Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh, Jun Chen and Ameenah R. Farhan	NDS 194,3 (2024)	8-Jan-2024

Q(β^-)=−8535 *4*; S(n)=12761 *9*; S(p)=7196 *6*; Q(α)=−3570 *4* 2021Wa16
Q(ε)=1275 *10*, S(2n)=22824 *4*, S(2p)=11378 *4* (2021Wa16).
1954Ca03: ^{76}Kr produced and identified in spallation reaction: Y(p,X),E=150, 175, 240 MeV from Rochester cyclotron. Measured half-life of 9.7 h *5* for the decay of ^{76}Kr. Later studies of decay of ^{76}Kr: 1955Th01, 1963Do04, 1973Lo07, 1973Pa02.
Other reactions:
1983Ga19 (also 1984Sn01): ^{64}Zn(^{12}C,γ), ^{58}Ni(^{18}O,γ),E=42-6 MeV, GDR study.
1993HuZZ: ^{76}Kr(π^+,π^-),E=294 MeV. Measured $\sigma(\theta)$.
Additional information 1.
Mass measurements: 2008Go23, 2006Ro11, 2005Ch60, 2002He23.
2007Ya06, 2007Ya20: ^{12}C(^{76}Kr,X),E≤1.05 GeV/nucleon; measured σ; deduced rms matter radius, Glauber model.

^{76}Kr Levels

Cross Reference (XREF) Flags

A	^{76}Rb ε+β^+ decay (36.5 s)	F	^{66}Zn(^{12}C,2nγ),^{58}Ni(^{24}Mg,α2pγ)
B	^{77}Sr εp decay (9.0 s)	G	^{78}Kr(p,t)
C	^{1}H(^{76}Kr,^{76}Kr′γ)	H	^{78}Kr(α,^{6}He)
D	^{40}Ca(^{40}Ca,4pγ)	I	Coulomb excitation
E	^{54}Fe(^{28}Si,α2pγ)		

E(level)[†]	J$^{\pi}$[#]	T$_{1/2}$[‡]	XREF	Comments
0.0[&]	0$^+$	14.79 h *5*	ABCDEFGHI	%ε+%β^+=100 RMS charge radius (<r^2>)$^{1/2}$=4.2020 fm *36* (2013An02 evaluation). T$_{1/2}$: weighted average of 14.82 h *5* (1963Do04, from parent-daughter separations); 14.7 h *1* (1963Do04, growth-decay curve for annihilation radiation, using 16.2 h half-life for ^{76}Br decay); 14.6 h *2* (1973Pa02, γ-decay curves). 1963Do04 measured decay curves for three prominent γ rays and reported T$_{1/2}$=14.1 h, 14.2 h, and 14.3 h, with a counting uncertainty of 0.1 h but an overall uncertainty of 0.5 h in each value. Others: 10.5 h (1955Th01), 9.7 h *5* (1954Ca03).
424.05[&] *7*	2$^+$	27.1 ps *10*	ABCDEFGHI	μ=+0.74 *22* (2004Ku11,2005Be61,2020StZV) Q=−0.7 *2* (2007Cl02) J$^{\pi}$: E2 γ to 0$^+$. μ: transient-field technique in Coul. ex. (2004Ku11,2005Be61). Q: from Coulomb excitation (2007Cl02). No value is given in 2021StZZ compilation. T$_{1/2}$: from recommended B(E2)↑=0.758 *26* (2016Pr01 evaluation), based on the following measurements: RDDS measurements, mean lifetime τ=41.5 ps *8* (2005Go43), 37.7 ps *30* (1990He04), 36 ps *1* (1984Wo10) and 35 ps *3* (1982Ke01). B(E2)↑=0.721 *10* (2007Cl02, Coul. ex. with incident energy above Coulomb barrier). Other: τ=53 ps *7* (1974No08) from RDDS seems discrepant.
769.94[k] *9*	0$^+$	42 ps *6*	A FG I	XREF: F(?). J$^{\pi}$: (346γ)(424γ)(θ) in ^{76}Br ε decay (1978LiZU). Also L=0 in (p,t). T$_{1/2}$: from $\beta\gamma$(t) in ^{76}Rb ε decay. Other: 47.3 ps *17* (2007Cl02, Coulomb excitation using GOSIA analysis).
1034.75[&] *9*	4$^+$	2.72 ps *17*	A CDEFG I	Q=−1.7 *3* (2007Cl02) B(E2)(from 424,2$^+$)=0.444 *6* (2007Cl02 from Coulomb excitation). J$^{\pi}$: ΔJ=2, E2 γ to 2$^+$; rotational band member.

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Adopted Levels, Gammas (continued)

^{76}Kr Levels (continued)

E(level)[†]	J^{π}[#]	$T_{1/2}$[‡]	XREF	Comments
				$T_{1/2}$: weighted average of 3.05 ps *14* (2007Cl02,Coulomb excitation, free fit analysis by GOSIA code), 2.54 ps *6* (RDDS,2005Go43), 2.08 ps *21* (RDDS,1998Sk01), 3.4 ps *3* (RDDS,1984Wo10); 3.5 ps *14* (DSA,1982Pi01); 2.9 ps *7* (RDDS,1982WiZS), uncertainty in 2005Go43 was increased to 5%. Others: 5.7 ps *16* (RDDS,1974No08) seems discrepant; and 4.30 ps *14* (RDDS,1982Ke01) is effective half-life. Q: from Coulomb excitation (2007Cl02). No value is given in 2021StZZ compilation.
1221.72[c] *7*	2^+	1.11 ps *7*	A CDEFGHI	Q=−0.7 *3* (2007Cl02) J^{π}: L(p,t)=2 from 0^+. $T_{1/2}$: from Coulomb excitation using GOSIA analysis (2007Cl02). Other: ≈1 ps (RDDS,1982Ke01). Q: from Coulomb excitation (2007Cl02). No value is given in 2021StZZ compilation.
1598.07 *8*	$(0)^+$	<4.7[@] ps	A	J^{π}: E2 γ to 2^+; possible 828-keV E0 transition to 0^+.
1687.32[k] *8*	2^+	0.326 ps *35*	A FGHI	Q=+1.0 *4* (2007Cl02) J^{π}: L(p,t)=2 from 0^+. $T_{1/2}$: from Coulomb excitation using GOSIA analysis (2007Cl02). Q: from Coulomb excitation (2007Cl02). Other: <4.8 ps from $\beta\gamma$(t) in ε decay. No value is given in 2021StZZ compilation.
1733.26[d] *10*	3^+	≈1 ps	A DEF	J^{π}: ΔJ=1, M1+E2 γ to 2^+, M1,E2 γ to 4^+. $T_{1/2}$: from RDDS (1982Ke01).
1859.7[&] *4*	6^+	0.72 ps *8*	DEF I	Q=−2.0 *3* (2007Cl02) J^{π}: ΔJ=2, E2 γ to 4^+; member of rotational band. $T_{1/2}$: weighted average (NRM) of 0.67 ps *20* (RDDS,2005Go43); 0.55 ps *21* (RDDS,1998Sk01); 0.82 ps *9* (DSA,1989Gr21); 1.04 ps *14* (RDDS,1984Wo10); 0.87 ps *8* (DSA,1982Pi01); 0.55 ps *14* (RDDS,1982WiZS); and 0.568 ps *35* (2007Cl02, Coulomb excitation, free fit analysis by GOSIA code). Q: from Coulomb excitation (2007Cl02).
1957.4[c] *3*	4^+	0.90 ps *14*	CDEF I	J^{π}: ΔJ=2, E2 γ to 2^+; ΔJ=1, M1+E2 γ to 4^+. $T_{1/2}$: from Coul. ex. (2007Cl02) using GOSIA analysis. Other: <0.90 ps *28* (effective half-life from DSAM in (^{12}C,2nγ), 1982Pi01).
2091.49 *10*	$(2)^+$	<34[@] ps	A GH	J^{π}: 1321.6γ M1,E2 to 0^+; L(p,t)=(2,3,4) for a 2079 *15* group would support 2^+.
2104.33 *9*	1^-	16[@] ps *5*	A	J^{π}: E1 γ to 0^+.
2140.17 *16*	$(1,2^+)$		A	J^{π}: 2140.5γ to 0^+.
2192.50 *12*			A	
2227.27[g] *9*	2^-	25[@] ps *6*	A DEF	J^{π}: log *ft*=6.2 from 1^-; E1(+M2) γ to 2^+; 493.8γ to 3^+ can only be D,E2 from RUL.
2257.55[h] *9*	3^-	<5.7[@] ps	A CDEFG	J^{π}: L(p,t)=3 from 0^+.
2332.70 *16*	(1^-)		A	J^{π}: 2333.2γ to 0^+; 1270.1γ M1,E2 from 1^-.
2452.4[d] *4*	5^+	<1.04 ps	DEF	$T_{1/2}$: effective half-life=0.76 ps *28* from DSAM in (^{12}C,2nγ) (1982Pi01). J^{π}: ΔJ=1, M1+E2 γ to 4^+; ΔJ=2, E2 γ to 3^+.
2571.01 *8*	1^-	16[@] ps *4*	A	J^{π}: 973.0γ E1 to 0^+.
2581.12 *10*	(2^+)		A	J^{π}: γs to 4^+ and 2^+; possible β feeding from 1^- parent.
2601 *15*	$(3^-,4^+)$		G	J^{π}: L(p,t)=(3,4) from 0^+.
2622.0[g] *4*	$4^{(-)}$		DEF	J^{π}: ΔJ=2, quadrupole γ to 2^-; ΔJ=1, dipole γs to 4^+ and 3^+; band assignment.
2683.7[h] *5*	(5^-)		DEF	J^{π}: ΔJ=1 γ to 4^+; band assignment.
2700.16 *13*	2^+	<27[@] ps	A G	J^{π}: L(p,t)=2 from 0^+.

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Adopted Levels, Gammas (continued)

^{76}Kr Levels (continued)

E(level)[†]	J$^{\pi}$[#]	T$_{1/2}$[‡]	XREF	Comments
2742.20[i] *21*	(4$^-$)		A DE	J$^{\pi}$: γ ΔJ=1 to 3$^+$; band assignment.
2763.2[c] *5*	(6$^+$)		DEF I	
2774.94 *12*	0$^+$,1,2	22[@] ps *10*	A	J$^{\pi}$: log *ft*=6.4 from 1$^-$; 1553.2γ to 2$^+$ can only be D,E2 from RUL.
2816.57 *18*	(1,2$^+$)	<13[@] ps	A	J$^{\pi}$: 2046.5γ to 0$^+$.
2845.1[a] *5*	(4$^+$)		DE	
2872 *15*	3$^-$		G	J$^{\pi}$: L(p,t)=3 from 0$^+$.
2879.4[&] *5*	8$^+$	0.21 ps *2*	DEF I	J$^{\pi}$: ΔJ=2, E2 γ to 6$^+$; member of rotaional band. T$_{1/2}$: weighted average of 0.23 ps *2* (DSA,1989Gr21); 0.208 ps *21* (DSA,1982Pi01); 0.22 ps *3* (RDDS,1982WiZS); 0.173 ps *21* (from Coul. ex. using GOSIA analysis, 2007Cl02). Other: 0.31 ps *5* (DSA,1984Wo10, effective half-life).
2926.59 *12*	0$^-$,1$^-$,2$^-$	21[@] ps *5*	A	J$^{\pi}$: allowed ε decay (log *ft*=5.8) from 1$^-$; 822.2γ M1 to 1$^-$.
2944.4[j] *6*	(5$^-$)		DE	
2970.1 *3*	(0$^+$,1,2)	<39[@] ps	A	J$^{\pi}$: 2546γ to 2$^+$; possible ε feeding from 1$^-$ parent.
3024.42 *9*	(2)$^-$	18[@] ps *6*	A	J$^{\pi}$: 766.7γ M1,E2 to 3$^-$; strong ε feeding (log *ft*=5.9) from 1$^-$; 1291.3γ to 3$^+$.
3096.1[b] *5*	5$^{(+)}$		DE	J$^{\pi}$: 1236γ D+Q to 6$^+$, 2062γ D to 4$^+$; band assignment.
3175.2[g] *5*	6$^{(-)}$		DEF	J$^{\pi}$: 553.1γ Q, ΔJ=2 to 4$^{(-)}$; 723.5γ D, ΔJ=1 to 5$^+$; band assignment.
3242.1 *3*	(1,2$^+$)	<23[@] ps	A G	J$^{\pi}$: ε feeding from 1$^-$ (log *ft*=6.5); 3242.3γ to 0$^+$.
3275.90 *21*	(1$^+$,2)		A	J$^{\pi}$: possible ε feeding from 1$^-$ (log *ft*=6.9); γ to 3$^+$.
3288.4[h] *5*	(7$^-$)	1.80 ps *+76−44*	DEF	J$^{\pi}$: ΔJ=2, E2 γ to (5$^-$) and ΔJ=1 γ to 6$^+$; T$_{1/2}$: from DSAM in (^{28}Si,p2nγ) (1999Mu21) (See (^{12}C,2nγ) dataset). Other: 0.256 ps *42* (DSAM,1982Pi01).
3296.3[i] *7*	6$^{(-)}$		DE	J$^{\pi}$: 675γ Q, ΔJ=2 to 4$^{(-)}$; 1436γ D to 6$^+$; band assignment.
3332.7[d] *6*	7$^+$	<0.92 ps	DEF	J$^{\pi}$: 879.9γ E2, ΔJ=2 to 5$^+$; 1474γ D+Q to 6$^+$. T$_{1/2}$: effective half-life=0.71 ps *21* from DSAM in (^{12}C,2nγ) (1982Pi01).
3406.2[a] *6*	(6$^+$)		DE	
3421.6 *5*	(0$^+$,1,2)	<24[@] ps	A	J$^{\pi}$: possible ε feedig from 1$^-$ (log *ft*=7.1); γ to 2$^+$.
3456.1 *5*	(0$^-$,1,2)		A G	J$^{\pi}$: possible ε feedig from 1$^-$ (log *ft*=7.2); γ to 2$^-$.
3571.2[c] *8*	(8$^+$)		DEF	
3573.8[j] *7*	(7$^-$)		DE	
3602.81 *13*	1$^-$	<9.7[@] ps	A	J$^{\pi}$: E1 γ to 0$^+$.
3636.3 *3*	1,2$^{(+)}$		A G	J$^{\pi}$: ε feeding from 1$^-$ (log *ft*=6.4); γ to 0$^+$.
3672.24 *22*	(0,1,2)		A	J$^{\pi}$: possible ε feeding from 1$^-$ (log *ft*=6.8).
3781.9[b] *8*	7$^{(+)}$		DE	J$^{\pi}$: 686γ Q, ΔJ=2 to 5$^{(+)}$; 376γ D, ΔJ=1 to 6$^+$; band assignment.
3900.9[g] *8*	8$^{(-)}$	1.12 ps *+28−19*	DEF	J$^{\pi}$: E2, ΔJ=2 γ to 6$^{(-)}$; 568γ D, ΔJ=1 to 7$^+$.
3978.0 *3*	1,2$^{(+)}$	<17[@] ps	A G	J$^{\pi}$: ε feeding from 1$^-$ (log *ft*=6.4); 3978.2γ to 0$^+$.
3986.6 *3*	1,2$^{(+)}$	27[@] ps *18*	A	J$^{\pi}$: ε feeding from 1$^-$ (log *ft*=6.3); 3216.3γ to 0$^+$.
4026.72 *17*	1,2$^{(+)}$	<17[@] ps	A	J$^{\pi}$: ε feeding from 1$^-$ (log *ft*=6.1); γs to 0$^+$.
4068.4[&] *11*	10$^+$	0.102 ps *14*	DEF I	J$^{\pi}$: ΔJ=2, E2 γ to 8$^+$; member of rotational band. T$_{1/2}$: from DSA method. Weighted average of 0.097 ps *14* (1982Pi01); 0.12 ps *3* (1982WiZS); 0.104 ps *21* (Coul. ex. using GOSIA analysis, 2007Cl02). Others (effective half-lives): 0.56 ps *11* (1989Gr21), 0.14 ps *4* (1984Wo10).
4072.8[h] *6*	(9$^-$)	0.56 ps *+9−8*	DEF	T$_{1/2}$: from DSAM in (^{28}Si,p2nγ) (1999Mu21) (See (^{12}C,2nγ) dataset). Other: 0.35 ps *8* (effective half-life, and 0.111 ps *42* from gating above, both from DSAM in (^{12}C,2nγ),1982Pi01).
4097.75 *20*	1,2$^{(+)}$	<18[@] ps	A	J$^{\pi}$: ε feeding from 1$^-$ (log *ft*=6.0); 3327.6γ to 0$^+$.

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Adopted Levels, Gammas (continued)

^{76}Kr Levels (continued)

E(level)[†]	J$^{\pi}$[#]	T$_{1/2}$[‡]	XREF	Comments
4118.3[i] *12*	(8$^-$)		DE	
4217.8[a] *9*	(8$^+$)		DE	
4289.42 *22*	(0,1,2)$^-$		A	J$^{\pi}$: ε feeding from 1$^-$ (log *ft*=5.8); 686.5γ M1,E2 to 1$^-$.
4380.1[d] *8*	(9$^+$)		D	
4403.7 *12*	(9$^+$)	<0.36 ps	F	E(level): this level is only from (^{12}C,2nγ),(^{24}Mg,α2pγ) (1982Pi01, 1989Gr21). It is not reported in more recent studies with high statistics: ^{54}Fe(^{28}Si,α2pγ) (1996Do07) and ^{40}Ca(^{40}Ca,4pγ) (2005Va09). T$_{1/2}$: effective half-life=0.29 ps *7* from DSAM in (^{12}C,2nγ) (1982Pi01).
4433.8[c] *9*	(10$^+$)		DE	
4469.8[j] *9*	(9$^-$)		DE	
4700.5[b] *10*	(9$^+$)		DE	
4806.4[g] *10*	(10$^-$)	0.55 ps *+12−16*	DEF	
5051.3[h] *9*	(11$^-$)	0.163 ps *27*	DEF	T$_{1/2}$: from DSAM in (^{12}C,2nγ); weighted average of 0.180 ps *+35−28* (1999Mu21) and 0.12 ps *5* (1982Pi01).
5106.3[i] *16*	(10$^-$)		DE	
5240.5[a] *11*	10$^{(+)}$		DE	
5348.4[&] *15*	12$^+$	<0.20 ps	DEF	J$^{\pi}$: member of rotational band. T$_{1/2}$: effective half-life=0.166 ps *35* from DSAM in (^{12}C,2nγ) (1982Pi01).
5528.8[j] *14*	(11$^-$)		DE	
5566.8[c] *14*	(12$^+$)		D	
5589.1[d] *13*	(11$^+$)		D	
5795.7[b] *12*	11$^{(+)}$		D	
5873.1[g] *11*	(12$^-$)	0.173 ps *+35−28*	DEF	
6218.3[i] *19*	(12$^-$)		DE	
6222.3[h] *13*	(13$^-$)	0.090 ps *28*	DEF	T$_{1/2}$: from DSAM in (^{28}Si,p2nγ) (1999Mu21) (See (^{12}C,2nγ) dataset). Other: 0.24 ps *6* (effective half-life from DSAM in (^{12}C,2nγ),1982Pi01).
6390.2[a] *13*	(12$^+$)		D	
6605.4[e] *18*	(12$^+$)		D	
6650.4[&] *18*	14$^+$		DEF	J$^{\pi}$: ΔJ=2 γ to 12$^+$; member of rotational band.
6681.8[j] *17*	(13$^-$)		DE	
6937.1[d] *17*	(13$^+$)		D	
7032.4[b] *14*	(13$^+$)		D	
7034.9[c] *17*	(14$^+$)		D	
7110.1[g] *15*	(14$^-$)	<0.19 ps	DEF	
7435.3[i] *21*	(14$^-$)		D	
7554.3[a] *15*	(14$^+$)		D	
7583.3[h] *17*	(15$^-$)	<0.14 ps	DEF	
7606.4[e] *21*	(14$^+$)		D	
7870.9[j] *20*	(15$^-$)		D	
8000.4[&] *21*	16$^+$		DEF	J$^{\pi}$: ΔJ=2 γ to 14$^+$; member of rotational band.
8432.1[d] *19*	(15$^+$)		D	
8521.1[g] *18*	(16$^-$)		DEF	
8666.9[c] *20*	(16$^+$)		D	
8717.4[i] *24*	(16$^-$)		D	
8798.5[e] *23*	(16$^+$)		D	

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Adopted Levels, Gammas (continued)

^{76}Kr Levels (continued)

E(level)[†]	J^{π}[#]	XREF	Comments
8829.3[a] 18	(16$^+$)	D	
9117.4[h] 20	(17$^-$)	DEF	
9217.9[j] 22	(17$^-$)	D	
9400.5[&] 23	18$^+$	DEF	J^π: E2, ΔJ=2 γ to 16$^+$; member of rotational band.
10050.1[d] 22	(17$^+$)	D	
10059.1[g] 21	(18$^-$)	DEF	
10135[i] 3	(18$^-$)	D	
10139.5[e] 25	(18$^+$)	D	
10470.9[c] 22	(18$^+$)	D	
10640.4[h] 22	(19$^-$)	D F	
10773.9[j] 24	(19$^-$)	D	
10936.5[&] 25	20$^+$	D F	J^π: E2, ΔJ=2 γ to 18$^+$; member of rotational band.
11655.1[g] 23	(20$^-$)	D F	
11664[e] 3	(20$^+$)	D	
11719[i] 3	(20$^-$)	D	
11785.1[d] 24	(19$^+$)	D	
12254.4[h] 24	(21$^-$)	D F	
12397.9[c] 24	(20$^+$)	D	
12493[j] 3	(21$^-$)	D	
12695[&] 3	22$^+$	D F	J^π: E2, ΔJ=2 γ to 20$^+$; member of rotational band.
13352.1[g] 25	(22$^-$)	D F	
13388[e] 3	(22$^+$)	D	
13500[i] 3	(22$^-$)	D	
13613[d] 3	(21$^+$)	D	
14026[h] 3	(23$^-$)	D	
14440[j] 3	(23$^-$)	D	
14751[&] 3	24$^+$	D F	J^π: E2, ΔJ=2 γ to 22$^+$; member of rotational band.
15225[g] 3	(24$^-$)	D	
15346[e] 3	(24$^+$)	D	
15503[i] 3	(24$^-$)	D	
16009[h] 3	(25$^-$)	D	
16650[j] 3	(25$^-$)	D	
17157[&] 3	26$^+$	D	J^π: E2, ΔJ=2 γ to 24$^+$; member of rotational band.
17327[g] 3	(26$^-$)	D	
17550[e] 4	(26$^+$)	D	
17859[i] 4	(26$^-$)	D	
18256[h] 3	(27$^-$)	D	
19172[j] 4	(27$^-$)	D	
19741[g] 3	(28$^-$)	D	
19950[&] 4	28$^+$	D	J^π: E2, ΔJ=2 γ to 26$^+$; member of rotational band.
20045[e] 4	(28$^+$)	D	
20538[i] 4	(28$^-$)	D	
20815[h] 4	(29$^-$)	D	
22583[g] 4	(30$^-$)	D	
22790[e] 4	(30$^+$)	D	
23157[&] 4	(30$^+$)	D	J^π: possible member of rotaional band.
23742[h] 4	(31$^-$)	D	

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Adopted Levels, Gammas (continued)

^{76}Kr Levels (continued)

E(level)[†]	J$^{\pi}$[#]	XREF	E(level)[†]	J$^{\pi}$[#]	XREF
25868[g] *4*	(32^-)	D	4847.0+x[f] *20*	(19^+)	D
27083[h] *4*	(33^-)	D	6472.1+x[f] *23*	(21^+)	D
x[f]	(11^+)	D	8309.1+x[f] *25*	(23^+)	D
966.0+x[f] *10*	(13^+)	D	10382+x[f] *3*	(25^+)	D
2097.0+x[f] *15*	(15^+)	D	12696+x[f] *3*	(27^+)	D
3390.0+x[f] *18*	(17^+)	D	15234+x[f] *3*	(29^+)	D

[†] From a least squares fit to Eγ data.

[‡] From DSAM data in (^{28}Si,p2nγ) (1999Mu21) (see (^{12}C,2nγ) dataset), unless otherwise stated.

[#] For low-spin (J<4), assignments are from ^{76}Rb ε decay based on transition multipolarities, log *ft* values, and decay pattern. For high-spin (J≥4) levels, assignments are based on transition multipolarities from $\gamma(\theta)$ and $\gamma\gamma(\theta)$(DCO) values, and band structures.

[@] From $\beta\gamma$(t) data in ^{76}Rb ε decay.

[&] Band(A): g.s. band. Terminating state at 30^+ is proposed (2005Va09) with configuration= $\pi[((g_{9/2})^2_8)((f_{5/2},p_{3/2})^6_6)]_{14}$ $\otimes\nu[((g_{9/2})^4_{12})((f_{5/2},p_{3/2})^8_4)]_{16}$ and for 26^+ state: $\pi[((g_{9/2})^2_8)((f_{5/2},p_{3/2})^6_4)]_{12}$ $\otimes\nu[((g_{9/2})^4_{12})((f_{5/2},p_{3/2})^8_2)]_{14}$.
Q(transition) decreases from 2.3 to 1.8 from 18^+ to 30^+. Band crossings are attributed to alignments of pairs of $g_{9/2}$ protons and neutrons (1989Gr21). Q(intrinsic)=2.90 *4* (1989Gr21).

[a] Band(B): Band based on 4^+,α=0.

[b] Band(b): Band based on 5^+,α=1.

[c] Band(C): Band based on 2^+,α=0.

[d] Band(c): Band based on 3^+,α=1.

[e] Band(D): Band based on 12^+,α=0.

[f] Band(d): Band based on 11^+,α=1.

[g] Band(E): π3/2[431]$\otimes\pi$3/2[312],α=0. Q(transition) decreases from 2.6 to 1.8 from 16^- to 30^-. Terminating state at 32^- is proposed (2005Va09) with configuration= $\pi[((g_{9/2})^3_{21/2})((f_{5/2},p_{3/2})^5_{11/2})]_{16}$ $\otimes\nu[((g_{9/2})^4_{12})((f_{5/2},p_{3/2})^6_4)]_{16}$.

[h] Band(e): π3/2[431]$\otimes\pi$3/2[312],α=1. Q(transition) decreases from 2.9 to 2.2 from 17^- to 31^-.

[i] Band(F): ν3/2[301]$\otimes\nu$5/2[422],α=0.

[j] Band(f): ν3/2[301]$\otimes\nu$5/2[422],α=1.

[k] Band(G): Band based on 770, 0^+.

$\gamma(^{76}Kr)$

Additional information 2.

E_i(level)	J^π_i	E_γ‡	I_γ#	E_f	J^π_f	Mult.&	δ&	α†	$I_{(\gamma+ce)}$	Comments
424.05	2^+	424.0 *1*	100	0.0	0^+	E2		0.00535 *8*		B(E2)(W.u.)=79.3 *+30−28* α(K)=0.00473 *7*; α(L)=0.000529 *7*; α(M)=8.55×10^{-5} *12* α(N)=8.46×10^{-6} *12*
769.94	0^+	345.9 *1*	100@ *3*	424.05	2^+	E2		0.01045 *15*		B(E2)(W.u.)=141 *+24−18* α(K)=0.00922 *13*; α(L)=0.001049 *15*; α(M)=0.0001696 *24* α(N)=1.666×10^{-5} *23*
		770		0.0	0^+	(E0)			0.26	ρ^2(E0,0^+ to 0^+)=0.079 *11*; X(E0/E2)=0.020 *1* (2005Gi17). q^2_K(E0/E2)=0.203 *8*, X(E0/E2)=0.0188 *12*, ρ^2(E0)=0.077 *12* (2022Ki03 evaluation).
1034.75	4^+	610.6 *1*	100	424.05	2^+	E2		1.77×10^{-3} *3*		B(E2)(W.u.)=128.0 *+86−75* α(K)=0.001570 *22*; α(L)=0.0001716 *24*; α(M)=2.78×10^{-5} *4* α(N)=2.77×10^{-6} *4*
1221.72	2^+	797.6 *1*	100@ *3*	424.05	2^+	M1+E2	+0.2 *1*	0.000755 *12*		B(M1)(W.u.)=0.0222 *17*; B(E2)(W.u.)=1.9 *+22−14* α(K)=0.000671 *10*; α(L)=7.12×10^{-5} *11*; α(M)=1.153×10^{-5} *18* α(N)=1.168×10^{-6} *18* Mult.,δ: from ce data in ^{76}Rb ε decay and $\gamma(\theta)$ in (^{12}C,2nγ) Large M1 component seems inconsistent with systematics of δ values for second 2^+ to first 2^+ transitions.
		1221.6 *1*	69@ *4*	0.0	0^+	E2		0.000328 *5*		B(E2)(W.u.)=4.00 *+31−28* α(K)=0.000281 *4*; α(L)=2.98×10^{-5} *4*; α(M)=4.82×10^{-6} *7* α(N)=4.87×10^{-7} *7*; α(IPF)=1.163×10^{-5} *16*
1598.07	$(0)^+$	376.4 *1*	8.1@ *4*	1221.72	2^+	E2		0.00788 *11*		B(E2)(W.u.)>58 α(K)=0.00696 *10*; α(L)=0.000786 *11*; α(M)=0.0001271 *18* α(N)=1.252×10^{-5} *18*
		828		769.94	0^+	(E0)			0.0039	q^2_K(E0/E2)=0.11 *2*, X(E0/E2)=0.140 *26*, ρ^2(E0)<0.60 (2022Ki03 evaluation).
		1174.0 *1*	100 *3*	424.05	2^+	E2		0.000350 *5*		B(E2)(W.u.)>2.6

$^{76}_{36}Kr_{40}$-7

Adopted Levels, Gammas (continued)

$\gamma(^{76}Kr)$ (continued)

E_i(level)	J_i^{π}	E_{γ}[‡]	I_{γ}[#]	E_f	J_f^{π}	Mult.[&]	δ[&]	α[†]	Comments
									α(K)=0.000306 *4*; α(L)=3.25×10^{-5} *5*; α(M)=5.26×10^{-6} *7* α(N)=5.31×10^{-7} *7*; α(IPF)=5.02×10^{-6} *7*
1687.32	2$^+$	466.0 *3*	4.6[@] *16*	1221.72	2$^+$	[M1,E2]		0.0032 *7*	α(K)=0.0029 *6*; α(L)=0.00032 *7*; α(M)=5.1×10^{-5} *12* α(N)=5.1×10^{-6} *12* B(M1)(W.u.)=0.0187 *+70−65* if M1, B(E2)(W.u.)=116 *+43−41* if E2.
		652.6 *1*	9.2[@] *3*	1034.75	4$^+$	[E2]		1.47×10^{-3} *2*	α(K)=0.001303 *18*; α(L)=0.0001419 *20*; α(M)=2.296×10^{-5} *32* α(N)=2.297×10^{-6} *32* B(E2)(W.u.)=43.1 *+57−47*
		917.4 *1*	100[@] *6*	769.94	0$^+$	[E2]		0.000608 *9*	α(K)=0.000540 *8*; α(L)=5.79×10^{-5} *8*; α(M)=9.37×10^{-6} *13* α(N)=9.42×10^{-7} *13* B(E2)(W.u.)=85 *+10−9*
		1263.2 *2*	21.2[@] *7*	424.05	2$^+$	M1,E2		0.000308 *7*	α(K)=0.000258 *5*; α(L)=2.73×10^{-5} *6*; α(M)=4.42×10^{-6} *9* α(N)=4.47×10^{-7} *9*; α(IPF)=1.73×10^{-5} *23* B(M1)(W.u.)=0.00433 *+57−47* if M1, B(E2)(W.u.)=3.65 *+48−40* if E2.
		1687.1 *2*	28.8[@] *10*	0.0	0$^+$	[E2]		0.000327 *5*	α(K)=0.0001454 *20*; α(L)=1.531×10^{-5} *21*; α(M)=2.476×10^{-6} *35* α(N)=2.506×10^{-7} *35*; α(IPF)=0.0001633 *23* B(E2)(W.u.)=1.17 *+15−13*
1733.26	3$^+$	511.6 *2*	20[@] *12*	1221.72	2$^+$	[M1,E2]		0.0025 *5*	α(K)=0.0022 *4*; α(L)=0.00024 *5*; α(M)=3.9×10^{-5} *8* α(N)=3.9×10^{-6} *8* B(M1)(W.u.)≈0.026 if M1, B(E2)(W.u.)≈1.3×10^2 if E2.
		698.4 *1*	8.7[@] *8*	1034.75	4$^+$	M1,E2		0.00111 *11*	α(K)=0.00099 *10*; α(L)=0.000106 *11*; α(M)=1.72×10^{-5} *18* α(N)=1.73×10^{-6} *18* I_{γ}: 18.2 in ^{40}Ca(^{40}Ca,4pγ). B(M1)(W.u.)≈0.0044 if M1, B(E2)(W.u.)≈12 if E2.
		1309.3 *1*	100 *4*	424.05	2$^+$	M1+E2	+0.38 *4*	0.000292 *4*	B(M1)(W.u.)≈0.0067; B(E2)(W.u.)≈0.75 α(K)=0.0002381 *33*; α(L)=2.508×10^{-5} *35*; α(M)=4.06×10^{-6} *6* α(N)=4.11×10^{-7} *6*; α(IPF)=2.39×10^{-5} *4*
1859.7	6$^+$	824.4 *7*	100	1034.75	4$^+$	E2		0.000792 *11*	B(E2)(W.u.)=108 *+14−11* α(K)=0.000703 *10*; α(L)=7.57×10^{-5} *11*; α(M)=1.225×10^{-5} *17* α(N)=1.230×10^{-6} *17*
1957.4	4$^+$	736.0 *5*	57 *6*	1221.72	2$^+$	E2		1.06×10^{-3} *2*	B(E2)(W.u.)=46.6 *+99−75* α(K)=0.000942 *13*; α(L)=0.0001019 *14*; α(M)=1.649×10^{-5} *23* α(N)=1.654×10^{-6} *23* I_{γ}: 81.6 in ^{40}Ca(^{40}Ca,4pγ).
		922.6 *5*	100 *10*	1034.75	4$^+$	M1+E2	−0.84 *5*	0.000570 *8*	B(M1)(W.u.)=0.0098 *+20−15*; B(E2)(W.u.)=10.9 *+22−18*

$^{76}_{36}Kr_{40}$-8

γ(^{76}Kr) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[#]	E_f	J_f^π	Mult.[&]	α[†]	Comments
								α(K)=0.000507 *7*; α(L)=5.39×10^{-5} *8*; α(M)=8.73×10^{-6} *13* α(N)=8.81×10^{-7} *13*
1957.4	4$^+$	1532.9 *5*	29 *3*	424.05	2$^+$	[E2]	0.000295 *4*	B(E2)(W.u.)=0.61 *+14−10* α(K)=0.0001755 *25*; α(L)=1.851×10^{-5} *26*; α(M)=2.99×10^{-6} *4* α(N)=3.03×10^{-7} *4*; α(IPF)=9.75×10^{-5} *14*
2091.49	(2)$^+$	403.9 *3*	20.7[@] *11*	1687.32	2$^+$	[M1,E2]	0.0049 *14*	α(K)=0.0043 *12*; α(L)=4.8×10^{-4} *14*; α(M)=7.8×10^{-5} *23* α(N)=7.7×10^{-6} *22* B(M1)(W.u.)>8.7×10^{-4} if M1, B(E2)(W.u.)>7.2 if E2.
		493.4 *1*	14[@] *5*	1598.07	(0)$^+$	[E2]	0.00333 *5*	α(K)=0.00294 *4*; α(L)=0.000326 *5*; α(M)=5.27×10^{-5} *7* α(N)=5.24×10^{-6} *7* B(E2)(W.u.)>1.3
		870[a]		1221.72	2$^+$	M1,E2	0.00066 *4*	α(K)=0.000584 *32*; α(L)=6.2×10^{-5} *4*; α(M)=1.01×10^{-5} *6* α(N)=1.02×10^{-6} *6*
		1321.6 *3*	100[@] *3*	769.94	0$^+$	(E2)	0.000300 *4*	B(E2)(W.u.)>0.096 α(K)=0.0002376 *33*; α(L)=2.515×10^{-5} *35*; α(M)=4.07×10^{-6} *6* α(N)=4.11×10^{-7} *6*; α(IPF)=3.27×10^{-5} *5* Mult.: α(K)exp from 2005Gi17 in ^{76}Rb ε decay gives M1,E2; ΔJ^π requires E2.
		1667.6 *3*	78.7[@] *6*	424.05	2$^+$	[M1,E2]	0.000308 *15*	α(K)=0.0001484 *21*; α(L)=1.560×10^{-5} *23*; α(M)=2.52×10^{-6} *4* α(N)=2.56×10^{-7} *4*; α(IPF)=0.000141 *14* B(M1)(W.u.)>4.9×10^{-5} if M1, B(E2)(W.u.)>0.024 if E2.
2104.33	1$^-$	417.1 *1*	2.0 *2*	1687.32	2$^+$	[E1]	1.53×10^{-3} *2*	α(K)=0.001362 *19*; α(L)=0.0001447 *20*; α(M)=2.338×10^{-5} *33* α(N)=2.349×10^{-6} *33* B(E1)(W.u.)=4.2×10^{-6} *+20−11*
		506.0 *9*	7 *3*	1598.07	(0)$^+$	[E1]	0.000944 *14*	α(K)=0.000839 *12*; α(L)=8.89×10^{-5} *13*; α(M)=1.437×10^{-5} *21* α(N)=1.446×10^{-6} *21* B(E1)(W.u.)=8.3×10^{-6} *+55−36*
		882.4 *2*	22 *5*	1221.72	2$^+$	[E1]	0.000273 *4*	α(K)=0.0002430 *34*; α(L)=2.56×10^{-5} *4*; α(M)=4.13×10^{-6} *6* α(N)=4.17×10^{-7} *6* B(E1)(W.u.)=4.9×10^{-6} *+25−15*
		1334.4 *3*	6.3 *23*	769.94	0$^+$	[E1]	0.000261 *4*	α(K)=0.0001124 *16*; α(L)=1.177×10^{-5} *16*; α(M)=1.902×10^{-6} *27* α(N)=1.926×10^{-7} *27*; α(IPF)=0.0001343 *19* B(E1)(W.u.)=4.1×10^{-7} *+25−17*
		1680.3 *2*	100 *5*	424.05	2$^+$	E1	0.000478 *7*	B(E1)(W.u.)=3.2×10^{-6} *+15−8* α(K)=7.68×10^{-5} *11*; α(L)=8.01×10^{-6} *11*; α(M)=1.295×10^{-6} *18* α(N)=1.312×10^{-7} *18*; α(IPF)=0.000391 *5*
		2104.3 *5*	16.0 *5*	0.0	0$^+$	[E1]	0.000761 *11*	B(E1)(W.u.)=2.6×10^{-7} *+12−7*

$^{76}_{36}$Kr$_{40}$-9

γ(^{76}Kr) (continued)

E_i(level)	J^π_i	E_γ‡	I_γ#	E_f	J^π_f	Mult.&	δ&	α†	Comments
									α(K)=5.43×10^{-5} *8*; α(L)=5.66×10^{-6} *8*; α(M)=9.14×10^{-7} *13* α(N)=9.27×10^{-8} *13*; α(IPF)=0.000700 *10*
2140.17	(1,2$^+$)	918.5 *7*	100 *33*	1221.72	2$^+$				
		2140.5 *2*	26 *3*	0.0	0$^+$				
2192.50		1768.4 *2*	100	424.05	2$^+$				
2227.27	2$^-$	493.8 *7*	6.4@ *18*	1733.26	3$^+$	[E1]		1.00×10^{-3} *1*	α(K)=0.000890 *13*; α(L)=9.44×10^{-5} *14*; α(M)=1.526×10^{-5} *22* α(N)=1.535×10^{-6} *22* B(E1)(W.u.)=6.3×10^{-6} *+26−21*
		540.0 *1*	2.2@ *2*	1687.32	2$^+$	[E1]		0.000806 *11*	α(K)=0.000717 *10*; α(L)=7.59×10^{-5} *11*; α(M)=1.227×10^{-5} *17* α(N)=1.235×10^{-6} *17* B(E1)(W.u.)=1.65×10^{-6} *+52−36*
		1005.5 *1*	19.1@ *6*	1221.72	2$^+$	[E1]		0.0002113 *30*	α(K)=0.0001881 *26*; α(L)=1.975×10^{-5} *28*; α(M)=3.19×10^{-6} *4* α(N)=3.23×10^{-7} *5* B(E1)(W.u.)=2.22×10^{-6} *+67−45*
		1803.2 *1*	100@ *3*	424.05	2$^+$	E1(+M2)	0.33 *+18−33*	0.000540 *23*	B(E1)(W.u.)=1.82×10^{-6} *+91−56*; B(M2)(W.u.)<0.79 α(K)=8.6×10^{-5} *19*; α(L)=9.0×10^{-6} *20*; α(M)=1.45×10^{-6} *32* α(N)=1.47×10^{-7} *33*; α(IPF)=0.00044 *4*
2257.55	3$^-$	1035.5 *1*	11.8@ *9*	1221.72	2$^+$	[E1]		0.0001998 *28*	α(K)=0.0001778 *25*; α(L)=1.867×10^{-5} *26*; α(M)=3.02×10^{-6} *4* α(N)=3.05×10^{-7} *4* B(E1)(W.u.)>4.2×10^{-6} E_γ: level-energy difference=1035.8, energy uncertainty is probably underestimated.
		1222.6 *6*	26@ *15*	1034.75	4$^+$	[E1]		0.0002066 *29*	α(K)=0.0001311 *18*; α(L)=1.373×10^{-5} *19*; α(M)=2.220×10^{-6} *31* α(N)=2.246×10^{-7} *32*; α(IPF)=5.94×10^{-5} *9* B(E1)(W.u.)>3.1×10^{-6}
		1833.6 *1*	100@ *3*	424.05	2$^+$	E1(+M2)	0.12 *+28−12*	0.000577 *29*	B(E1)(W.u.)>6.0×10^{-6} α(K)=6.9×10^{-5} *21*; α(L)=7.2×10^{-6} *22*; α(M)=1.17×10^{-6} *35* α(N)=1.2×10^{-7} *4*; α(IPF)=0.00050 *5*
2332.70	(1$^-$)	1908.5 *2*	100 *5*	424.05	2$^+$				
		2333.2 *4*	31 *8*	0.0	0$^+$				

$^{76}_{36}Kr_{40}$-10

$\gamma(^{76}Kr)$ (continued)

