5*;

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^{73}Kr ε decay (27.3 s) 1999Mi17 (continued)

ϵ,β^+ radiations (continued)

E(decay)	E(level)	$I\beta^+$ ‡	$I\varepsilon$‡	Log *ft*	$I(\varepsilon+\beta^+)$†‡	Comments
						εM+=0.0001625 *9* B(GT)=0.0011 *6*.
(6461 *10*)	635.26	5.6 *14*	0.044 *11*	6.3 *1*	5.6 *14*	av Eβ=2527.3 *49*; εK=0.00693 *4*; εL=0.000792 *5*; εM+=0.0001585 *9* B(GT)=0.0030 *8*.
(6615 *10*)	481.20	4.3 *12*	0.031 *9*	6.4 *1*	4.3 *12*	av Eβ=2602.3 *49*; εK=0.00639 *4*; εL=0.000730 *4*; εM+=0.0001460 *8* B(GT)=0.0020 *6*.
(6623 *10*)	473.4	5.1 *12*	0.037 *9*	6.4 *1*	5.1 *12*	av Eβ=2606.1 *49*; εK=0.00636 *4*; εL=0.000727 *4*; εM+=0.0001454 *8* B(GT)=0.0024 *6*.
(6673 *10*)	423.40	3.9 *9*	0.027 *6*	6.5 *1*	3.9 *9*	av Eβ=2630.4 *49*; εK=0.00620 *4*; εL=0.000708 *4*; εM+=0.0001417 *8* B(GT)=0.0017 *5*.
(6677 *10*)	419.03	4.5 *10*	0.032 *7*	6.4 *1*	4.5 *10*	av Eβ=2632.6 *49*; εK=0.00618 *4*; εL=0.000707 *4*; εM+=0.0001413 *8* B(GT)=0.0020 *5*.
(6810 *10*)	286.09	3.8 *10*	0.025 *7*	6.6 *1*	3.8 *10*	av Eβ=2697.4 *49*; εK=0.00578 *3*; εL=0.000660 *4*; εM+=0.0001320 *7* B(GT)=0.0015 *4*.
(6856 *10*)	240.45	5.0 *16*	0.032 *10*	6.5 *2*	5.0 *16*	av Eβ=2719.7 *49*; εK=0.00564 *3*; εL=0.000645 *4*; εM+=0.0001290 *7* B(GT)=0.0019 *6*.
(6918 *10*)	178.04	8.7 *25*	0.055 *16*	6.2 *1*	8.8 *25*	av Eβ=2750.1 *49*; εK=0.00547 *3*; εL=0.000625 *4*; εM+=0.0001250 *7* B(GT)=0.0032 *12* (1999Mi17).
(7069 *10*)	26.94	<9.9	<0.058	>6.2	<10	av Eβ=2823.9 *49*; εK=0.005078 *25*; εL=0.000580 *3*; εM+=0.0001161 *6* I(ε+β+): I(ε+β+)(g.s.+26.9)=40 *12* (1999Mi17). B(GT)<0.0027 (1999Mi17).
(7096 *10*)	0.0	36 *9*	0.21 *5*	5.7 *1*	36 *9*	av Eβ=2837.0 *49*; εK=0.005012 *25*; εL=0.000573 *3*; εM+=0.0001145 *6* B(GT)=0.0082 to 0.0139 (1999Mi17). I(ε+β+): from 26.6<I(ε+β+)<44.8 (1999Mi17).

† From I(γ+ce) intensity imbalance at each level up to 3469 and from delayed-proton emission intensities in 1999Mi17 for levels above that, unless otherwise noted.
‡ Absolute intensity per 100 decays.