E_i(level)	J^π_i	E_γ‡	I_γ#	E_f	J^π_f	Mult.&	δ&	α†	Comments
2452.4	5^+	719.9 *10*	50	1733.26	3^+	E2		1.13×10^{-3} *2*	B(E2)(W.u.)>37 α(K)=0.000998 *14*; α(L)=0.0001082 *16*; α(M)=1.751×10^{-5} *25* α(N)=1.755×10^{-6} *25* I_γ: from ^{40}Ca(^{40}Ca,4pγ).
		1417.2 *5*	100	1034.75	4^+	M1+E2	+4 *2*	0.000288 *5*	B(M1)(W.u.)>1.2×10^{-4}; B(E2)(W.u.)>2.3 α(K)=0.0002055 *29*; α(L)=2.170×10^{-5} *31*; α(M)=3.51×10^{-6} *5* α(N)=3.55×10^{-7} *5*; α(IPF)=5.66×10^{-5} *19*
2571.01	1^-	378.5 *1*	0.70 *3*	2192.50		M1+E2	0.9 *+8−5*	0.0057 *11*	B(M1)(W.u.)=7.8×10^{-5} *+51−43*; B(E2)(W.u.)=0.59 *+46−42* α(K)=0.0051 *10*; α(L)=0.00056 *12*; α(M)=9.1×10^{-5} *19* α(N)=9.1×10^{-6} *18*
		466.9 *13*	0.3 *1*	2104.33	1^-	[M1,E2]		0.0032 *7*	α(K)=0.0029 *6*; α(L)=0.00031 *7*; α(M)=5.1×10^{-5} *12* α(N)=5.1×10^{-6} *12* B(M1)(W.u.)=3.2×10^{-5} *+16−12* if M1, B(E2)(W.u.)=0.199 *+98−73* if E2.
		479.5 *1*	2.25 *8*	2091.49	$(2)^+$	E1(+M2)	<0.17	0.00117 *10*	B(E1)(W.u.)=3.8×10^{-6} *+17−11* α(K)=0.00104 *9*; α(L)=0.000111 *10*; α(M)=1.80×10^{-5} *16* α(N)=1.81×10^{-6} *16* B(M2)(W.u.)<3.1 upper limit exceeds RUL=1.
		883.6 *1*	12.5 *4*	1687.32	2^+	E1		0.000272 *4*	B(E1)(W.u.)=3.4×10^{-6} *+12−7* α(K)=0.0002423 *34*; α(L)=2.55×10^{-5} *4*; α(M)=4.12×10^{-6} *6* α(N)=4.16×10^{-7} *6*
		973.0 *1*	6.1 *2*	1598.07	$(0)^+$	E1		0.0002251 *32*	B(E1)(W.u.)=1.24×10^{-6} *+42−26* α(K)=0.0002004 *28*; α(L)=2.105×10^{-5} *29*; α(M)=3.40×10^{-6} *5* α(N)=3.44×10^{-7} *5*
		1349.3 *1*	2.22 *7*	1221.72	2^+	[E1]		0.000268 *4*	α(K)=0.0001103 *15*; α(L)=1.154×10^{-5} *16*; α(M)=1.866×10^{-6} *26* α(N)=1.889×10^{-7} *26*; α(IPF)=0.0001437 *20* B(E1)(W.u.)=1.70×10^{-7} *+58−35*
		2147.2 *3*	1.39 *7*	424.05	2^+	[E1]		0.000788 *11*	α(K)=5.27×10^{-5} *7*; α(L)=5.49×10^{-6} *8*; α(M)=8.87×10^{-7} *12* α(N)=8.99×10^{-8} *13*; α(IPF)=0.000729 *10* B(E1)(W.u.)=2.63×10^{-8} *+91−55*
		2571.1 *2*	100 *4*	0.0	0^+	[E1]		1.04×10^{-3} *2*	α(K)=4.07×10^{-5} *6*; α(L)=4.23×10^{-6} *6*; α(M)=6.83×10^{-7} *10*

$^{76}_{36}Kr_{40}$-11

Adopted Levels, Gammas (continued)

$\gamma(^{76}$Kr) (continued)

E_i(level)	J^π_i	E_γ ‡	I_γ #	E_f	J^π_f	Mult.&	δ&	α†	Comments
									α(N)=6.93×10^{-8} 10; α(IPF)=0.000999 14 B(E1)(W.u.)=1.10×10^{-6} +37−22
2581.12	(2$^+$)	1359.4 1	100 4	1221.72	2$^+$				
		1546.1 3	47 19	1034.75	4$^+$				
2622.0	4$^{(-)}$	364		2257.55	3$^-$				E$_\gamma$: from ^{54}Fe(^{28}Si,α2pγ) only.
		395.2 6	26	2227.27	2$^-$	Q			
		888 1	60	1733.26	3$^+$	D			
		1588 1	100	1034.75	4$^+$	D			
2683.7	(5$^-$)	426 1	6.7	2257.55	3$^-$				
		1649 1	100	1034.75	4$^+$	D+Q	+0.04 3		
2700.16	2$^+$	1665.6 5	25@ 4	1034.75	4$^+$	[E2]		0.000321 5	α(K)=0.0001491 21; α(L)=1.570×10^{-5} 22; α(M)=2.54×10^{-6} 4 α(N)=2.57×10^{-7} 4; α(IPF)=0.0001539 22 B(E2)(W.u.)>0.014
		2276.6 4	100@ 5	424.05	2$^+$	[M1,E2]		0.000510 28	α(K)=8.34×10^{-5} 12; α(L)=8.73×10^{-6} 13; α(M)=1.412×10^{-6} 20 α(N)=1.432×10^{-7} 20; α(IPF)=0.000417 28 B(M1)(W.u.)>5.3×10^{-5} if M1, B(E2)(W.u.)>0.014 if E2.
2742.20	(4$^-$)	483		2257.55	3$^-$				E$_\gamma$: from ^{54}Fe(^{28}Si,α2pγ) only.
		1009.0 2	100	1733.26	3$^+$	D			
2763.2	(6$^+$)	805.7 5	100	1957.4	4$^+$	Q			
2774.94	0$^+$,1,2	1553.2 1	56 3	1221.72	2$^+$				
		2350.9 4	100 4	424.05	2$^+$				
2816.57	(1,2$^+$)	2046.5 2	30 2	769.94	0$^+$				
		2392.8 4	100 3	424.05	2$^+$				
		2816.6 4	<56	0.0	0$^+$				
2845.1	(4$^+$)	223 1	7.7	2622.0	4$^{(-)}$				
		1112 1	100	1733.26	3$^+$	D+Q			
		1811 1	7.7	1034.75	4$^+$	D			
2879.4	8$^+$	1019.7 2	100	1859.7	6$^+$	E2		0.000473 7	B(E2)(W.u.)=128 +13−11 α(K)=0.000421 6; α(L)=4.49×10^{-5} 6; α(M)=7.26×10^{-6} 10 α(N)=7.32×10^{-7} 10
2926.59	0$^-$,1$^-$,2$^-$	355.6 1	100 3	2571.01	1$^-$	M1(+E2)	<0.12	0.00484 8	B(M1)(W.u.)=0.0203 +75−47; B(E2)(W.u.)<4.2 α(K)=0.00429 7; α(L)=0.000464 7; α(M)=7.52×10^{-5} 12 α(N)=7.58×10^{-6} 12
		822.2 2	14 4	2104.33	1$^-$	M1		0.000703 10	α(K)=0.000625 9; α(L)=6.63×10^{-5} 9; α(M)=1.073×10^{-5} 15 α(N)=1.086×10^{-6} 15 B(M1)(W.u.)=2.31×10^{-4} +95−72
2944.4	(5$^-$)	261 1	39	2683.7	(5$^-$)	D			
		987		1957.4	4$^+$				E$_\gamma$: from ^{54}Fe(^{28}Si,α2pγ) only.
		1084 1	100	1859.7	6$^+$	D			
2970.1	(0$^+$,1,2)	2546.0 3	100	424.05	2$^+$				

From ENSDF

$^{76}_{36}$Kr$_{40}$-12

Adopted Levels, Gammas (continued)

γ(^{76}Kr) (continued)

E_i(level)	J^π_i	E_γ‡	I_γ#	E_f	J^π_f	Mult.&	δ&	α†	Comments
3024.42	(2)$^-$	324.3 *1*	14.5 *8*	2700.16	2$^+$	[E1]		0.00299 *4*	α(K)=0.00265 *4*; α(L)=0.000283 *4*; α(M)=4.56×10^{-5} *6* α(N)=4.57×10^{-6} *6* B(E1)(W.u.)=3.4×10^{-5} *+17−9*
		443.3 *1*	5.0 *5*	2581.12	(2$^+$)	[E1]		1.31×10^{-3} *2*	α(K)=0.001166 *16*; α(L)=0.0001238 *17*; α(M)=2.000×10^{-5} *28* α(N)=2.010×10^{-6} *28* B(E1)(W.u.)=4.6×10^{-6} *+24−12*
		453.5 *2*	100 *4*	2571.01	1$^-$	M1(+E2)	0.3 *3*	0.00282 *30*	B(M1)(W.u.)=0.0046 *+33−20*; B(E2)(W.u.)<14 α(K)=0.00251 *26*; α(L)=0.000270 *31*; α(M)=4.4×10^{-5} *5* α(N)=4.4×10^{-6} *5*
		766.7 *1*	56.6 *17*	2257.55	3$^-$	M1,E2		0.00089 *7*	α(K)=0.00079 *6*; α(L)=8.4×10^{-5} *7*; α(M)=1.36×10^{-5} *12* α(N)=1.37×10^{-6} *11* B(M1)(W.u.)=5.8×10^{-4} *+30−15* if M1, B(E2)(W.u.)=1.34 *+69−34* if E2.
		920.2 *1*	16.8 *8*	2104.33	1$^-$	M1,E2		0.000578 *27*	α(K)=0.000513 *24*; α(L)=5.47×10^{-5} *28*; α(M)=8.9×10^{-6} *5* α(N)=8.9×10^{-7} *4* B(M1)(W.u.)=1.00×10^{-4} *+52−26* if M1, B(E2)(W.u.)=0.159 *+82−41* if E2.
		1291.3 *3*	8.5 *13*	1733.26	3$^+$	[E1]		0.0002397 *34*	α(K)=0.0001190 *17*; α(L)=1.246×10^{-5} *17*; α(M)=2.014×10^{-6} *28* α(N)=2.039×10^{-7} *29*; α(IPF)=0.0001060 *15* B(E1)(W.u.)=3.2×10^{-7} *+17−9*
		2600.2 *4*	61 *2*	424.05	2$^+$	[E1]		1.06×10^{-3} *2*	α(K)=4.00×10^{-5} *6*; α(L)=4.16×10^{-6} *6*; α(M)=6.72×10^{-7} *9* α(N)=6.82×10^{-8} *10*; α(IPF)=0.001016 *14* B(E1)(W.u.)=2.8×10^{-7} *+14−7*
3096.1	5$^{(+)}$	252 *1*	100	2845.1	(4$^+$)	D			
		354 *1*	20	2742.20	(4$^-$)	D			
		412 *1*	53	2683.7	(5$^-$)	D			
		1236 *1*	53	1859.7	6$^+$	D+Q			
		1363 *1*	13	1733.26	3$^+$				
		2062 *1*	67	1034.75	4$^+$	D			
3175.2	6$^{(-)}$	433		2742.20	(4$^-$)	Q			E_γ: from ^{54}Fe(^{28}Si,α2pγ) only.
		491		2683.7	(5$^-$)				E_γ: from ^{54}Fe(^{28}Si,α2pγ) only.
		553.1 *6*	90	2622.0	4$^{(-)}$	Q			
		723.5 *10*	100	2452.4	5$^+$	D			
3242.1	(1,2$^+$)	2817.3 *9*	100@ *29*	424.05	2$^+$				
		3242.3 *3*	57@ *9*	0.0	0$^+$				
3275.90	(1$^+$,2)	1542.6 *2*	35 *4*	1733.26	3$^+$				
		2054.3 *5*	100 *5*	1221.72	2$^+$				

$\gamma(^{76}Kr)$ (continued)

E_i(level)	J_i^π	E_γ‡	I_γ#	E_f	J_f^π	Mult.&	δ&	α†	Comments
3288.4	(7^-)	525		2763.2	(6^+)				E_γ: from $^{54}Fe(^{28}Si,\alpha2p\gamma)$ only.
		604.9 *5*	85	2683.7	(5^-)	E2		1.82×10^{-3} *3*	B(E2)(W.u.)=93 *+34−30* α(K)=0.001613 *23*; α(L)=0.0001763 *25*; α(M)=2.85×10^{-5} *4* α(N)=2.85×10^{-6} *4*
		1428.5 *5*	100	1859.7	6^+	(E1(+M2))	0.00 *4*	0.000308 *4*	B(E1)(W.u.)=3.9×10^{-5} *+14−12*; B(M2)(W.u.)<0.27 α(K)=0.0001001 *15*; α(L)=1.047×10^{-5} *16*; α(M)=1.692×10^{-6} *25* α(N)=1.714×10^{-7} *26*; α(IPF)=0.0001951 *28*
3296.3	$6^{(-)}$	554 *1*	24	2742.20	(4^-)	Q			
		675 *1*	100	2622.0	$4^{(-)}$	Q			
		1436 *1*	62	1859.7	6^+	D			
3332.7	7^+	879.9 *5*	100	2452.4	5^+	E2		0.000673 *9*	B(E2)(W.u.)>29 α(K)=0.000598 *8*; α(L)=6.42×10^{-5} *9*; α(M)=1.038×10^{-5} *15* α(N)=1.044×10^{-6} *15*
		1474 *1*	72	1859.7	6^+	(M1+E2)		0.000280 *10*	α(K)=0.0001889 *28*; α(L)=1.990×10^{-5} *31*; α(M)=3.22×10^{-6} *5* α(N)=3.26×10^{-7} *5*; α(IPF)=6.8×10^{-5} *8* Mult.: D+Q, ΔJ=1 from $\gamma\gamma$(DCO) in $(^{40}Ca,4p\gamma)$; $\Delta\pi$=no from level scheme. B(M1)(W.u.)>0.0024 if M1, B(E2)(W.u.)>1.5 if E2.
3406.2	(6^+)	231 *1*	31	3175.2	$6^{(-)}$				
		311 *1*	100	3096.1	$5^{(+)}$	D			
		461 *1*	31	2944.4	(5^-)	D			
		561 *1*	56	2845.1	(4^+)	Q			
3421.6	$(0^+,1,2)$	2997.5 *5*	100	424.05	2^+				
3456.1	$(0^-,1,2)$	431.7 *5*	100	3024.42	$(2)^-$				
3571.2	(8^+)	808 *1*	53	2763.2	(6^+)	Q			
		1712 *1*	100	1859.7	6^+	Q			
3573.8	(7^-)	285 *1*	47	3288.4	(7^-)				
		630 *1*	100	2944.4	(5^-)				
		890		2683.7	(5^-)				E_γ: from $^{54}Fe(^{28}Si,\alpha2p\gamma)$ only.
3602.81	1^-	1270.1 *2*	4.0 *3*	2332.70	(1^-)	M1,E2		0.000306 *7*	α(K)=0.000255 *5*; α(L)=2.70×10^{-5} *6*; α(M)=4.37×10^{-6} *9* α(N)=4.42×10^{-7} *8*; α(IPF)=1.86×10^{-5} *25* B(M1)(W.u.)>2.4×10^{-5} if M1, B(E2)(W.u.)>0.02 if E2.
		1463.0 *2*	4.2 *9*	2140.17	$(1,2^+)$				
		1498.4 *3*	3.4 *4*	2104.33	1^-	[M1,E2]		0.000282 *10*	α(K)=0.0001829 *27*; α(L)=1.925×10^{-5} *30*;

$^{76}_{36}Kr_{40}$-14

Adopted Levels, Gammas (continued)

$\gamma(^{76}\mathrm{Kr})$ (continued)

E_i(level)	J^{π}_{i}	E_{γ}‡	I_{γ}#	E_f	J^{π}_{f}	Mult.&	α†	Comments
								α(M)=3.11×10^{-6} *5* α(N)=3.15×10^{-7} *5*; α(IPF)=7.6×10^{-5} *8* B(M1)(W.u.)>1.2×10^{-5} if M1, B(E2)(W.u.)>0.0072 if E2.
3602.81	1$^-$	3178.3 *2*	100 *12*	424.05	2$^+$	[E1]	1.35×10^{-3} *2*	α(K)=3.04×10^{-5} *4*; α(L)=3.16×10^{-6} *4*; α(M)=5.10×10^{-7} *7* α(N)=5.18×10^{-8} *7*; α(IPF)=0.001313 *18* B(E1)(W.u.)>7.4×10^{-7}
		3602.8 *10*	36 *7*	0.0	0$^+$	E1	1.54×10^{-3} *2*	B(E1)(W.u.)>1.6×10^{-7} α(K)=2.58×10^{-5} *4*; α(L)=2.67×10^{-6} *4*; α(M)=4.32×10^{-7} *6* α(N)=4.38×10^{-8} *6*; α(IPF)=0.001512 *21*
3636.3	1,2$^{(+)}$	3214.2 *14*	100@ *23*	424.05	2$^+$			
		3636.1 *3*	44@ *8*	0.0	0$^+$			
3672.24	(0,1,2)	432.0 *9*	19 *10*	3242.1	(1,2$^+$)			
		1567.8 *2*	100 *6*	2104.33	1$^-$			
3781.9	7$^{(+)}$	376 *1*	100	3406.2	(6$^+$)	D		
		686 *1*	60	3096.1	5$^{(+)}$	Q		
3900.9	8$^{(-)}$	568 *1*	15	3332.7	7$^+$	(E1)	0.000715 *10*	B(E1)(W.u.)=2.39×10^{-4} *+84−72* α(K)=0.000636 *9*; α(L)=6.73×10^{-5} *10*; α(M)=1.087×10^{-5} *16* α(N)=1.095×10^{-6} *16*
		726 *1*	100	3175.2	6$^{(-)}$	E2	1.10×10^{-3} *2*	B(E2)(W.u.)=113 *24* α(K)=0.000976 *14*; α(L)=0.0001058 *15*; α(M)=1.711×10^{-5} *25* α(N)=1.716×10^{-6} *25*
3978.0	1,2$^{(+)}$	3553.6 *4*	100@ *17*	424.05	2$^+$			
		3978.2 *4*	93@ *14*	0.0	0$^+$			
3986.6	1,2$^{(+)}$	3216.3 *4*	100 *16*	769.94	0$^+$			
		3562.7 *4*	93 *14*	424.05	2$^+$			
4026.72	1,2$^{(+)}$	2805.5 *3*	32 *3*	1221.72	2$^+$			
		3257.4 *5*	27 *9*	769.94	0$^+$			
		3602.2 *2*	100 *24*	424.05	2$^+$			
		4026.8 *6*	51 *9*	0.0	0$^+$			
4068.4	10$^+$	1189 *1*	100	2879.4	8$^+$	E2	0.000342 *5*	B(E2)(W.u.)=122 *+19−15* α(K)=0.000298 *4*; α(L)=3.16×10^{-5} *4*; α(M)=5.12×10^{-6} *7* α(N)=5.16×10^{-7} *7*; α(IPF)=6.76×10^{-6} *16*
4072.8	(9$^-$)	784.4 *4*	100	3288.4	(7$^-$)	[E2]	0.000899 *13*	B(E2)(W.u.)=178 *+30−25* α(K)=0.000798 *11*; α(L)=8.61×10^{-5} *12*; α(M)=1.393×10^{-5} *20* α(N)=1.398×10^{-6} *20*
4097.75	1,2$^{(+)}$	3327.6 *5*	13 *4*	769.94	0$^+$			
		3673.6 *2*	100 *11*	424.05	2$^+$			
		4098.8 *17*	46 *8*	0.0	0$^+$			

$^{76}_{36}\mathrm{Kr}_{40}$-15

γ(^{76}Kr) (continued)

E_i(level)	J^π_i	E_γ‡	I_γ#	E_f	J^π_f	Mult.&	α†	Comments
4118.3	(8$^-$)	822 *1*	100	3296.3	6$^{(-)}$	Q		
4217.8	(8$^+$)	436 *1*	100	3781.9	7$^{(+)}$	D		
		811 *1*	91	3406.2	(6$^+$)	Q		
4289.42	(0,1,2)$^-$	686.5 *4*	14.4 *11*	3602.81	1$^-$	M1,E2	0.00116 *12*	α(K)=0.00103 *10*; α(L)=0.000111 *12*; α(M)=1.80$\times10^{-5}$ *20* α(N)=1.81$\times10^{-6}$ *19*
		1718.6 *4*	100 *4*	2571.01	1$^-$	M1,E2	0.000319 *16*	α(K)=0.0001401 *20*; α(L)=1.472$\times10^{-5}$ *21*; α(M)=2.381$\times10^{-6}$ *34* α(N)=2.413$\times10^{-7}$ *34*; α(IPF)=0.000162 *15*
		2185.0 *3*	55 *3*	2104.33	1$^-$			
4380.1	(9$^+$)	1047 *1*	100	3332.7	7$^+$			
		1501 *1*	45	2879.4	8$^+$			
4403.7	(9$^+$)	1071 *1*	100	3332.7	7$^+$	[E2]	0.000423 *6*	α(K)=0.000376 *5*; α(L)=4.01$\times10^{-5}$ *6*; α(M)=6.48$\times10^{-6}$ *9* α(N)=6.53$\times10^{-7}$ *9* B(E2)(W.u.)>58
4433.8	(10$^+$)	863 *1*	54	3571.2	(8$^+$)			
		1554 *1*	100	2879.4	8$^+$			
4469.8	(9$^-$)	397		4072.8	(9$^-$)			E_γ: from ^{54}Fe(^{28}Si,α2pγ) only.
		896 *1*	100	3573.8	(7$^-$)	Q		
4700.5	(9$^+$)	483 *1*	58	4217.8	(8$^+$)	D		
		919 *1*	100	3781.9	7$^{(+)}$	Q		
4806.4	(10$^-$)	905.5 *5*	100	3900.9	8$^{(-)}$	[E2]	0.000628 *9*	B(E2)(W.u.)=88 *+35−16* α(K)=0.000557 *8*; α(L)=5.98$\times10^{-5}$ *8*; α(M)=9.67$\times10^{-6}$ *14* α(N)=9.73$\times10^{-7}$ *14*
5051.3	(11$^-$)	978.5 *6*	100	4072.8	(9$^-$)	E2	0.000521 *7*	B(E2)(W.u.)=202 *+41−29* α(K)=0.000463 *7*; α(L)=4.95$\times10^{-5}$ *7*; α(M)=8.01$\times10^{-6}$ *11* α(N)=8.07$\times10^{-7}$ *11*
5106.3	(10$^-$)	988 *1*	100	4118.3	(8$^-$)			
5240.5	10$^{(+)}$	541 *1*	42	4700.5	(9$^+$)	D		
		1022 *1*	100	4217.8	(8$^+$)	Q		
5348.4	12$^+$	1280 *1*	100	4068.4	10$^+$	[E2]	0.000309 *4*	B(E2)(W.u.)>43 α(K)=0.000254 *4*; α(L)=2.69$\times10^{-5}$ *4*; α(M)=4.36$\times10^{-6}$ *6* α(N)=4.40$\times10^{-7}$ *6*; α(IPF)=2.32$\times10^{-5}$ *4*
5528.8	(11$^-$)	1059 *1*	100	4469.8	(9$^-$)	Q		
5566.8	(12$^+$)	1133 *1*	100	4433.8	(10$^+$)	Q		
5589.1	(11$^+$)	1209 *1*	100	4380.1	(9$^+$)	Q		
5795.7	11$^{(+)}$	555 *1*	38	5240.5	10$^{(+)}$	D		
		1095 *1*	100	4700.5	(9$^+$)	Q		
5873.1	(12$^-$)	1066.6 *4*	100	4806.4	(10$^-$)	E2	0.000427 *6*	B(E2)(W.u.)=124 *+24−21* α(K)=0.000379 *5*; α(L)=4.04$\times10^{-5}$ *6*; α(M)=6.54$\times10^{-6}$ *9* α(N)=6.59$\times10^{-7}$ *9*
6218.3	(12$^-$)	1112 *1*	100	5106.3	(10$^-$)	Q		

$^{76}_{36}$Kr$_{40}$-16

Adopted Levels, Gammas (continued)

$\gamma(^{76}$Kr) (continued)

E_i(level)	J^π_i	E_γ‡	I_γ#	E_f	J^π_f	Mult.&	α†	Comments
6222.3	(13$^-$)	1171 *1*	100	5051.3	(11$^-$)	E2	0.000351 *5*	B(E2)(W.u.)=149 *+68−35* α(K)=0.000308 *4*; α(L)=3.27×10^{-5} *5*; α(M)=5.29×10^{-6} *7* α(N)=5.34×10^{-7} *8*; α(IPF)=4.71×10^{-6} *12* Additional information 3.
6390.2	(12$^+$)	596 *1*	25	5795.7	11$^{(+)}$	(D)		
		1150 *1*	100	5240.5	10$^{(+)}$	Q		
6605.4	(12$^+$)	1257 *1*	100	5348.4	12$^+$	D		
6650.4	14$^+$	1302 *1*	100	5348.4	12$^+$	Q		Additional information 4.
6681.8	(13$^-$)	1153 *1*	100	5528.8	(11$^-$)	Q		
6937.1	(13$^+$)	1348 *1*	100	5589.1	(11$^+$)	Q		
7032.4	(13$^+$)	643 *1*	100	6390.2	(12$^+$)	D		
		1235 *1*	40	5795.7	11$^{(+)}$	Q		
7034.9	(14$^+$)	1468 *1*	100	5566.8	(12$^+$)	Q		
7110.1	(14$^-$)	1237 *1*	100	5873.1	(12$^-$)	E2	0.000322 *5*	B(E2)(W.u.)>54 α(K)=0.000273 *4*; α(L)=2.90×10^{-5} *4*; α(M)=4.69×10^{-6} *7* α(N)=4.74×10^{-7} *7*; α(IPF)=1.438×10^{-5} *28* Additional information 5.
7435.3	(14$^-$)	1217 *1*	100	6218.3	(12$^-$)	Q		
7554.3	(14$^+$)	521 *1*	38	7032.4	(13$^+$)	D		
		1165 *1*	100	6390.2	(12$^+$)	Q		
7583.3	(15$^-$)	1361 *1*	100	6222.3	(13$^-$)	E2	0.000294 *4*	B(E2)(W.u.)>45 α(K)=0.0002235 *31*; α(L)=2.364×10^{-5} *33*; α(M)=3.82×10^{-6} *5* α(N)=3.86×10^{-7} *5*; α(IPF)=4.22×10^{-5} *6* Additional information 6.
7606.4	(14$^+$)	1001 *1*	100	6605.4	(12$^+$)			
7870.9	(15$^-$)	1189 *1*	100	6681.8	(13$^-$)	Q		
8000.4	16$^+$	1350 *1*	100	6650.4	14$^+$	Q		
8432.1	(15$^+$)	1495 *1*	100	6937.1	(13$^+$)	Q		
8521.1	(16$^-$)	1411 *1*	100	7110.1	(14$^-$)	E2	0.000289 *4*	α(K)=0.0002075 *29*; α(L)=2.192×10^{-5} *31*; α(M)=3.55×10^{-6} *5* α(N)=3.59×10^{-7} *5*; α(IPF)=5.55×10^{-5} *8*
8666.9	(16$^+$)	1632 *1*	100	7034.9	(14$^+$)	Q		
8717.4	(16$^-$)	1282 *1*	100	7435.3	(14$^-$)	Q		
8798.5	(16$^+$)	1192 *1*	100	7606.4	(14$^+$)	Q		
8829.3	(16$^+$)	1275 *1*	100	7554.3	(14$^+$)	Q		
9117.4	(17$^-$)	1534 *1*	100	7583.3	(15$^-$)	E2	0.000295 *4*	α(K)=0.0001753 *25*; α(L)=1.848×10^{-5} *26*; α(M)=2.99×10^{-6} *4* α(N)=3.02×10^{-7} *4*; α(IPF)=9.80×10^{-5} *14*
9217.9	(17$^-$)	1347 *1*	100	7870.9	(15$^-$)	Q		
9400.5	18$^+$	1400 *1*	100	8000.4	16$^+$	E2	0.000289 *4*	α(K)=0.0002108 *30*; α(L)=2.228×10^{-5} *31*; α(M)=3.60×10^{-6} *5* α(N)=3.64×10^{-7} *5*; α(IPF)=5.23×10^{-5} *8*
10050.1	(17$^+$)	1618 *1*	100	8432.1	(15$^+$)	Q		

From ENSDF

$^{76}_{36}$Kr$_{40}$-17

$\gamma(^{76}$Kr) (continued)

E_i(level)	J^π_i	E_γ‡	I_γ#	E_f	J^π_f	Mult.&	α†	Comments
10059.1	(18^-)	1538 *1*	100	8521.1	(16^-)	E2	0.000296 *4*	α(K)=0.0001744 *25*; α(L)=1.839×10^{-5} *26*; α(M)=2.97×10^{-6} *4* α(N)=3.01×10^{-7} *4*; α(IPF)=9.96×10^{-5} *15* Additional information 7.
10135	(18^-)	1418 *1*	100	8717.4	(16^-)	Q		
10139.5	(18^+)	1341 *1*	100	8798.5	(16^+)	Q		
10470.9	(18^+)	1804 *1*	100	8666.9	(16^+)			
10640.4	(19^-)	1523 *1*	100	9117.4	(17^-)	E2	0.000294 *4*	α(K)=0.0001778 *25*; α(L)=1.875×10^{-5} *26*; α(M)=3.03×10^{-6} *4* α(N)=3.07×10^{-7} *4*; α(IPF)=9.37×10^{-5} *14*
10773.9	(19^-)	1556 *1*	100	9217.9	(17^-)	(Q)		
10936.5	20^+	1536 *1*	100	9400.5	18^+	E2	0.000295 *4*	α(K)=0.0001748 *25*; α(L)=1.844×10^{-5} *26*; α(M)=2.98×10^{-6} *4* α(N)=3.02×10^{-7} *4*; α(IPF)=9.88×10^{-5} *14* Additional information 8.
11655.1	(20^-)	1596 *1*	100	10059.1	(18^-)	E2	0.000306 *4*	α(K)=0.0001621 *23*; α(L)=1.708×10^{-5} *24*; α(M)=2.76×10^{-6} *4* α(N)=2.79×10^{-7} *4*; α(IPF)=0.0001237 *18*
11664	(20^+)	1525 *1*	100	10139.5	(18^+)	Q		
11719	(20^-)	1584 *1*	100	10135	(18^-)	Q		
11785.1	(19^+)	1735 *1*	100	10050.1	(17^+)			
12254.4	(21^-)	1614 *1*	100	10640.4	(19^-)	E2	0.000310 *4*	α(K)=0.0001585 *22*; α(L)=1.670×10^{-5} *23*; α(M)=2.70×10^{-6} *4* α(N)=2.73×10^{-7} *4*; α(IPF)=0.0001314 *19*
12397.9	(20^+)	1927 *1*	100	10470.9	(18^+)			
12493	(21^-)	1719 *1*	100	10773.9	(19^-)			
12695	22^+	1759 *1*	100	10936.5	20^+	E2	0.000346 *5*	α(K)=0.0001343 *19*; α(L)=1.412×10^{-5} *20*; α(M)=2.284×10^{-6} *32* α(N)=2.312×10^{-7} *32*; α(IPF)=0.0001952 *28* Additional information 9.
13352.1	(22^-)	1697 *1*	100	11655.1	(20^-)	E2	0.000329 *5*	α(K)=0.0001438 *20*; α(L)=1.514×10^{-5} *21*; α(M)=2.448×10^{-6} *34* α(N)=2.478×10^{-7} *35*; α(IPF)=0.0001677 *24*
13388	(22^+)	1723 *1*	100	11664	(20^+)	Q		
13500	(22^-)	1781 *1*	100	11719	(20^-)			
13613	(21^+)	1828 *1*	100	11785.1	(19^+)			
14026	(23^-)	1772 *1*	100	12254.4	(21^-)	E2	0.000350 *5*	α(K)=0.0001324 *19*; α(L)=1.392×10^{-5} *20*; α(M)=2.251×10^{-6} *32* α(N)=2.280×10^{-7} *32*; α(IPF)=0.0002011 *29*
14440	(23^-)	1947 *1*	100	12493	(21^-)			
14751	24^+	2055 *1*	100	12695	22^+			E_γ: tentative 2049 in (^{24}Mg,α2pγ).
15225	(24^-)	1873 *1*	100	13352.1	(22^-)	E2	0.000382 *5*	α(K)=0.0001193 *17*; α(L)=1.253×10^{-5} *18*; α(M)=2.026×10^{-6} *28* α(N)=2.052×10^{-7} *29*; α(IPF)=0.0002479 *35*
15346	(24^+)	1958 *1*	100	13388	(22^+)	Q		
15503	(24^-)	2003 *1*	100	13500	(22^-)			
16009	(25^-)	1983 *1*	100	14026	(23^-)	E2	0.000421 *6*	α(K)=0.0001073 *15*; α(L)=1.126×10^{-5} *16*; α(M)=1.821×10^{-6} *26* α(N)=1.845×10^{-7} *26*; α(IPF)=0.000301 *4*

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Adopted Levels, Gammas (continued)

$\gamma(^{76}Kr)$ (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[#]	E_f	J_f^π	Mult.[&]	α[†]	Comments
16650	(25^-)	2210 *1*	100	14440	(23^-)			
17157	26^+	2406 *1*	100	14751	24^+	E2	0.000591 *8*	α(K)=7.60×10^{-5} *11*; α(L)=7.94×10^{-6} *11*; α(M)=1.285×10^{-6} *18* α(N)=1.303×10^{-7} *18*; α(IPF)=0.000506 *7*
17327	(26^-)	2102 *1*	100	15225	(24^-)	E2	0.000467 *7*	α(K)=9.65×10^{-5} *14*; α(L)=1.011×10^{-5} *14*; α(M)=1.636×10^{-6} *23* α(N)=1.658×10^{-7} *23*; α(IPF)=0.000358 *5*
17550	(26^+)	2204 *1*	100	15346	(24^+)	Q		
17859	(26^-)	2356 *1*	100	15503	(24^-)			
18256	(27^-)	2247 *1*	100	16009	(25^-)	E2	0.000525 *7*	α(K)=8.56×10^{-5} *12*; α(L)=8.97×10^{-6} *13*; α(M)=1.450×10^{-6} *20* α(N)=1.470×10^{-7} *21*; α(IPF)=0.000429 *6*
19172	(27^-)	2522 *1*	100	16650	(25^-)			
19741	(28^-)	2414 *1*	100	17327	(26^-)	E2	0.000595 *8*	α(K)=7.55×10^{-5} *11*; α(L)=7.90×10^{-6} *11*; α(M)=1.277×10^{-6} *18* α(N)=1.295×10^{-7} *18*; α(IPF)=0.000510 *7*
19950	28^+	2793 *1*	100	17157	26^+	E2	0.000752 *11*	α(K)=5.89×10^{-5} *8*; α(L)=6.15×10^{-6} *9*; α(M)=9.94×10^{-7} *14* α(N)=1.008×10^{-7} *14*; α(IPF)=0.000686 *10*
20045	(28^+)	2495 *1*	100	17550	(26^+)			
20538	(28^-)	2678 *1*	100	17859	(26^-)			
20815	(29^-)	2558 *1*	100	18256	(27^-)	E2	0.000655 *9*	α(K)=6.83×10^{-5} *10*; α(L)=7.14×10^{-6} *10*; α(M)=1.155×10^{-6} *16* α(N)=1.171×10^{-7} *16*; α(IPF)=0.000578 *8*
22583	(30^-)	2842 *1*	100	19741	(28^-)			
22790	(30^+)	2745 *1*	100	20045	(28^+)			
23157	(30^+)	3207 *1*	100	19950	28^+			
23742	(31^-)	2927 *1*	100	20815	(29^-)			
25868	(32^-)	3285 *1*	100	22583	(30^-)			
27083	(33^-)	3341 *1*	100	23742	(31^-)			
966.0+x	(13^+)	966 *1*	100	x	(11^+)			
2097.0+x	(15^+)	1131 *1*	100	966.0+x	(13^+)	Q		
3390.0+x	(17^+)	1293 *1*	100	2097.0+x	(15^+)	Q		
4847.0+x	(19^+)	1457 *1*	100	3390.0+x	(17^+)	Q		
6472.1+x	(21^+)	1625 *1*	100	4847.0+x	(19^+)	Q		
8309.1+x	(23^+)	1837 *1*	100	6472.1+x	(21^+)	Q		
10382+x	(25^+)	2073 *1*	100	8309.1+x	(23^+)	Q		
12696+x	(27^+)	2314 *1*	100	10382+x	(25^+)			
15234+x	(29^+)	2538 *1*	100	12696+x	(27^+)			

† Additional information 10.

‡ Values for low-spin (J≤4) states are from ^{76}Rb ε decay, whereas data are higher-spin states are from ^{40}Ca(^{40}Ca,4pγ), ^{54}Fe(^{28}Si,α2pγ), and (^{24}Mg,α2pγ), unless otherwise noted.

Detailed intensity data are available for γ rays from low-spin (J≤4) states populated in ^{76}Rb ε decay. Note that for γ rays from some of the levels, more precise

$^{76}_{36}Kr_{40}$-19

$\gamma(^{76}$Kr) (continued)

branching ratios (listed under comments in ^{76}Rb ε decay dataset) are available which are adopted here in place of branching ratios deduced from relative intensity data. For high-spin states, only nominal intensities, without explicitly quoted uncertainties, are available from only ^{40}Ca(^{40}Ca,4pγ) and (^{12}C,2nγ). For the latter dataset, evaluators assigned 10% uncertainty for Iγ values taken from (1982Pi01). Intensity data were not provided in ^{54}Fe(^{28}Si,α2pγ) reaction.

[@] From ^{76}Rb ε decay, when a level is also populated in other reactions. Branching ratios listed in comments in ^{76}Rb ε decay dataset are used in place of relative intensities.

[&] From $\gamma(\theta)$ and $\gamma\gamma(\theta)$ in (^{12}C,2nγ) for high-spin (J>4) states. Transitions with dominant quadrupole content are assumed as E2 from comparison of T1/2(level) and RUL for E2 and M2. For low-spin (J≤4) levels, multipolarity assignments are generally from conversion coefficients deduced from ce data in ^{76}Rb ε decay.

[a] Placement of transition in the level scheme is uncertain.