γ(^{73}Br)

Iγ normalization: from I(γ+ce to 26.9)+I(γ+ce to g.s. except 26.9γ)=60 *12*, which is obtained from 100−%(ε+β^+(g.s.+26.9)-%εp, with %(ε+β^+(g.s.+26.9)=40 *12* and %εp=0.25 *3* (1999Mi17), assuming unobserved γ feedings from high-lying levels are negligible. 1999Mi17 deduce %(ε+β^+(g.s.+26.9) by comparing measured I(γ+ce) of 62.4γ in ^{73}Br with that of 65γ in ^{73}Se from the subsequent ε decay of ^{73}Br during counting cycles (30-s), based on known absolute intensity %Iγ=37 *5* (or %I(γ+ce)=50 *7* with α_T=0.337) for 65γ in adopted dataset of ^{73}Br ε decay (taken by 1999Mi17 from 1993 update; values in current update remain unchanged). Other: %εp=0.68 *12* (1972Ho20). These values are higher than 0.036% expected from calculations (1981As06,1981Ha44).

A 220.0γ with Iγ=3.4 *14* reported by 1973Da22 and 1974Ro11 is not confirmed by 1999Mi17.

E_γ	I_γ [†#]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [‡]	δ [‡]	α [@]	$I_{(\gamma+ce)}$ [#]	Comments
26.9 *1*	1.09 *24*	26.94	(5/2)$^-$	0.0	1/2$^-$	[E2]		100.5 *20*	111 *24*	%Iγ=0.27 *8* α(K)=62.0 *11*; α(L)=33.0 *8*; α(M)=5.22 *12*; α(N)=0.363 *8*
45.6 *1*	5.1 *11*	286.09	(5/2)$^+$	240.45	(3/2,5/2)$^-$	(E1)		0.854 *14*	9.5 *21*	%Iγ=1.3 *4* α(K)=0.756 *12*; α(L)=0.0839 *13*; α(M)=0.01312 *21*; α(N)=0.001157 *18*
62.4 *1*	13 *3*	240.45	(3/2,5/2)$^-$	178.04	3/2$^-$	M1		0.427	19 *4*	%Iγ=3.3 *10* α(K)=0.378 *6*; α(L)=0.0423 *7*; α(M)=0.00674 *10*; α(N)=0.000624 *10*
108.0 *6*	2.4 *13*	286.09	(5/2)$^+$	178.04	3/2$^-$	E1		0.0673 *15*	2.6 *13*	%Iγ=0.6 *4* α(K)=0.0598 *13*; α(L)=0.00639 *14*; α(M)=0.001007 *22*; α(N)=9.17×10^{-5} *20*
151.2 *3*	22 *3*	178.04	3/2$^-$	26.94	(5/2)$^-$	[M1+E2]		0.11 *8*	24 *3*	%Iγ=5.6 *13* α(K)=0.031 *6*; α(L)=0.0035 *7*; α(M)=0.00056 *11*; α(N)=5.1×10^{-5} *9*
178.0 *3*	96.6 *6*	178.04	3/2$^-$	0.0	1/2$^-$	M1+E2	0.39 *12*	0.035 *6*	100	%Iγ=24 *5* α(K)=0.10 *7*; α(L)=0.012 *9*; α(M)=0.0019 *14*; α(N)=0.00017 *12* Ti(151)/Ti(178)=19 *2*/81 *2* (1999Mi17).
183.1 *6*	1.7 *11*	423.40	(1/2,3/2,5/2$^-$)	240.45	(3/2,5/2)$^-$	[D,E2]		0.054 *40*	1.8 *11*	%Iγ=0.4 *3*
213.3 *4*	11.5 *13*	240.45	(3/2,5/2)$^-$	26.94	(5/2)$^-$	E2		0.0536 *9*	12.1 *14*	%Iγ=2.9 *7* α(K)=0.0471 *8*; α(L)=0.00557 *9*; α(M)=0.000882 *14*; α(N)=7.85×10^{-5} *13* Ti(213)/Ti(62)=40 *5*/60 *5* (1999Mi17).
241.0 *3*	13.1 *15*	419.03	(1/2$^-$,3/2,5/2)	178.04	3/2$^-$	[D,E2]		0.020 *14*	13.4 *15*	%Iγ=3.3 *8*
259.0 *4*	1.1 *1*	286.09	(5/2)$^+$	26.94	(5/2)$^-$	(E1)		0.0052	1.1 *1*	%Iγ=0.28 *7*
286.8 *4*	1.7 *2*	286.09	(5/2)$^+$	0.0	1/2$^-$	[M2]		0.0334	1.8 *2*	%Iγ=0.43 *10* Ti(46):Ti(108):Ti(259):Ti(287)=64 *7*:17 *8*:7 *2*:12 *2* (1999Mi17).
303.4 *3*	9.2 *11*	481.20	(5/2$^-$)	178.04	3/2$^-$	[M1,E2]		0.011 *5*	9.3 *11*	%Iγ=2.3 *6* α(K)=0.010 *4*; α(L)=0.0011 *5*; α(M)=0.00017 *8*; α(N)=1.5×10^{-5} *7*