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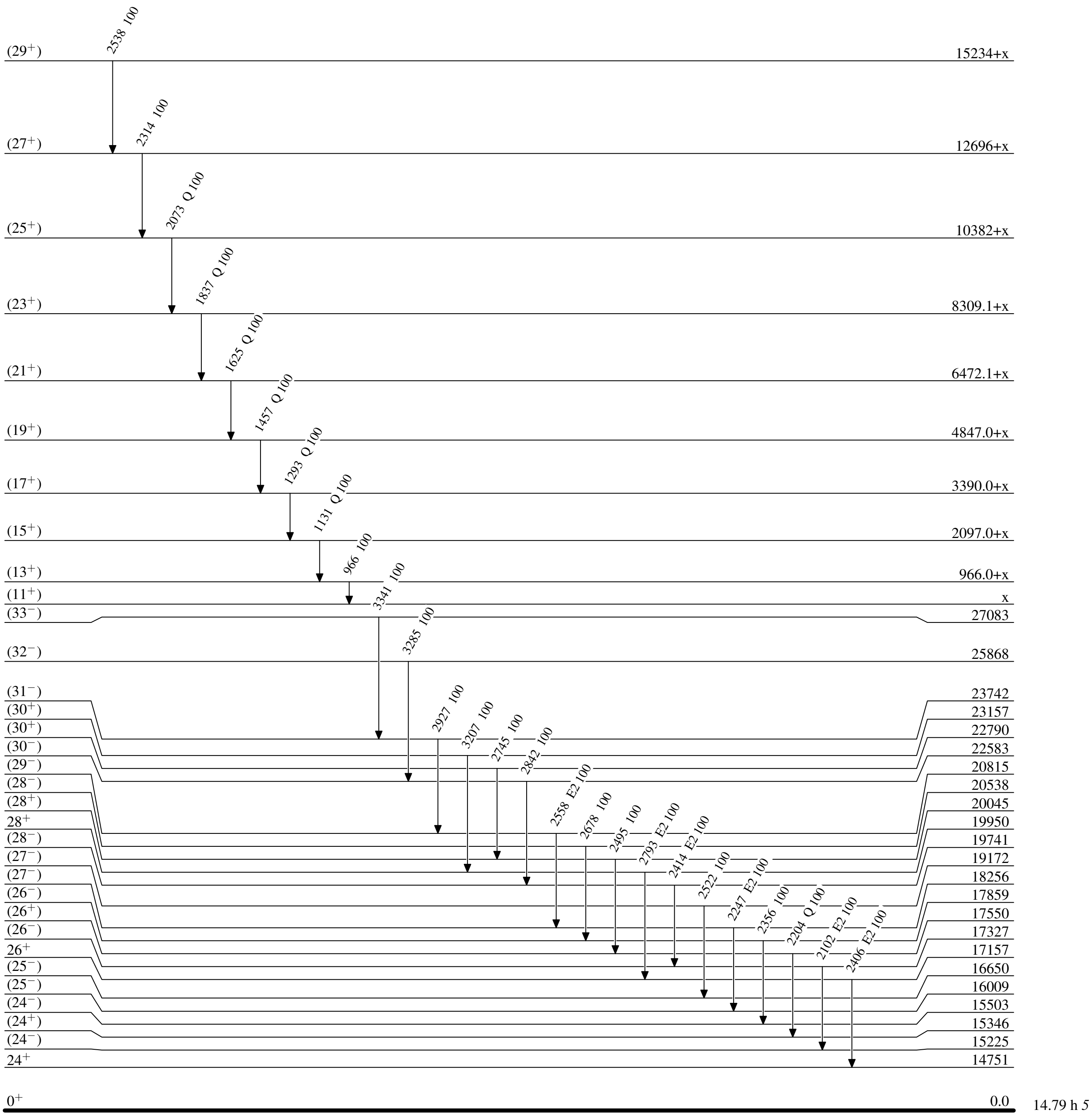
Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level

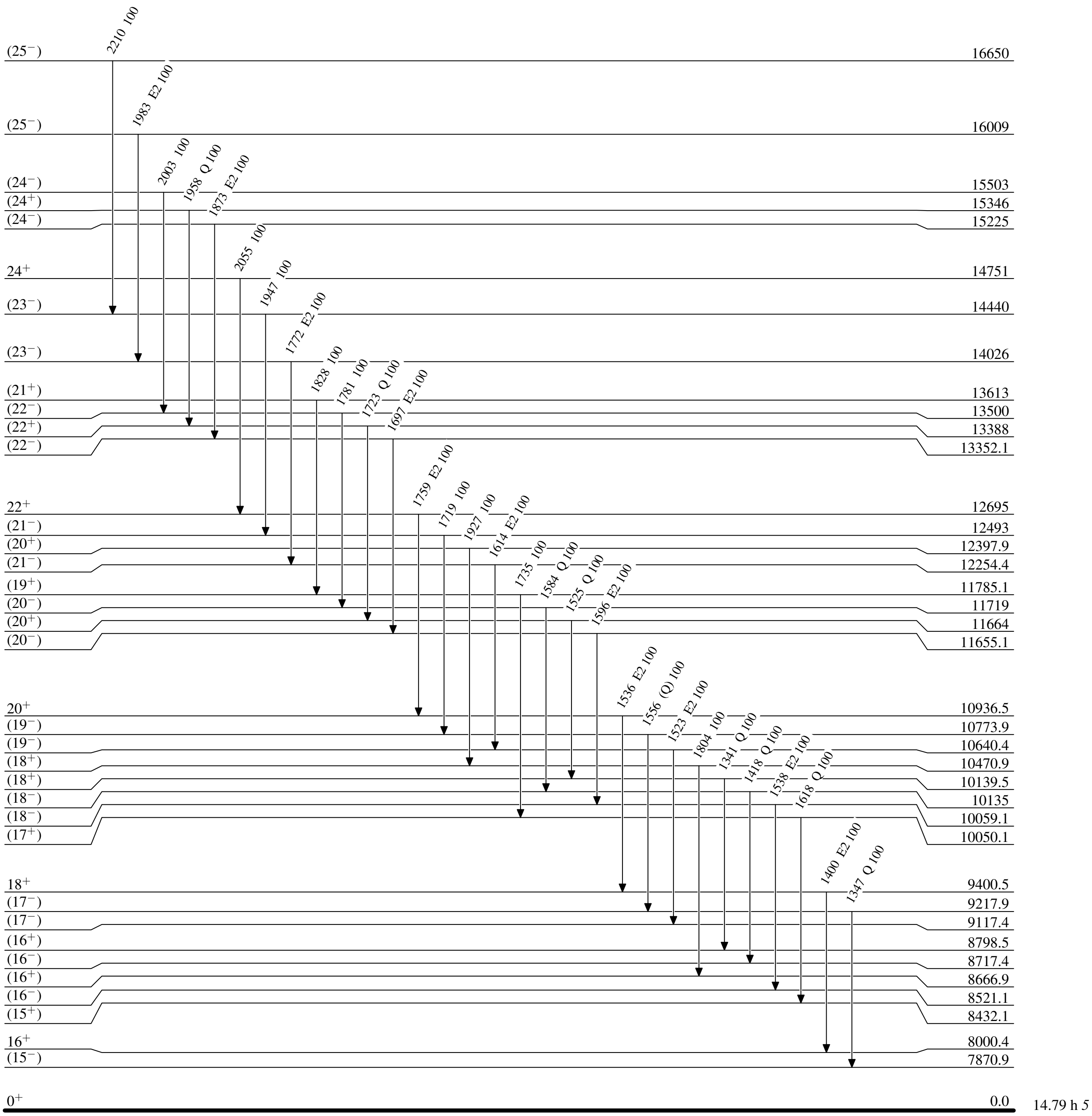


$^{76}_{36}Kr_{40}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

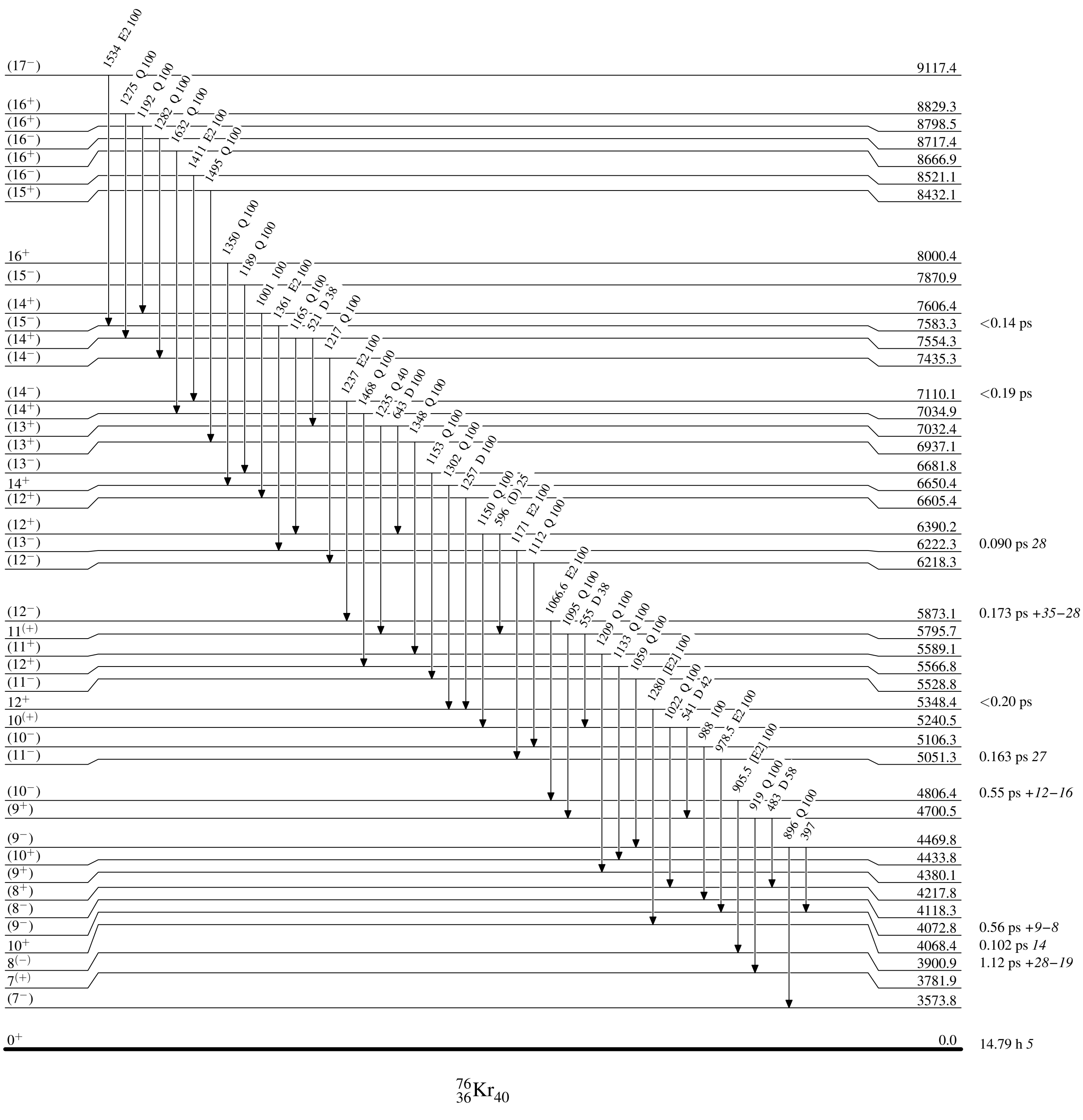


$^{76}_{36}Kr_{40}$

Adopted Levels, Gammas

Level Scheme (continued)

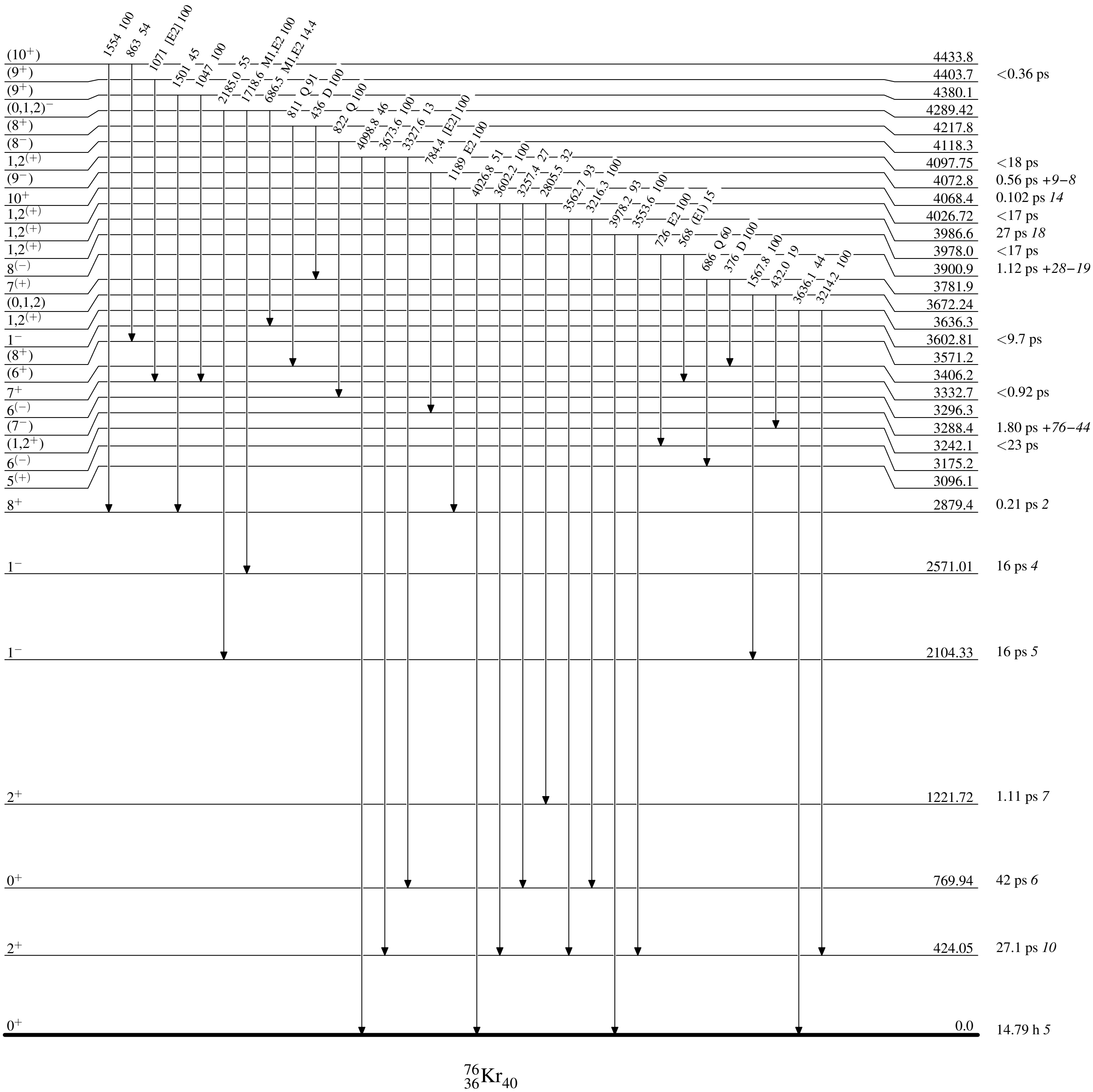
Intentsities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

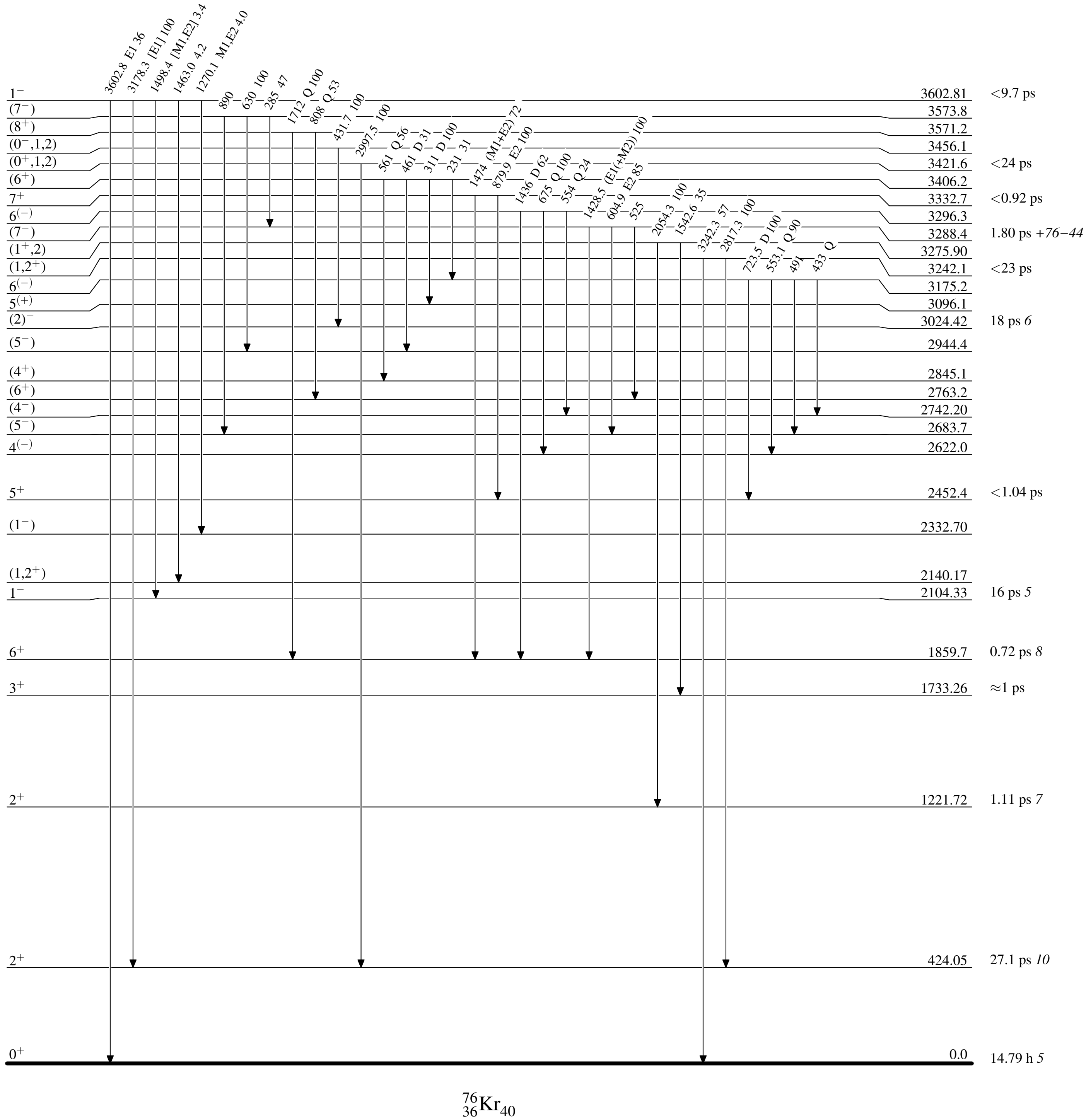
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

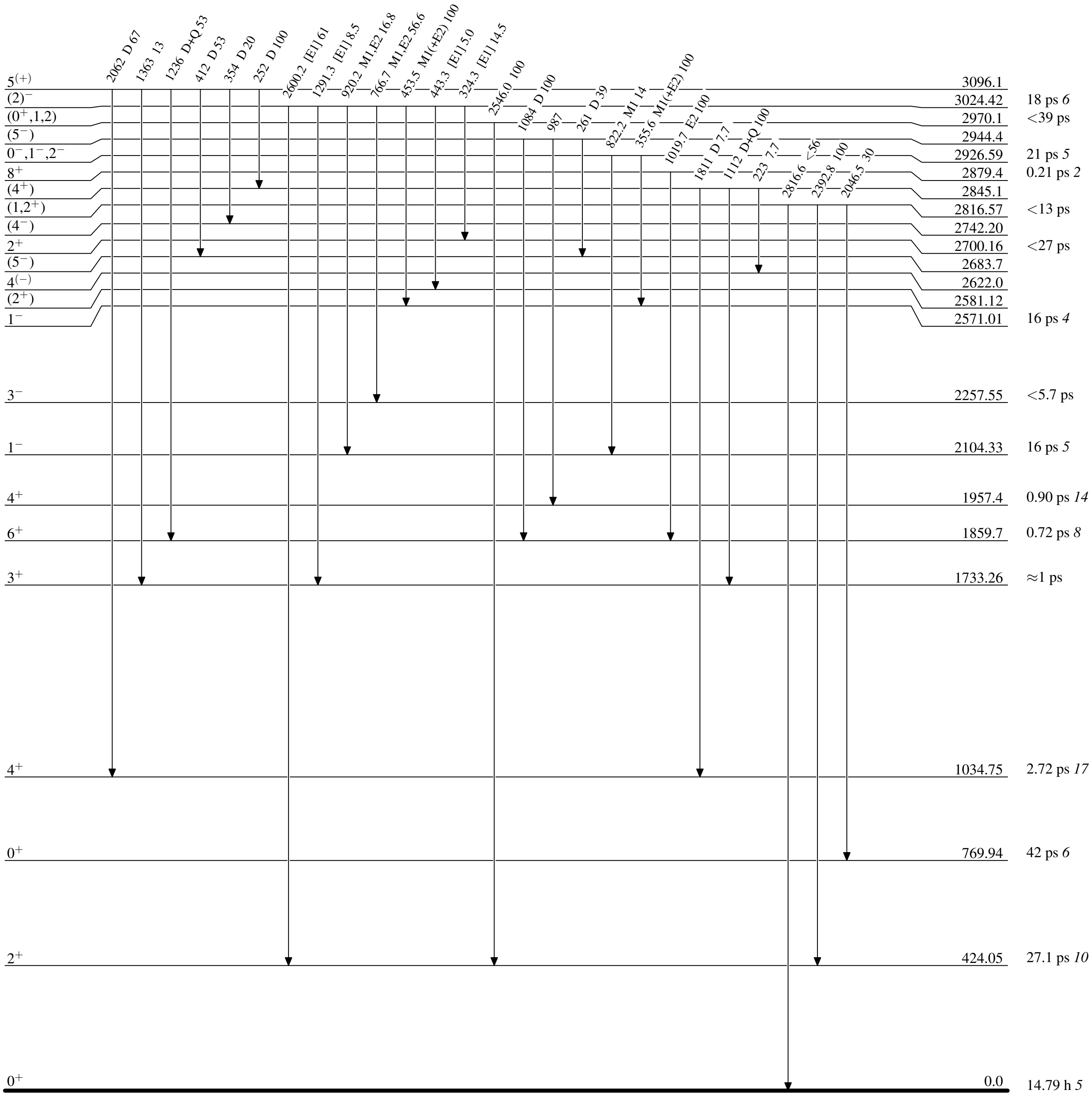
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

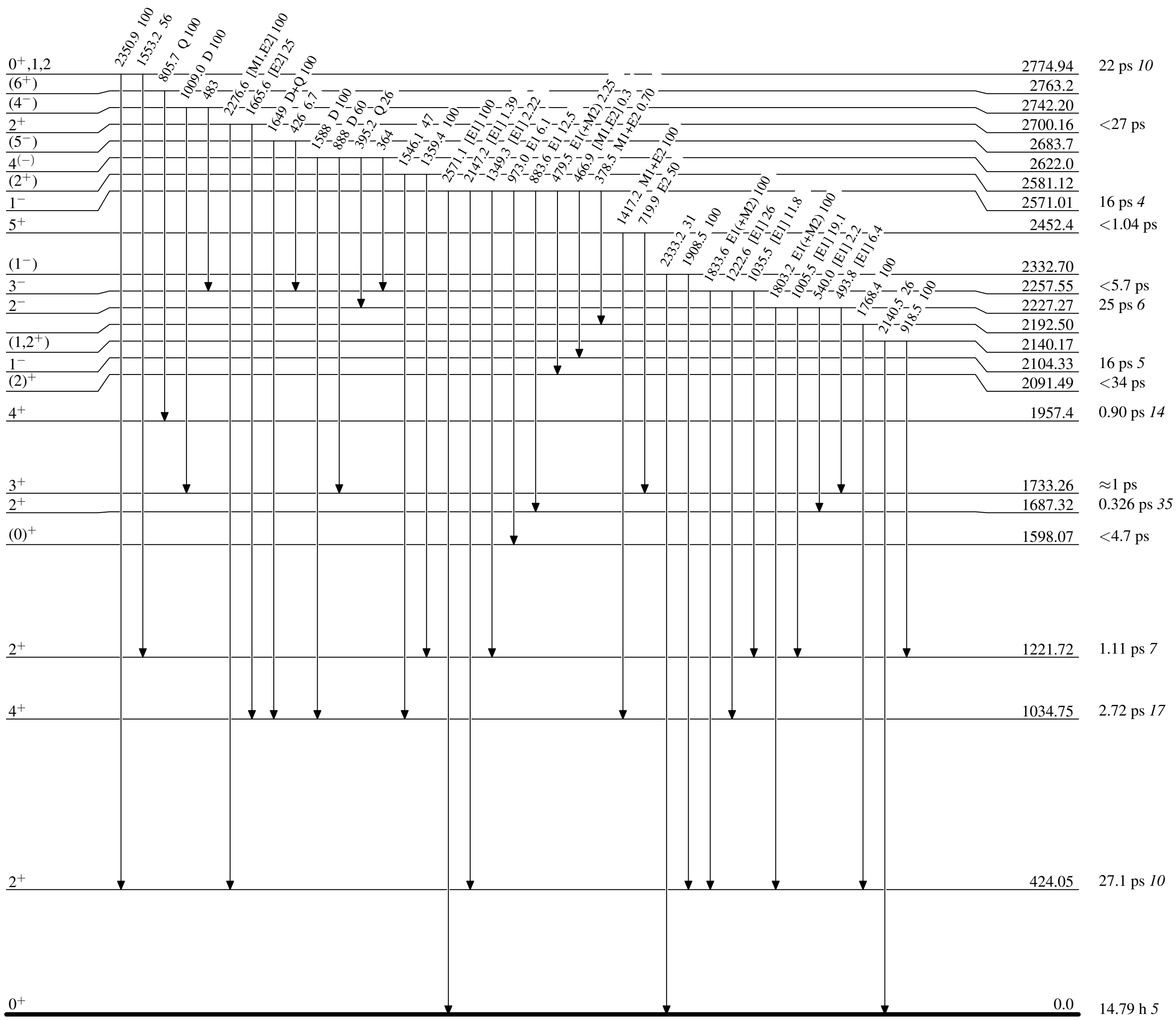


$^{76}_{36}Kr_{40}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

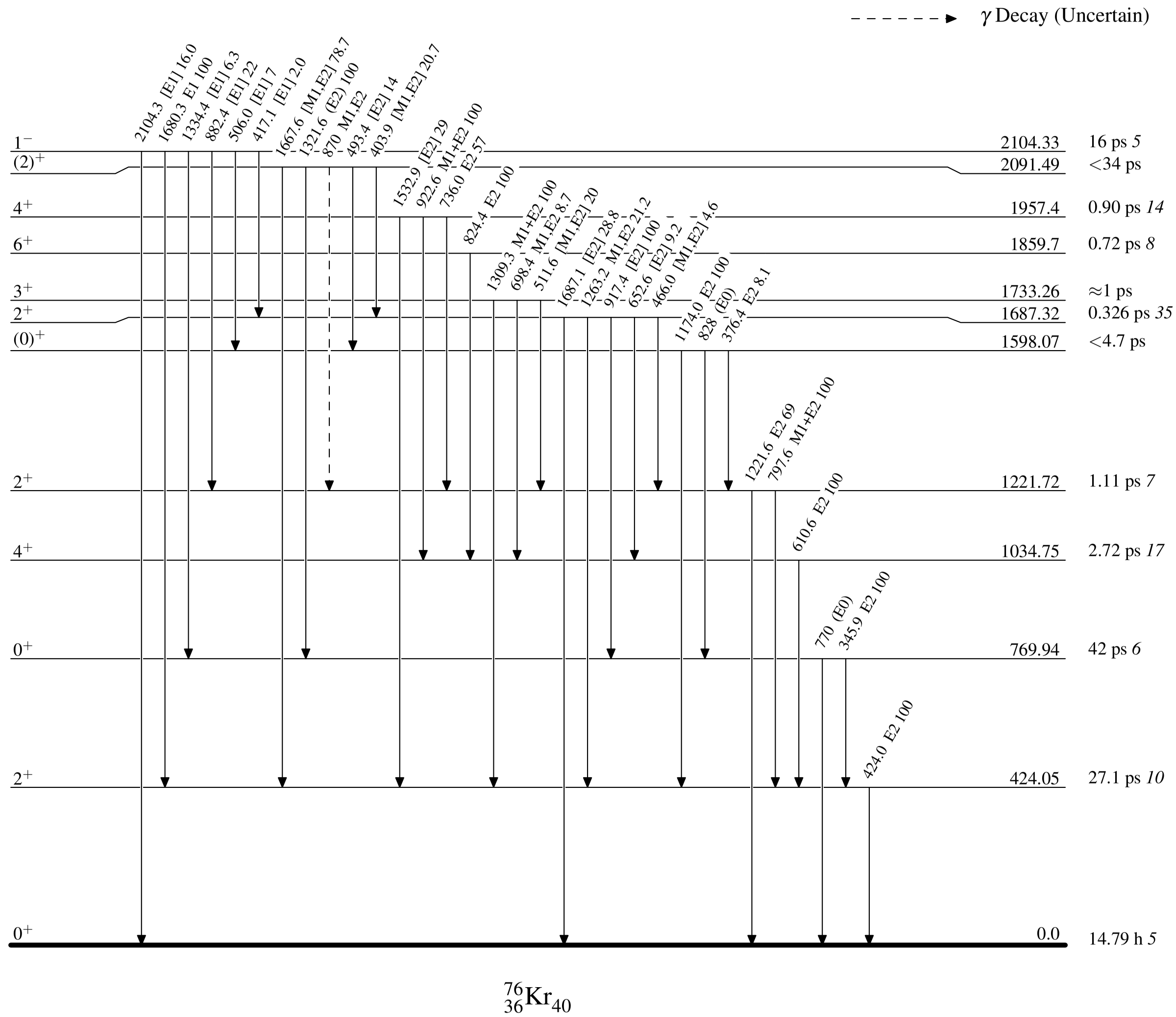


$^{76}_{36}Kr_{40}$

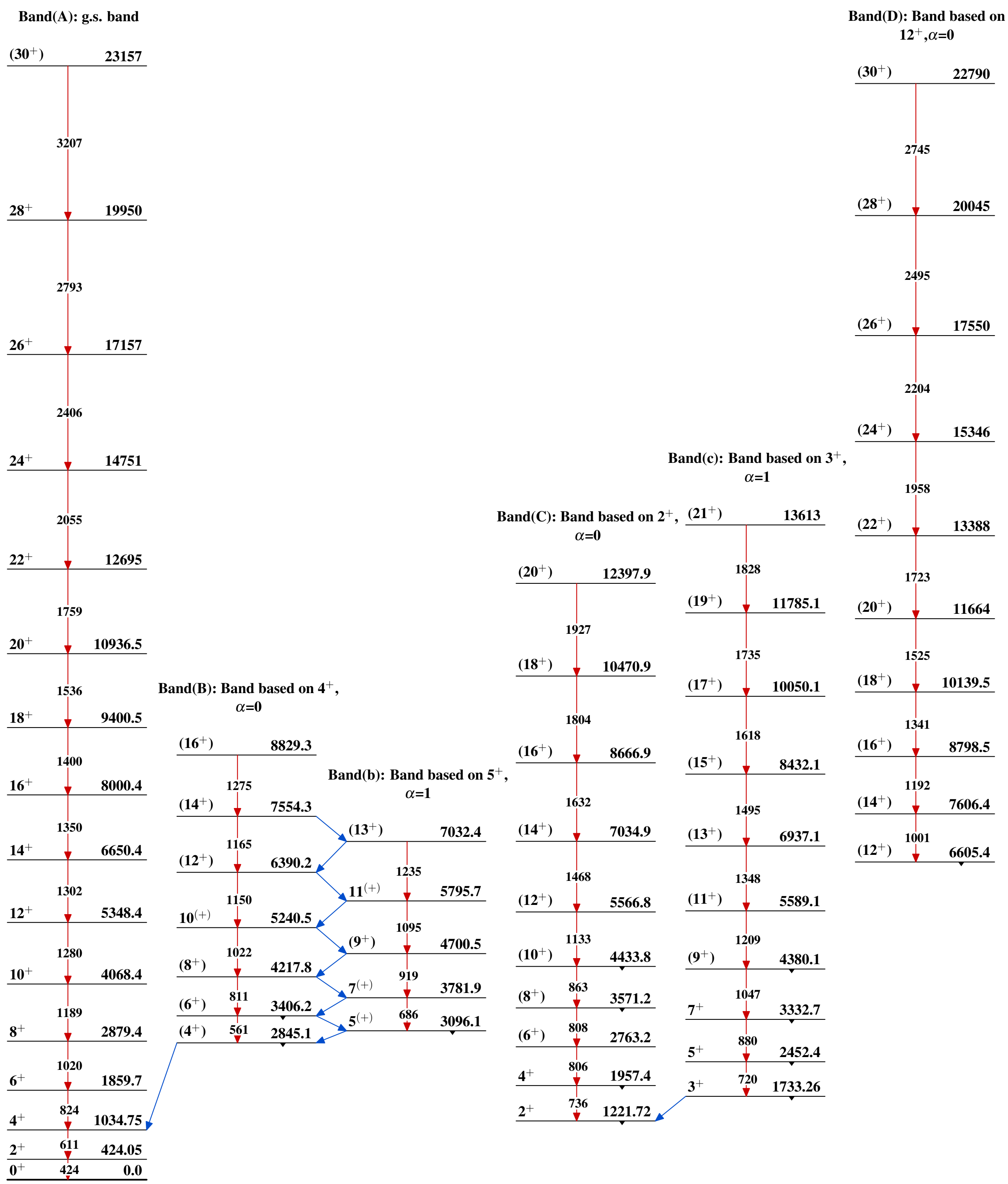
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

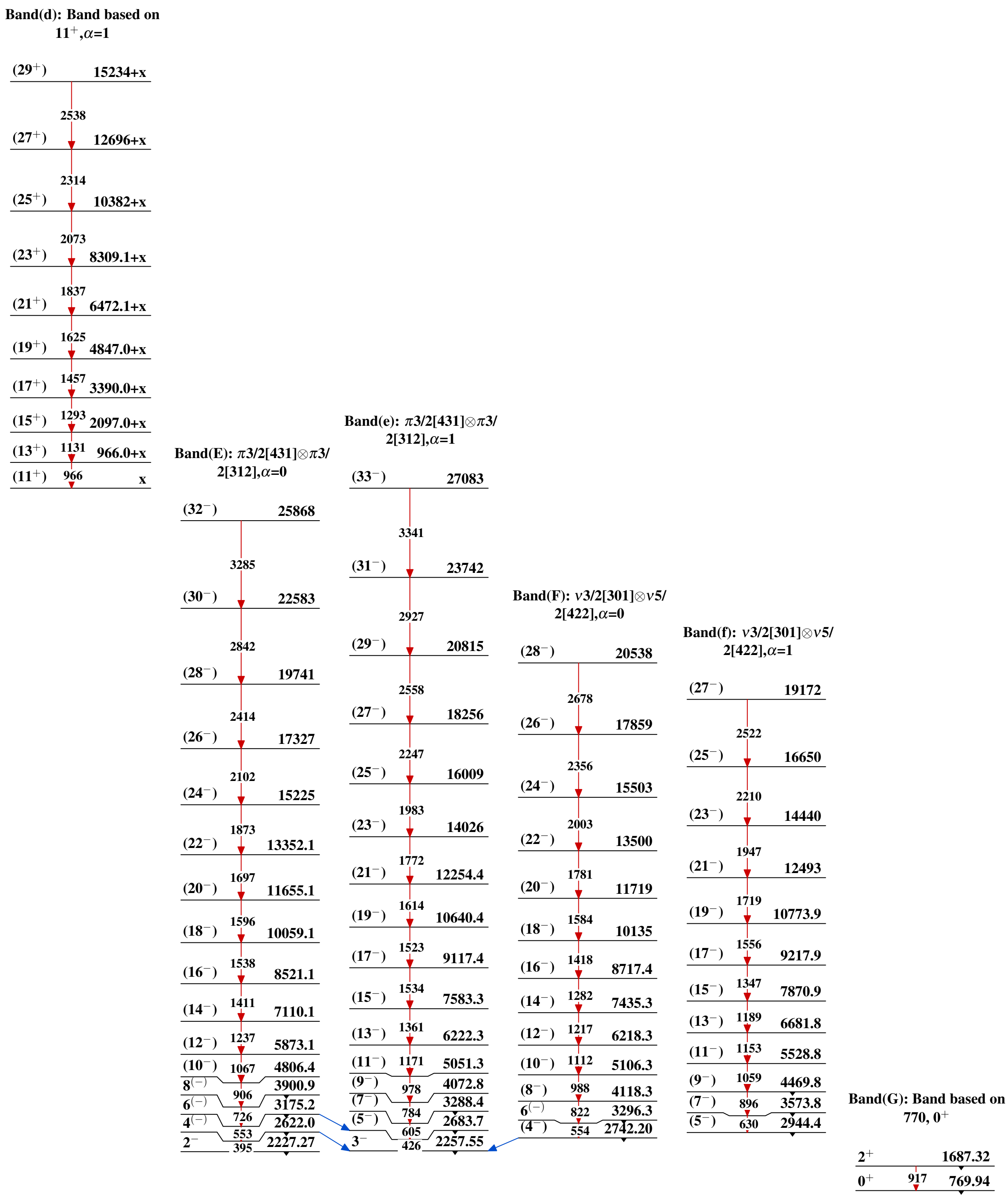


Adopted Levels, Gammas



$^{76}_{36}Kr_{40}$

Adopted Levels, Gammas (continued)



$^{76}_{36}Kr_{40}$

Adopted Levels, Gammas

History

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

Q(β^-)=−7244 *4*; S(n)=12081.5 *21*; S(p)=8234 *3*; Q(α)=−4391.3 *7* 2012Wa38
Note: Current evaluation has used the following Q record.
S(2n)=21308 *4*, S(2p)=13505.6 *7* (2009AuZZ,2003Au03). Values In 2003Au03 are very nearly the same As In 2009AuZZ except for small differences In uncertainties.
Measured mass excess=−74179.4 *9* (2006Ri15).
Q(β^-)=−7243 *8*; S(n)=12081.4 *21*; S(p)=8234 *3*; Q(α)=−4391.9 *8* 2009AuZZ,2003Au03
Mass measurements: 2006Ri15 (LEBIT-NSCL Penning-trap method), 2006Ro11, 2005Sc26, 2002He23, 1978Di09.
Measurement of Hyperfine structure, isotope shift, etc.: 1995Ke04, 1992Sc19, 1990Ca26, 1990Sc30, 1989Tr04, 1981Ge06, 1979Ge06, 1977Ge05.
Additional information 1.
^{78}Se(π^+,π^-): 1995Hu09.
Structure calculations (rotational bands, levels, deformation, transition probabilities, shape coexistence, etc.): 2007An01, 2006Be31, 2006Pe03, 2006Ve11, 2005Al19, 2003Sh17, 2000Gi16, 1996Tr01, 1995De02, 1991Jo03, 1991Le26, 1988Pr03, 1984Er02, 1984Se01, 1982So09, 1981Bu06, 1979Ka30.

^{78}Kr Levels

Cross Reference (XREF) Flags

A	^{78}Br β^- decay (6.46 min):?	E	^{65}Cu(^{16}O,p2nγ),(^{19}F,α2nγ)	I	^{78}Kr(p,p′),(p,p′γ)
B	^{78}Rb ε decay (17.66 min)	F	^{68}Zn(^{12}C,2nγ) E=33-38 MeV	J	Coulomb excitation
C	^{78}Rb ε decay (5.74 min)	G	^{68}Zn(^{12}C,2nγ) E=36 MeV	K	^{79}Br(p,2nγ)
D	^{58}Ni(^{23}Na,3pγ),(^{27}Al,α3pγ),	H	^{76}Se(α,2nγ)	L	^{80}Kr(p,t)

E(level)[†]	J$^\pi$[#]	T$_{1/2}$[‡]	XREF	Comments
0.0[a]	0$^+$	stable	ABCDEFGHIJK	XREF: A(?). <r^2>$^{1/2}$=4.2032 fm *16* (2004An14 evaluation). T$_{1/2}$: ≥1.5×10^{21} y (2006Ga43, 90% confidence limit) for double β decay (2ε(K),2ν+0ν mode). Others: 2000Ga54, 1998Ga27, 1995Sa58, 1994Sa31. See also 2002Tr04 evaluation. Additional information 2.
455.033[a] *23*	2$^+$	21.6 ps *7*	ABCDEFGHIJK	μ=+0.86 *2* (2004Ku11) XREF: A(?). β_2(p,p′)=0.351 (DWBA analysis), 0.317 (coupled-channel). μ: transient magnetic field technique following Coulomb excitation (2004Ku11). Other: +0.86 *6* (2001Me20). See also 2005St24 compilation. J$^\pi$: L(p,p′)=2 and also from $\gamma(\theta)$ and γ(linear pol). T$_{1/2}$: weighted average of values from recoil-distance Doppler-shift method in in-beam γ-ray studies, DSA and B(E2) in Coul. ex. Values in ps are: 21.7 *+7−8* (B(E2) In Coul. ex.,2006Be18), 22.2 *14* (RDDS,2002Jo07), 19.1 *17* (DSAM In Coul. ex.,2001Me20), 21.1 *9* (RDDS,1990Ga22), 22.9 *21* (RDDS,1985Wi01,1982An06), >3.5 (DSA,1980Ro02), 22.2 *14* (RDDS,1979He18), 25 *3* (RDDS,1974No08).
1017.18 *3*	0$^+$	10.8 ps *9*	BCD IJ L	J$^\pi$: E0 transition to 0$^+$ (1995Gi13); L(p,t)=0. T$_{1/2}$: weighted average of 11.1 ps *6* (B(E2) in Coul. ex.,2006Be18) and 7.6 ps *21* (DSA in (p,p′γ,1995Gi13).
1119.48[a] *4*	4$^+$	2.52 ps *12*	BCDEFGHIJK	μ=+1.84 *28* (2001Me20) μ: transient magnetic field technique following Coulomb excitation (2001Me20). See also 2005St24 compilation.

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Adopted Levels, Gammas (continued)

^{78}Kr Levels (continued)

E(level)[†]	J^{π}[#]	$T_{1/2}$[‡]	XREF	Comments
				β_2(DWBA)=0.101, B(E4)(W.u.)=5.5 *11* in (p,p′). J^{π}: L(p,p′)=4 and from $\gamma(\theta)$ and γ(linear pol). $T_{1/2}$: weighted average of values from recoil-distance Doppler-shift method in in-beam γ-ray studies, DSA and B(E2) in Coul. ex. Values in ps are: 2.42 *+8−17* (B(E2) In Coul. ex.,2006Be18), 2.36 *21* (RDDS,2002Jo07), 2.09 *18* (DSAM In Coul. ex.,2001Me20), 2.70 *35* (DSA,1993Bi04), 2.91 *14* (RDDS,1990Ga22), 2.56 *35* (RDDS,1985Wi01,1982An06), 6.2 *28* (DSA,1980Ro02), 2.50 *21* (RDDS,1979He18).
1147.901[@] *24*	2^+	3.3 ps *6*	BCDEFGHIJK	μ=+1.08 *20* (2001Me20) μ: transient magnetic field technique following Coulomb excitation (2001Me20). See also 2005St24 compilation. β_2(DWBA)=0.065, B(E2)(W.u.)=1.8 *4* from (p,p′). J^{π}: L(p,p′)=2 and from $\gamma(\theta)$ and γ(linear pol). $T_{1/2}$: weighted average of 2.2 ps *+5−4* (B(E2) in Coul. ex.,2006Be18), 3.1 ps *6* (RDDS,1982An06) and 4.02 ps *35* (RDDS,1979He18). Other: >0.6 ps (DSA,1980Ro02).
1564.76[&] *4*	3^+	4.73 ps *35*	BCDEFGH K	J^{π}: $\gamma(\theta)$; γ(linear pol) of 735γ from 5^+ (2299) level. $T_{1/2}$: weighted average of 5.1 ps *4* (RDDS,1982An06) and 4.44 ps *35* (RDDS,1979He18). Other: >1.0 ps (DSA,1980Ro02).
1653.9? *4*			F	E(level): level is suspect, reported only in one study.
1755.86 *3*	2^+	5.3 ps *4*	BCD J	J^{π}: E2 γ's to 0^+ and 4^+. $T_{1/2}$: from B(E2) for 739γ In Coul. ex. (2006Be18). Other: 0.074 ps *12* from B(E2) for 1756γ In Coul. ex. (2006Be18) is discrepant.
1772.93 *4*	$(1,2)^+$		BC	J^{π}: M1,E2 γ to 2^+; γ to 0^+.
1872.91[@] *4*	4^+	1.58 ps *17*	CDEFGH JK	J^{π}: $\gamma(\theta)$ and γ(linear pol). $T_{1/2}$: weighted average of 1.72 ps *+14−20* (B(E2) in Coul. ex.,2006Be18), 2.1 ps *7* (RDDS,1982An06) and 1.32 ps *21* (RDDS,1979He18). Other: >2.1 ps (DSA,1980Ro02).
1977.91[a] *7*	6^+	0.65 ps *7*	BCDEFGH JK	XREF: B(?). J^{π}: $\gamma(\theta)$ and γ(linear pol). $T_{1/2}$: weighted average of values from Doppler-shift (DSA) method in in-beam γ-ray studies and B(E2) in Coul. ex. Values in ps are: 0.61 *7* (B(E2) In Coul. ex.,2006Be18), 0.82 *19* (DSA,2006Dh01), 0.57 *21* (DSA,2002Jo07), 0.83 *14* (DSA,1993Bi04), 0.49 *14* (DSA) and 0.69 *14* (RDDS) (1985Wi01,1982An06), 1.25 *28* (DSA,1980Ro02), 0.62 *10* (RDDS and DSA,1979He18), <2 (RDDS,1974No08).
2007.41 *5*	(0 to 3)		BC	XREF: C(?). J^{π}: γ's from (1^+).
2234.19 *4*	$(0\text{ to }4)^+$		BC	J^{π}: M1,E2 γ to 2^+.
2240.69 *5*	$(1,2)^+$		BC	J^{π}: M1+E2 γ to 2^+; γ's to 0^+ and 3^+.
2299.78[&] *5*	5^+	0.57 ps *16*	CDEFGH K	J^{π}: $\gamma(\theta)$ and γ(linear pol). $T_{1/2}$: weighted average of 0.44 ps *9* (DSA,2002Jo07), 1.10 ps *28* (RDDS,1982An06), 1.0 *+10−3* (DSA,1980Ro02) and 1.25 ps *28* (RDDS,1979He18).
2399.03[f] *5*	3^-	0.62 ps *14*	BCDEFGHI L	B(E3)↑=0.042 *14* (1978Ma11,2002Ki06) XREF: I(2384)L(2380). J^{π}: L(p,p′)=3. L(p,t)=3. $T_{1/2}$: from DSA (1985Wi01,1982An06).
2413.41 *11*	$2^+,3^+,4^+$		CD	J^{π}: M1,E2 γ to 2^+ and 3^+; possible β feeding from $4^{(-)}$.
2443.37 *5*	$(1,2)^+$		BC J	XREF: J(?). J^{π}: M1+E2 γ to 2^+; γ to 0^+.
2472.0 *5*	(2,3)		F	J^{π}: ΔJ=0,1 γ to 2^+.
2508.02 *9*			BC	J^{π}: γ to 2^+.
2573.36 *7*	$1^-,2^-,3^-$		BCD	J^{π}: E1 γ to 2^+. Small ε feedings from $4^{(-)}$ and $0^{(+)}$ giving

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{78}Kr Levels (continued)