γ(^{73}Br) (continued)

E_γ	I_γ †#	E_i(level)	J^π_i	E_f	J^π_f	Mult.‡	α@	$I_{(\gamma+ce)}$ #	Comments
391.9 *4*	7.0 *8*	419.03	(1/2⁻,3/2,5/2)	26.94	(5/2)⁻	[D,E2]	0.0040 *23*	7.0 *8*	%Iγ=1.8 *4* Ti(241)/Ti(392)=66 *3*/34 *3* (1999Mi17).
396.4 *4*	7.2 *8*	423.40	(1/2,3/2,5/2⁻)	26.94	(5/2)⁻	[D,E2]	0.0039 *23*	7.2 *8*	%Iγ=1.8 *5*
423.4 *3*	6.4 *7*	423.40	(1/2,3/2,5/2⁻)	0.0	1/2⁻			6.4 *7*	%Iγ=1.6 *4* Ti(183):Ti(396):Ti(423)=12 *6*:46 *4*:7 *2*:42 *4* (1999Mi17).
446.4 *7*	4.3 *5*	473.4	(1/2⁻,3/2,5/2⁻)	26.94	(5/2)⁻			4.3 *5*	%Iγ=1.1 *3*
454.3 *5*	17 *3*	481.20	(5/2⁻)	26.94	(5/2)⁻	D		17 *3*	%Iγ=4.3 *12* Ti(303)/Ti(454)=35 *4*/65 *4* (1999Mi17).
457.2 *5*	10.8 *24*	635.26	(1/2⁻,3/2,5/2⁻)	178.04	3/2⁻			10.8 *24*	%Iγ=2.7 *8*
473.4 *3*	16.2 *19*	473.4	(1/2⁻,3/2,5/2⁻)	0.0	1/2⁻			16.2 *19*	%Iγ=4.1 *10* Iγ(446)/Iγ(473)=21 *2*/79 *2* (1999Mi17).
503.0 *4*	7.1 *36*	681.1	7/2⁻	178.04	3/2⁻	E2		7.1 *36*	%Iγ=1.8 *10*
608.5 *4*	2.7 *3*	635.26	(1/2⁻,3/2,5/2⁻)	26.94	(5/2)⁻			2.7 *3*	%Iγ=0.68 *16*
635.1 *3*	12.1 *14*	635.26	(1/2⁻,3/2,5/2⁻)	0.0	1/2⁻			12.1 *14*	%Iγ=3.1 *7* Iγ(457):Iγ(608):Iγ(635)=42 *5*:11 *1*:47 *4* (1999Mi17).
654.2 *5*	0.9 *2*	681.1	7/2⁻	26.94	(5/2)⁻			0.9 *2*	%Iγ=0.23 *7* I_γ: γ-ray branching ratio is low by a factor of ≈3 as compared to that in Adopted Gammas, value taken from (^{40}Ca,α3pγ), where 681 level is strongly populated. Iγ(503)/Iγ(654)=89 *6*/11 *6* (1999Mi17).
656.2 *5*	1.9 *4*	1137.52	(1/2⁻,3/2,5/2)	481.20	(5/2⁻)			1.9 *4*	%Iγ=0.48 *14*
686.1 *4*	12.2 *14*	713.3	(1/2⁻,3/2,5/2⁻)	26.94	(5/2)⁻			12.2 *14*	%Iγ=3.1 *7*
713.4 *4*	1.2 *2*	713.3	(1/2⁻,3/2,5/2⁻)	0.0	1/2⁻			1.2 *2*	%Iγ=0.30 *8* Iγ(686)/Iγ(713)=91 *1*/9 *1* (1999Mi17).
718.3 *4*	2.5 *3*	1137.52	(1/2⁻,3/2,5/2)	419.03	(1/2⁻,3/2,5/2)			2.5 *3*	%Iγ=0.63 *15*
907.0 *4*	3.4 *4*	1542.4	(1/2,3/2,5/2)	635.26	(1/2⁻,3/2,5/2⁻)			3.4 *4*	%Iγ=0.86 *20*
959.6 *3*	8.8 *10*	1137.52	(1/2⁻,3/2,5/2)	178.04	3/2⁻			8.8 *10*	%Iγ=2.2 *6*
1110.6 *3*	4.7 *5*	1137.52	(1/2⁻,3/2,5/2)	26.94	(5/2)⁻			4.7 *5*	%Iγ=1.2 *3* Iγ(656):Iγ(718):Iγ(960):Iγ(1111)=11 *2*:14 *1*:49 *2*:26 *2* (1999Mi17).
1295.2 *5*	1.3 *2*	1473.0	(1/2⁻,3/2,5/2)	178.04	3/2⁻			1.3 *2*	%Iγ=0.33 *9*
1364.4 *4*	3.2 *4*	1542.4	(1/2,3/2,5/2)	178.04	3/2⁻			3.2 *4*	%Iγ=0.81 *20* Iγ(907)/Iγ(1364)=52 *3*/48 *3* (1999Mi17).
1445.7 *6*	2.2 *3*	1473.0	(1/2⁻,3/2,5/2)	26.94	(5/2)⁻			2.2 *3*	%Iγ=0.56 *14* Iγ(1295)/Iγ(1446)=36 *3*/64 *3* (1999Mi17).
1672.9 *7*	1.8 *2*	2153.9	(1/2⁻,3/2,5/2)	481.20	(5/2⁻)			1.8 *2*	%Iγ=0.46 *11*
1975.7 *6*	1.7 *2*	2153.9	(1/2⁻,3/2,5/2)	178.04	3/2⁻			1.7 *2*	%Iγ=0.43 *10*
2073.8 *6*	2.1 *2*	2555.0	(1/2⁻,3/2,5/2)	481.20	(5/2⁻)			2.1 *2*	%Iγ=0.53 *12*
2083.1 *6*	3.0 *3*	2261.5	(1/2,3/2,5/2⁻)	178.04	3/2⁻			3.0 *3*	%Iγ=0.76 *17*
2126.9 *6*	1.6 *2*	2153.9	(1/2⁻,3/2,5/2)	26.94	(5/2)⁻			1.6 *2*	%Iγ=0.40 *10* Iγ(1673):Iγ(1976):Iγ(2127)=36 *3*:34 *3*:30 *2* (1999Mi17).