E(level)[†]	J^{π}[#]	$T_{1/2}$[‡]	XREF	Comments
				inconsistent assignments are probably not reliable.
2656.12 *5*	(0,1)		B	J^{π}: log *ft*=7.7 from $0^{(+)}$; γ to 2^+.
2677.63 *9*	3^-		CD	J^{π}: E1 γ to 2^+; log *ft*=6.9 from $4^{(-)}$.
2731.7[@] *4*	(6^+)	1.5 ps *7*	DEFGH J	XREF: J(?). J^{π}: band assignment; γ′s to 4^+ and 6^+. $T_{1/2}$: weighted average of 1.4 ps *7* (RDDS,1982An06), 1.7 ps *9* (DSA,1980Ro02) and 1.4 ps *7* (DSA,1979He18).
2749.75[f] *7*	5^-	1.36 ps *21*	CDEFGH	J^{π}: γ(θ) and γ(linear pol). $T_{1/2}$: weighted average of 0.76 ps *+62−28* (DSA,1985Wi01,1982An06), 0.9 *+14−5* (DSA,1980Ro02) and 1.52 ps *21* (RDDS,1979He18).
2764.10[e] *5*	$(4)^-$	1.9 ps *5*	CDEFGH	J^{π}: E1 γ′s to 3^+ and 4^+; log *ft*=6.2 from $4^{(-)}$. $T_{1/2}$: from <2.08 ps *35* (effective half-life,RDDS,1985Wi01,1982An06) and >1.4 ps (DSA,1985Wi01).
2882.07 *9*	3^-		BC I L	XREF: I(2871)L(2874). B(E3)(W.u.)=6.2 *9* from (p,p′). J^{π}: L(p,p′)=3 and L(p,t)=3.
2882.84 *7*	(1)		B	J^{π}: log *ft*=7.7 from $0^{(+)}$; γ′s to 0^+ and 2^+.
2890.66[d] *11*	(4^-)		D	J^{π}: γ′s to 3^+ and 4^+.
2901.82 *24*	(4,5,6^+)		D	J^{π}: γ to 4^+.
2968.48 *19*			D	
2992.55 *7*			BC	J^{π}: γ to 2^+.
2993.52[a] *12*	8^+	0.31 ps *3*	DEFGH J	J^{π}: γ(θ) and γ(pol). $T_{1/2}$: weighted average of values from Doppler-shift (DSA) method in in-beam γ-ray studies and B(E2) in Coul. ex. Values in ps are: 0.28 *3* (B(E2) In Coul. ex.,2006Be18), 0.28 *7* (DSA,2006Dh01), 0.44 *9* (DSA,2002Jo07), 0.37 *5* (DSA,1993Bi04), 0.25 *4* (DSA,1985Wi01), 0.30 *+10−7*, 0.26 *6*, 0.22 *4* (DSA,1982An06), 0.49 *14* (DSA,1980Ro02), 0.31 *4* (DSA,1979He18).
2999.37 *8*	3^-		CD	J^{π}: E1 γ to 4^+; γ to 2^+.
3036.5 *5*			D	
3064.71[b] *10*	$(5)^-$	1.0 ps *+8−4*	BCD GH	XREF: B(?). J^{π}: E1 γ to 6^+; γ to 5^+; ΔJ=(0) γ to 5^-. $T_{1/2}$: from DSA (1982An06).
3072.40[c] *7*	(5^-)		CD	J^{π}: log *ft*=6.8 from $4^{(-)}$; γ to 4^+.
3105.36 *6*	3^-,4^-,5^-		C	J^{π}: E1 γ to 4^+; log *ft*=6.6 from $4^{(-)}$.
3137.4 *3*			D	
3161.18 *6*	3^-		CD	J^{π}: E1 γ′s to 2^+ and 4^+.
3202.7[&] *3*	$(7)^+$	0.50 ps *14*	DEFGH	J^{π}: ΔJ=2, E2 γ to 5^+; band assignment. $T_{1/2}$: weighted average of 0.62 ps *21*, 0.38 ps *14*, 0.49 ps *14* (DSA,1982An06), 0.69 ps *28* (DSA,1980Ro02) and 0.62 ps *+42−21* (DSA,1979He18).
3219.88[e] *22*	(6^-)	5.0 ps *14*	DEFGH	J^{π}: γ(θ); γ′s to 5^+ and 6^+; band assignment. $T_{1/2}$: weighted average of 4.9 ps *14* (RDDS,1985Wi01) and 5.1 ps *+21−14* (RDDS,1982An06).
3230.48 *5*	(1)		B	J^{π}: log *ft*=7.2 from $0^{(+)}$; γ′s to 0^+ and 2^+.
3233.55 *6*	3^-,4^-		C	J^{π}: E1 γ′s to 3^+ and 4^+.
3288.36[f] *10*	7^-	1.95 ps *21*	DEFGH	J^{π}: γ(θ), γ(linear pol); band assignment. $T_{1/2}$: weighted average of 1.94 ps *21* (RDDS,1985Wi01,1982An06), 1.3 ps *8* (DSA,1980Ro02) and 2.01 ps *21* (RDDS,1979He18).
3337.86 *25*			D	
3340.64[d] *24*	(6^-)		D	J^{π}: ΔJ=1 γ to $(5)^-$; γ to and (4^-).
3361.12 *11*	4^-,5^-,6^-		C	J^{π}: M1 γ to 5^-; 6^- is less likely from log *ft*=6.9 from $4^{(-)}$.
3437.42 *5*	(1)		B	J^{π}: log *ft*=6.1 from $0^{(+)}$; γ′s to 0^+ and 2^+.
3440.4 *4*			D	

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Adopted Levels, Gammas (continued)

^{78}Kr Levels (continued)

E(level)[†]	Jπ[#]	T1/2[‡]	XREF	Comments
3539.07 *4*	(1)		B	Jπ: log *ft*=6.4 from $0^{(+)}$; γ's to 0^+ and 2^+.
3548.1 *4*			D	
3575.08 *6*	(1)		B	Jπ: log *ft*=6.8 from $0^{(+)}$; γ to 0^+.
3607.6 *4*	7^-	1.7 ps *5*	D FGH	Jπ: γ(θ) and γ(linear pol). $T_{1/2}$: weighted average of 1.9 ps *5* (DSA,line shape), 2.6 ps *+10−8* (RDDS)(1982An06) and 1.0 ps *+14−4* (DSA,1980Ro02).
3662.17 *5*	(1)		B	Jπ: log *ft*=6.5 from $0^{(+)}$; γ's to 0^+ and 2^+.
3669.22 *6*	3^-,4^-		C	Jπ: M1 γ to 3^-; log *ft*=6.2 from $4^{(-)}$.
3703.9[c] *3*	(7^-)		D FGH	Jπ: ΔJ=1 γ to 6^+; γ to (5^-).
3725.48 *6*	3^+,4^+		CD	Jπ: E1 γ to 3^-; log *ft*=6.2 from $4^{(-)}$.
3749.14 *9*	(3,4,5^-)		BCD	Jπ: log *ft*=6.9 from $4^{(-)}$; γ to 3^-.
3770.9[@] *5*	(8^+)	0.186 ps *30*	DEFGH	Jπ: ΔJ=2, E2 γ to 6^+; band assignment. $T_{1/2}$: weighted average of 0.16 ps *4* (DSA,line shape), 0.208 ps *35* (DSA), 0.187 ps *35* (DSA) (1982An06) and 0.24 ps *7* (DSA,1980Ro02).
3771.32[b] *25*	(7^-)	0.62 ps *+49−21*	D FGH	Jπ: γ's to 6^+ and (5^-). $T_{1/2}$: from DSA (1982An06).
3774.59 *5*	$(3)^-$		CD	Jπ: M1+E2 γ to 3^-; γ's to 2^+ and 4^+.
3791.7 *5*		>0.7 ps	D GH	$T_{1/2}$: from DSA (1982An06).
3829.45 *6*	(1)		B	Jπ: log *ft*=6.5 from $0^{(+)}$; γ's to 0^+ and 2^+.
3893.27 *5*	(1)		B	Jπ: log *ft*=5.7 from $0^{(+)}$; γ's to 0^+ and 2^+.
3918.4[e] *3*	(8^-)	0.95 ps *21*	DEFGH	Jπ: γ(θ) and γ(linear pol). $T_{1/2}$: weighted average of 0.83 ps *35* (RDDS,1985Wi01,1982An06), 1.39 ps *35* (DSA,1980Ro02) and 0.83 ps *21* (RDDS,1979He18).
3919.7 *6*			D	
3922.8 *4*			D	
3937.57 *4*	(1)		B	Jπ: log *ft*=6.4 from $0^{(+)}$; γ's to 0^+ and 2^+.
4007.80 *5*	(1)		BC	XREF: C(?). Jπ: log *ft*=6.5 from $0^{(+)}$; γ's to 0^+ and 2^+.
4028.75[f] *14*	(9^-)	0.81 ps *7*	DEFGH	Jπ: γ(θ), γ(linear pol). $T_{1/2}$: weighted average of 0.94 ps *14* (DSA,2006Dh01), 0.97 ps *28* (DSA) and 1.2 ps *5* (RDDS)(1985Wi01,1982An06), 1.5 ps *6* (DSA,1980Ro02) and 0.76 ps *7* (RDDS,1979He18).
4040.39 *5*	(1)		B	Jπ: log *ft*=6.3 from $0^{(+)}$; γ to 0^+.
4089.32 *5*	(1)		B	Jπ: log *ft*=6.3 from $0^{(+)}$; γ's to 0^+ and 2^+.
4106.0[a] *3*	10^+	0.21 ps *3*	DEFGH J	Jπ: ΔJ=2, E2 γ to 8^+. $T_{1/2}$: weighted average of values from Doppler-shift (DSA) method in in-beam γ-ray studies and B(E2) in Coul. ex. Values in ps are: 0.24 *+2−3* (B(E2) In Coul. ex.,2006Be18), 0.152 *35* (DSA,2006Dh01), 0.20 *4* (DSA,2002Jo07, also 0.19 *8* and <0.35 listed), 0.42 *14* (DSA,1993Bi04,effective value), 0.21 *4* (DSA,1985Wi01, 1982An06), 0.208 *35* (DSA,line shape) and 0.097 *28* (DSA) (1982An06), 0.33 *7* (DSA,1980Ro02).
4201.68 *8*	(1)		B	Jπ: log *ft*=6.9 from $0^{(+)}$; γ's to 0^+ and 2^+.
4213.3[d] *4*	(8^-)		D	Jπ: ΔJ=(2) γ to (6^-); γ to (7^-).
4253.7[&] *5*	(9^+)	0.19 ps *6*	DEFGH	Jπ: ΔJ=(2), (E2) γ to 7^+. $T_{1/2}$: unweighted average of 0.083 ps *28* (DSA,line shape), 0.125 ps *35* (DSA), 0.21 ps *8* (DSA) (1982An06), 0.35 ps *7* (DSAM,1980Ro02).
4396.5 *4*	(10^+)	0.146 ps *28*	D GH	Jπ: ΔJ=(0), (M1) γ to 10^+; γ to 8^+. $T_{1/2}$: from DSA (1985Wi01,1982An06). Other: 0.10 ps *4*, 0.08 ps *+5−4*(DSA) (1982An06).
4420.86 *9*	(1)		B	Jπ: log *ft*=6.6 from $0^{(+)}$; γ's to 0^+ and 2^+.
4673.1[c] *5*	(9^-)		D	Jπ: ΔJ=2 γ to (7^-); ΔJ=1 γ to 8^+.

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Adopted Levels, Gammas (continued)

^{78}Kr Levels (continued)

E(level)[†]	J^{π}[#]	$T_{1/2}$[‡]	XREF	Comments
4732.0[b] *7*	(9⁻)		D	J^{π}: γ to (7⁻).
4808.5[e] *3*	(10⁻)	<1.6 ps	DEFGH	J^{π}: ΔJ=2, E2 γ to 8⁻. $T_{1/2}$: weighted average of 1.25 *35* (DSA,1985Wi01,1982An06) and 1.11 ps *35* (RDDS,1985Wi01,1982An06) is 1.18 ps *35*. As stated by 1985Wi01 this value is effective half-life, thus given as an upper limit here. Other:≤1.0 ps (RDDS,1979He18).
4858.7?[@] *5*	(10⁺)		DE	J^{π}: possible γ to (8⁺); possible band member.
4955.4 *7*	(10⁺)	0.45 ps *17*	GH	J^{π}: γ to (8⁺). $T_{1/2}$: from DSA (line-shape) (1982An06). Other: 0.24 ps *9* and 0.12 ps *6* from DSA (1982An06).
4965.86[f] *24*	(11⁻)	0.34 ps *6*	DEFGH	J^{π}: ΔJ=2, E2 γ to 9⁻. $T_{1/2}$: from DSA. Weighted average of 0.24 ps *6* (2006Dh01), 0.38 ps *7* (1985Wi01,1982An06), 0.49 ps *+35−21* and 0.44 ps *+23−15* (1982An06), 0.49 ps *7* (1980Ro02), 0.25 *8* (1979He18).
5011.52 *7*	(1)		B	J^{π}: log *ft*=6.1 from $0^{(+)}$; γ's to 0⁺ and 2⁺.
5061.68 *17*	(1)		B	J^{π}: log *ft*=6.2 from $0^{(+)}$ and γ to 2⁺.
5180.74 *8*	(1)		B	J^{π}: log *ft*=5.8 from $0^{(+)}$; γ's to 0⁺ and 2⁺.
5192.50 *11*	(1)		B	J^{π}: log *ft*=5.7 from $0^{(+)}$ and γ's to 0⁺, 2⁺.
5217.1[d] *7*	(10⁻)		D	J^{π}: ΔJ=(2) γ to (8⁻).
5217.8[a] *5*	12⁺	0.18 ps *3*	DEFGH J	XREF: J(?). J^{π}: ΔJ=2, E2 γ to 10⁺. $T_{1/2}$: from DSA. Weighted average of 0.15 ps *4* (2006Dh01), 0.18 ps *3* and 0.21 ps *4* (2002Jo07), 0.17 ps *10* (1985Wi01).
5222.58 *11*	(1)		B	J^{π}: log *ft*=6.1 from $0^{(+)}$; γ to 2⁺.
5244.01 *8*	(1)		B	J^{π}: log *ft*=5.9 from $0^{(+)}$; γ's to 0⁺ and 2⁺.
5333.04 *12*	(1)		B	J^{π}: log *ft*=5.9 from $0^{(+)}$; γ's 0⁺ and 2⁺.
5369.56 *15*	(1)		B	J^{π}: log *ft*=6.1 from $0^{(+)}$.
5441.7 *11*	(11⁺)	0.21 ps *8*	D GH	J^{π}: γ to (9⁺). $T_{1/2}$: from DSA (1982An06). Weighted average of 0.24 ps *10*, 0.21 ps *8* and 0.18 ps *9*.
5529.19 *11*	(1)		B	J^{π}: log *ft*=5.5 from $0^{(+)}$; γ to 0⁺.
5543.68 *16*	(1)		B	J^{π}: log *ft*=6.1 from $0^{(+)}$.
5567.79 *16*	(1)		B	J^{π}: log *ft*=5.8 from $0^{(+)}$; γ's to 0⁺ and 2⁺.
5586.08 *16*	(1)		B	J^{π}: log *ft*=6.1 from $0^{(+)}$.
5776.3[c] *9*	(11⁻)		D	J^{π}: γ to (9⁻).
5838.0[b] *12*	(11⁻)		D	J^{π}: γ to (9⁻).
5855.0[e] *6*	(12⁻)		D	J^{π}: ΔJ=2 γ to (10⁻).
6087.2[f] *8*	(13⁻)	0.14 ps *3*	DE	J^{π}: ΔJ=2, E2 γ to (11⁻). $T_{1/2}$: from DSA. Weighted average of 0.132 ps *28* (2006Dh01), 0.22 ps *10* (1979He18).
6305.1[d] *12*	(12⁻)		DE	J^{π}: γ to (10⁻).
6480.3[a] *6*	14⁺	0.092 ps *21*	DE GH	J^{π}: ΔJ=2, E2 γ to 12⁺. $T_{1/2}$: from DSA. Weighted average of 0.118 ps *35* (2006Dh01), 0.09 ps *4* and 0.076 ps *21* (2002Jo07), 0.15 ps *6* (1979He18).
6832.7? *13*	(13⁺)		D	J^{π}: possible γ to (11⁺); possible yrast state.
6853.3[c] *13*	(13⁻)		D	J^{π}: γ to (11⁻).
7066.8[e] *9*	(14⁻)		D	J^{π}: γ to (12⁻).
7392.5[f] *11*	(15⁻)	0.083 ps *28*	D	J^{π}: γ to (13⁻). $T_{1/2}$: from DSA (2006Dh01).
7457.1?[d] *13*	(14⁻)		D	J^{π}: γ to (12⁻).
7938.0[a] *10*	16⁺	0.152 ps *35*	DE	J^{π}: ΔJ=(2), (E2) γ to 14⁺. $T_{1/2}$: from DSA. Weighted average of 0.20 ps *5* (2006Dh01), 0.10 ps *6* and 0.146 ps *35* (2002Jo07). Other:≤0.14 ps (1979He18).

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Adopted Levels, Gammas (continued)

^{78}Kr Levels (continued)

E(level)[†]	J^{π}[#]	$T_{1/2}$[‡]	XREF	Comments
8469.2[e] *12*	(16⁻)		D	J^{π}: γ to (14⁻).
8882.4[f] *14*	(17⁻)		D	J^{π}: γ to (15⁻).
9570.0[a] *14*	18⁺	0.061 ps *23*	D	J^{π}: γ to 16⁺. $T_{1/2}$: from DSA. Weighted average of 0.055 ps *21* (2006Dh01) and 0.15 ps *8* (2002Jo07).
10061.2[e] *16*	(18⁻)		D	J^{π}: γ to (16⁻).
10551.4[f] *17*	(19⁻)		D	J^{π}: γ to (17⁻).
11314.0[a] *18*	20⁺	0.072 ps *35*	D	J^{π}: γ to 18⁺. $T_{1/2}$: from DSA. Weighted average of 0.062 ps *35* (2006Dh01) and 0.10 ps *6* (2002Jo07).
12389.4[f] *20*	(21⁻)		D	J^{π}: γ to (19⁻).
13159.0[a] *20*	22⁺	0.062 ps *35*	D	J^{π}: γ to 20⁺. $T_{1/2}$: from DSA. Weighted average of 0.055 ps *35* (2006Dh01) and 0.15 ps *12* (2002Jo07).
15163.2[a] *21*	(24⁺)	<0.64 ps	D	J^{π}: γ to 22⁺. $T_{1/2}$: <0.42 ps *22* from DSA (2002Jo07).
15198.8? *21*	(24⁺)		D	J^{π}: possible γ to 22⁺.
17296.5?[a] *21*	(26⁺)		D	J^{π}: possible γ to (24⁺).

[†] From least-squares fit to Eγ′s. Uncertainty of 0.5 keV used for Eγ when not stated. Normalized χ^2=1.2.

[‡] Weighted average of different measurements have been taken. Most values are from recoil-distance Doppler shift (RDDS) and DSA methods in in-beam γ-ray measurements. Some values are also deduced from B(E2) values in Coulomb excitation . Note that some of the values in 1985Wi01 and 1982An06 seem to be from the same experiment as several authors are common in these two papers. In the averaging procedure, value from only one of these two papers is used when this is the case, even though all values are stated in comments for the sake of completeness.

[#] For high-spin (J>5) levels, assignments are based on $\gamma(\theta)$ and γ(pol) measurements and band associations in in-beam γ-ray studies. Ascending spins with rise in excitation energy are assumed in these reactions. Other complementary arguments are given under comments. For low-spin (J<6)states, the assignments are based on log *ft* values and ce data for selected transitions.

[@] Band(A): γ band, even spins.

[&] Band(a): γ band, odd spins.

[a] Band(B): g.s. band. The band is forked above 22⁺. Average g factor=0.54 5 (1981Wa16), same value for J=2 to 8 levels and J=8 to 12 levels, suggesting no change in g factor in the band up to spin 12. In this g factor, uncertainty of 20% in the calibration of the field is not included.

[b] Band(C): Band based on 5⁻, 3065.

[c] Band(D): Band based on (5⁻), 3072.

[d] Band(E): Band based on (4⁻), 2891.

[e] Band(F): Band based on 4⁻, 2764.

[f] Band(G): Band based on 3⁻.

$\gamma(^{78}$Kr)

E_i(level)	J^{π}_i	E_{γ}[†]	I_{γ}[†]	E_f	J^{π}_f	Mult.[‡]	δ[‡]	α[&]	Comments
455.033	2^+	454.99 *5*	100	0.0	0^+	E2			B(E2)(W.u.)=67.9 *22*
1017.18	0^+	562.15 *5*	100	455.033	2^+	E2			B(E2)(W.u.)=47 *4*
		1017		0.0	0^+	E0			q^2_K(E0/E2)=0.136 *6*, X(E0/E2)=0.024 *1*, ρ^2(E0)=0.047 *13* (2005Ki02 evaluation, data from 1995Gi13).
1119.48	4^+	664.42 *5*	100	455.033	2^+	E2			B(E2)(W.u.)=88 *5*
1147.901	2^+	692.88 *5*	100.0 *6*	455.033	2^+	M1+E2	+0.45 *10*		B(M1)(W.u.)=0.0103 *21*; B(E2)(W.u.)=5.6 *24*
		1147.87 *5*	62.4 *12*	0.0	0^+	E2			B(E2)(W.u.)=1.7 *3*
1564.76	3^+	416.77 *5*	17.2 *7*	1147.901	2^+	(M1)			B(M1)(W.u.)=0.0090 *8* Additional information 3.
		445.28 *5*	5.3 *3*	1119.48	4^+	(M1)			B(M1)(W.u.)=0.00228 *22*
		1109.72 *5*	100.0 *16*	455.033	2^+	E2+M1			
1653.9?		534.4	24 *5*	1119.48	4^+				
		1198.9[c]	100 *19*	455.033	2^+				E_{γ}: this γ is placed from three other levels, placement here is suspect.
1755.86	2^+	607.94 *8*	4.7 *10*	1147.901	2^+	E2+M1	4.0 *35*		B(E2)(W.u.)=1.5 *4*; B(M1)(W.u.)=3.E−5 *+5−3* Mult.,δ: from α(K)exp In ^{78}Rb ε decay (17.66 min).
		636.27 *10*	11.9 *4*	1119.48	4^+	E2			B(E2)(W.u.)=3.2 *3*
		738.66 *5*	51.7 *8*	1017.18	0^+	E2			B(E2)(W.u.)=6.5 *5*
		1300.83 *5*	100.0 *16*	455.033	2^+	M1+E2	−1.32 *+12−55*	3.00×10^{-4}	B(M1)(W.u.)=0.00036 *5*; B(E2)(W.u.)=0.47 *5*
		1755.94 *10*	25.4 *8*	0.0	0^+	[E2]			B(E2)(W.u.)=0.042 *4*
1772.93	$(1,2)^+$	1317.90 *5*	100 *6*	455.033	2^+	M1,E2			
		1772.89 *5*	24 *5*	0.0	0^+				
1872.91	4^+	725.06 *8*	100 *3*	1147.901	2^+	E2			B(E2)(W.u.)=51 *6*
		753.37 *8*	62.5 *16*	1119.48	4^+	E2+M1	+3.2 *+23−12*	9.85×10^{-4} *22*	B(M1)(W.u.)=0.0010 *+14−10*; B(E2)(W.u.)=24 *4* Additional information 4.
		1417.90 *8*	15.2 *9*	455.033	2^+	E2			B(E2)(W.u.)=0.27 *4*
1977.91	6^+	858.33 *10*	100	1119.48	4^+	E2			B(E2)(W.u.)=94 *11*
2007.41	(0 to 3)	859.56 *10*	100	1147.901	2^+				
2234.19	(0 to 4)$^+$	1779.11 *5*	100	455.033	2^+	M1,E2			
2240.69	$(1,2)^+$	675.89 *9*	25.8 *18*	1564.76	3^+				
		1785.55 *12*	62.7 *18*	455.033	2^+	M1,E2			
		2240.69 *7*	100 *3*	0.0	0^+				
2299.78	5^+	426.5[#c] *4*	44 *5*	1872.91	4^+	(M1)			B(M1)(W.u.)=0.12 *4*
		734.98 *5*	100 *5*	1564.76	3^+	E2			B(E2)(W.u.)=1.3×10^2 *4*
		1180.35 *7*	40 *3*	1119.48	4^+	E2+M1	+2 *1*		B(M1)(W.u.)=0.0010 *9*; B(E2)(W.u.)=3.8 *14*
2399.03	3^-	1943.97 *5*	100	455.033	2^+	(E1)			B(E1)(W.u.)=8.1×10^{-5} *19*
		(2399)		0.0	0^+				B(E3)(W.u.)=16.7 *25* B(E3)(W.u.) from (p,p′).
2413.41	$2^+,3^+,4^+$	848.58 *15*	53 *4*	1564.76	3^+	M1,E2			Additional information 5.
		1265.63 *15*	100 *5*	1147.901	2^+	M1,E2			
		1293.5[#c] *4*	38 *10*	1119.48	4^+				

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

$\gamma(^{78}$Kr) (continued)

E_i(level)	J^π_i	E_γ†	I_γ†	E_f	J^π_f	Mult.‡	δ‡	Comments
2443.37	(1,2)$^+$	687.55 *8*	70 *4*	1755.86	2$^+$	M1,E2		
		1295.45 *8*	61 *4*	1147.901	2$^+$	M1,E2		
		1988.20 *15*	100 *3*	455.033	2$^+$	M1,E2		
		2443.32 *8*	86.1 *16*	0.0	0$^+$			
2472.0	(2,3)	2016.9	100	455.033	2$^+$	D		
2508.02		2052.96 *8*	100	455.033	2$^+$			
2573.36	1$^-$,2$^-$,3$^-$	1425.56 *14*	36 *3*	1147.901	2$^+$	E1		
		2118.28 *8*	100 *3*	455.033	2$^+$			
2656.12	(0,1)	1508.22 *6*	50.5 *18*	1147.901	2$^+$			
		2201.04 *6*	100 *4*	455.033	2$^+$			
2677.63	3$^-$	1529.81 *12*	100 *3*	1147.901	2$^+$	E1		
		2222.49 *12*	53 *3*	455.033	2$^+$			
2731.7	(6$^+$)	753 *1*	33 *13*	1977.91	6$^+$	(M1)		B(M1)(W.u.)=0.009 *6*
		858.9 *7*	100 *17*	1872.91	4$^+$	E2		B(E2)(W.u.)=31 *16*
2749.75	5$^-$	350.5#c *6*	6 *2*	2399.03	3$^-$	E2		B(E2)(W.u.)=210 *80*
		771.95 *7*	8.8 *8*	1977.91	6$^+$	(E1)		B(E1)(W.u.)=4.5×10^{-5} *9*
		1630.28 *6*	100.0 *25*	1119.48	4$^+$	E1(+M2)	−0.03 *4*	B(E1)(W.u.)=(5.5×10^{-5} *9*); B(M2)(W.u.)=(0.08 *+23−8*)
2764.10	(4)$^-$	364.4#c *3*	20 *4*	2399.03	3$^-$			
		1199.33b *5*	94.7b *23*	1564.76	3$^+$	E1		B(E1)(W.u.)=5.0×10^{-5} *14* I_γ: Iγ(1199γ)/Iγ(1645γ)=0.35 *17*, 3.6 *11*, 1.35 In reaction data.
		1644.61 *5*	100.0 *23*	1119.48	4$^+$	E1		B(E1)(W.u.)=2.0×10^{-5} *6*
2882.07	3$^-$	2427.00 *8*	100	455.033	2$^+$			
2882.84	(1)	1734.93 *7*	100 *6*	1147.901	2$^+$			
		2882.75 *12*	46 *4*	0.0	0$^+$			
2890.66	(4$^-$)	1017.7 *1*	≈45	1872.91	4$^+$			
		1326.2 *4*	100 *27*	1564.76	3$^+$			
2901.82	(4,5,6$^+$)	1781.6 *4*	100	1119.48	4$^+$			
2968.48		291.0 *3*	100 *21*	2677.63	3$^-$			
		569.1 *3*	26 *11*	2399.03	3$^-$			
		1403.8 *7*	37 *11*	1564.76	3$^+$			
		1820.9 *6*	21 *5*	1147.901	2$^+$			
		1849.3 *6*	84 *21*	1119.48	4$^+$			
2992.55		1844.66 *7*	100 *4*	1147.901	2$^+$			
		2537.37 *11*	65 *9*	455.033	2$^+$			
2993.52	8$^+$	1015.5 *1*	100	1977.91	6$^+$	E2		B(E2)(W.u.)≈85
2999.37	3$^-$	1852.55b *6*	76b *12*	1147.901	2$^+$			E_γ: Eγ not used in least-squares fit procedure.
		1879.87 *7*	100 *15*	1119.48	4$^+$	E1		
3036.5		1917.0 *5*	100	1119.48	4$^+$			
3064.71	(5)$^-$	315#c *1*	91 *36*	2749.75	5$^-$	(M1)		B(M1)(W.u.)=0.29 *+18−27* Mult.: ΔJ=(0) transition.
		765#c	27 *9*	2299.78	5$^+$	[E1]		B(E1)(W.u.)=0.00010 *+6−10*
		1086.79 *7*	100 *36*	1977.91	6$^+$	E1		B(E1)(W.u.)=0.00013 *+8−12*

From ENSDF

$^{78}_{36}$Kr$_{42}$-8

γ(^{78}Kr) (continued)

E_i(level)	J^π_i	E_γ†	I_γ†	E_f	J^π_f	Mult.‡	δ‡	Comments
3072.40	(5$^-$)	1199.33[b] 5	≈28[b]	1872.91	4$^+$			E_γ: Eγ not used in least-squares fit procedure.
		1952.91 6	100 23	1119.48	4$^+$			
3105.36	3$^-$,4$^-$,5$^-$	341.26 7	100 8	2764.10	(4)$^-$	M1		
		1232.44 7	87.2 21	1872.91	4$^+$	E1		
3137.4		1158.6 6	100 31	1977.91	6$^+$			
		2017.4 6	77 23	1119.48	4$^+$			
3161.18	3$^-$	1288.45 15	18.3 18	1872.91	4$^+$	E1		
		1595.8[#c] 5	44 17	1564.76	3$^+$			
		2013.25 6	100 3	1147.901	2$^+$	E1		
		2041.52 15	28.4 13	1119.48	4$^+$			I_γ: other: 72 17 In reaction data.
3202.7	(7)$^+$	902.8 3	100	2299.78	5$^+$	E2		B(E2)(W.u.)≈95
		1225		1977.91	6$^+$			
3219.88	(6$^-$)	455.5 6	<28	2764.10	(4)$^-$	[E2]		B(E2)(W.u.)=14 +15−14 I_γ: other:≈160.
		470.0 5	84 13	2749.75	5$^-$	(M1)		B(M1)(W.u.)=0.013 5 I_γ: other: 50.
		488[c]	<40	2731.7	(6$^+$)	[E1]		B(E1)(W.u.)=5.E−5 5
		920.1 5	100 8	2299.78	5$^+$	(E1)		B(E1)(W.u.)=3.4×10^{-5} 11
		1241.7 6	64 8	1977.91	6$^+$	(E1)		B(E1)(W.u.)=9.E−6 3 Mult.: ΔJ=(0) transition.
3230.48	(1)	2082.60 6	71.0 24	1147.901	2$^+$			
		2213.24 6	41.1 24	1017.18	0$^+$			
		3230.37 8	100 4	0.0	0$^+$			
3233.55	3$^-$,4$^-$	1360.63 7	66 4	1872.91	4$^+$	E1		
		1668.61 15	100 6	1564.76	3$^+$	E1		
		2114.07 7	88 5	1119.48	4$^+$	E1		
3288.36	7$^-$	294.2 4	17 6	2993.52	8$^+$	(E1)		B(E1)(W.u.)=0.00063 24
		538.9 1	85 5	2749.75	5$^-$	E2		B(E2)(W.u.)=136 18
		1310.2 1	100 6	1977.91	6$^+$	E1(+M2)	−0.06 7	B(E1)(W.u.)=(4.2×10^{-5} 6); B(M2)(W.u.)=(0.4 +10−4)
3337.86		338.6 3	≈29	2999.37	3$^-$			
		1773.1 5	86 29	1564.76	3$^+$			
		2217.7 7	100 43	1119.48	4$^+$			
3340.64	(6$^-$)	268.6 4	22 6	3072.40	(5$^-$)			
		276.1 5	100 36	3064.71	(5)$^-$	D		
		449.6 4	53 19	2890.66	(4$^-$)			
		591.6 8	4.7 16	2749.75	5$^-$			
3361.12	4$^-$,5$^-$,6$^-$	611.37 8	100	2749.75	5$^-$	M1		
3437.42	(1)	1203.13 5	1.69 24	2234.19	(0 to 4)$^+$			
		2289.66 15	29.2 5	1147.901	2$^+$			
		2420.27 6	88.6 12	1017.18	0$^+$			
		2982.37 16	100.0 18	455.033	2$^+$			
		3437.38 15	87 4	0.0	0$^+$			
3440.4		690.7 5	50 20	2749.75	5$^-$			

$^{78}_{36}$Kr$_{42}$-9

$\gamma(^{78}$Kr) (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[‡]	δ[‡]	Comments
3440.4		1041.3 *7*	100 *30*	2399.03	3^-			
3539.07	(1)	2391.26 *12*	6.7 *3*	1147.901	2^+			
		2521.80 *12*	4.0 *5*	1017.18	0^+			
		3083.95 *5*	100.0 *13*	455.033	2^+			
		3539.00 *7*	38.9 *9*	0.0	0^+			
3548.1		1248.1 *5*	20 *10*	2299.78	5^+			
		1570.5 *6*	100 *30*	1977.91	6^+			
3575.08	(1)	2557.85 *10*	12.1 *10*	1017.18	0^+			
		3574.99 *6*	100.0 *10*	0.0	0^+			
3607.6	7^-	614.3 *5*	100 *25*	2993.52	8^+	E1(+M2)	<0.012	B(E1)(W.u.)>0.00058?; B(M2)(W.u.)<2.3? Mult.: ΔJ=(0) transition.
		1630.4 *8*	44 *13*	1977.91	6^+	[E1]		B(E1)(W.u.)=3.0×10^{-5} *15*
3662.17	(1)	1428.08 *12*	4.6 *28*	2234.19	(0 to 4)$^+$			
		1906.28 *7*	7.4 *4*	1755.86	2^+			
		2514.13 *8*	100.0 *17*	1147.901	2^+			
		3662.13 *8*	5.5 *4*	0.0	0^+			
3669.22	$3^-,4^-$	1096.02 *15*	65 *3*	2573.36	$1^-,2^-,3^-$	M1,E2		
		1270.17 *6*	100 *4*	2399.03	3^-	M1		
		1796.25 *9*	99 *7*	1872.91	4^+			
3703.9	(7^-)	482.7[c]	≈25	3219.88	(6^-)			
		632.4 *5*	≈25	3072.40	(5^-)			
		1726.0 *5*	100 *25*	1977.91	6^+	D		
3725.48	$3^+,4^+$	823.1[#c] *4*	20 *9*	2901.82	$(4,5,6^+)$			
		1326.48 *9*	19.9 *23*	2399.03	3^-	E1		
		1852.55[b] *6*	100[b] *8*	1872.91	4^+	(M1,E2)		
		1969.6[#c] *6*	29 *20*	1755.86	2^+			
		3270.35[@] *9*	33.1 *20*	455.033	2^+			
3749.14	$(3,4,5^-)$	611.3[#c] *4*	≈13	3137.4				E_γ: a 611γ is placed from 3361 level In ^{78}Rb ε decay.
		1350.11 *8*	100 *40*	2399.03	3^-			
3770.9	(8^+)	1039.2 *1*	100	2731.7	(6^+)	E2		B(E2)(W.u.)≈1.3×10^2
3771.32	(7^-)	698.9 *4*	≈19	3072.40	(5^-)			
		1793.4 *3*	100 *19*	1977.91	6^+	[E1]		B(E1)(W.u.)=9.E−5 *+4−8*
3774.59	$(3)^-$	872.6[#c] *4*	9 *3*	2901.82	$(4,5,6^+)$			
		1199.3[#c] *4*	21 *4*	2573.36	$1^-,2^-,3^-$			E_γ: 1199γ is placed from three different levels by 1999Su02 In reaction data but placement from 3775 level In ^{78}Rb ε decay is inconsistent with level-energy difference. Additional information 6.
		1375.61 *12*	42.3 *20*	2399.03	3^-	M1,E2		
		1901.79 *15*	20.7 *14*	1872.91	4^+			
		2209.76 *8*	27.5 *20*	1564.76	3^+			
		2626.86[@] *13*	98 *4*	1147.901	2^+			
		2654.97[@] *12*	40.3 *17*	1119.48	4^+			

$^{78}_{36}$Kr$_{42}$-10

$\gamma(^{78}Kr)$ (continued)

E_i(level)	J^π_i	E_γ†	I_γ†	E_f	J^π_f	Mult.‡	Comments
3774.59	(3)⁻	3319.50@ *7*	100 *3*	455.033	2⁺		
3791.7		653.9 *7*	20	3137.4			
		1814.1 *6*	100 *20*	1977.91	6⁺		
3829.45	(1)	1595.32 *7*	44.1 *20*	2234.19	(0 to 4)⁺		
		1822.00 *15*	100 *10*	2007.41	(0 to 3)		
		2681.33 *14*	78 *3*	1147.901	2⁺		
		3374.06 *16*	91 *4*	455.033	2⁺		
		3829.41 *17*	15.1 *13*	0.0	0⁺		
3893.27	(1)	1652.68 *20*	5.35 *17*	2240.69	(1,2)⁺		
		1885.97 *20*	1.57 *23*	2007.41	(0 to 3)		
		2137.41 *8*	16.16 *23*	1755.86	2⁺		
		2745.19 *12*	5.4 *4*	1147.901	2⁺		
		3438.16 *15*	100 *3*	455.033	2⁺		
		3893.15 *6*	35.4 *5*	0.0	0⁺		
3918.4	(8⁻)	629.4 *8*	12 *3*	3288.36	7⁻	[M1+E2]	
		698.6 *2*	100 *5*	3219.88	(6⁻)	E2	B(E2)(W.u.)=140 *40*
		715 *1*	4.2 *23*	3202.7	(7)⁺	(E1)	B(E1)(W.u.)=3.6×10^{-5} *21*
		924.4 *7*	10 *4*	2993.52	8⁺	[E1]	B(E1)(W.u.)=3.9×10^{-5} *18*
3919.7		1520.7 *6*	100	2399.03	3⁻		
3922.8		314.8 *4*	100 *30*	3607.6	7⁻		
		1945.8 *6*	90 *30*	1977.91	6⁺		
3937.57	(1)	1930.07 *7*	21.4 *17*	2007.41	(0 to 3)		
		2789.59 *7*	33.2 *17*	1147.901	2⁺		
		2920.36 *7*	59.6 *23*	1017.18	0⁺		
		3482.50 *7*	86 *3*	455.033	2⁺		
		3937.50 *7*	100 *3*	0.0	0⁺		
4007.80	(1)	1767.05 *8*	59 *7*	2240.69	(1,2)⁺		
		2000.45 *12*	20 *4*	2007.41	(0 to 3)		
		2990.38 *12*	100 *5*	1017.18	0⁺		
		3552.70 *9*	80 *3*	455.033	2⁺		
		4007.77 *9*	51 *3*	0.0	0⁺		
4028.75	(9⁻)	740.4 *1*	100 *6*	3288.36	7⁻	E2	B(E2)(W.u.)=143 *18*
		1034.7 *6*	11 *3*	2993.52	8⁺	(E1)	B(E1)(W.u.)=4.1×10^{-5} *12*
4040.39	(1)	1467.24 *18*	2.9 *6*	2573.36	1⁻,2⁻,3⁻		
		1806.22 *10*	17.9 *6*	2234.19	(0 to 4)⁺		
		2284.64 *17*	12.3 *9*	1755.86	2⁺		
		2892.36 *8*	100 *3*	1147.901	2⁺		
		3023.20 *16*	27.0 *18*	1017.18	0⁺		
		4040.20 *9*	17.3 *9*	0.0	0⁺		
4089.32	(1)	1855.06 *8*	51.6 *16*	2234.19	(0 to 4)⁺		
		2333.32 *8*	78 *3*	1755.86	2⁺		
		2941.40 *7*	100.0 *16*	1147.901	2⁺		
		3634.28 *20*	11.8 *22*	455.033	2⁺		

$^{78}_{36}Kr_{42}$-11

Adopted Levels, Gammas (continued)

$\gamma(^{78}Kr)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[‡]	Comments
4089.32	(1)	4089.36 *12*	16.1 *22*	0.0	0^+		
4106.0	10^+	1112.2[a] *3*	100	2993.52	8^+	E2	B(E2)(W.u.)=80 *12*
4201.68	(1)	3053.61 *20*	59 *9*	1147.901	2^+		
		3746.58 *8*	100 *5*	455.033	2^+		
		4201.44 *20*	61 *7*	0.0	0^+		
4213.3	(8^-)	508.6 *7*	21 *8*	3703.9	(7^-)		
		872.9 *4*	100 *29*	3340.64	(6^-)	(Q)	
4253.7	(9^+)	1051.0 *4*	100	3202.7	$(7)^+$	(E2)	B(E2)(W.u.)=120 *40*
4396.5	(10^+)	289.5 *5*	23 *9*	4106.0	10^+	(M1)	B(M1)(W.u.)=1.2 *6* Additional information 7. Mult.: ΔJ=(0) transition.
		790[c]		3607.6	7^-		
		1402.3 *6*	100 *27*	2993.52	8^+	[E2]	B(E2)(W.u.)=29 *12*
4420.86	(1)	3272.88 *10*	34 *3*	1147.901	2^+		
		4420.75 *15*	100 *5*	0.0	0^+		
4673.1	(9^-)	969.3 *6*	100 *43*	3703.9	(7^-)	Q	
		1679.4 *6*	71 *29*	2993.52	8^+	D	
4732.0	(9^-)	960.7 *6*	100	3771.32	(7^-)		
4808.5	(10^-)	890.1 *1*	100	3918.4	(8^-)	E2	B(E2)(W.u.)>32
4858.7?	(10^+)	1087.8[c] *2*	100	3770.9	(8^+)		E_γ: γ also placed from 6305 level.
4955.4	(10^+)	1184.5	100	3770.9	(8^+)	[E2]	B(E2)(W.u.)=27 *11*
4965.86	(11^-)	937.1 *2*	100	4028.75	(9^-)	E2	B(E2)(W.u.)=116 *21*
5011.52	(1)	3863.51 *9*	100 *8*	1147.901	2^+		
		3994.23 *9*	81 *8*	1017.18	0^+		
		4556.38 *19*	43 *6*	455.033	2^+		
5061.68	(1)	3913.67 *16*	100	1147.901	2^+		
5180.74	(1)	3173.36 *14*	65 *7*	2007.41	(0 to 3)		
		4725.60 *11*	77 *7*	455.033	2^+		
		5180.40 *13*	100 *5*	0.0	0^+		
5192.50	(1)	4044.31 *15*	100 *3*	1147.901	2^+		
		4175.38 *19*	24.4 *17*	1017.18	0^+		
		4737.44 *22*	29 *3*	455.033	2^+		
5217.1	(10^-)	1003.8 *5*	100	4213.3	(8^-)	(Q)	
5217.8	12^+	821	≈10	4396.5	(10^+)	[E2]	
		1112.2[a] *5*	100	4106.0	10^+	E2	B(E2)(W.u.)=85 *15*
5222.58	(1)	3215.22 *15*	60 *7*	2007.41	(0 to 3)		
		4074.45 *15*	100 *14*	1147.901	2^+		
5244.01	(1)	4095.98 *10*	26 *10*	1147.901	2^+		
		5243.85 *12*	100 *4*	0.0	0^+		
5333.04	(1)	3325.65 *15*	62 *10*	2007.41	(0 to 3)		
		4877.76 *25*	22 *4*	455.033	2^+		
		5332.70 *22*	100 *8*	0.0	0^+		
5369.56	(1)	3361.99 *20*	100 *15*	2007.41	(0 to 3)		

$^{78}_{36}Kr_{42}$-12

Adopted Levels, Gammas (continued)

$\gamma(^{78}Kr)$ (continued)

E_i(level)	J^π_i	E_γ†	I_γ†	E_f	J^π_f	Mult.‡	Comments
5369.56	(1)	5369.46 *22*	52 *6*	0.0	0^+		
5441.7	(11^+)	1188 *1*	100	4253.7	(9^+)	[E2]	B(E2)(W.u.)=58 *22*
5529.19	(1)	3288.33 *18*	77 *14*	2240.69	$(1,2)^+$		
		3294.66 *25*	89 *11*	2234.19	$(0\ to\ 4)^+$		
		3521.60 *25*	43 *11*	2007.41	(0 to 3)		
		3773.37 *25*	100 *9*	1755.86	2^+		
		5529.28 *22*	83 *9*	0.0	0^+		
5543.68	(1)	3309.41 *15*	100	2234.19	$(0\ to\ 4)^+$		
5567.79	(1)	5112.70 *25*	56 *7*	455.033	2^+		
		5567.50 *20*	100 *10*	0.0	0^+		
5586.08	(1)	3351.81 *15*	100	2234.19	$(0\ to\ 4)^+$		
5776.3	(11^-)	1103.2 *7*	100	4673.1	(9^-)		
5838.0	(11^-)	1106 *1*	100	4732.0	(9^-)		
5855.0	(12^-)	1046.5 *5*	100	4808.5	(10^-)	Q	
6087.2	(13^-)	1121.3 *7*	100	4965.86	(11^-)	E2	B(E2)(W.u.)=115 *25*
6305.1	(12^-)	1088 *1*	100	5217.1	(10^-)		
6480.3	14^+	1262.5 *3*	100	5217.8	12^+	E2	B(E2)(W.u.)=97 *23*
6832.7?	(13^+)	1391[c]	100	5441.7	(11^+)		
6853.3	(13^-)	1077 *1*	100	5776.3	(11^-)		
7066.8	(14^-)	1211.8 *7*	100	5855.0	(12^-)		
7392.5	(15^-)	1305.3 *7*	100	6087.2	(13^-)	[E2]	B(E2)(W.u.)=90 *30*
7457.1?	(14^-)	1152[c]	100	6305.1	(12^-)		
7938.0	16^+	1457.6 *8*	100	6480.3	14^+	(E2)	B(E2)(W.u.)=29 *7*
8469.2	(16^-)	1402.4 *7*	100	7066.8	(14^-)		
8882.4	(17^-)	1489.9 *9*	100	7392.5	(15^-)		
9570.0	18^+	1632 *1*	100	7938.0	16^+	[E2]	B(E2)(W.u.)=40 *16*
10061.2	(18^-)	1592 *1*	100	8469.2	(16^-)		
10551.4	(19^-)	1669 *1*	100	8882.4	(17^-)		
11314.0	20^+	1744 *1*	100	9570.0	18^+	[E2]	B(E2)(W.u.)=25 *12*
12389.4	(21^-)	1838 *1*	100	10551.4	(19^-)		
13159.0	22^+	1845 *1*	100	11314.0	20^+	[E2]	B(E2)(W.u.)=22 *13*
15163.2	(24^+)	2003 *1*	100	13159.0	22^+	[E2]	B(E2)(W.u.)>1.4
15198.8?	(24^+)	2040[c]	100	13159.0	22^+		
17296.5?	(26^+)	2098[c]	≈60	15198.8?	(24^+)		
		2133[c]	≈100	15163.2	(24^+)		

† The values given here represent weighted averages of all available data for energies and intensities of γ rays. The gamma rays for low-spin levels (J<5) are mainly from ^{78}Rb decays and for high-spin levels (J>5) from five heavy-ion in-beam γ-ray studies.