$^{73}_{35}Br_{38}$-8

γ(^{73}Br) (continued)

E_γ	I_γ †#	E_i(level)	J^π_i	E_f	J^π_f	$I_{(\gamma+ce)}$ #	Comments
2262.0 *7*	0.6 *1*	2261.5	(1/2,3/2,5/2$^-$)	0.0	1/2$^-$	0.6 *1*	%Iγ=0.15 *4* Iγ(2262)/Iγ(2083)=82 *2*/18 *2* (1999Mi17).
2303.7 *6*	2.0 *2*	3017.3	(1/2,3/2,5/2)$^-$	713.3	(1/2$^-$,3/2,5/2$^-$)	2.0 *2*	%Iγ=0.51 *12*
2527.9 *6*	1.0 *1*	2555.0	(1/2$^-$,3/2,5/2)	26.94	(5/2)$^-$	1.0 *1*	%Iγ=0.25 *6* Iγ(2074)/Iγ(2528)=67 *3*/33 *3* (1999Mi17).
2537.0 *6*	2.6 *3*	3017.3	(1/2,3/2,5/2)$^-$	481.20	(5/2$^-$)	2.6 *3*	%Iγ=0.66 *16*
2770.8 *7*	0.9 *1*	3252.1	(1/2$^-$,3/2,5/2)	481.20	(5/2$^-$)	0.9 *1*	%Iγ=0.23 *6*
2838.6 *6*	5.0 *6*	3017.3	(1/2,3/2,5/2)$^-$	178.04	3/2$^-$	5.0 *6*	%Iγ=1.3 *3* Iγ(2304):Iγ(2537):Iγ(2839)=20 *2*:28 *2*:52 *3* (1999Mi17).
3107.0 *7*	1.4 *2*	3285.1	(1/2,3/2,5/2)	178.04	3/2$^-$	1.4 *2*	%Iγ=0.35 *9*
3284.4 *7*	1.3 *2*	3462.3	(1/2$^-$,3/2,5/2)	178.04	3/2$^-$	1.3 *2*	%Iγ=0.33 *9*
3291.0 *7*	1.0 *1*	3469.1	(1/2,3/2,5/2)	178.04	3/2$^-$	1.0 *1*	%Iγ=0.25 *6*
3434.9 *8*	0.7 *1*	3462.3	(1/2$^-$,3/2,5/2)	26.94	(5/2)$^-$	0.7 *1*	%Iγ=0.18 *5* Iγ(3284)/Iγ(3435)=66 *3*/34 *3* (1999Mi17).

† Deduced by evaluators from I(γ+ce) values of 1999Mi17 and theoretical total conversion coefficients. Above Eγ=400 keV, conversion coefficients are negligible for E1, M1 or E2 transitions.

‡ From Adopted Gammas.

For absolute intensity per 100 decays, multiply by 0.25 *5*.

@ 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.