‡ For gamma transitions from low-spin levels (J<5), the assignments are from ce data in ^{78}Rb ε decay; and for transitions from high-spin levels, the assignments are based on $\gamma(\theta)$, $\gamma\gamma(\theta)$(DCO) and γ(linear pol) measurements in in-beam γ-ray studies covered in four different reaction dataset. When the assignments are

$^{78}_{36}Kr_{42}$-13

$\gamma(^{78}Kr)$ (continued)

are quadrupole or dipole+quadrupole from angular distribution/ correlation data in in-beam γ-ray experiments, RUL is used to assign E2 or M1+E2. In other cases M1 and E1 are assigned in parentheses when dipole is indicated by angular distribution/correlation data and level J^{π}'s are well established.

\# From $^{58}Ni(^{23}Na,3p\gamma)$,$(^{27}Al,\alpha3p\gamma)$ (1999Su02) only, not reported In ^{78}Rb ε decay. With the intensity of this γ ray reported In the reaction data, it should have been seen In the ^{78}Rb ε data from 1981Ba40. This discrepancy is difficult to explain. IT is considered As questionable by the evaluators.

@ From ^{78}Rb ε decay only; not reported In In-beam γ-ray data, probably because of energy limits set In γ-ray spectrum from reactions.

& 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.

[a] Multiply placed.

[b] Multiply placed with intensity suitably divided.

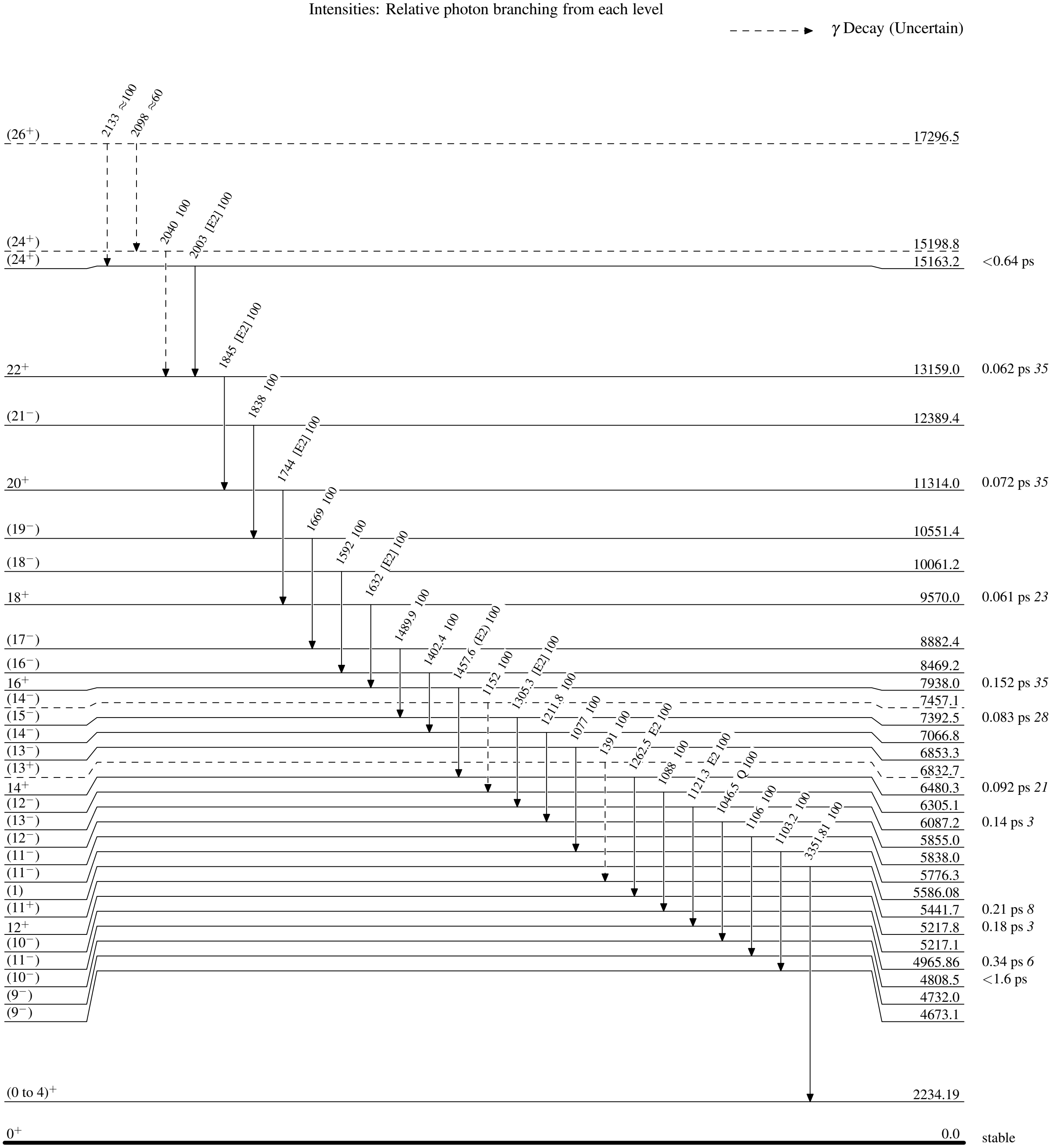
[c] Placement of transition in the level scheme is uncertain.

$^{78}_{36}Kr_{42}$-14

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level

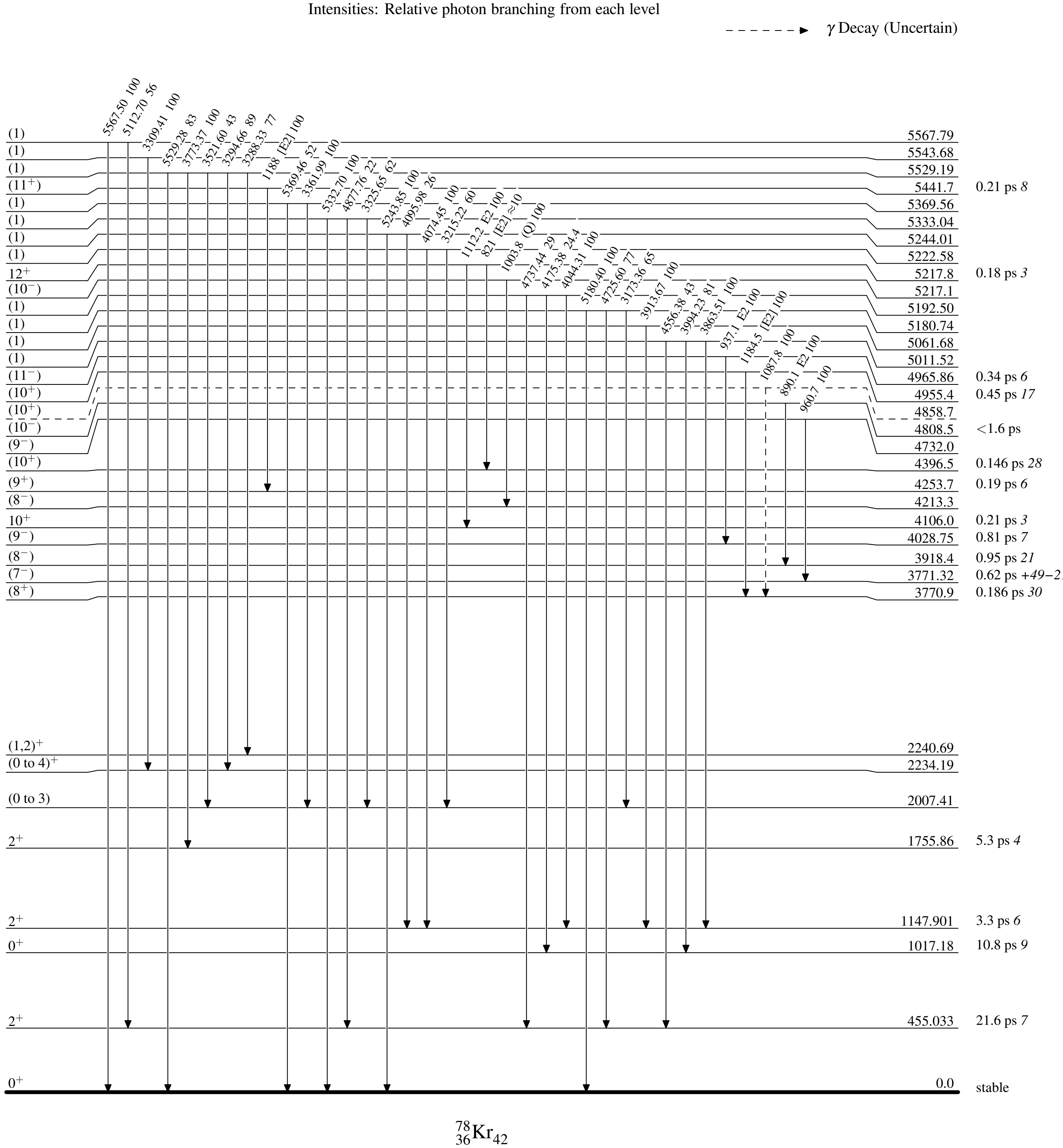


$^{78}_{36}Kr_{42}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

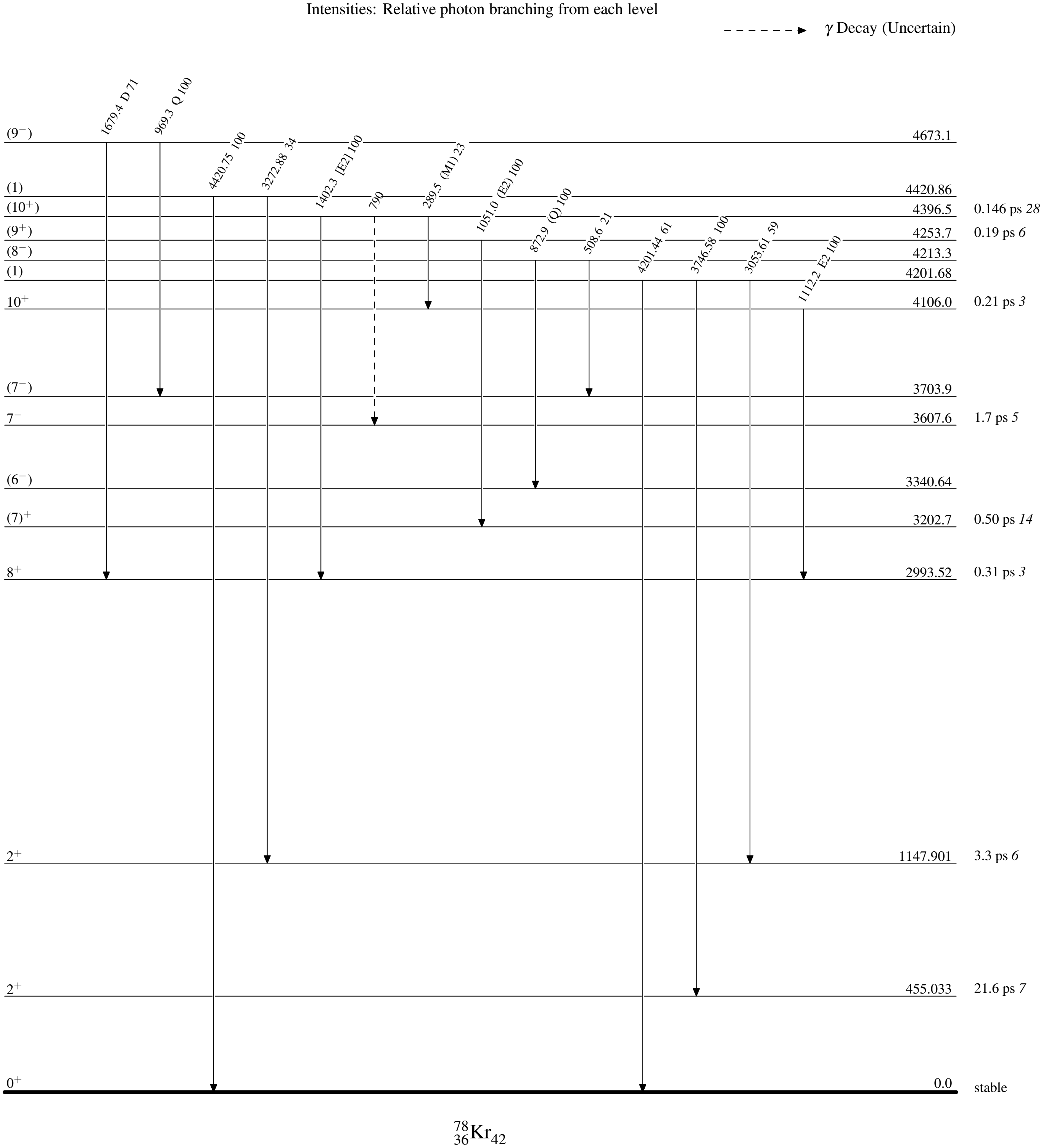


Adopted Levels, Gammas

Legend

Level Scheme (continued)

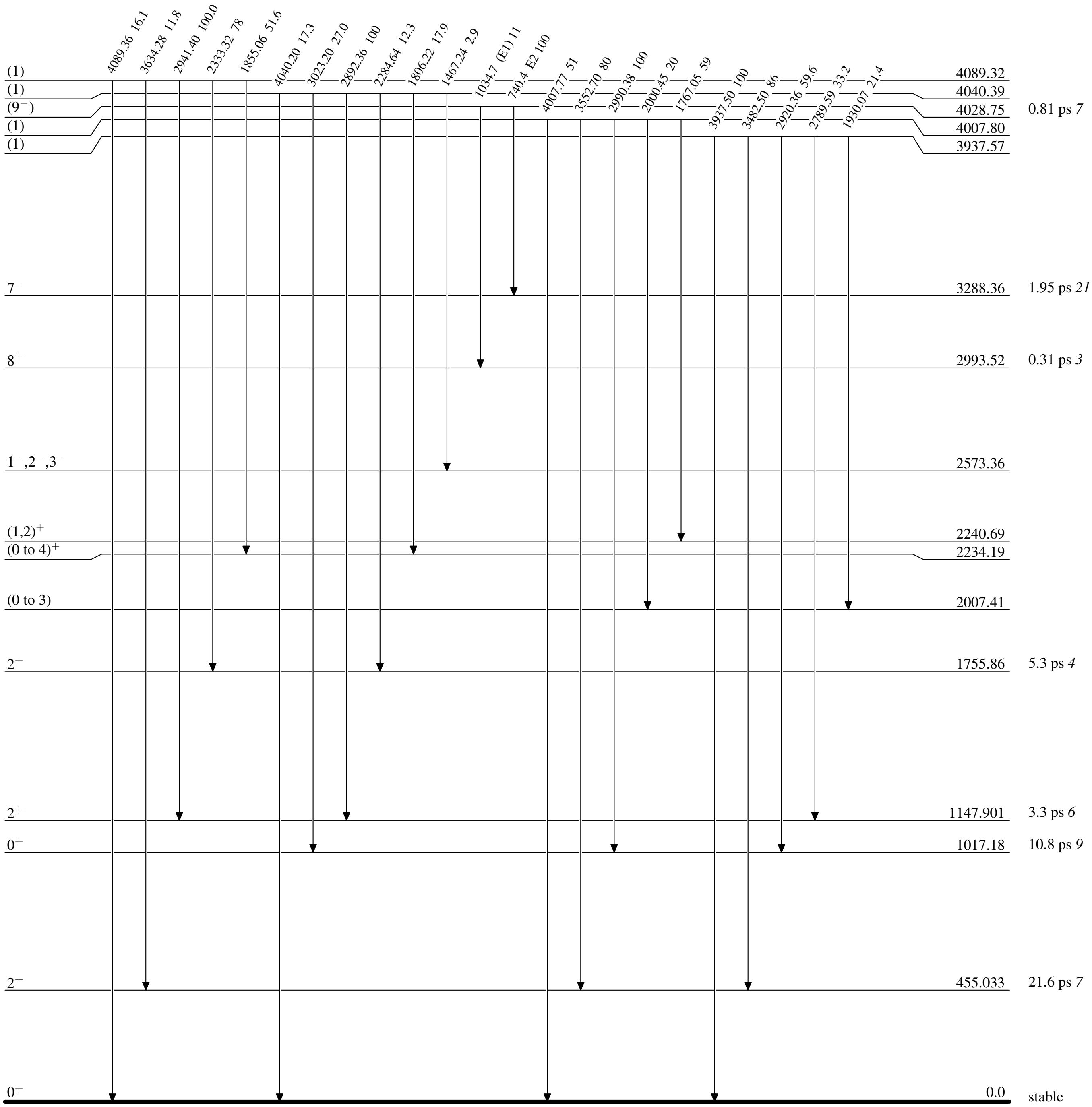
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

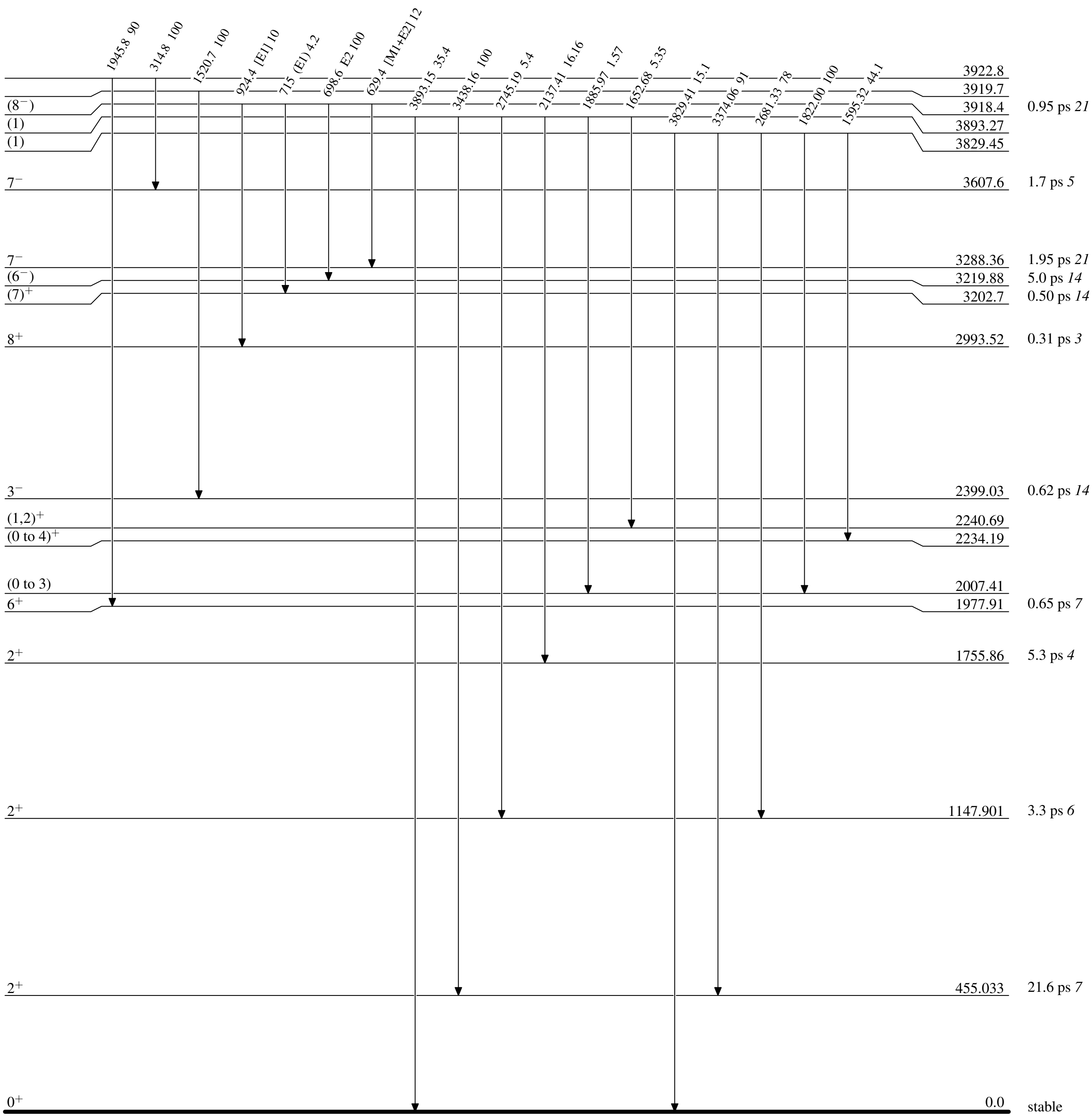


$^{78}_{36}Kr_{42}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

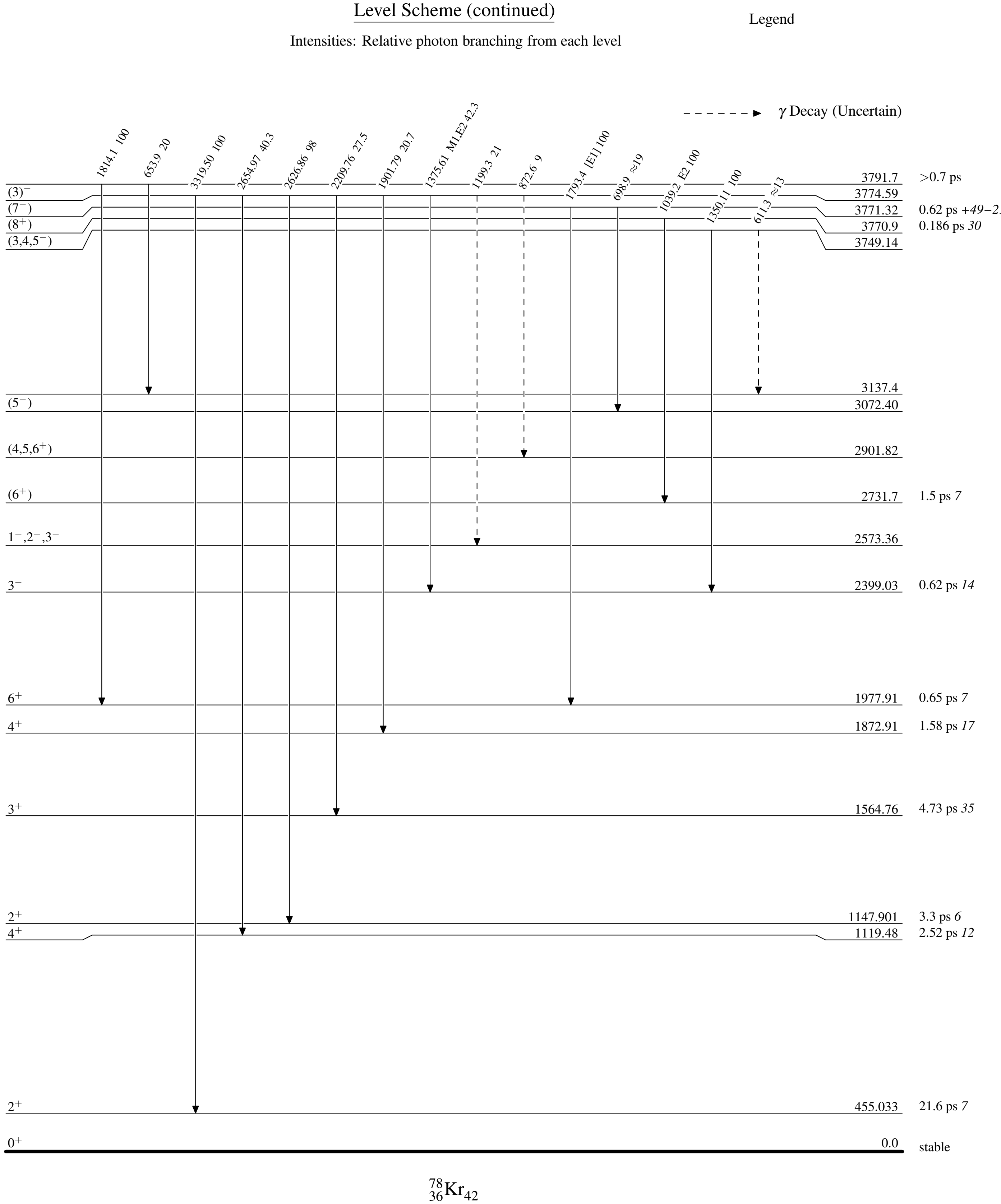


$^{78}_{36}Kr_{42}$

Adopted Levels, Gammas

Level Scheme (continued)

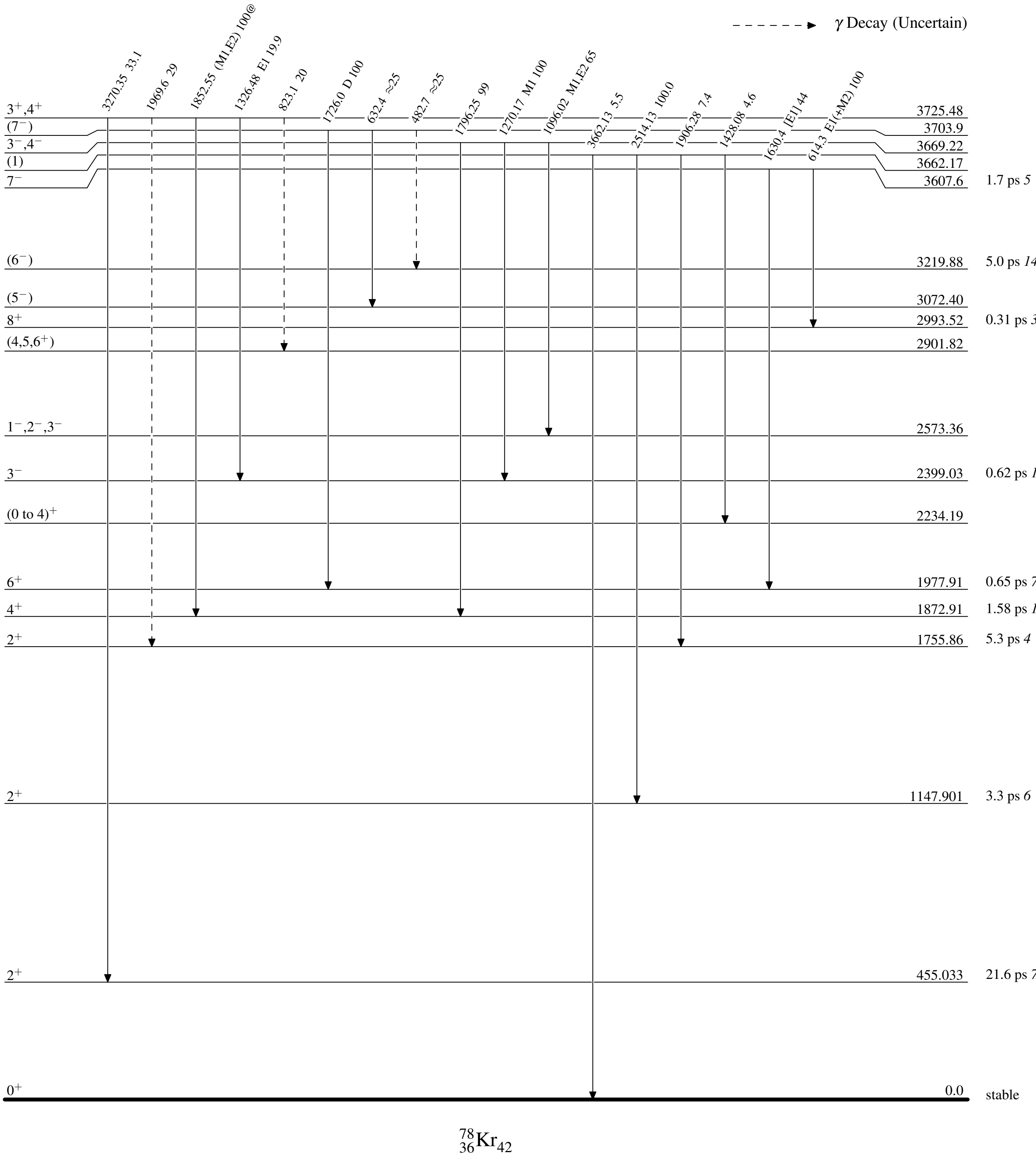
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

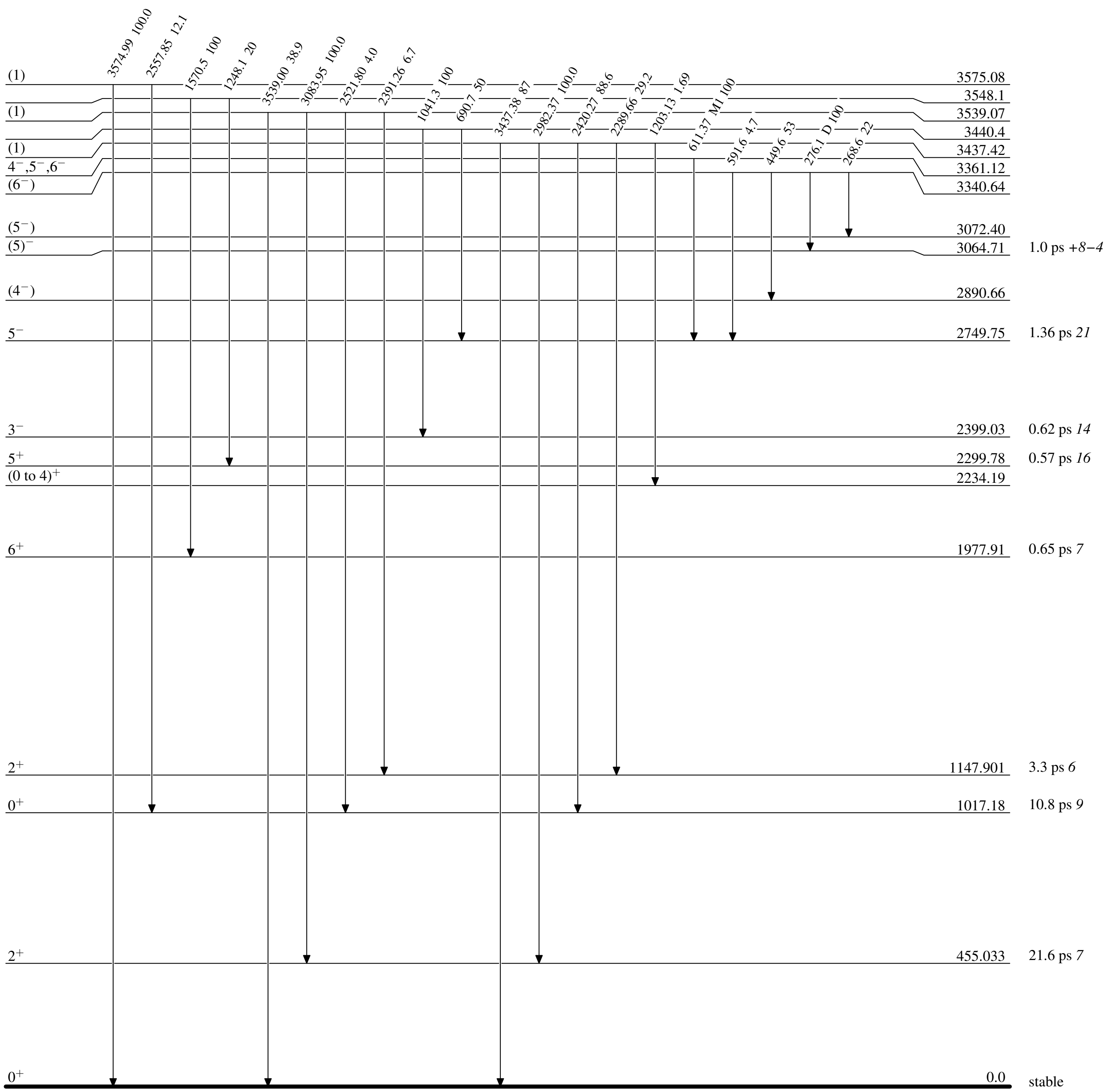
Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided



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

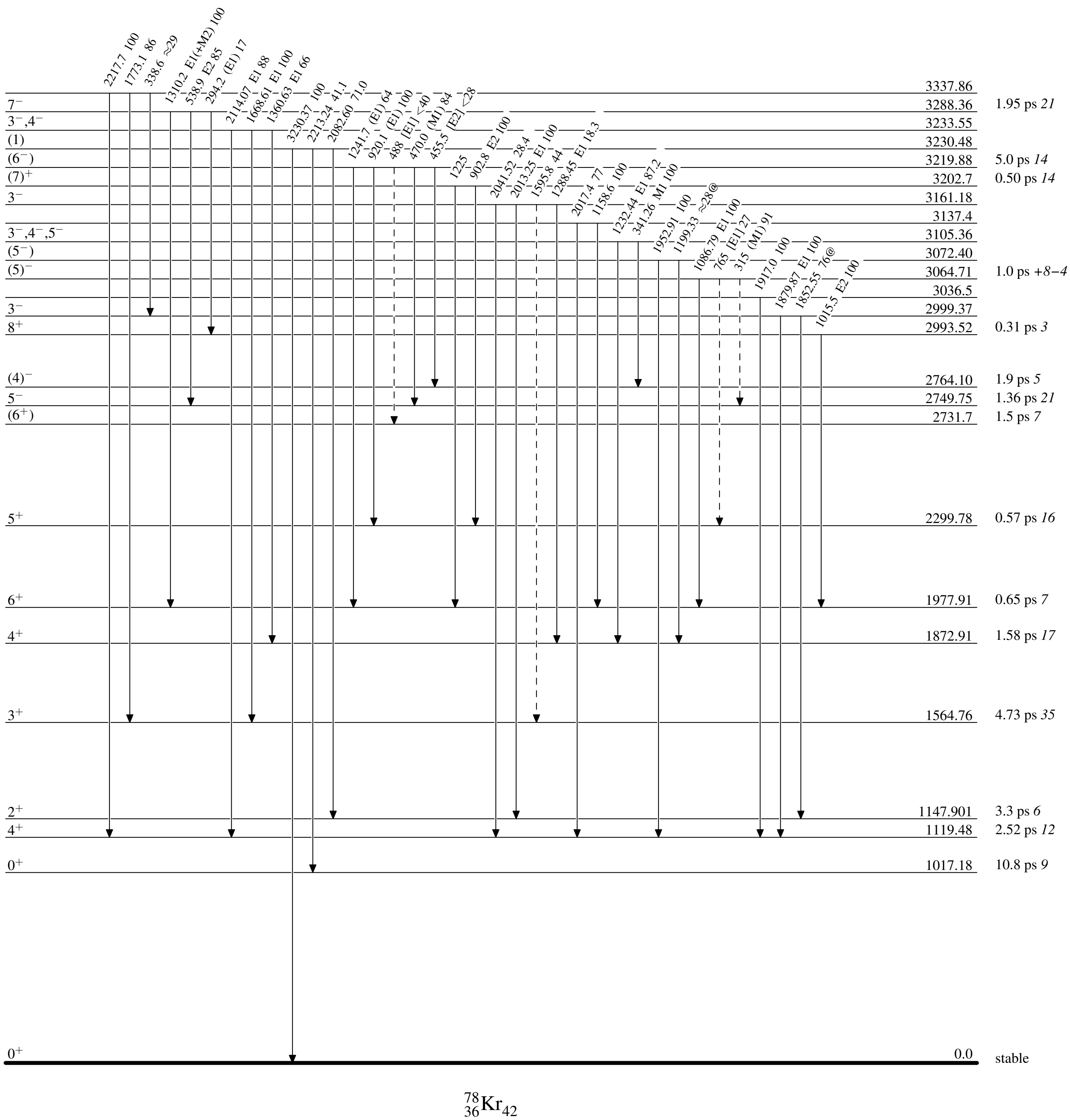
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided

γ Decay (Uncertain)



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

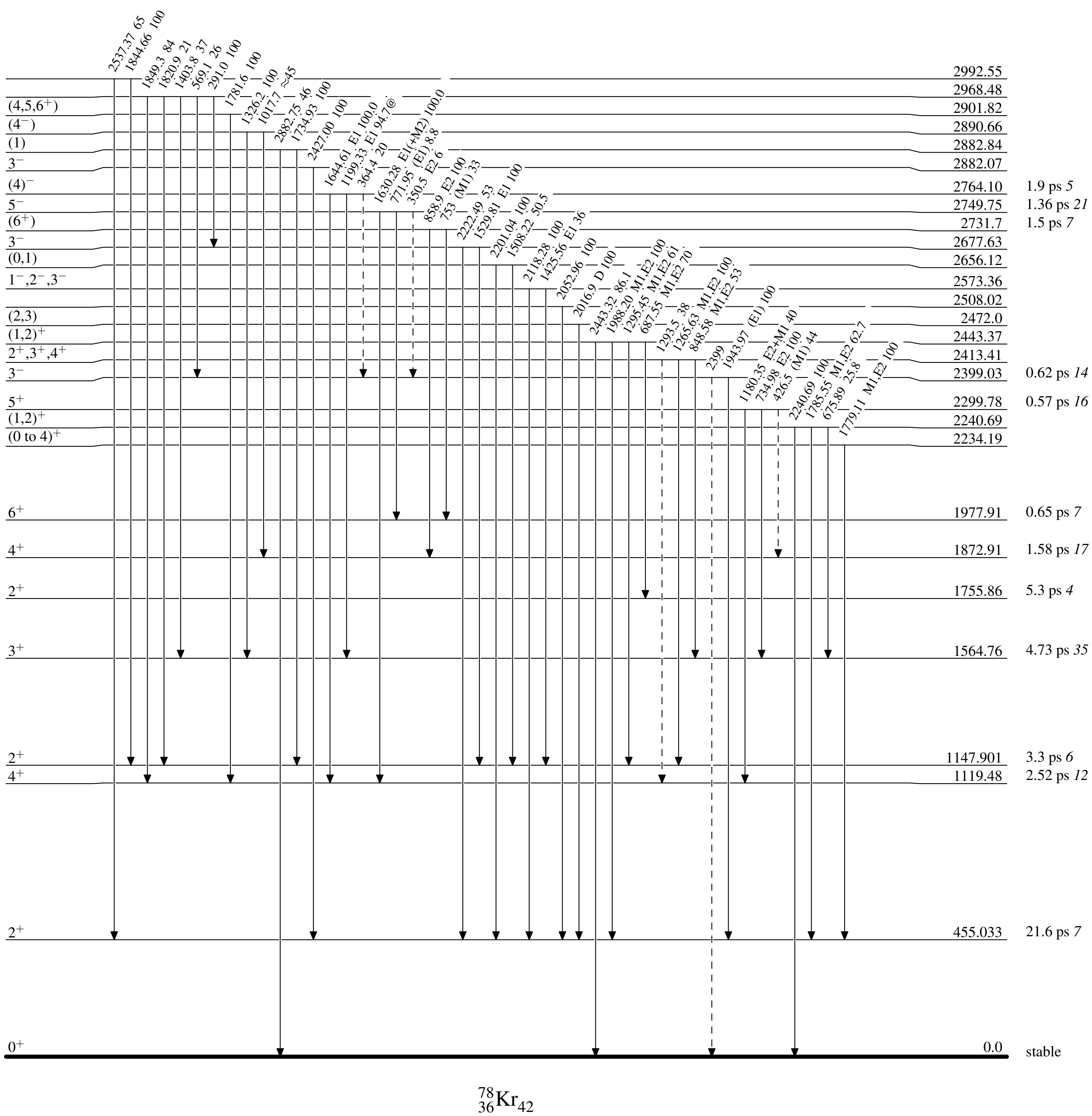
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided

γ Decay (Uncertain)

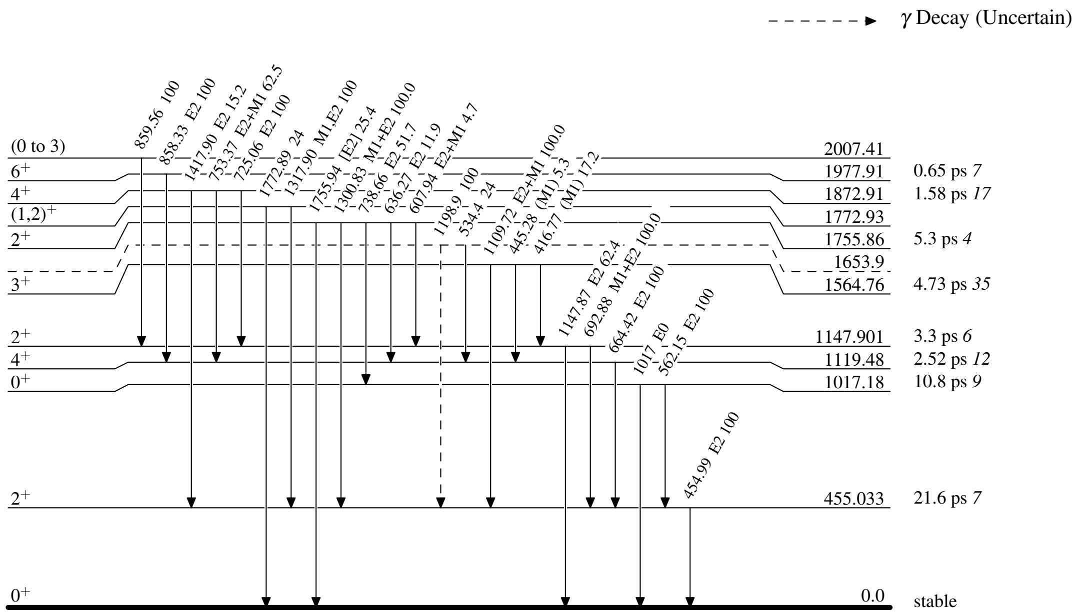


Adopted Levels, Gammas

Legend

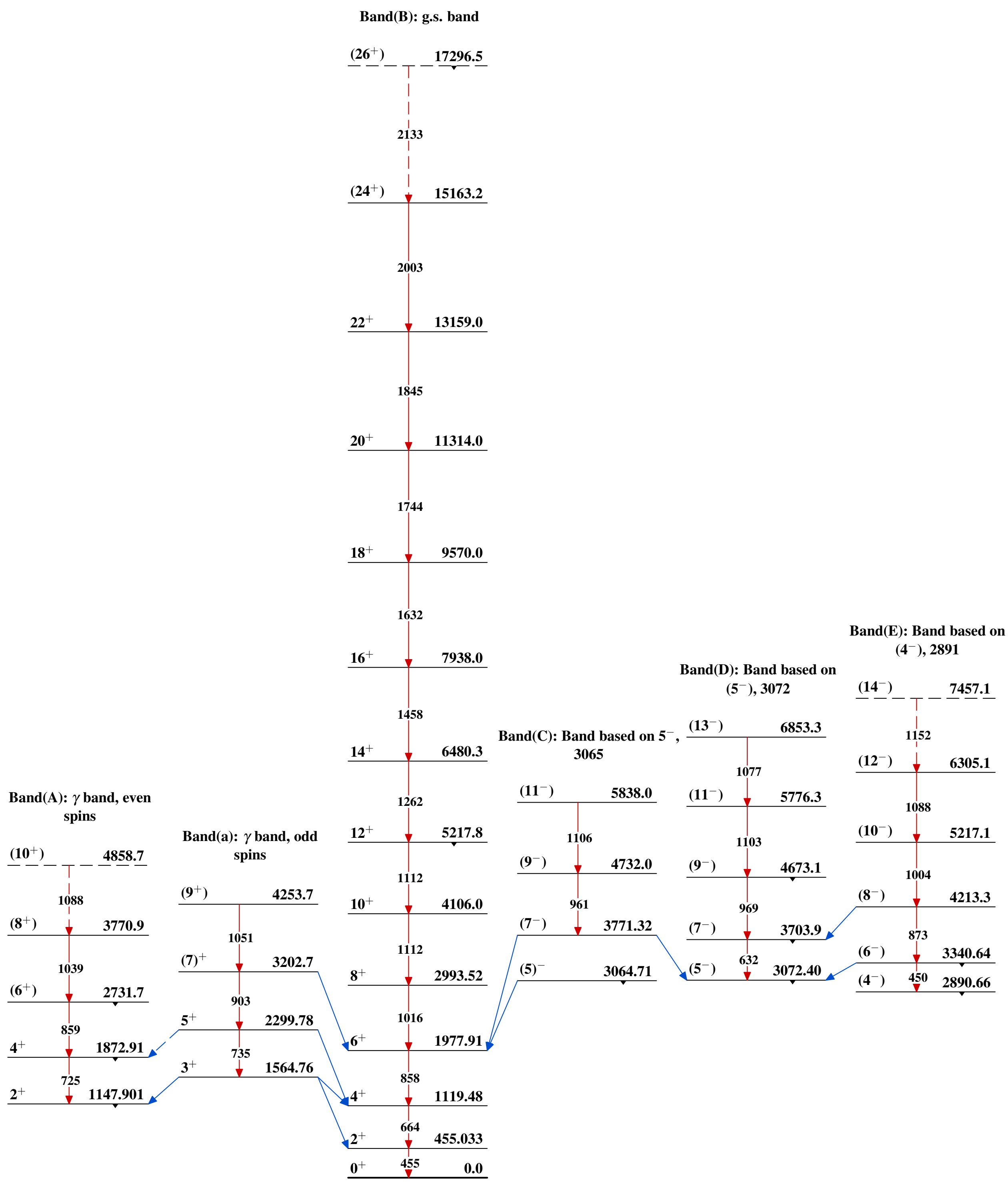
Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided



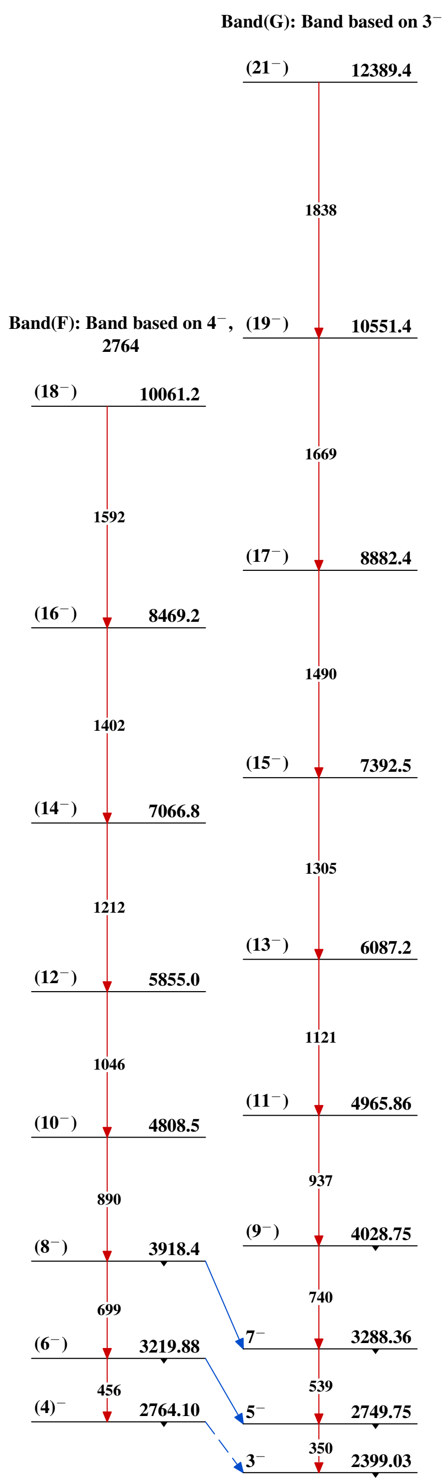
$^{78}_{36}Kr_{42}$

Adopted Levels, Gammas



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

Adopted Levels, Gammas (continued)



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

Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	NDS 105,223 (2005)	22-Jun-2005

Q(β^-)=−5717.8 *20*; S(n)=11522 *4*; S(p)=9114.2 *14*; Q(α)=−5066.3 *7* 2012Wa38
Note: Current evaluation has used the following Q record $ −5720 7 *11521* 4 *9112.9* *24* −5065.422 2003Au03.
Other reactions:
^{79}Br(p,γ) E=1.7, 2.4 MeV: 1983Ra02, prompt γ rays in ^{80}Kr at 617, 640, 820, 1172 and 1257 keV are reported. This suggests population of levels in ^{80}Kr at 617, 1256, 1436 and 1788.
^{76}Ge(^{32}S,^{28}Mg) E=100 MeV: 1974We04 (cross section data through measurement of ^{28}Mg activity).
^{80}Se(π^+,π^-): 1995Hu09 (E=293.2 MeV), 1991Fo02, 1988Mo01, 1987Gi04 (E=100-190 MeV); 1991Wi13 (E=450,500 MeV; cross section for g.s. and double IAS). Other: 1996Fo08.
^{64}Zn(^{16}O,X) GDR study: 1985GuZZ.
Hyperfine structure and isotope-shift data: 1995Ke04, 1992Sc19, 1990Ca26, 1990Sc30, 1989Tr04, 1981Ge06 (also 1979Ge05,1977Ge05). Other: 1996Li25.
Mass measurement: 2002He23 (Penning-trap method), 1986Bu18 (from ^{80}Kr(d,p)); 1978Di09, 1963Ri07.
Isotopic abundance: 1971Me13.
Additional information 1.
In ^{80}Rb ε decay, 1993Gi01 attempted to identify third 0$^+$ state around 2 MeV from ce data. From the absence of any conversion electron line in the range 1900-2100 keV, 1993Gi01 deduced Ice(K)(third 0$^+$ to g.s)/Ice(K)(second 0$^+$ to g.s.)<0.05 (with 95% confidence limit).

^{80}Kr Levels

Cross Reference (XREF) Flags

A	^{80}Br β^- decay (17.68 min)	F	^{79}Br(^{3}He,d)
B	^{80}Rb ε decay (34 s)	G	^{80}Kr(p,p′),(p,p′γ)
C	^{65}Cu(^{18}O,p2nγ),^{65}Cu(^{19}F,2p2nγ)	H	Coulomb excitation
D	^{70}Zn(^{12}C,2nγ)	I	^{82}Kr(p,t)
E	^{78}Se(α,2nγ),^{80}Se(α,4nγ),		

E(level)[#]	J$^\pi$[‡]	T$_{1/2}$[†]	XREF	Comments
0.0[@]	0$^+$	stable	ABCDEFGHI	<r^2>$^{1/2}$=4.1976 fm *13* (2004An14).
616.60[@] *10*	2$^+$	8.3 ps *5*	ABCDEFGH	μ=+0.76 *10* (2001Me20) J$^\pi$: E2 γ to 0$^+$. T$_{1/2}$: weighted average of 8.3 ps *7*(DSAM,2001Mu25); 7.8 ps *5* (DSAM in Coul. ex.); 8.3 ps *7* (DSAM and RDM,1981Fu03); 8.8 ps *5* (RDM,1975Fr04). Evaluation by 2001Ra27 adopted 8.6 ps *5* from 1981Fu03 and 1975Fr04. μ: transient-field technique in Coul. ex. (2001Me20). β_2(p,p′)=0.28 (1979Sa14). T$_{1/2}$: others: 9.4 ps (from B(E2)(Coul. ex.)=0.34). Δ<r^2>(^{80}Kr−^{86}Kr)=0.088 fm^2 *7* (1990Sc30), 0.0866 fm^2 *9* (1981Ge06,1979Ge06), 0.144 fm^2 *7* (1995Ke04). Uncertainties quoted are statistical only. The total uncertainties including the systematic errors are: 0.068 fm^2 (1990Sc30), 0.044 fm^2 (1995Ke04).
1256.24[&] *12*	2$^+$	7.6 ps *14*	ABCDEFGH	μ=+1.3 *7* (2001Me20) J$^\pi$: E2 γ to 2$^+$. μ: transient-field technique in Coul. ex. (2001Me20). β_2(p,p′)=0.059 (1979Sa14).
1320.51 *22*	0$^+$	4.9 ps *21*	AB FGH	J$^\pi$: (704γ)(617γ)(θ) in ^{80}Br β^-; E0 transition to 0$^+$. T$_{1/2}$: DSAM in (p,p′γ) (1993Gi01).

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{80}Kr Levels (continued)

E(level)[#]	J^{π}[‡]	$T_{1/2}$[†]	XREF	Comments
1436.09[@] *16*	4^+	1.07 ps *15*	CDEFGH	μ=+1.8 *6* (2001Me20) B(E4)↑=0.0015 *3* (1978Ma11) J^{π}: $\gamma(\theta$,pol); E2 γ to 2^+. $T_{1/2}$: DSAM in Coul. ex. (2001Me20). Others: 1.7 ps *2* (1975Fr04), 1.6 ps *4* (1981Fu03). μ: transient-field technique in Coul. ex. (2001Me20). β_4(p,p′)=0.061 (1979Sa14).
1787.99[&] *14*	3^+	7.1 ps *9*	CDE	J^{π}: 532$\gamma(\theta)$, 1171$\gamma(\theta$,pol); E2+M1 γ to 2^+.
2145.88[&] *16*	4^+	0.76 ps *42*	CDE H	J^{π}: $\gamma(\theta$,pol); E2 γ to 2^+.
2392.06[@] *18*	6^+	0.56 ps *14*	CDE	J^{π}: $\gamma(\theta$,pol); E2 γ to 4^+.
2439.21[a] *22*	3^-	1.4 ps +*14*−*5*	CDE G I	B(E3)↑=0.043 *15* (1978Ma11,2002Ki06) XREF: G(2414)I(2424). J^{π}: L(p,p′)=3.
2659.74[&] *18*	5^+	0.83 ps *28*	CDE	J^{π}: 871$\gamma(\theta$,pol); E2 γ to 3^+.
2793.05[e] *17*	4^-	2.1 ps *4*	CDE	J^{π}: $\gamma(\theta$,pol).
2859.53[a] *17*	5^-	2.4 ps *11*	CDE	J^{π}: $\gamma(\theta$,pol); E1 γ to 4^+.
2969 *15*	3^-		G I	B(E3)↑=0.00038 *6* (1978Ma11) J^{π}: L(p,p′)=L(p,t)=3.
2997.6? *4*			DE	
3039.57 *22*	(5^-)	1.5 ps *4*	CDE	J^{π}: $\gamma(\theta$,pol).
3041.74[e] *17*	6^-	2.2 ns *2*	CDE	J^{π}: γ (θ,pol); E2 γ to 4^-. $T_{1/2}$: from 1981Fu03. Other: 1.8 ns *2* (γ(t) in (α,2nγ)) (1984Do02).
3110.21[&] *21*	(6^+)	0.83 ps +*62*−*35*	CDE	J^{π}: $\gamma(\theta)$; (E2) γ to 4^+.
3172.81 *24*	$(5,6,7^-)$		C	J^{π}: γ's to 6^+ and 5^-. J^{π}=(5^-) proposed by 1995Do15.
3345.81[d] *18*	6^-	4.9 ps *21*	CDE	J^{π}: $\gamma(\theta$,pol).
3409.98[@] *23*	8^+	0.28 ps +*28*−*14*	CDE	J^{π}: $\gamma(\theta$,pol); E2 γ to 2^+.
3488.0[a] *3*	(6^-)		CDE	J^{π}: γ's to 5^- and 4^-. Greater $\sigma(\gamma)$ of 628γ and 695γ in (α,4nγ) as compared to those in (α,2nγ) favors J=6 (1981Fu03).
3530.31 *19*	7^-		CDE	J^{π}: $\gamma(\theta$,pol); E2+M1 γ to 6^-.
3558.66[a] *21*	$(7)^-$		CDE	J^{π}: $\gamma(\theta)$; E2+M1 γ to 6^-; γ from (9^-).
3581.69[c] *19*	7^-	2.7 ps *3*	CDE	J^{π}: $\gamma(\theta)$; E2 γ to 5^-.
3635.3[&] *4*	(7^+)	≥0.7 ps	CDE	J^{π}: $\gamma(\theta)$; γ to 6^+.
3699.75[b] *25*	8^+		CDE	J^{π}: $\gamma(\theta$,pol); M1 γ to 8^+.
3916.6 *4*	(8^+)	≤0.14 ps	C E	J^{π}: γ to 6^+; possible γ to 8^+.
4126.23[d] *20*	(8^-)	≥1.7 ps	CDE	J^{π}: $\gamma(\theta)$; probable band assignment.
4153.2[b] *11*	(8^+)		E	J^{π}: γ to (6^+); probable band assignment.
4163.2[e] *3*	(8^-)		C E	J^{π}: $\gamma(\theta)$; band assignment.
4377.9[b] *3*	10^+	0.40 ps +*8*−*7*	CDE	J^{π}: ΔJ=2, E2 γ to 8^+; band member.
4393.70[a] *24*	(9^-)		CDE	J^{π}: $\gamma(\theta)$; band assignment.
4562.47[c] *25*	(9^-)		CDE	J^{π}: $\gamma(\theta)$; band assignment.
4648.9[@] *3*	(10^+)	0.49 ps *21*	CDE	J^{π}: ΔJ=2, (E2) γ to 8^+; (M1) γ to 10^+.
4975.1 *6*	(10^+)		C	J^{π}: ΔJ=(2) γ to 8^+; possible γ to 10^+.
5159.0[d] *4*	(10^-)		C E	J^{π}: γ to (8^-); probable band assignment.
5374.6[e] *5*	(10^-)		C	J^{π}: γ to (8^-).
5397.4[a] *4*	(11^-)		C	J^{π}: ΔJ=2 γ to (9^-).
5437.8[b] *4*	12^+	0.23 ps +*4*−*5*	CDE	J^{π}: ΔJ=2, E2 γ to 10^+; band member.
5665.5[c] *4*	(11^-)		C	J^{π}: γ to (9^-).
5889.9[@] *5*	(12^+)		C	J^{π}: ΔJ=2 γ to (10^+); γ to (12^+).
6181.2[d] *6*	(12^-)		C	J^{π}: γ to (10^-); band assignment.
6522.2[a] *6*	(13^-)		C	J^{π}: ΔJ=2 γ to (11^-).

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Adopted Levels, Gammas (continued)

^{80}Kr Levels (continued)

E(level)[#]	J$^{\pi}$[‡]	T$_{1/2}$[†]	XREF	Comments
6681.4[b] *6*	14^{+}	0.18 ps *+6−5*	C E	J$^{\pi}$: ΔJ=2, E2 γ to 12^{+}; band member.
7221.6[@] *9*	(14^{+})		C	J$^{\pi}$: ΔJ=(2) γ to (12^{+}).
7771.0[a] *9*	(15^{-})		C	J$^{\pi}$: ΔJ=(2) γ to (13^{-}).
8087.9[b] *9*	(16^{+})	0.21 ps *8*	C	J$^{\pi}$: ΔJ=2, (E2) γ to (14^{+}).
8564.6?[@] *13*	(16^{+})		C	J$^{\pi}$: ΔJ=(2) γ to (14^{+}).
9195.2[a] *11*	(17^{-})		C	J$^{\pi}$: γ to (15^{-}); band assignment.
9690.6[b] *11*	(18^{+})	0.12 ps *5*	C	J$^{\pi}$: ΔJ=2, (E2) γ to (16^{+}).
10844.3[a] *15*	(19^{-})		C	J$^{\pi}$: γ to (17^{-}); band assignment.
11483.6[b] *23*	(20^{+})	<0.10 ps	C	J$^{\pi}$: ΔJ=2, (E2) γ to (18^{+}).

† From recoil-distance method (RDM) and Doppler-shift attenuation methods (DSAM) (2001Mu25,1981Fu03,1975Fr04) in in-beam γ-ray experiments.
‡ Based primarily on $\gamma(\theta)$, γ(linear polarization), $\gamma\gamma(\theta)$, and ce data in in-beam γ-ray studies. It is assumed that levels of ascending spins are populated in in-beam γ-ray spectroscopy as the excitation energy increases. The γ decay pattern, generally, supports this assumption.
# From least-squares fit to Eγ's.
@ Band(A): g.s. band.
& Band(B): γ band.
a Band(C): 3^{-} Octupole band.
b Band(D): band based on 8^{+}.
c Band(E): γ cascade based on 7^{-}.
d Band(F): γ cascade based on 6^{-}.
e Band(G): γ cascade based on 4^{-}.

γ(^{80}Kr)

E$_i$(level)	J$^{\pi}_i$	E$_{\gamma}$[‡]	I$_{\gamma}$[‡]	E$_f$	J$^{\pi}_f$	Mult.[†]	δ[†]	Comments
616.60	2^{+}	616.6 *1*	100	0.0	0^{+}	E2		B(E2)(W.u.)=37.3 *22*
1256.24	2^{+}	639.6 *1*	100 *4*	616.60	2^{+}	E2+M1	+6 *1*	B(E2)(W.u.)= 25 *5*; B(M1)(W.u.)=0.00023 *9*
		1256.3 *3*	32.3 *22*	0.0	0^{+}	E2		B(E2)(W.u.)=0.30 *7*
1320.51	0^{+}	703.9 *2*	100	616.60	2^{+}	E2[#]		
		1320.5		0.0	0^{+}	E0		E$_{\gamma}$: ce(K) and ce(L) from 1993Gi01 in ^{80}Rb ε decay. ρ^2(E0: to g.s.)=0.021 *9*; X[(B(E0):E0 to g.s.)/(B(E2):E2 to 617,2^{+})]=0.022 *2* (1993Gi01).
1436.09	4^{+}	819.5 *2*	100	616.60	2^{+}	E2		B(E2)(W.u.)=70 *10*
1787.99	3^{+}	351.8 *2*	12 *2*	1436.09	4^{+}	E2(+M1)	>6	B(E2)(W.u.)=50 *10*; B(M1)(W.u.)<0.00016
		531.7 *1*	82 *3*	1256.24	2^{+}	E2+M1	+3.0 *4*	B(E2)(W.u.)=34 *5*; B(M1)(W.u.)=0.00086 *24*
		1171.5 *2*	100 *5*	616.60	2^{+}	E2+M1	+1.3 *3*	B(E2)(W.u.)=0.57 *14*; B(M1)(W.u.)=0.00037 *12*
2145.88	4^{+}	709.8 *2*	27 *4*	1436.09	4^{+}	E2+M1	+2.0 *8*	B(E2)(W.u.)=32 *20*; B(M1)(W.u.)=0.003 *2*
		889.7 *2*	100 *4*	1256.24	2^{+}	E2		B(E2)(W.u.)=50 *30*
		1529.5 *3*	7.7 *26*	616.60	2^{+}			If E2, B(E2)(W.u.)=0.26 *18*.
2392.06	6^{+}	956.0 *2*	100	1436.09	4^{+}	E2		B(E2)(W.u.)=62 *16*
2439.21	3^{-}	1822.1 *5*	100	616.60	2^{+}			If E1, B(E1)(W.u.)=4×10^{-5} *2*.
2659.74	5^{+}	871.6 *2*	100 *4*	1787.99	3^{+}	E2		B(E2)(W.u.)=50 *17*
		1223.6 *3*	24 *9*	1436.09	4^{+}	M1+E2	+0.8 *3*	B(E2)(W.u.)=1.2 *7*; B(M1)(W.u.)=0.0022 *10*
2793.05	4^{-}	353.7 *3*	10	2439.21	3^{-}			
		647.2[&] *2*	7[&] *4*	2145.88	4^{+}			If E1, B(E1)(W.u.)=4×10^{-5} *3*.

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Adopted Levels, Gammas (continued)

$\gamma(^{80}Kr)$ (continued)

E_i(level)	J^π_i	E_γ[‡]	I_γ[‡]	E_f	J^π_f	Mult.[†]	δ[†]	α[@]	Comments
2793.05	4^-	1005.0 2	100 9	1787.99	3^+	(E1)			B(E1)(W.u.)=1.6×10^{-4} 4
		1357.1 4	20 10	1436.09	4^+				
2859.53	5^-	420.3[&] 2	4.9[&] 16	2439.21	3^-				If E2, B(E2)(W.u.)=40 30.
		1423.6 3	100 11	1436.09	4^+	E1			B(E1)(W.u.)=5.0×10^{-5} 25
2997.6?		605.5[a] 3	100	2392.06	6^+				
3039.57	(5^-)	647.4[&] 2	47[&] 18	2392.06	6^+				If E1, B(E1)(W.u.)=0.00029 14.
		893.8 3	100 12	2145.88	4^+	(E1)			B(E1)(W.u.)=0.00023 8
3041.74	6^-	182.3 1	59 6	2859.53	5^-	M1+E2	+0.07 3	0.026	B(E2)(W.u.)=0.11 +16−6; B(M1)(W.u.)=0.00056 9 I_γ: from $(\alpha,2n\gamma)$,$(\alpha,4n\gamma)$. Values from heavy-ion reactions relative to Iγ for 248.6γ are too high.
		248.6 1	100 6	2793.05	4^-	E2		0.034	B(E2)(W.u.)=7.6 10
		382.1 2	10.1 15	2659.74	5^+				If E1, B(E1)(W.u.)=1.7×10^{-7} 4.
		649.6 3	20	2392.06	6^+				
3110.21	(6^+)	718.2 4	11 5	2392.06	6^+				If E2, B(E2)(W.u.)=17 15. If M1, B(M1)(W.u.)=0.007 6.
		964.4 2	100 7	2145.88	4^+	(E2)			B(E2)(W.u.)=33 17
		1674[a]	<9	1436.09	4^+	[E2]			B(E2)(W.u.)<0.23
3172.81	$(5,6,7^-)$	313.3 2	100	2859.53	5^-				
		780.7 3	100	2392.06	6^+				
3345.81	6^-	486.1 2	23 7	2859.53	5^-				If E2, B(E2)(W.u.)=50 30. If M1, B(M1)(W.u.)=0.009 5.
		553.6 3	19 6	2793.05	4^-				If E2, B(E2)(W.u.)=21 11.
		686.0 1	100 16	2659.74	5^+	(E1)			B(E1)(W.u.)=0.00023 11
		954 1	≈32	2392.06	6^+				I_γ: not resolved from 955.8γ. If E1, B(E1)(W.u.)≈1.6×10^{-5}.
3409.98	8^+	1017.9 2	100	2392.06	6^+	E2			B(E2)(W.u.)=90 +90−45
3488.0	(6^-)	628.5 3	53 13	2859.53	5^-	D+Q	−1.0 7		
		694.9 3	100 27	2793.05	4^-				
		1096.1 5	<100	2392.06	6^+				
3530.31	7^-	420.2[&] 2	17[&] 6	3110.21	(6^+)				
		488.6 2	100 9	3041.74	6^-	E2+M1	−1.6 4		
		490.5 4	<17	3039.57	(5^-)				
		1138.2 3	34 6	2392.06	6^+	D			
3558.66	$(7)^-$	516.9 2	100 14	3041.74	6^-	E2+M1	−1.2 5		
		699.2 3	29 14	2859.53	5^-				I_γ: other: 67 17 in $(\alpha,2n\gamma)$,$(\alpha,4n\gamma)$.
		1166.6 3	14	2392.06	6^+				I_γ: other: 61 11 in $(\alpha,2n\gamma)$,$(\alpha,4n\gamma)$.
3581.69	7^-	539.8[a] 2	22 6	3041.74	6^-				If E2, B(E2)(W.u.)=24 8. If M1, B(M1)(W.u.)=0.0056 17.
		722.1 1	83 8	2859.53	5^-	E2			B(E2)(W.u.)=21 4
		1189.7 2	100 8	2392.06	6^+	D			If E1, B(E1)(W.u.)=3.9×10^{-5} 6.
3635.3	(7^+)	975.5 3	100 14	2659.74	5^+				If E2, B(E2)(W.u.)≤45.
		1242[a] 1	≈24	2392.06	6^+				If E2, B(E2)(W.u.)≤2.6. If M1, B(M1)(W.u.)≤0.0032.
3699.75	8^+	289.8 1	100 5	3409.98	8^+	M1			δ(E2/M1)=+0.3 in $(^{12}C,2n\gamma)$.
		1308.2 5	21 5	2392.06	6^+				
3916.6	(8^+)	216.8[a] 4	100	3699.75	8^+				
		507[a] 1	<100	3409.98	8^+				
		1524.6 8	100	2392.06	6^+				If E2, B(E2)(W.u.)≥24.
4126.23	(8^-)	490.5[a] 2	39 12	3635.3	(7^+)				If E1, B(E1)(W.u.)≤0.00044.

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

$\gamma(^{80}Kr)$ (continued)

E_i(level)	J^π_i	E_γ[‡]	I_γ[‡]	E_f	J^π_f	Mult.[†]	Comments
4126.23	(8⁻)	596.0 *3*	21 *9*	3530.31	7⁻		If E2, B(E2)(W.u.)≤28. If M1, B(M1)(W.u.)≤0.008.
		780.4 *1*	100 *6*	3345.81	6⁻		If E2, B(E2)(W.u.)≤35. If M1, B(M1)(W.u.)≤0.017.
4153.2	(8⁺)	1043 *1*	100	3110.21	(6⁺)		I_γ: complex line.
4163.2	(8⁻)	582 *1*	33	3581.69	7⁻		
		632.7 *3*	33	3530.31	7⁻		
		1121.6 *3*	100 *33*	3041.74	6⁻	(Q)	
4377.9	10⁺	678.3 *3*	2.5	3699.75	8⁺		
		967.8 *2*	100 *5*	3409.98	8⁺	E2	B(E2)(W.u.)=47 *24*
4393.70	(9⁻)	811.8 *3*	57 *14*	3581.69	7⁻	Q	
		835.1 *3*	100 *14*	3558.66	(7)⁻	Q	
		863.3 *3*	70 *10*	3530.31	7⁻	(Q)	
		984.1 *4*	14	3409.98	8⁺		
4562.47	(9⁻)	436.1[a] *4*	<25	4126.23	(8⁻)		
		980.6 *3*	100 *11*	3581.69	7⁻		
		1032.7[&a] *4*	39[&] *11*	3530.31	7⁻		
		1152.4 *4*	25	3409.98	8⁺		
4648.9	(10⁺)	271.0 *2*	56 *14*	4377.9	10⁺	(M1)	B(M1)(W.u.)=0.8 *4*
		949.4 *3*	67 *33*	3699.75	8⁺		If E2, B(E2)(W.u.)≤20. If M1, B(M1)(W.u.)<0.015.
		1238.6 *3*	100 *10*	3409.98	8⁺	(E2)	B(E2)(W.u.)=10 *5*
4975.1	(10⁺)	326[a] *1*	<50	4648.9	(10⁺)		
		597[a] *1*	<50	4377.9	10⁺		
		1565.4 *8*	100 *50*	3409.98	8⁺	(Q)	
5159.0	(10⁻)	1032.8[&] *3*	100[&]	4126.23	(8⁻)		
5374.6	(10⁻)	1211.4 *4*	100	4163.2	(8⁻)		
5397.4	(11⁻)	1003.7 *3*	100	4393.70	(9⁻)	Q	
5437.8	12⁺	1059.9 *3*	100	4377.9	10⁺	E2	B(E2)(W.u.)=90 *50*
5665.5	(11⁻)	1103.0 *3*	100	4562.47	(9⁻)		
5889.9	(12⁺)	452.0 *5*	33 *17*	5437.8	12⁺		
		1241.1 *4*	100 *33*	4648.9	(10⁺)	Q	
6181.2	(12⁻)	1022.2 *4*	100	5159.0	(10⁻)		
6522.2	(13⁻)	1124.8 *4*	100	5397.4	(11⁻)	Q	
6681.4	14⁺	1243.6 *4*	100	5437.8	12⁺	E2	B(E2)(W.u.)>13
7221.6	(14⁺)	1331.7 *7*	100	5889.9	(12⁺)	(Q)	
7771.0	(15⁻)	1248.8 *6*	100	6522.2	(13⁻)	(Q)	
8087.9	(16⁺)	1406.5 *6*	100	6681.4	14⁺	(E2)	
8564.6?	(16⁺)	1343[a] *1*	100	7221.6	(14⁺)	(Q)	
9195.2	(17⁻)	1424.2 *7*	100	7771.0	(15⁻)		
9690.6	(18⁺)	1602.6 *7*	100	8087.9	(16⁺)	(E2)	
10844.3	(19⁻)	1649 *1*	100	9195.2	(17⁻)		
11483.6	(20⁺)	1793 *2*	100	9690.6	(18⁺)	(E2)	

† From $\gamma(\theta$,pol), ce, $\gamma\gamma(\theta)$ measurements in in-beam γ-ray studies. For levels of known $T_{1/2}$, RUL (for E2 and M2 transitions) is also used in the assignment of multipolarity.

‡ Weighted averages taken when data of comparable precision available from more than one dataset. Most data are from in-beam γ-ray studies.

\# From ^{80}Br β^- decay.

@ 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.

& Multiply placed with intensity suitably divided.

a Placement of transition in the level scheme is uncertain.

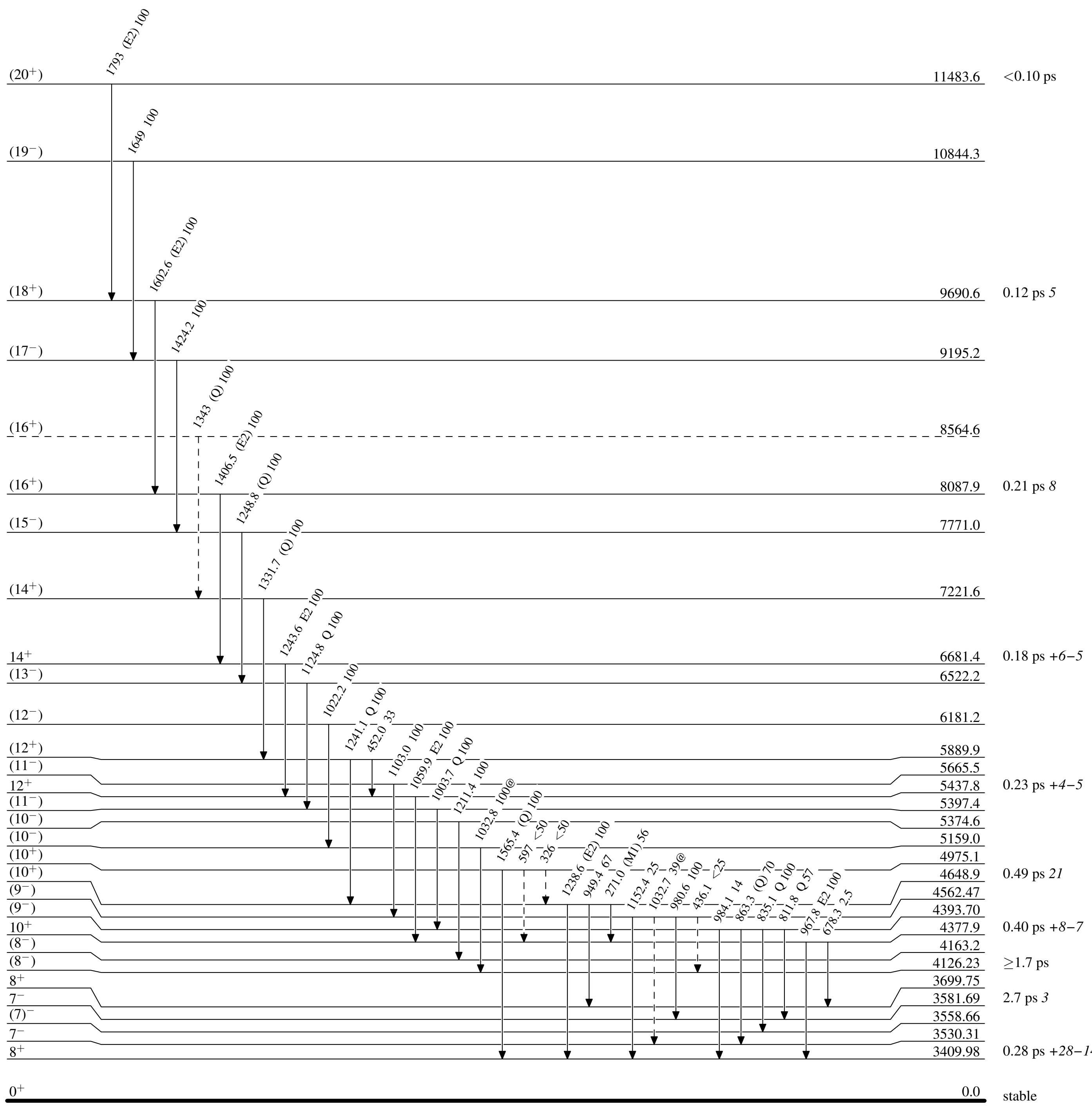
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided

γ Decay (Uncertain)

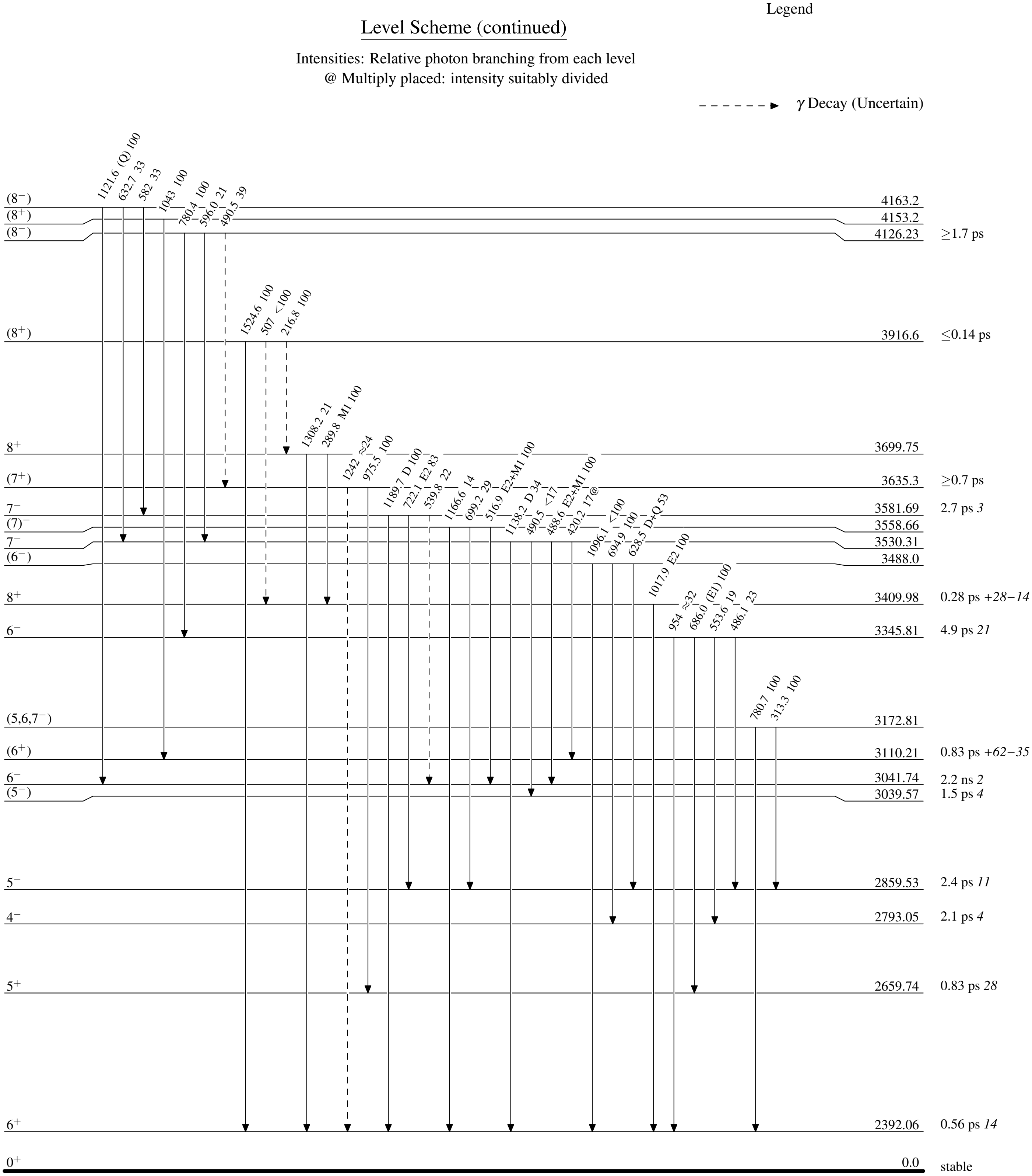


$^{80}_{36}Kr_{44}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided



$^{80}_{36}Kr_{44}$

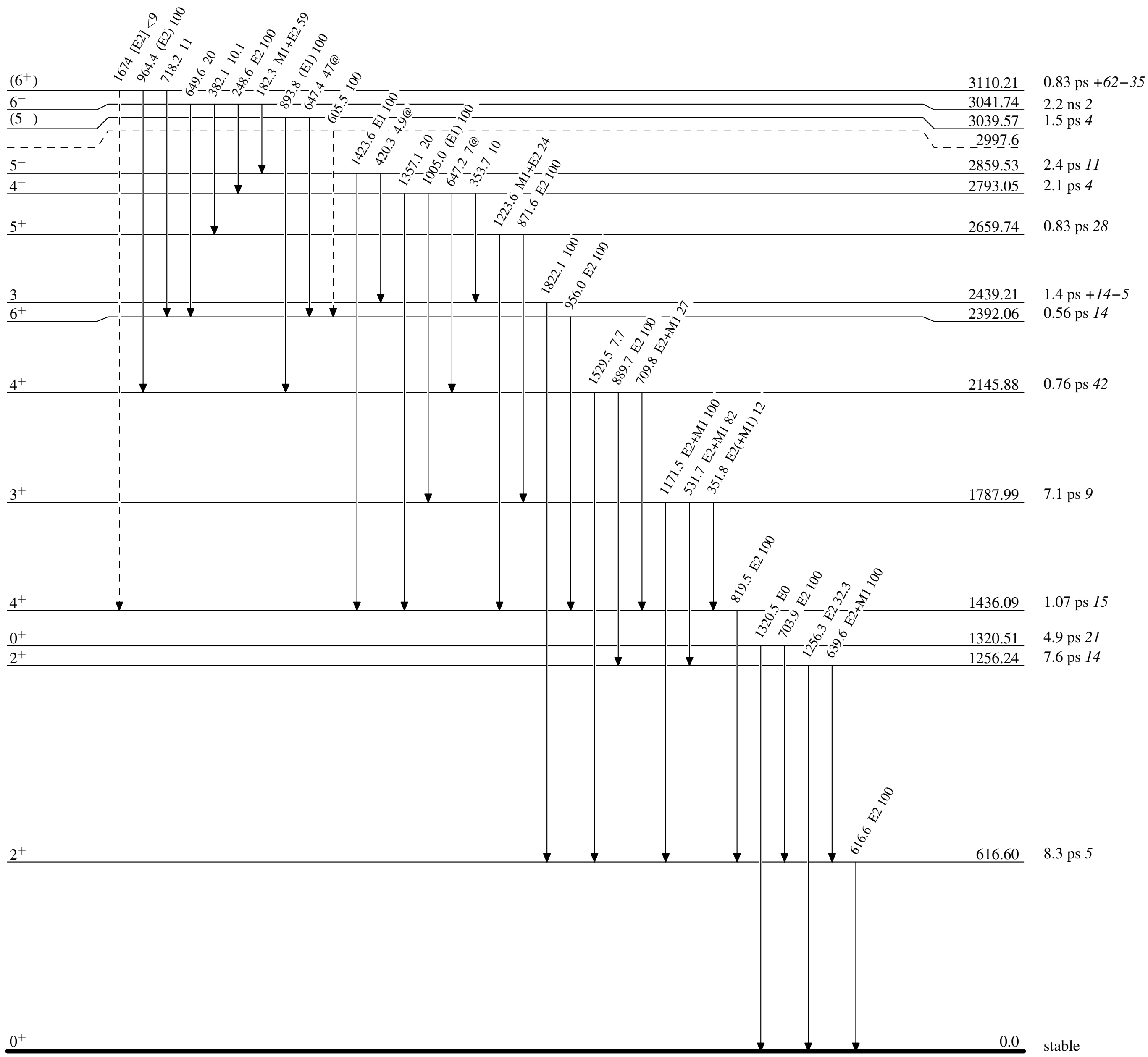
Adopted Levels, Gammas

Legend

Level Scheme (continued)

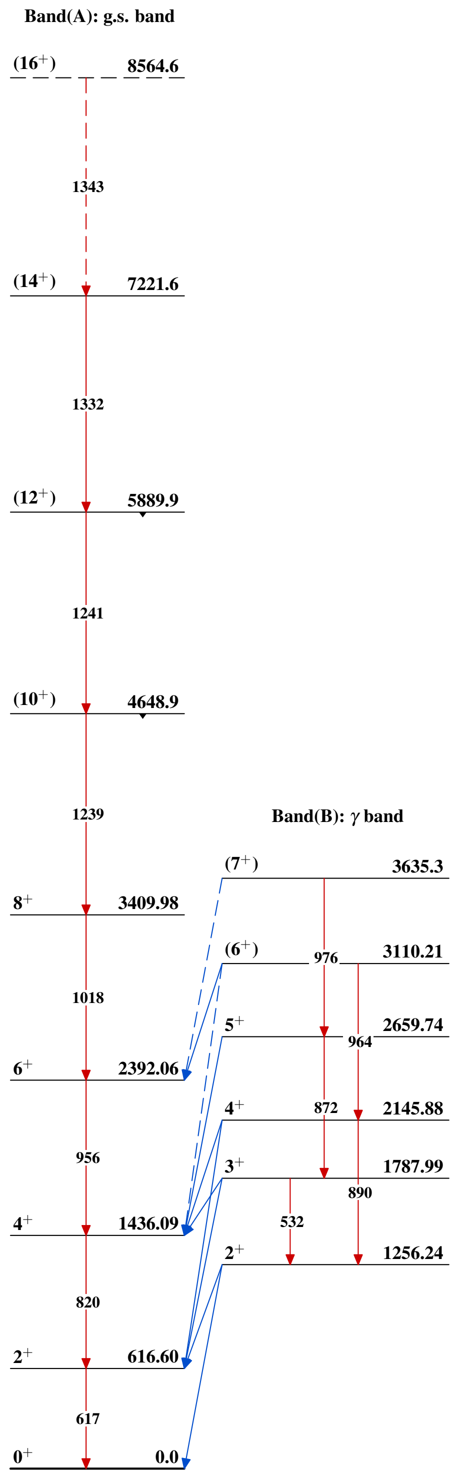
Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided

γ Decay (Uncertain)



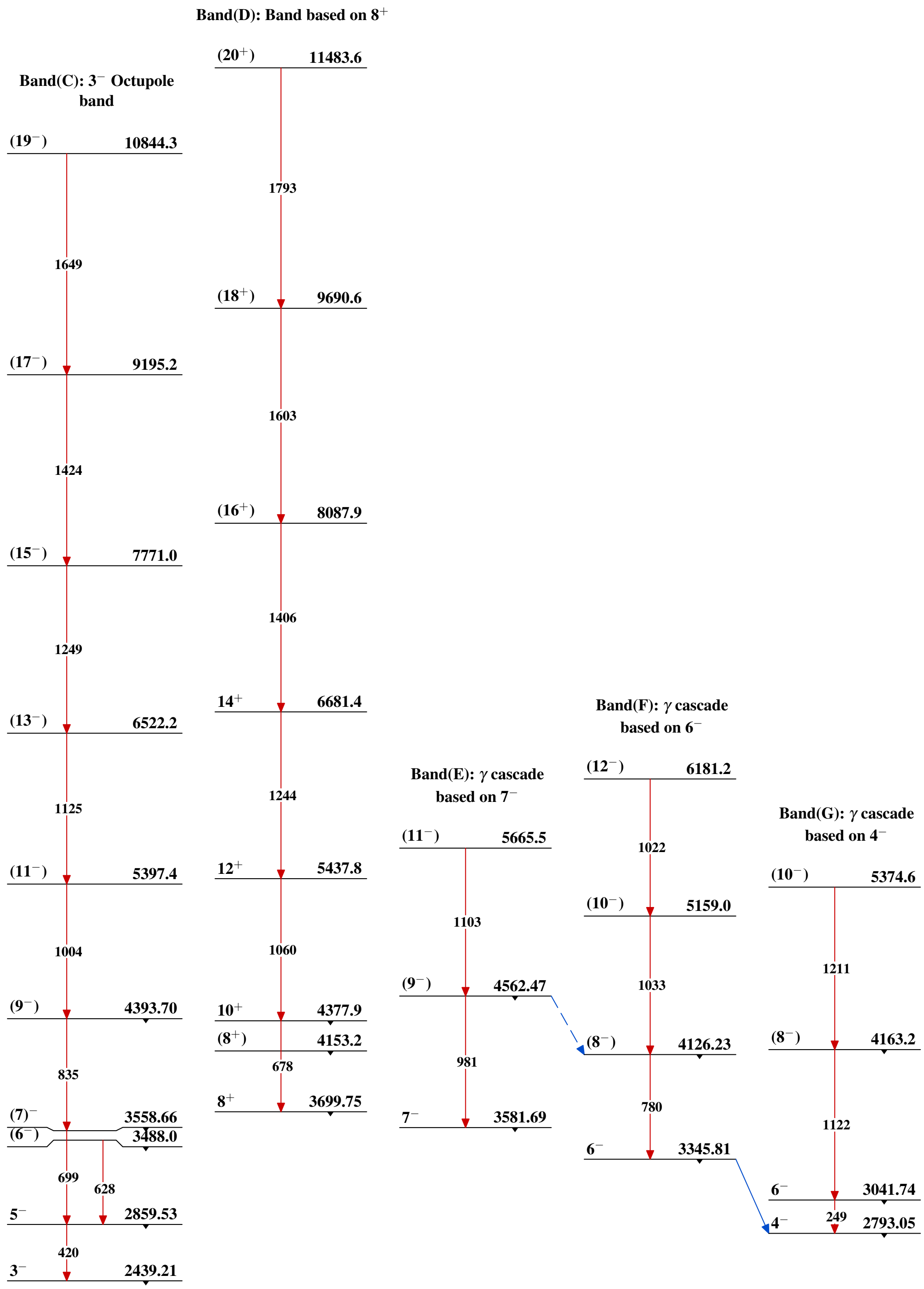
$^{80}_{36}Kr_{44}$

Adopted Levels, Gammas



$^{80}_{36}Kr_{44}$

Adopted Levels, Gammas (continued)



$^{80}_{36}Kr_{44}$

Adopted Levels, Gammas

History

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

Q(β^-)=−4404 *3*; S(n)=10966.9 *11*; S(p)=9903.7 *10*; Q(α)=−5990.76 *18* 2017Wa10
Isotopic shift and mean-square radius measurements: 1990Ca26, 1989Tr04, 1981Ge06, 1979Ge06.
Theoretical calculations:
g.s. properties, rms radius, isotope shift, deformation using relativistic mean field theory: 1995La07.
Symmetry character of bands, IBA model: 2000Gi16 interacting boson model: 1995De02, 1991Jo03, 1991Do08, 1990Ba11, 1983Me08.
Microscopic studies: 1992Ho18.
Boson expansion theory: 1988Pe04.
Pairing-vibration model: 1983Ta03, 1982Br01.
Hartree-Fock calculations of E2 transition probabilities: 1982Ah06.
Ground state f-p-g shell occupancies: 1985Na12, 1982Ko10.
Microscopic analysis of deformations: 1985Na02.
Potential energy surfaces: 1981Bu06.