$^{73}_{35}$Br$_{38}$-9

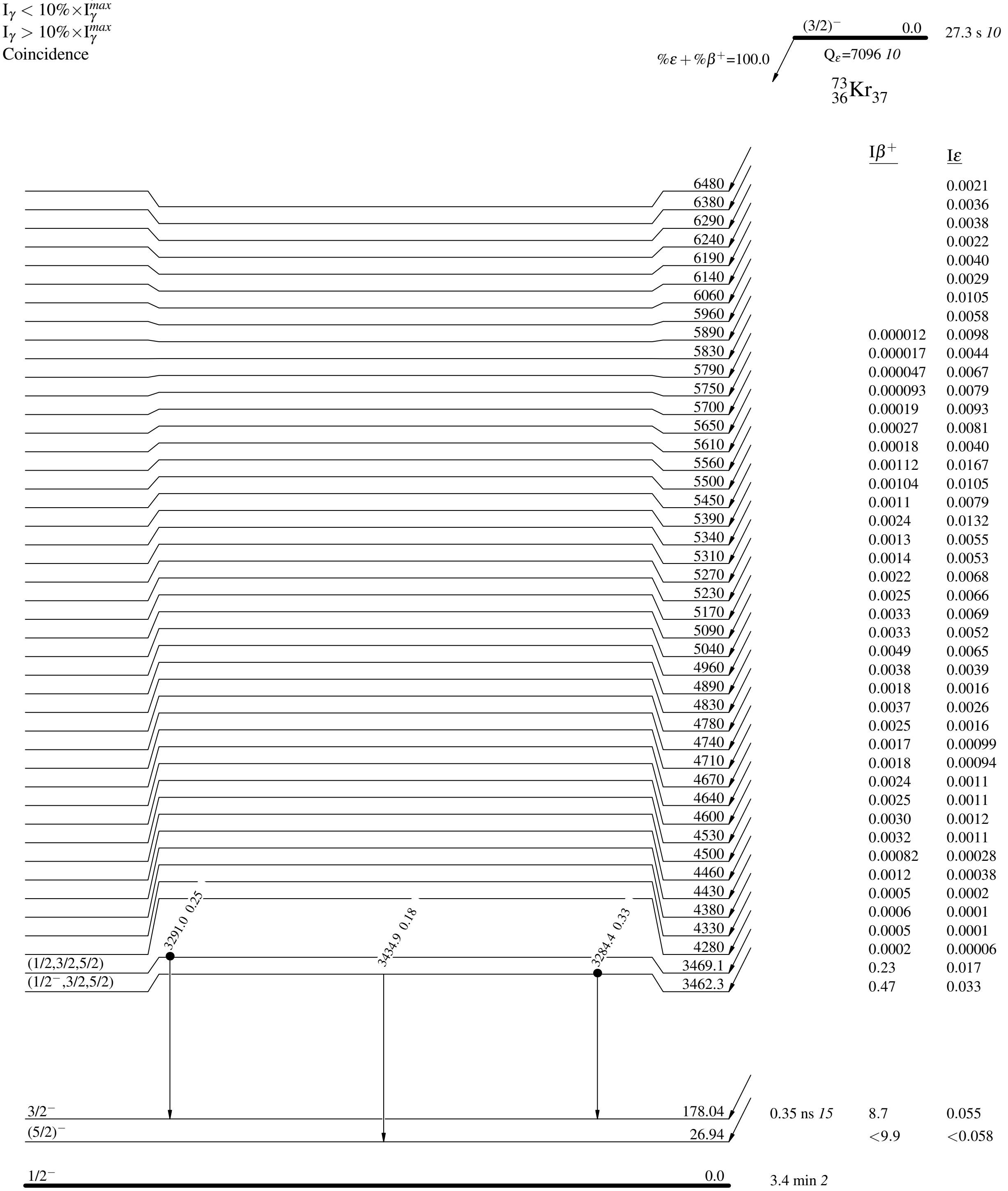
^{73}Kr ε decay (27.3 s) 1999Mi17

Decay Scheme

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

Legend

- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$
- ● Coincidence

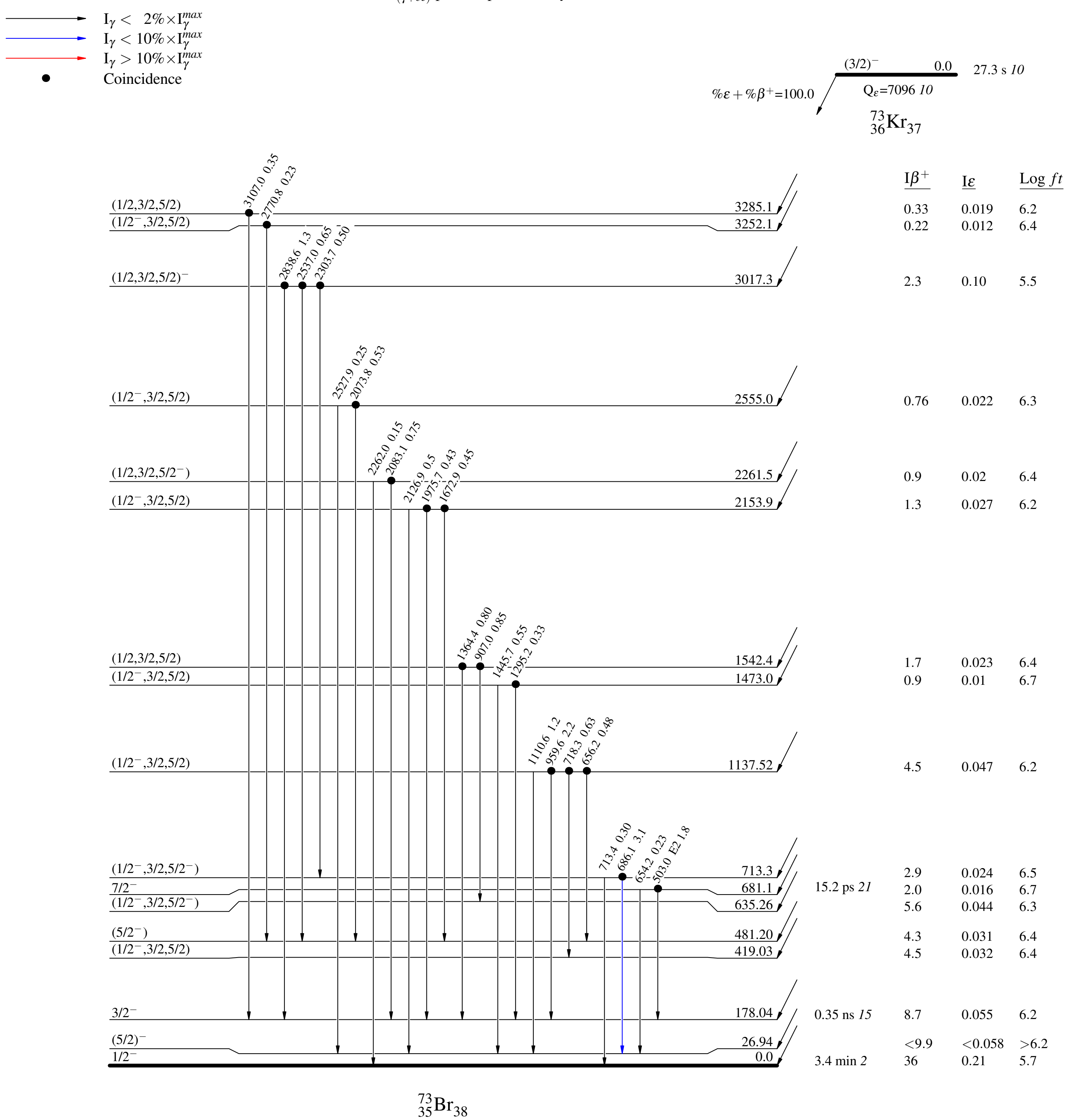


Level	$I\beta^+$	$I\varepsilon$	Log *ft*
6480		0.0021	5.5
6380		0.0036	5.4
6290		0.0038	5.5
6240		0.0022	5.8
6190		0.0040	5.6
6140		0.0029	5.8
6060		0.0105	5.3
5960		0.0058	5.6
5890	0.000012	0.0098	5.5
5830	0.000017	0.0044	5.8
5790	0.000047	0.0067	5.7
5750	0.000093	0.0079	5.6
5700	0.00019	0.0093	5.6
5650	0.00027	0.0081	5.7
5610	0.00018	0.0040	6.0
5560	0.00112	0.0167	5.4
5500	0.00104	0.0105	5.7
5450	0.0011	0.0079	5.8
5390	0.0024	0.0132	5.6
5340	0.0013	0.0055	6.0
5310	0.0014	0.0053	6.1
5270	0.0022	0.0068	6.0
5230	0.0025	0.0066	6.0
5170	0.0033	0.0069	6.0
5090	0.0033	0.0052	6.2
5040	0.0049	0.0065	6.1
4960	0.0038	0.0039	6.3
4890	0.0018	0.0016	6.8
4830	0.0037	0.0026	6.6
4780	0.0025	0.0016	6.8
4740	0.0017	0.00099	7.0
4710	0.0018	0.00094	7.1
4670	0.0024	0.0011	7.0
4640	0.0025	0.0011	7.0
4600	0.0030	0.0012	7.0
4530	0.0032	0.0011	7.0
4500	0.00082	0.00028	7.7
4460	0.0012	0.00038	7.5
4430	0.0005	0.0002	7.9
4380	0.0006	0.0001	8.0
4330	0.0005	0.0001	8.1
4280	0.0002	0.00006	8.4
3469.1	0.23	0.017	6.2
3462.3	0.47	0.033	5.9
178.04	8.7	0.055	6.2
26.94	<9.9	<0.058	>6.2
0.0			

^{73}Kr ε decay (27.3 s) 1999Mi17

Decay Scheme (continued)

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



^{73}Kr ε decay (27.3 s) 1999Mi17

Decay Scheme (continued)

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