^{82}Kr Levels

Cross Reference (XREF) Flags

A	^{82}Rb ε decay (1.2575 min)	E	^{80}Se(α,2nγ)	I	^{81}Br(^{3}He,d)
B	^{82}Rb ε decay (6.472 h)	F	(HI,xnγ)	J	^{82}Kr(p,p′)
C	^{82}Br β^- decay (6.13 min)	G	^{79}Br(α,p)	K	^{84}Kr(p,t)
D	^{82}Br β^- decay (35.282 h)	H	Coulomb excitation		

E(level)[†]	J$^\pi$	T$_{1/2}$[‡]	XREF	Comments
0.0[#]	0$^+$	stable	ABCDEFGHIJK	Δ<r^2>(^{82}Kr−^{86}Kr)=0.071 fm^2 *3* (1995Ke04, total uncertainty including systematic uncertainty is 0.028), 0.053 fm^2 *7* (1990Sc30, the uncertainty is 0.044 fm^2 including systematic errors). Δ<r^2>(^{82}Kr−^{81}Kr)=−0.028 fm^2 *5* (1996Li25) (uncertainty only statistical). Δ<r^2>(^{83}Kr−^{82}Kr)=−0.040 fm^2 *4* (1996Li25) (uncertainty only statistical).
776.526[#] *8*	2$^+$	4.45 ps *18*	ABCDEFGHIJ	μ=+0.80 *4* (2001Me20) J$^\pi$: L(p,p′)=2. First excited state in Coulomb excitation. T$_{1/2}$: from measured B(E2) in Coul. Ex. Others: 4.7 ps *7* from recoil-distance Doppler shift in (α,2nγ) (1984Ke10), 4.8 ps *8* from resonance fluorescence (1966Be16).
1474.900[@] *8*	2$^+$	≈12 ps	ABCDEFGHIJ	J$^\pi$: L(p,p′)=2. T$_{1/2}$: from B(E2) measured in Coulomb excitation; other: <5 ps (HI,xnγ).
1487.70 *5*	0$^+$	10 ps *3*	A C HI	J$^\pi$: E0 to 0$^+$. T$_{1/2}$: from B(E2) measured in Coulomb excitation.
1820.536[#] *9*	4$^+$	0.67 ps *25*	ABCDEFGHIJ	μ=+1.2 *8* (2001Me20) T$_{1/2}$: from B(E2) measured in Coulomb excitation. Others: 1.0 ps *+10−6* from recoil distance, 0.8 ps *+10−4* from Doppler shift attenuation, both observed in (α,2nγ) (1984Ke10). J$^\pi$: L(p,p′)=4.
1885?			I	
1956.775 *11*	(2$^+$)	1.1 ps *8*	ABCDE GHI	J$^\pi$: log *ft*=7.4 from 1$^+$, γ to 0$^+$, γ from (4$^+$). T$_{1/2}$: from B(E2) measured in Coulomb excitation.
2094.019[&] *9*	3$^+$		ABCDEFG	J$^\pi$: (1317γ)(776γ)(θ) (1977CoZO,1966Et01). E2+M1 γ to 2$^+$.
2171.81 *5*	0$^+$		A CD H	J$^\pi$: uniquely determined by $\gamma\gamma$(θ) in β^+ decay (1.273 min).

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{82}Kr Levels (continued)

E(level)†	Jπ	T1/2‡	XREF	Comments
2426.895 *9*	(4$^+$)	0.57 ps *16*	B DEFGH	Jπ: γ(θ) in (α,2nγ) indicates J=4 (1984Ke10,1983Me08) with quadrupole γ to 2$^+$ probably being E2. γγ(θ) results in β$^-$ decay are in strong conflict (1980So06 and 1968Gu08 concluded J=3, while 1977CoZO deduced J=4). T$_{1/2}$: from B(E2) measured in Coulomb excitation.
2450.19 *5*	0$^+$	≈0.17 ps	A H	Jπ: from γγ(θ) in ^{82}Rb ε decay (1.2575 min). T$_{1/2}$: from B(E2) measured in Coulomb excitation.
2480.07 *4*	2$^+$		A C G	Jπ: log *ft*=5.5 from 1$^+$, γ to 0$^+$, 4$^+$.
2547.452 *18*	(3$^-$)		ABCDE g JK	Jπ: log *ft*=7.6, (log $f^{1u}t$=7.8) from 2$^-$, γ from 5$^{(-)}$. Also supported by γ(θ) in (α,2nγ).
2556.184@ *9*	(4$^+$)	1.4 ps *4*	BCDEFgH	Jπ: stretched (E2) to 2$^+$ indicated by γ(θ) in (α,2nγ) (1984Ke10). 1983Me08 deduced J=3 from their γ(θ) data. T$_{1/2}$: from B(E2) measured in Coulomb excitation.
2648.369 *9*	4$^-$	<7 ps	B DEFg	Jπ: log *ft*=5.0 from 5$^-$, E1 γ to 3$^+$. T$_{1/2}$: from (HI,xnγ).
2655.96 *4*	2$^+$	0.03 ps *1*	A C gH	Jπ: from γγ(θ) in ^{82}Rb ε decay (1.2575 min). T$_{1/2}$: from B(E2) measured in Coulomb excitation.
2676.0 *3*			A	
2684.45 *12*			A	
2797.56? *5*			B	
2828.137 *12*	5$^{(-)}$	14 ps *7*	B DEF	Jπ: J=3,5 from (1007γ)(1044γ)(θ) (1969Li14). log *ft*=6.1, (log $f^{1u}t$=5.9) from 5$^-$, Polarization of 1007γ in (α,2nγ) indicates π=− (1984Ke10).
2849.75 *9*	(4$^+$)		B G	Jπ: log *ft*=7.1, (log $f^{1u}t$=8.1) from 5$^-$, γ to 2$^+$.
2919.73# *8*	(6$^+$)	3 ps *1*	B DEF H	Jπ: stretched (E2) cascade indicated by γ(θ) in (α,2nγ). T$_{1/2}$: average of 2 ps *1* from Doppler-shift attenuation, 3 ps *+2−1* from recoil distance, both observed in (α,2nγ), and 4 ps *2* from recoil distance observed in (HI,xnγ). Other: 0.8 ps *4* from B(E2) measured in Coulomb excitation.
2944.52 *4*	2$^+$		A G	Jπ: from γγ(θ) in ^{82}Rb ε decay (1.2575 min), log *ft*=5.4 from 1$^+$, γ to 0$^+$.
2964.82 *16*			A	
2993.43 *18*			A	
3011.21 *5*	(5)$^-$	2 ps *1*	B EFG	Jπ: log *ft*=5.9 from 5$^-$, γ(θ) in (α,2nγ). T$_{1/2}$: From (HI,xnγ).
3037.85 *7*	(6$^-$)	0.58 ns *7*	B EF	Jπ: from γ(θ) in (α,nγ). T$_{1/2}$: from recoil-distance Doppler shift in (α,2nγ). Others: 0.55 ns *14* from γ(t), 0.26 ns *7* from recoil distance in (HI,xnγ).
3077? *10*			G	
3131.34 *17*			A	
3167.57 *9*	(6$^+$)	0.76 ps *21*	EF H	Jπ: from γ(θ) in (α,nγ). T$_{1/2}$: other: 0.7 ps *4* from B(E2) measured in Coulomb excitation.
3186.93& *20*			E g	
3187.15 *5*	(0)$^+$		A g	Jπ: log *ft*=5.5 from 1$^+$, Q to 2$^+$.
3207.1 *3*			A	
3217.1 *3*			A	
3234.07 *10*	(0$^+$)		A	Jπ: ε from 1$^+$, Q γ to 2$^+$.
3255.90 *13*	(6$^+$)	0.36 ps *10*	EF	Jπ: from γ(θ) in (α,2nγ).
3285.81 *5*			A	
3322 *7*	3$^-$		G JK	XREF: K(3297). E(level): weighted average of 3320 keV *8* (α,p) and 3328 keV *15* (p,p′). Jπ: L(p,p′)=3.
3348.49 *7*	(6$^-$)	42 ps *14*	EF	Jπ: from γ(θ) in (α,nγ).
3355.99 *7*	1,2$^{(+)}$		A G	Jπ: log *ft*=6.7, (log $f^{1u}t$=7.3) from 1$^+$, γ to 0$^+$.
3392.2? *7*			B	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{82}Kr Levels (continued)

E(level)†	J$^\pi$	T$_{1/2}$‡	XREF	Comments
3438.15 *12*			A	
3457.21 *14*	1,2$^{(+)}$		A G	J$^\pi$: log *ft*=7.1 from 1$^+$, γ to 0$^+$.
3461.66 *20*	(8$^+$)	96 ps *12*	EF	J$^\pi$: stretched (E2) cascade indicated by $\gamma(\theta)$ in (α,2nγ).
3496.60 *10*	(7$^-$)	14 ps *+14−7*	EF	J$^\pi$: stretched (E2) cascade indicated by $\gamma(\theta)$ in (α,2nγ).
3565.13 *5*	(0)$^+$		A	J$^\pi$: log *ft*=5.8 from 1$^+$, γ to 2$^+$.
3595.14 *9*	(7$^-$)	>7 ps	EFG	J$^\pi$: from $\gamma(\theta)$ in (α,nγ).
3655.56 *9*	4$^{(+)}$,5,6$^{(+)}$		B G	XREF: G(3643). J$^\pi$: log *ft*=6.4, (log $f^{1u}t$=6.8) from 5$^-$, γ's to 4$^+$ and (6$^+$).
3681 *10*			G	
3709.37 *17*	(7$^+$)	<0.8 ps	EFG	XREF: G(3681). J$^\pi$: from $\gamma(\theta)$ in (α,2nγ).
3716.14 *6*	(2$^+$)		A	J$^\pi$: log *ft*=5.7 from 1$^+$; γ to 2$^+$, 3$^+$,(3$^-$); 0$^+$ from $\gamma\gamma(\theta)$ in ^{82}Rb ε decay (1.2575 min).
3742.76? *6*			A G	XREF: G(3733).
3815.25 *7*	1,2$^{(+)}$		A	J$^\pi$: log *ft*=6.5 from 1$^+$, γ to 0$^+$.
3836.13 *6*	1,2		A g	J$^\pi$: log *ft*=5.9 from 1$^+$, γ to 0$^+$.
3846.14 *17*			E g	
3881.00 *7*	1,2$^{(+)}$		A	J$^\pi$: log *ft*=6.1 from 1$^+$, γ to 0$^+$.
3910.85 *12*	1,2$^{(+)}$		A g	XREF: g(3930). J$^\pi$: log *ft*=7.0, (log $f^{1u}t$=7.0) from 1$^+$, γ to 0$^+$.
3920.01 *24*			A	
3951.5 *4*	4,5,6$^{(+)}$		B g	XREF: g(3930). J$^\pi$: log *ft*=7.0, (log $f^{1u}t$=7.0) from 5$^-$, γ to 4$^+$.
3958.05 *14*	1,2$^{(+)}$		A	J$^\pi$: log *ft*=7.0 from 1$^+$. γ to 0$^+$.
3997.91 *10*	4,5,6$^{(+)}$		B	J$^\pi$: log *ft*=6.3, (log $f^{1u}t$=6.2) from 5$^-$, γ to 4$^+$.
4016.28 *13*	(8$^+$)	1.0 ps *+10−4*	EF	J$^\pi$: stretched (E2) cascade indicated by $\gamma(\theta)$ in (α,2nγ).
4033.80 *12*		1.1 ps *3*	E	
4063.50 *10*	4,5,6$^{(+)}$		B	J$^\pi$: log *ft*=6.4 (log $f^{1u}t$=6.2) from 5$^-$, γ to 4$^+$.
4068.05 *8*	4,5$^{(+)}$		B	J$^\pi$: log *ft*=6.0, (log $f^{1u}t$=5.8) from 5$^-$, γ to 3$^+$.
4125.13 *14*	(8$^+$)	6 ps *2*	E	J$^\pi$: stretched (E2) cascade indicated by $\gamma(\theta)$ in (α,2nγ).
4135.6? *5*			B	
4170.94 *16*	(8$^-$)	2.4 ps *+24−8*	EF	J$^\pi$: from $\gamma(\theta)$ in (α,nγ).
4343.1 *3*		1.0 ps *+24−3*	E	
4437.6 *4*		0.17 ps *+8−4*	E	
4609.50 *20*	(10$^+$)	1.2 ps *+7−3*	EF	J$^\pi$: stretched (E2) cascade indicated by $\gamma(\theta)$ in (α,2nγ).
4667.91 *17*	(9$^-$)	1.1 ps *3*	EF	J$^\pi$: from $\gamma(\theta)$ in (α,nγ).
4746.81 *23*	(9$^-$)	0.6 ps *1*	EF	J$^\pi$: stretched (E2) cascade indicated by $\gamma(\theta)$ in (α,2nγ).
4822.15 *16*	(10$^+$)	1.2 ps *2*	EF	J$^\pi$: stretched (E2) cascade indicated by $\gamma(\theta)$ in (α,2nγ).
4896.7? *11*			E	
5011.88 *22*	(8$^+$,9,10$^+$)		E	J$^\pi$: γ's to (8$^+$) and (10$^+$).
5325.41 *22*	(10$^-$)	<1.0 ps	EF	J$^\pi$: from $\gamma(\theta)$ in (α,nγ).
5702.8 *11*			E	
5992.5 *4*		0.3 ps *1*	E	
6009.5 *4*			E	
6011.7 *4*		0.39 ps *7*	E	

† From least-squares fit to Eγ.
‡ From recoil-distance Doppler shift in (α,2nγ), except where given given otherwise.
# Band(A): π=+ band-1. Yrast band (2000Gi16).
@ Band(B): π=+ band-2. Band built on 2$^+$ (2000Gi16).
& Band(C): π=+ band-3. Band built on 3$^+$ (2000Gi16).

Adopted Levels, Gammas (continued)

$\gamma(^{82}Kr)$

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[‡]	δ[‡@]	α[#]	Comments
776.526	2^+	776.511 *10*	100	0.0	0^+	E2		9.23×10^{-4}	α(K)=0.000819 *12*; α(L)=8.84×10^{-5} *13*; α(M)=1.430×10^{-5} *20* α(N)=1.436×10^{-6} *21* B(E2)(W.u.)=21.3 *9*
1474.900	2^+	698.361 *10*	100.0 *8*	776.526	2^+	E2+M1	+2.1 *4*	1.18×10^{-3} *2*	α(K)=0.001048 *21*; α(L)=0.0001134 *23*; α(M)=1.83×10^{-5} *4* α(N)=1.84×10^{-6} *4* B(M1)(W.u.)≈0.00063; B(E2)(W.u.)≈6.9
		1474.895 *10*	57.7 *6*	0.0	0^+	E2		2.89×10^{-4}	α(K)=0.000190 *3*; α(L)=2.00×10^{-5} *3*; α(M)=3.24×10^{-6} *5* α(N)=3.27×10^{-7} *5*; α(IPF)=7.58×10^{-5} *11* B(E2)(W.u.)≈0.12
1487.70	0^+	711.09 *7*	100 *5*	776.526	2^+	[E2]		1.16×10^{-3}	B(E2)(W.u.)=15 *5* α(K)=0.001032 *15*; α(L)=0.0001119 *16*; α(M)=1.81×10^{-5} *3* α(N)=1.81×10^{-6} *3*
		1488		0.0	0^+	E0			ce(K)/(γ+ce)=0.76; ce(L)/(γ+ce)=0.07
1820.536	4^+	1044.005 *10*	100	776.526	2^+	E2		4.48×10^{-4}	B(E2)(W.u.)=32 *12* α(K)=0.000398 *6*; α(L)=4.25×10^{-5} *6*; α(M)=6.87×10^{-6} *10* α(N)=6.93×10^{-7} *10*
1956.775	(2^+)	1180.209 *24*	100 *1*	776.526	2^+	(M1+E2)	−0.52 *16*	3.36×10^{-4}	α(K)=0.000295 *5*; α(L)=3.11×10^{-5} *5*; α(M)=5.04×10^{-6} *8* α(N)=5.10×10^{-7} *8*; α(IPF)=4.58×10^{-6} *16* B(M1)(W.u.)=0.007 *5*; B(E2)(W.u.)=1.6 *14*
		1956.740 *21*	43.4 *9*	0.0	0^+	[E2]		4.11×10^{-4}	α(K)=0.0001100 *16*; α(L)=1.154×10^{-5} *17*; α(M)=1.87×10^{-6} *3* α(N)=1.89×10^{-7} *3*; α(IPF)=0.000288 *4* B(E2)(W.u.)=0.26 *19*
2094.019	3^+	137.244 *10*	0.21 *1*	1956.775	(2^+)				
		273.492 *10*	1.84 *2*	1820.536	4^+	(M1+E2)	+0.3 *1*	0.0103 *8*	α(K)=0.0092 *7*; α(L)=0.00101 *9*; α(M)=0.000164 *14* α(N)=1.64×10^{-5} *14*
		619.105 *10*	100 *1*	1474.900	2^+	E2+M1	+2.1 *7*	0.00163 *7*	α(K)=0.00145 *6*; α(L)=0.000157 *7*; α(M)=2.55×10^{-5} *11* α(N)=2.55×10^{-6} *11*
		1317.485 *10*	61.6 *6*	776.526	2^+	E2+M1	+5.0 *5*	3.00×10^{-4}	α(K)=0.000239 *4*; α(L)=2.53×10^{-5} *4*; α(M)=4.09×10^{-6} *6* α(N)=4.13×10^{-7} *6*; α(IPF)=3.14×10^{-5} *5*
2171.81	0^+	214.8[a]		1956.775	(2^+)	[E2]		0.0556	α(K)=0.0487 *7*; α(L)=0.00587 *9*; α(M)=0.000949 *14* α(N)=9.12×10^{-5} *13*
		696.85 *7*	4.6 *1*	1474.900	2^+	[E2]		1.23×10^{-3}	α(K)=0.001089 *16*; α(L)=0.0001183 *17*;

$^{82}_{36}Kr_{46}$-4

$\gamma(^{82}Kr)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡@]	α[#]	Comments
									α(M)=1.91×10^{-5} *3* α(N)=1.92×10^{-6} *3*
2171.81	0$^+$	1395.26 *7*	100 *5*	776.526	2$^+$	E2		2.90×10^{-4}	B(E2)(W.u.)≈1.2 α(K)=0.000212 *3*; α(L)=2.24×10^{-5} *4*; α(M)=3.63×10^{-6} *5* α(N)=3.67×10^{-7} *6*; α(IPF)=5.11×10^{-5} *8*
		2172		0.0	0$^+$	E0			ce(K)/(γ+ce)=0.3; ce(L)/(γ+ce)=0.03
2426.895	(4$^+$)	332.78 *9*	0.6 *10*	2094.019	3$^+$	[M1+E2]		0.0088 *32*	α(K)=0.0078 *28*; α(L)=8.7×10^{-4} *33*; α(M)=1.41×10^{-4} *53* α(N)=1.39×10^{-5} *51*
		470.07[a] *3*	1.77 *14*	1956.775	(2$^+$)	[E2]		0.00386	α(K)=0.00342 *5*; α(L)=0.000379 *6*; α(M)=6.14×10^{-5} *9* α(N)=6.09×10^{-6} *9* B(E2)(W.u.)=19 *6*
		606.358 *10*	100.0 *7*	1820.536	4$^+$	(M1+E2)	+0.1 *+19−4*	0.0014 *4*	α(K)=0.0012 *3*; α(L)=1.31×10^{-4} *36*; α(M)=2.12×10^{-5} *57* α(N)=2.14×10^{-6} *55* B(M1)(W.u.)=0.09 *5*; B(E2)(W.u.)≈3
		952.03 *2*	30.8 *3*	1474.900	2$^+$	[E2]		5.56×10^{-4}	α(K)=0.000494 *7*; α(L)=5.29×10^{-5} *8*; α(M)=8.56×10^{-6} *12* α(N)=8.61×10^{-7} *12* B(E2)(W.u.)=10 *3*
		1650.35 *1*	60.1 *6*	776.526	2$^+$	(E2)		3.18×10^{-4}	α(K)=0.0001518 *22*; α(L)=1.598×10^{-5} *23*; α(M)=2.59×10^{-6} *4* α(N)=2.62×10^{-7} *4*; α(IPF)=0.0001472 *21* B(E2)(W.u.)=1.2 *4*
2450.19	0$^+$	975.22 *7*	100 *4*	1474.900	2$^+$				
		1673.70 *7*	81 *5*	776.526	2$^+$				
2480.07	2$^+$	523.24[a] *7*	17.2 *6*	1956.775	(2$^+$)				
		659.38 *7*	1.39 *8*	1820.536	4$^+$				
		992.27 *9*	3.86 *11*	1487.70	0$^+$				
		1703.54 *7*	100 *6*	776.526	2$^+$	D+Q	1.03 *10*		
		2480.23 *7*	66.7 *28*	0.0	0$^+$				
2547.452	(3$^-$)	1072.99 *7*	100 *5*	1474.900	2$^+$				
		1771.0[a] *3*	4 *4*	776.526	2$^+$				E_γ: not reported In 2011Kr06.
2556.184	(4$^+$)	129.34 *3*	1.82 *13*	2426.895	(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*
		599.29 *9*	1.19 *18*	1956.775	(2$^+$)	[E2]		0.00187	α(K)=0.001656 *24*; α(L)=0.000181 *3*; α(M)=2.93×10^{-5} *5* α(N)=2.93×10^{-6} *5* B(E2)(W.u.)=2.3 *8*
		735.645[&] *12*	9.87 *13*	1820.536	4$^+$				

$^{82}_{36}Kr_{46}$-5

Adopted Levels, Gammas (continued)

$\gamma(^{82}Kr)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[‡]	δ[‡@]	α[#]	Comments
2556.184	(4$^+$)	1081.288 10	100.0 10	1474.900	2$^+$	(E2)		4.14×10^{-4}	α(K)=0.000368 6; α(L)=3.92×10^{-5} 6; α(M)=6.34×10^{-6} 9 α(N)=6.39×10^{-7} 9 B(E2)(W.u.)=10 3
		1779.623 13	17.27 13	776.526	2$^+$	[E2]		3.52×10^{-4}	α(K)=0.0001313 19; α(L)=1.381×10^{-5} 20; α(M)=2.23×10^{-6} 4 α(N)=2.26×10^{-7} 4; α(IPF)=0.000205 3 B(E2)(W.u.)=0.14 4
2648.369	4$^-$	92.188 10	1.00 2	2556.184	(4$^+$)	[E1]		0.1147	B(E1)(W.u.)>0.00047 α(K)=0.1017 15; α(L)=0.01103 16; α(M)=0.001770 25 α(N)=0.0001734 25
		100.948 16	0.09 1	2547.452	(3$^-$)	[M1+E2]		0.51 39	α(K)=0.44 33; α(L)=0.063 51; α(M)=0.0101 82 α(N)=9.3×10^{-4} 73
		221.478 10	3.18 4	2426.895	(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 B(E1)(W.u.)>0.00011
		554.352 10	100.0 11	2094.019	3$^+$	E1		7.57×10^{-4}	α(K)=0.000673 10; α(L)=7.13×10^{-5} 10; α(M)=1.152×10^{-5} 17 α(N)=1.160×10^{-6} 17 B(E1)(W.u.)>0.00022
		827.826 10	34.68 35	1820.536	4$^+$	E1		3.11×10^{-4}	α(K)=0.000277 4; α(L)=2.91×10^{-5} 4; α(M)=4.71×10^{-6} 7 α(N)=4.76×10^{-7} 7 B(E1)(W.u.)>2.2×10^{-5}
		1173.432 13	0.02 1	1474.900	2$^+$	[M2]		7.31×10^{-4}	α(K)=0.000648 9; α(L)=6.95×10^{-5} 10; α(M)=1.127×10^{-5} 16 α(N)=1.141×10^{-6} 16; α(IPF)=6.34×10^{-7} 9 B(M2)(W.u.)>0.015
		1871.807 15	0.05 1	776.526	2$^+$	[M2]		3.55×10^{-4}	α(K)=0.000223 4; α(L)=2.35×10^{-5} 4; α(M)=3.81×10^{-6} 6 α(N)=3.87×10^{-7} 6; α(IPF)=0.0001045 15 B(M2)(W.u.)>0.0037
2655.96	2$^+$	699.41 13	6.2 9	1956.775	(2$^+$)				
		1168.23 7	8.8 4	1487.70	0$^+$				
		1181.05 7	13.4 12	1474.900	2$^+$				
		1879.61 7	100 6	776.526	2$^+$	D+Q	−0.71 21		
		2655.56 8	20.7 4	0.0	0$^+$				
2676.0		1899.5 3	100	776.526	2$^+$				
2684.45		1907.90 12	100	776.526	2$^+$				
2797.56?		703.56[a] 10	100 18	2094.019	3$^+$				
		976.9[a] 2	47 6	1820.536	4$^+$				

$^{82}_{36}Kr_{46}$-6

Adopted Levels, Gammas (continued)

$\gamma(^{82}Kr)$ (continued)

E_i(level)	J^{π}_i	E_{γ}[†]	I_{γ}[†]	E_f	J^{π}_f	Mult.[‡]	δ[‡@]	α[#]	Comments
2828.137	$5^{(-)}$	179.80 *4*	0.64 *6*	2648.369	4^-	[M1+E2]		0.066 *40*	α(K)=0.058 *35*; α(L)=0.0071 *45*; α(M)=0.00114 *72* α(N)=1.10×10^{-4} *68*
		271.96 *5*	1.41 *15*	2556.184	(4^+)	[E1]		0.00486	α(K)=0.00431 *6*; α(L)=0.000460 *7*; α(M)=7.43×10^{-5} *11* α(N)=7.43×10^{-6} *11* B(E1)(W.u.)=1.6×10^{-5} *9*
		280.73[a] *6*	0.68 *10*	2547.452	(3^-)	[E2]		0.0214	α(K)=0.0188 *3*; α(L)=0.00219 *3*; α(M)=0.000354 *5* α(N)=3.45×10^{-5} *5* B(E2)(W.u.)=7 *4*
		401.249 *13*	6.60 *6*	2426.895	(4^+)	[E1]		1.69×10^{-3}	α(K)=0.001505 *21*; α(L)=0.0001600 *23*; α(M)=2.58×10^{-5} *4* α(N)=2.60×10^{-6} *4* B(E1)(W.u.)=2.4×10^{-5} *12*
		1007.589 *10*	100.0 *13*	1820.536	4^+	(E1+M2)	+0.00 *3*	2.10×10^{-4}	α(K)=0.000187 *3*; α(L)=1.97×10^{-5} *3*; α(M)=3.18×10^{-6} *5* α(N)=3.22×10^{-7} *5* B(E1)(W.u.)=2.3×10^{-5} *12*
2849.75	(4^+)	755.76 *10*	100 *5*	2094.019	3^+				
		1374.80 *20*	30 *8*	1474.900	2^+				
		2073.0 *3*	7.6 *22*	776.526	2^+				
2919.73	(6^+)	1099.9[a] *2*	100	1820.536	4^+	[E2]		3.98×10^{-4}	α(K)=0.000354 *5*; α(L)=3.77×10^{-5} *6*; α(M)=6.10×10^{-6} *9* α(N)=6.15×10^{-7} *9* B(E2)(W.u.)=5.5 *19*
2944.52	2^+	396.93 *20*	1.11 *19*	2547.452	(3^-)				
		850.37 *7*	0.99 *8*	2094.019	3^+				
		987.60 *21*	1.18 *19*	1956.775	(2^+)				
		1469.64 *9*	6.1 *4*	1474.900	2^+				
		2168.06 *7*	100 *5*	776.526	2^+	D+Q	<0.06		
		2944.61 *12*	13.7 *7*	0.0	0^+				
2964.82		2188.26 *16*	100	776.526	2^+				
2993.43		2217.7 *3*	59 *24*	776.526	2^+				
		2992.97 *21*	100 *12*	0.0	0^+				
3011.21	$(5)^-$	183.27 *10*	100 *2*	2828.137	$5^{(-)}$	(M1)		0.0254	α(K)=0.0225 *4*; α(L)=0.00248 *4*; α(M)=0.000402 *6* α(N)=4.04×10^{-5} *6* B(M1)(W.u.)=0.7 *4*
		455.28 *10*	60 *4*	2556.184	(4^+)	[E1]		1.23×10^{-3}	α(K)=0.001090 *16*; α(L)=0.0001157 *17*; α(M)=1.87×10^{-5} *3* α(N)=1.88×10^{-6} *3* B(E1)(W.u.)=0.00048 *24*
		583.80 *10*	63 *2*	2426.895	(4^+)	[E1]		6.70×10^{-4}	α(K)=0.000596 *9*; α(L)=6.31×10^{-5} *9*; α(M)=1.019×10^{-5} *15* α(N)=1.027×10^{-6} *15* B(E1)(W.u.)=0.00024 *12*

$^{82}_{36}Kr_{46}$-7

$\gamma(^{82}$Kr) (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[‡]	α[#]	Comments
3011.21	$(5)^-$	1190.81 *10*	13.5 *8*	1820.536	4^+	[E1]	1.94×10^{-4}	α(K)=0.0001374 *20*; α(L)=1.440×10^{-5} *21*; α(M)=2.33×10^{-6} *4* α(N)=2.36×10^{-7} *4*; α(IPF)=3.98×10^{-5} *6* B(E1)(W.u.)=6.E−6 *3*
3037.85	(6^-)	209.70 *20*	5.7 *4*	2828.137	$5^{(-)}$			
		389.4 *1*	100 *1*	2648.369	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* B(E2)(W.u.)=4.8 *6*
3131.34		1656.47 *22*	60 *14*	1474.900	2^+			
		2354.73 *24*	100 *20*	776.526	2^+			
3167.57	(6^+)	247.80 *20*	8.8 *15*	2919.73	(6^+)			
		1347.00 *10*	100 *6*	1820.536	4^+	(E2)	2.96×10^{-4}	B(E2)(W.u.)=7.3 *21* α(K)=0.000228 *4*; α(L)=2.42×10^{-5} *4*; α(M)=3.91×10^{-6} *6* α(N)=3.95×10^{-7} *6*; α(IPF)=3.87×10^{-5} *6*
3186.93		1092.90 *20*	100	2094.019	3^+			
3187.15	$(0)^+$	1230.35 *7*	8.1 *4*	1956.775	(2^+)			
		1712.24 *7*	7.9 *6*	1474.900	2^+			
		2410.65 *17*	100 *5*	776.526	2^+	Q		
3207.1		2430.5 *3*	100	776.526	2^+			
3217.1		1742.23 *30*	100	1474.900	2^+			
3234.07	(0^+)	754.03 *16*	100 *12*	2480.07	2^+			
		1276.93 *19*	96 *16*	1956.775	(2^+)			
		2457.69 *15*	100 *10*	776.526	2^+	Q		
3255.90	(6^+)	88.3[a] *2*	0.48 *12*	3167.57	(6^+)			
		336.2 *2*	27.5 *25*	2919.73	(6^+)			
		1435.1 *2*	100 *20*	1820.536	4^+	[E2]	2.88×10^{-4}	B(E2)(W.u.)=10 *4* α(K)=0.000200 *3*; α(L)=2.12×10^{-5} *3*; α(M)=3.42×10^{-6} *5* α(N)=3.46×10^{-7} *5*; α(IPF)=6.27×10^{-5} *9*
3285.81		805.76 *7*	25.2 *23*	2480.07	2^+			
		1113.71 *15*	4.1 *12*	2171.81	0^+			
		1191.61 *18*	28.1 *18*	2094.019	3^+			
		2509.31 *7*	100 *5*	776.526	2^+			
3348.49	(6^-)	310.6 *1*	30.3 *16*	3037.85	(6^-)			
		337.4 *2*	88 *6*	3011.21	$(5)^-$			
		428.9 *2*	34 *3*	2919.73	(6^+)	[E1]	1.43×10^{-3}	α(K)=0.001268 *18*; α(L)=0.0001347 *19*; α(M)=2.18×10^{-5} *3* α(N)=2.19×10^{-6} *3* B(E1)(W.u.)=1.4×10^{-5} *5*
		520.3 *1*	100 *6*	2828.137	$5^{(-)}$			
		700.0[a] *3*	19 *6*	2648.369	4^-			
3355.99	$1,2^{(+)}$	1399.31 *23*	16 *3*	1956.775	(2^+)			
		2579.18 *11*	100 *8*	776.526	2^+			
		3356.09 *10*	30.2 *16*	0.0	0^+			
3392.2?		836.0[a] *7*	100	2556.184	(4^+)			

γ(^{82}Kr) (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[‡]	α[#]	Comments
3438.15		1963.21 *20*	44 *11*	1474.900	2^+			
		2661.58 *14*	100 *9*	776.526	2^+			
3457.21	$1,2^{(+)}$	2681.5 *4*	100 *21*	776.526	2^+			
		3457.03 *14*	47 *3*	0.0	0^+			
3461.66	(8^+)	542.0[&] *10*	100	2919.73	(6^+)	(E2)	0.00251	α(K)=0.00222 *4*; α(L)=0.000244 *4*; α(M)=3.95×10^{-5} *6* α(N)=3.93×10^{-6} *6* B(E2)(W.u.)=5.9 *8*
3496.60	(7^-)	458.6 *2*	26.4 *19*	3037.85	(6^-)			
		576.9 *2*	23 *6*	2919.73	(6^+)	[E1]	6.89×10^{-4}	B(E1)(W.u.)=2.1×10^{-5} *+33−13* α(K)=0.000613 *9*; α(L)=6.49×10^{-5} *9*; α(M)=1.048×10^{-5} *15* α(N)=1.056×10^{-6} *15*
		668.4 *2*	100 *8*	2828.137	$5^{(-)}$	(E2)	1.38×10^{-3}	B(E2)(W.u.)=10 *+11−5* α(K)=0.001220 *18*; α(L)=0.0001327 *19*; α(M)=2.15×10^{-5} *3* α(N)=2.15×10^{-6} *3*
3565.13	$(0)^+$	908.85 *22*	21 *5*	2655.96	2^+			
		1085.08 *11*	16.5 *21*	2480.07	2^+			
		1608.21 *7*	100 *5*	1956.775	(2^+)	Q		
		2090.00 *29*	23 *4*	1474.900	2^+			
		2788.81 *9*	37 *3*	776.526	2^+			
3595.14	(7^-)	98.5 *1*	28.9 *26*	3496.60	(7^-)			
		246.5 *2*	15.0 *13*	3348.49	(6^-)			
		427.5 *2*	66 *5*	3167.57	(6^+)			
		557.2[a] *3*	5.3 *26*	3037.85	(6^-)			
		584.0 *2*	84 *8*	3011.21	$(5)^-$			
		675.5 *1*	100 *8*	2919.73	(6^+)			
		767.1[a] *3*	16 *5*	2828.137	$5^{(-)}$			
3655.56	$4^{(+)},5,6^{(+)}$	735.64[&] *10*	100 *16*	2919.73	(6^+)			
		1228.9[a] *4*	19 *8*	2426.895	(4^+)			
		1835.2 *1*	37.8 *27*	1820.536	4^+			
3709.37	(7^+)	247.8 *2*	19 *6*	3461.66	(8^+)			
		453.3 *2*	94 *6*	3255.90	(6^+)	(M1)	0.00269	α(K)=0.00239 *4*; α(L)=0.000257 *4*; α(M)=4.16×10^{-5} *6* α(N)=4.20×10^{-6} *6* B(M1)(W.u.)>0.13
		542.0[&] *10*	100 *19*	3167.57	(6^+)			
3716.14	(2^+)	1168.40 *8*	11.8 *7*	2547.452	(3^-)			
		1621.99 *13*	7.4 *7*	2094.019	3^+			
		1759.25 *25*	9.6 *15*	1956.775	(2^+)			
		2940.09 *10*	100 *4*	776.526	2^+	Q		
3742.76?		1195.72 *16*	5.6 *6*	2547.452	(3^-)			
		1570.88 *15*	7.8 *11*	2171.81	0^+			
		1648.76 *23*	12.2 *17*	2094.019	3^+			
		1785.85 *7*	100 *6*	1956.775	(2^+)			

$^{82}_{36}Kr_{46}$-9

Adopted Levels, Gammas (continued)

$\gamma(^{82}Kr)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[‡]	α[#]	Comments
3742.76?		2255.02 *31*	14.4 *17*	1487.70	0^+			
		2268.24 *21*	23 *4*	1474.900	2^+			
		2966.17 *14*	23.3 *22*	776.526	2^+			
3815.25	$1,2^{(+)}$	3038.3[a] *4*	25 *6*	776.526	2^+			
		3815.15 *7*	100 *3*	0.0	0^+			
3836.13	1,2	1741.73 *18*	74 *6*	2094.019	3^+			
		2360.96 *21*	79 *13*	1474.900	2^+			
		3059.47 *12*	100 *8*	776.526	2^+			
		3836.18 *8*	26.6 *15*	0.0	0^+			
3846.14		497.8 *3*	15 *5*	3348.49	(6^-)			
		1017.9 *3*	100 *25*	2828.137	$5^{(-)}$			
3881.00	$1,2^{(+)}$	1400.82 *10*	100 *13*	2480.07	2^+			
		1786.7 *3*	44 *5*	2094.019	3^+			
		2405.95 *13*	23 *5*	1474.900	2^+			
		3104.60 *23*	36 *5*	776.526	2^+			
		3881.47 *19*	10.5 *13*	0.0	0^+			
3910.85	$1,2^{(+)}$	3910.75 *12*	100	0.0	0^+			
3920.01		3143.42 *24*	100	776.526	2^+			
3951.5	$4,5,6^{(+)}$	1395.4 *5*	100 *67*	2556.184	(4^+)			
		2130.8 *4*	77 *23*	1820.536	4^+			
3958.05	$1,2^{(+)}$	3957.95 *14*	100	0.0	0^+			
3997.91	$4,5,6^{(+)}$	987.1 *5*	21 *16*	3011.21	$(5)^-$			
		1441.70 *10*	100 *16*	2556.184	(4^+)			
4016.28	(8^+)	554.0 *10*	17 *3*	3461.66	(8^+)			
		760.30 *20*	7 *2*	3255.90	(6^+)	[E2]	9.75×10^{-4}	B(E2)(W.u.)=6 *+8−4* α(K)=0.000865 *13*; α(L)=9.35×10^{-5} *14*; α(M)=1.512×10^{-5} *22* α(N)=1.517×10^{-6} *22*
		848.6 *3*	8.3 *4*	3167.57	(6^+)	[E2]	7.37×10^{-4}	α(K)=0.000654 *10*; α(L)=7.03×10^{-5} *10*; α(M)=1.138×10^{-5} *16* α(N)=1.143×10^{-6} *16* B(E2)(W.u.)=3.8 *+40−22*
		1096.6 *2*	100 *15*	2919.73	(6^+)	(E2)	4.01×10^{-4}	B(E2)(W.u.)=13 *+10−7* α(K)=0.000356 *5*; α(L)=3.79×10^{-5} *6*; α(M)=6.14×10^{-6} *9* α(N)=6.19×10^{-7} *9*
4033.80		187.7 *2*	80 *20*	3846.14				
		685.3 *1*	100 *20*	3348.49	(6^-)			
4063.50	$4,5,6^{(+)}$	1506.8 *5*	17 *8*	2556.184	(4^+)			
		2242.95 *10*	100 *8*	1820.536	4^+			
4068.05	$4,5^{(+)}$	1218.0[a] *10*	38 *31*	2849.75	(4^+)			
		1641.3 *4*	23 *8*	2426.895	(4^+)			
		1974.00 *10*	100 *8*	2094.019	3^+			
		2247.47 *13*	72 *6*	1820.536	4^+			
4125.13	(8^+)	108.8 *1*	61 *6*	4016.28	(8^+)			

From ENSDF

$^{82}_{36}Kr_{46}$-10

$\gamma(^{82}Kr)$ (continued)

E_i(level)	J_i^π	E_γ†	I_γ†	E_f	J_f^π	Mult.‡	α#	Comments
4125.13	(8^+)	415.7 *2*	56 *6*	3709.37	(7^+)	(M1)	0.00330	B(M1)(W.u.)=0.010 *4* α(K)=0.00293 *5*; α(L)=0.000315 *5*; α(M)=5.11×10^{-5} *8* α(N)=5.16×10^{-6} *8*
		663.8 *4*	72 *6*	3461.66	(8^+)			
		1205.6 *2*	100 *11*	2919.73	(6^+)	(E2)	3.34×10^{-4}	B(E2)(W.u.)=0.61 *22* α(K)=0.000289 *4*; α(L)=3.07×10^{-5} *5*; α(M)=4.96×10^{-6} *7* α(N)=5.01×10^{-7} *7*; α(IPF)=9.06×10^{-6} *13*
4135.6?		2315.0[a] *5*	100	1820.536	4^+			
4170.94	(8^-)	575.8 *3*	28 *7*	3595.14	(7^-)			
		822.40 *20*	100 *4*	3348.49	(6^-)	[E2]	7.97×10^{-4}	B(E2)(W.u.)=23 *+14−12* α(K)=0.000707 *10*; α(L)=7.62×10^{-5} *11*; α(M)=1.232×10^{-5} *18* α(N)=1.238×10^{-6} *18*
4343.1		172.00[a] *20*	14 *4*	4170.94	(8^-)			
		1305.2 *3*	100 *22*	3037.85	(6^-)			
4437.6		312.6[a] *3*	3.8 *19*	4125.13	(8^+)			
		421.3[a] *3*	3.8 *19*	4016.28	(8^+)			
		1517.9 *3*	100 *14*	2919.73	(6^+)			
4609.50	(10^+)	1147.8 *1*	100	3461.66	(8^+)	(E2)	3.65×10^{-4}	α(K)=0.000322 *5*; α(L)=3.42×10^{-5} *5*; α(M)=5.53×10^{-6} *8* α(N)=5.58×10^{-7} *8*; α(IPF)=2.77×10^{-6} *4* B(E2)(W.u.)=11 *+3−7*
4667.91	(9^-)	496.9 *2*	22 *5*	4170.94	(8^-)			
		1072.8 *2*	100 *20*	3595.14	(7^-)	[E2]	4.21×10^{-4}	B(E2)(W.u.)=14 *6* α(K)=0.000374 *6*; α(L)=3.99×10^{-5} *6*; α(M)=6.45×10^{-6} *9* α(N)=6.51×10^{-7} *10*
4746.81	(9^-)	1250.2 *2*	100	3496.60	(7^-)	(E2)	3.18×10^{-4}	B(E2)(W.u.)=14.6 *25* α(K)=0.000267 *4*; α(L)=2.83×10^{-5} *4*; α(M)=4.58×10^{-6} *7* α(N)=4.63×10^{-7} *7*; α(IPF)=1.693×10^{-5} *24*
4822.15	(10^+)	212.5 *2*	4.0 *4*	4609.50	(10^+)			
		805.9 *1*	100.0 *20*	4016.28	(8^+)	(E2)	8.39×10^{-4}	B(E2)(W.u.)=63 *11* α(K)=0.000744 *11*; α(L)=8.03×10^{-5} *12*; α(M)=1.298×10^{-5} *19* α(N)=1.304×10^{-6} *19*
4896.7?		1435[a]	100	3461.66	(8^+)			
5011.88	$(8^+,9,10^+)$	189.7 *2*	29 *14*	4822.15	(10^+)			
		886.8 *3*	100 *29*	4125.13	(8^+)			
5325.41	(10^-)	657.4 *3*	26 *9*	4667.91	(9^-)			
		1154.5 *2*	100 *9*	4170.94	(8^-)			
5702.8		956	100	4746.81	(9^-)			
5992.5		1383.0 *3*	100	4609.50	(10^+)			
6009.5		1400.0 *3*	100	4609.50	(10^+)			
6011.7		1189.5 *3*	100	4822.15	(10^+)			

Adopted Levels, Gammas (continued)

$\gamma(^{82}Kr)$ (continued)

† From decay data and (α,2nγ).

‡ From ce, $\gamma\gamma(\theta)$ in β^- decay (35.282 h) (1994Go12), $\gamma\gamma(\theta)$ in ^{82}Rb ε decay (1.2575 min) (2016Ni03), and $\gamma(\theta)$ in (α,2nγ). Quadrupole transitions and transitions with strong quadrupole admixtures are assumed to be E2.

\# Additional information 1.

@ If No value given it was assumed δ=1.00 for E2/M1, δ=1.00 for E3/M2 and δ=0.10 for the other multipolarities.

& Multiply placed.

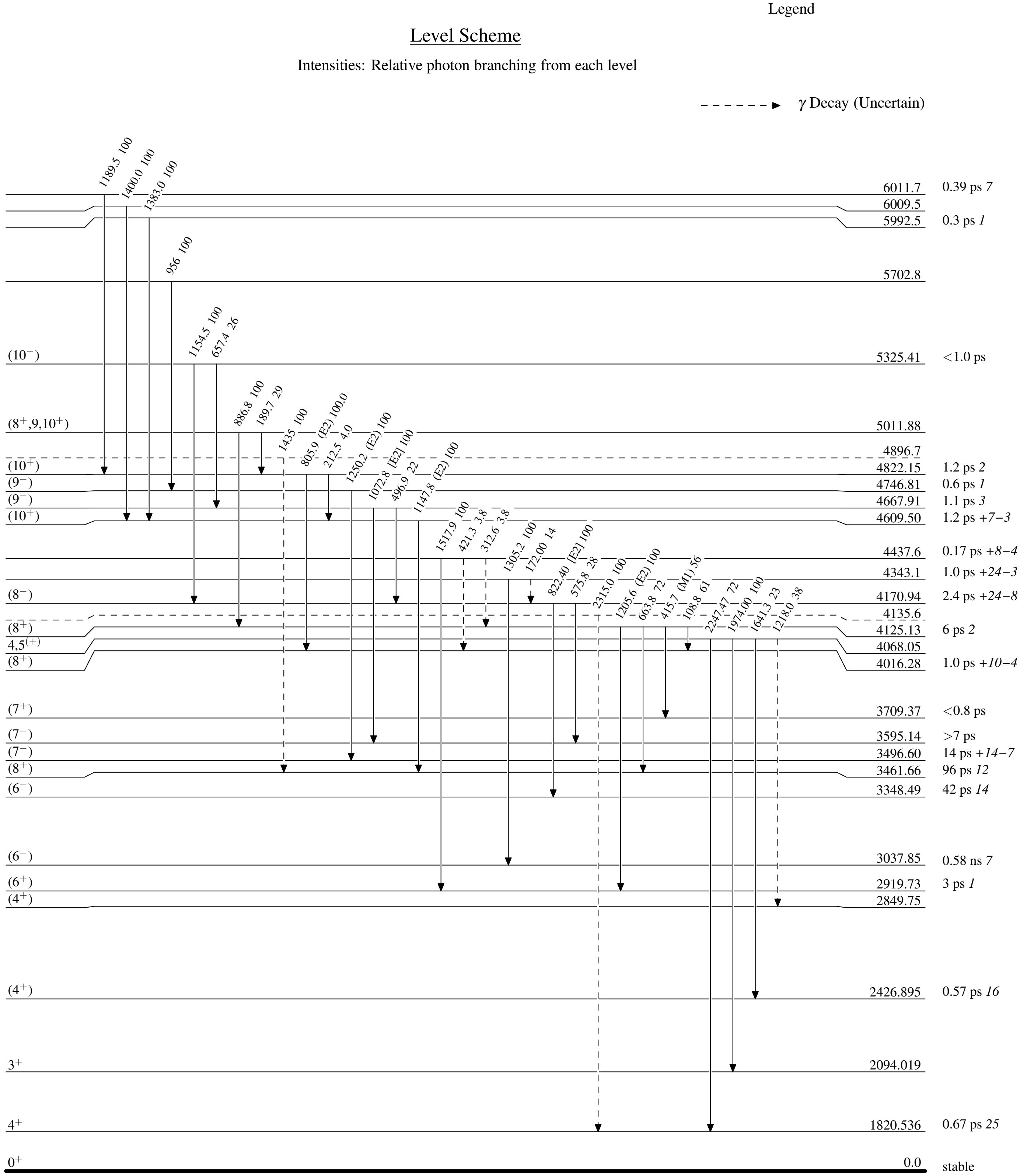
[a] Placement of transition in the level scheme is uncertain.

$^{82}_{36}Kr_{46}$-12

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level

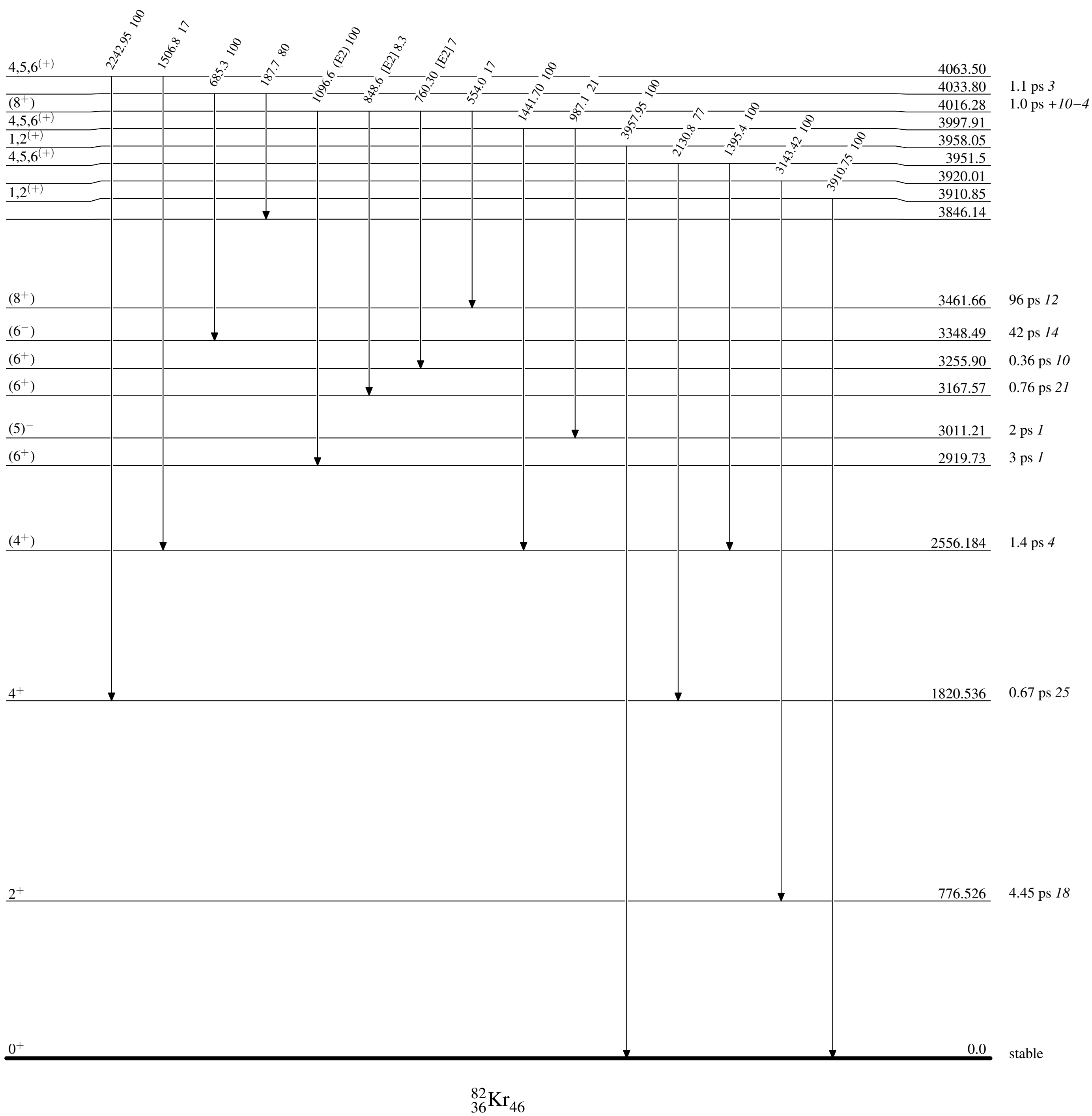


$^{82}_{36}Kr_{46}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



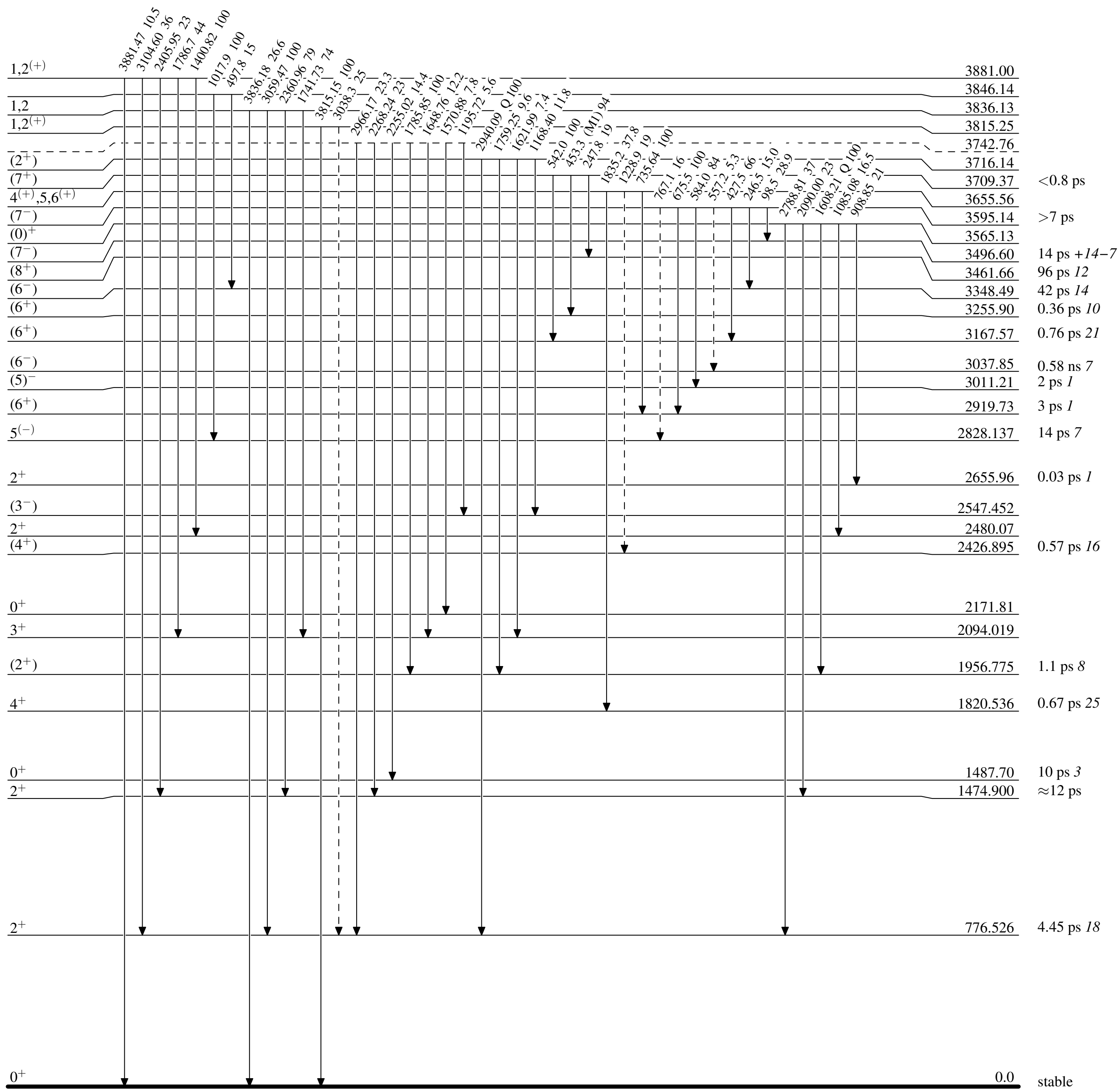
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



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

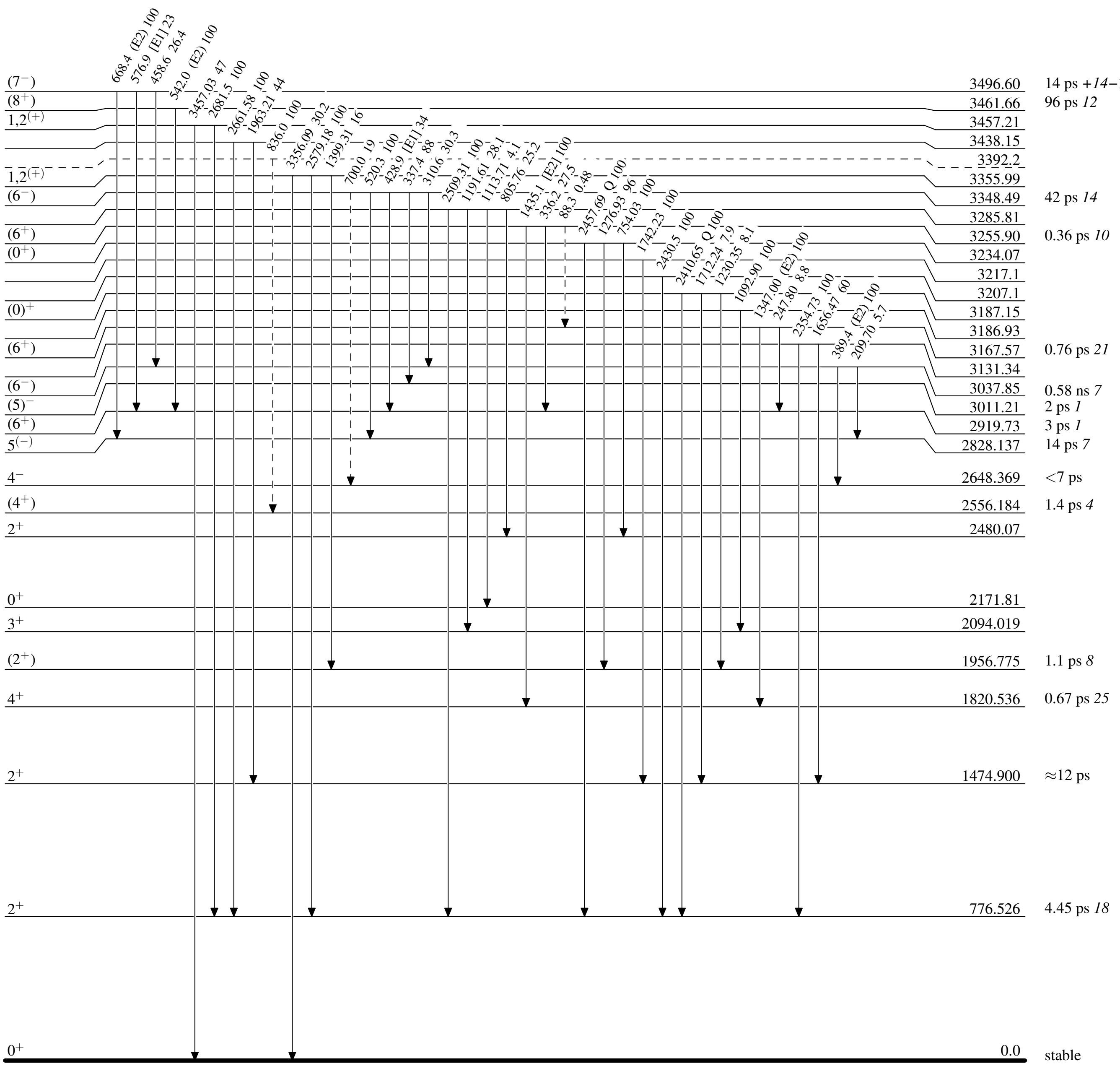
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

Legend

γ Decay (Uncertain)



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

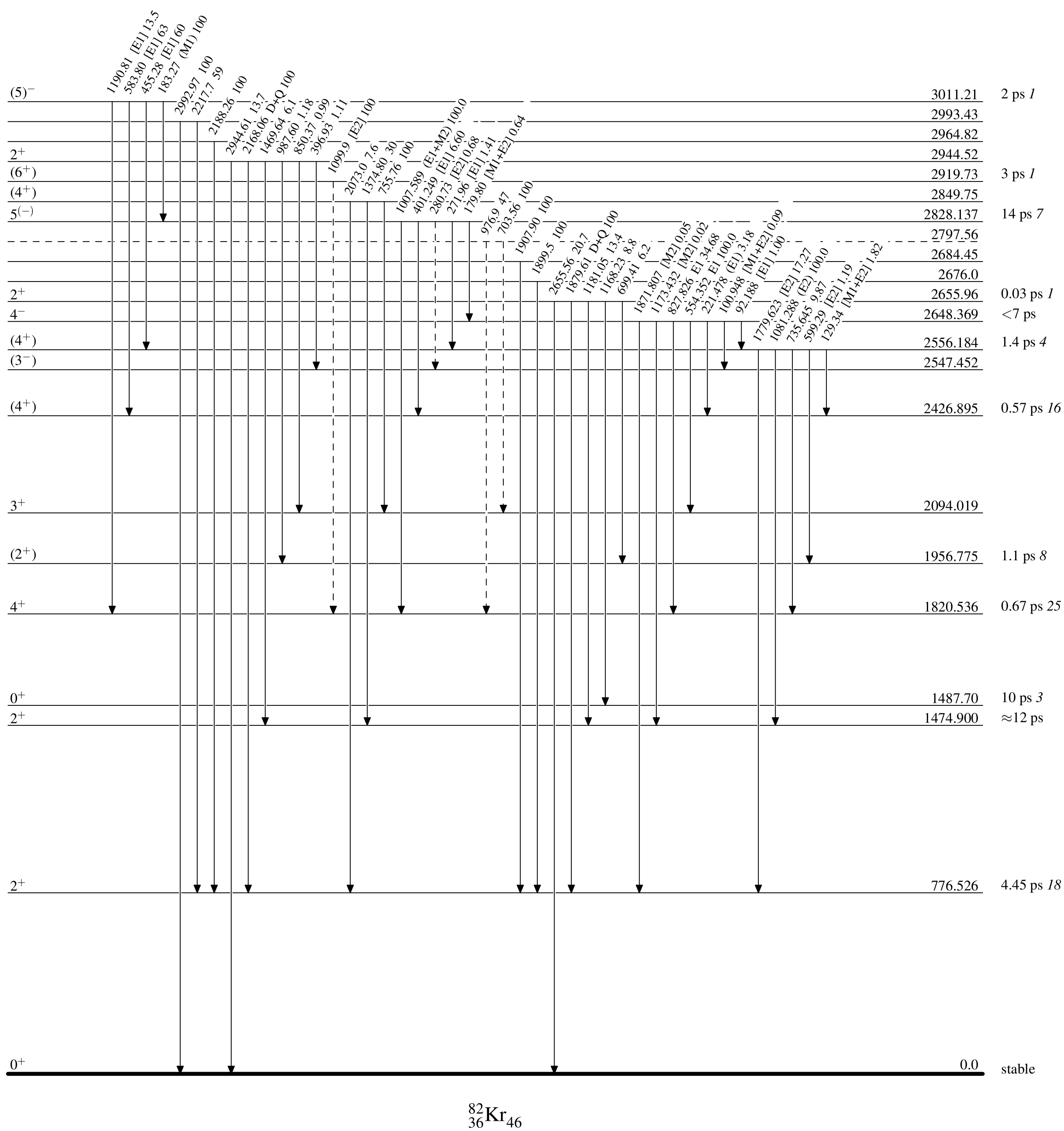
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



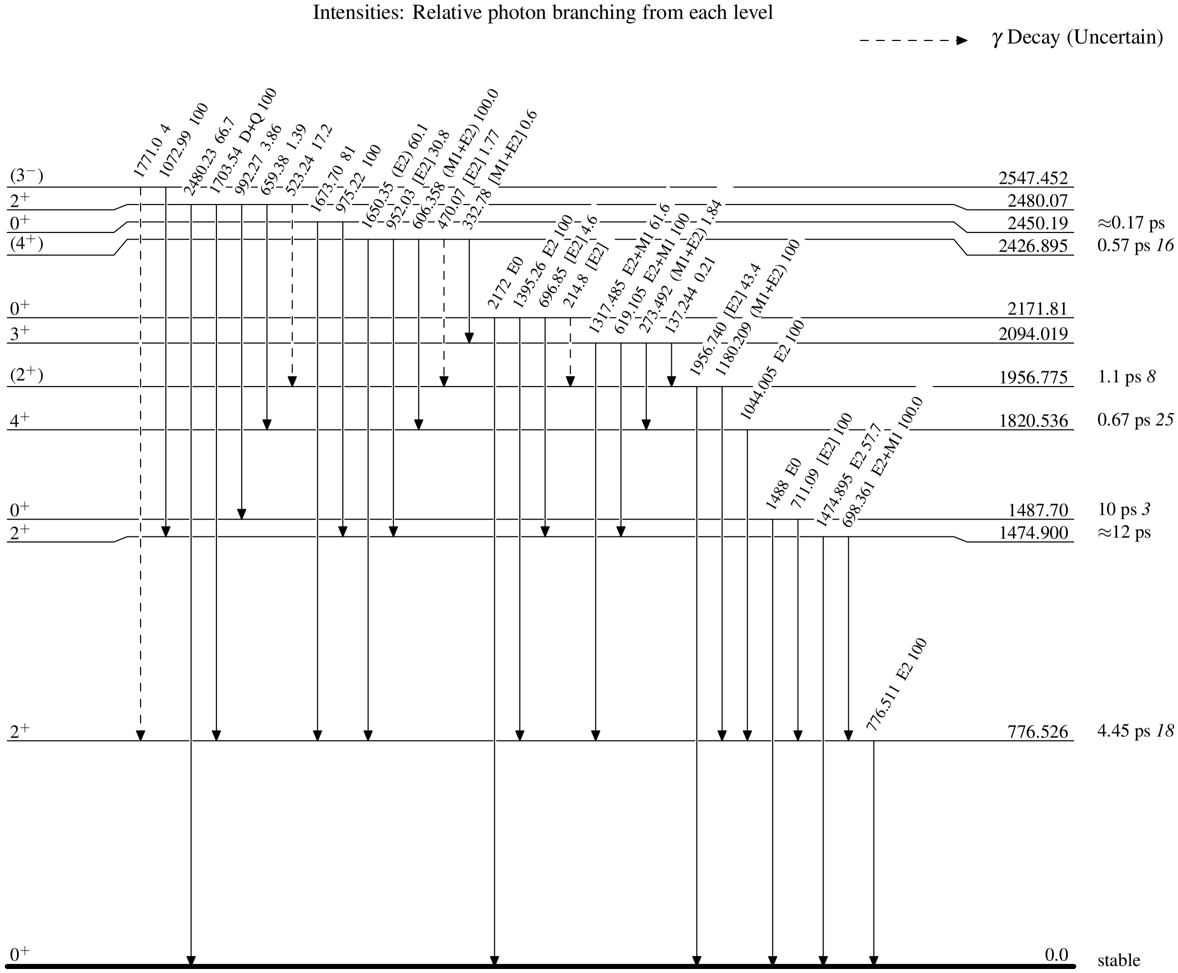
$^{82}_{36}Kr_{46}$

Adopted Levels, Gammas

Legend

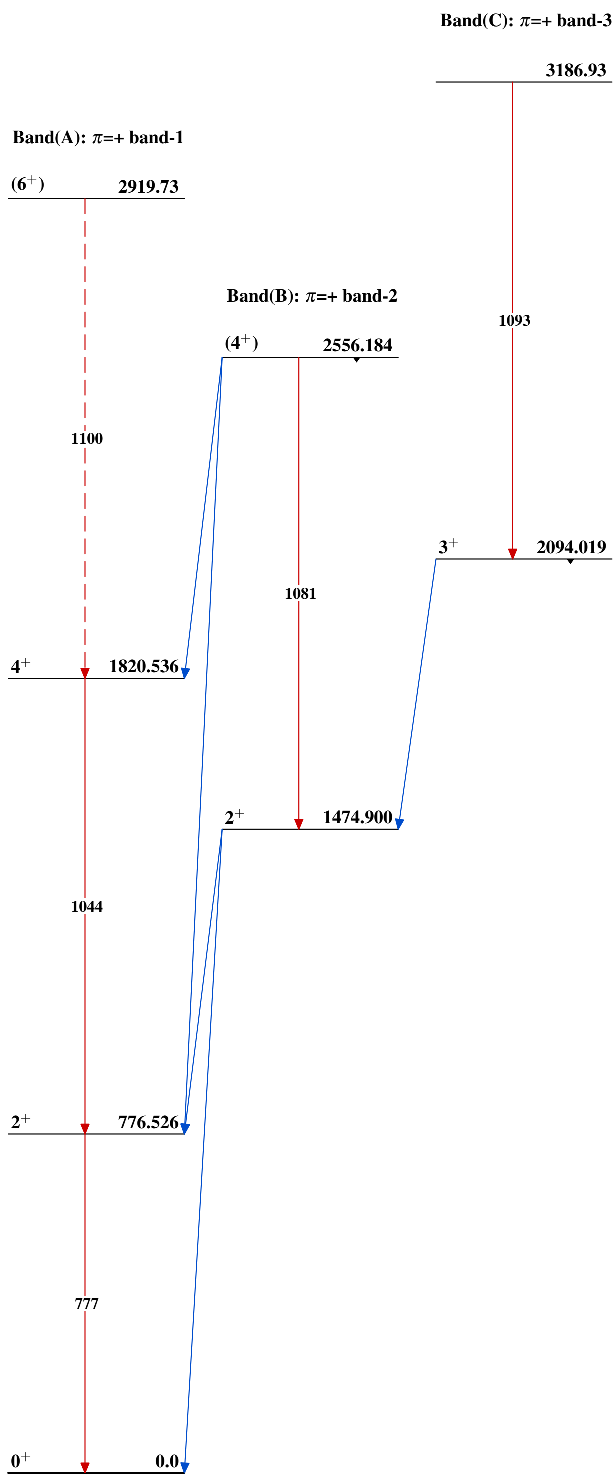
Level Scheme (continued)

Intensities: Relative photon branching from each level



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

Adopted Levels, Gammas



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

Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	J. K. Tuli, A. Luca, S. Juutinen, and B. Singh	NDS 110,2815 (2009)	30-Sep-2009

Q(β^-)=−2680.4 *22*; S(n)=10520.6 *3*; S(p)=10715 *4*; Q(α)=−7104.8 *13* 2012Wa38
Note: Current evaluation has used the following Q record −2686.3 2710520.6 *3* 10722 5 −7104.4 *15* 2009AuZZ.
Values in 2003Au03 are: Q(β^-)=−2681.0 *23*, S(n)=10520.6 *3*, S(p)=10711 *4*, Q(α)=−7096 *3*.
^{84}Kr evaluated by J.K. Tuli, A. Luca, S. Juutinen, and B. Singh.

Theory/calculations:
2009Tu04: quadrupole moment and B(E2) (IBA model).
1995La07: relativistic mean-field theory).
1995De02,1990Zo02,1987Ha21,1984Er02: interacting-boson model.
1991Jo03: description of 8^+ states.
1989Co02: octupole bands.
1988Er07: calculated levels.
1988Pe04: microscopic boson expansion model.
1987Ha21: quadrupole moment, dynamic deformation model 1982Ah06: quadrupole moment, projected Hartree-Fock model.
Isotope shift and nuclear charge radius:
1987Ha21: dynamic deformation model.
1986Di06: two-hole cluster-phonon coupling model.
1982Br01: monopole and quadrupole pairing vibration model.
1981Bu06: liquid drop plus Strutinsky shell corrections plus pairing.
Reduced transition probabilities: 1982Ah06 (projected Hartree-Fock model) 1995Zh26, 1992Er02 (systematics), 1995La07, 1992Sc19, 1992Ne09, 1992Li24, 1989Tr04, 1984Lo06, 1980Ca23,1975So06.
First-unique forbidden β decay matrix elements for ^{84}Br and ^{84}Rb decays: 1986Ci02, 1972Ej01.

Other experiments:
Recent atomic mass measurements using Penning-trap systems: 2009Re03 (supersedes 2005Sh38), 2006De36, 2006Ri15 (also 2005Sc26).
Measurements of isotope shift and nuclear charge radius: 1995Ke04, 1990Sc30, 1990Ca26, 1989Tr04, 1981Ge06, 1979Ge06, 1977Ge05.
Five neutron resonances from 28.05 eV to 1100 eV are known according 2006MuZX evaluation, see ^{83}Kr(n,γ):resonances dataset.

^{84}Kr Levels

Cross Reference (XREF) Flags

A	^{84}Br β^- decay (31.76 min)	E	^{83}Kr(n,γ) E=thermal
B	^{84}Br β^- decay (6.0 min)	F	^{84}Kr(p,p′)
C	^{84}Rb ε decay	G	Coulomb excitation
D	^{82}Se(α,2nγ)	H	(HI,xnγ)

E(level)†	J$^\pi$#	$T_{1/2}$‡	XREF	Comments
0.0@	0^+	stable	ABCDEFGH	<r^2>$^{1/2}$=4.1882 fm *14* (2004An14 evaluation). J$^\pi$: hyperfine structure measurement (1933Ko02) consistent with J=0. Δ<r^2>(^{86}Kr−^{84}Kr)=+0.042 *12* fm^2 from isotope shift (1995Ke04). Others: +0.033 *22* (1990Sc30, 1979Ge06).
881.615@ *3*	2^+	4.05 ps *13*	ABCDEFGH	μ=+0.534 *26* (2001Me20,2005St24) J$^\pi$: L(p,p′)=2. μ: from g=+0.267 *13* (2001Me20, transient-field technique). $T_{1/2}$: From 2001Me20, DSA in Coul ex. Other: 4.35 ps *18* from B(E2)=0.122 *5*

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Adopted Levels, Gammas (continued)

^{84}Kr Levels (continued)

E(level)[†]	J$^{\pi}$[#]	T$_{1/2}$[‡]	XREF	Comments
				measured in Coulomb excitation (1982Ke01); 3.2 ps *14* from recoil-distance in (α,2nγ). 2001Ra27 evaluation gives adopted half-life=4.26 ps 20 and B(E2)(↑)=0.125 *6*.
1837.3 *20*	0$^+$	25 ps *10*	A D FG	J$^{\pi}$: L(p,p′)=0.
1897.783[&] *10*	2$^+$	0.24 ps *5*	ABCDEFG	J$^{\pi}$: E2 γ to 0$^+$. T$_{1/2}$: From 2001Me20, DSA in Coul ex. Others: 0.30 ps +*7*−*3* from (α,2nγ).
2095.00[@] *7*	4$^+$	0.66 ps *13*	A DEFGH	T$_{1/2}$: From 2001Me20, DSA in Coul ex. Others: 0.45 ps +*5*−*7* from (α,2nγ). J$^{\pi}$: L(p,p′)=4.
2345.46[&] *7*	4$^+$	24 ps *3*	AB DEFG	J$^{\pi}$: L(p,p′)=4. 1987Ha21, from their (n,γ) study, propose that the 446.9γ and 1463.8γ deexcite two levels at 2344.3 keV and 2345.6 keV. The 2344.3 is assigned 3$^+$ on the basis of systematics. These conclusions are not adopted by the evaluators since (1) the intensity ratios Iγ(446.9)/Iγ(1463.8) are nearly the same in (n,γ), β^- decay (31.76 min), and β^- decay (6.0 min), and (2) log *ft*=7.0, log $f^{1u}t$=8.3 for β^- decay from (5$^-$,6$^-$) would limit J=4 to 7.
2489.2 *4*	(2$^+$,3$^-$)		A	J$^{\pi}$: probable γ to 4$^+$. γ from 1$^-$.
2622.98 *17*	2$^+$	0.28 ps *14*	A DEF	J$^{\pi}$: uniquely determined by $\gamma\gamma(\theta)$ in β^- decay. M1+E2 γ to 2$^+$.
2700.28 *8*	3$^-$	1.7 ps +*14*−*11*	A DEF	J$^{\pi}$: L(p,p′)=3. B(E3)(↑)=0.042 *15* (2002Ki06 evaluation, data from 1978Ma11, 1974Ar29). Deduced B(E3)(W.u.)=14 *5*.
2759.28 *13*	2$^+$		A E	J$^{\pi}$: log *ft*=7.5 from 2$^-$, γ to 0$^+$, (M1+E2) γ to 2$^+$, $\gamma\gamma(\theta)$.
2770.94[a] *9*	5$^-$	7.6 ps *21*	B DE	J$^{\pi}$: stretched E1 to 4$^+$.
2775 *20*	2$^+$		F	J$^{\pi}$: L(p,p′)=2.
2861.09 *8*	(2$^+$,3,4$^+$)		E	J$^{\pi}$: γ′s to 2$^+$ and 4$^+$.
3042.11 *7*	(2$^+$,3,4$^+$)		DEF	J$^{\pi}$: γ′s to 2$^+$ and 4$^+$.
3082.38 *8*	3		A E	J$^{\pi}$: log *ft*=6.6, log $f^{1u}t$=7.6 from 2$^-$. J=1,2 excluded by $\gamma\gamma(\theta)$ in β^- decay.
3172.55[@] *16*	6$^+$	2.6 ps *7*	DE H	J$^{\pi}$: stretched E2 indicated by $\gamma(\theta)$ in (α,2nγ).
3183.29 *25*	(2$^+$,3,4$^+$)		E	J$^{\pi}$: γ′s to 2$^+$ and 4$^+$.
3219.35[b] *11*	5$^-$	17 ps *4*	DE	J$^{\pi}$: from $\gamma(\theta)$, linear pol in (α,2nγ), 1124γ is stretched E1, 448γ is M1 with ΔJ=0.
3225 *20*	(1$^-$)		F	J$^{\pi}$: L(p,p′)=(1).
3236.07[@] *18*	8$^+$	1.83 μs *4*	D H	%IT=100 μ=−1.968 *16* (1982Za04,1989Ra17) Q=0.36 *4* (2006Sc22) J$^{\pi}$: E2 γ to 6$^+$ in (α,2nγ). Configuration=(ν g$_{9/2}$)$^{-2}$. μ: TDPAD method in (α,2nγ) (1982Za04). See also 2005St24 compilation. Q: from level-mixing spectroscopy (LEMS) technique (2006Sc22) using Q(^{79}Kr, 5/2$^-$)=0.456 *26* as reference value. T$_{1/2}$: from 2006Sc22. Others: 1.89 μs *4* from time-differential perturbed angular distribution observed in (α,2nγ); 1.4 μs *4* (1997Is13) based on particle-γ-γ measurement in ^{76}Ge+^{198}Pt reaction.
3288.68 *12*	5$^+$	0.31 ps *10*	DE	J$^{\pi}$: stretched E1 transition from 6$^-$, linear polarization of M1+E2 943γ to 4$^+$.
3312.39 *13*	(3)$^-$		E	J$^{\pi}$: J=3 preferred from $\gamma\gamma(\theta)$ in (n,γ), but other J values are not definitely excluded. M1+E2 γ to 3$^-$.
3335? *20*			F	Possibly identical to 3312 level.
3365.88 *20*	(1,2$^+$)		A	J$^{\pi}$: γ to 0$^+$.
3408.15 *11*	(3$^-$,4,5$^-$)		E	J$^{\pi}$: γ′s to 3$^-$ and 5$^-$.

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{84}Kr Levels (continued)

E(level)[†]	J^π[#]	$T_{1/2}$[‡]	XREF	Comments
3426.74 *12*	(2$^+$,3,4$^+$)		E	J^π: γ's to 2$^+$ and 4$^+$.
3463.0 *5*			E	
3475.75 *21*	(1$^-$)		A F	J^π: L(p,p')=(1).
3570 *20*	(3$^-$)		F	J^π: L(p,p')=(3).
3587.12[b] *11*	6$^-$	5.5 ps *14*	DE	J^π: deexcites by M1+E2 to 5$^-$, fed by M1+E2 from 7$^-$.
3638.50 *10*	(5$^-$)	0.69 ps *+28−21*	DEF	J^π: L(p,p')=(5). γ's to 3$^-$ and 5$^-$.
3651.61[a] *18*	7$^-$		D	J^π: 180γ from 3832, 7$^-$ level is ΔJ=0, M1+E2 from $\gamma(\theta)$, linear pol in (α,2nγ).
3705.87 *19*	1$^{(-)}$,2,3$^{(-)}$		A	J^π: log *ft*=6.0, log $f^{1u}t$=6.5 from 2$^-$. γ's to (1$^-$) and 3$^-$.
3718.22 *22*	(3$^-$)		EF	J^π: L(p,p')=(3).
3777.0 *3*			EF	
3831.62[b] *12*	7$^-$	4.9 ps *21*	D	J^π: stretched E2 to 5$^-$, E1 to 6$^+$, excit.
3870.1 *5*	1,2,3		A	J^π: log *ft*=6.9, log $f^{1u}t$=7.2 from 2$^-$.
3878.8 *3*	(2$^+$,3)		A	J^π: log *ft*=6.6, log $f^{1u}t$=7.0 from 2$^-$. γ to 4$^+$.
3927.33 *22*	1$^-$		A F	J^π: log *ft*=4.9 from 2$^-$. Strong γ to 0$^+$.
3951.23[&] *16*	6$^+$	0.9 ps *5*	D	J^π: cascades to 4$^+$ via stretched Q.
4001.82 *11*	(4$^-$)	0.35 ps *10*	DEF	
4084.3 *5*	(1,2$^+$)		A F	J^π: γ to 0$^+$.
4116.8 *5*	1$^-$,2$^-$		A	J^π: log *ft*=5.2 from 2$^-$. Weak γ to 0$^+$.
4189.2 *5*	(2$^+$,3)		A F	XREF: F(4157). J^π: log *ft*=6.0, log $f^{1u}t$=6.0 from 2$^-$. γ to 4$^+$.
4214.43 *13*			E	
4238.5 *6*			E	
4278.3 *5*			E	
4350.12 *23*	(5$^-$)	0.28 ps *+14−7*	D	
4388.20[b] *19*	8$^-$	6.7 ps *17*	D	J^π: M1+E2 γ to 7$^-$.
4407.8 *4*	(6$^-$)	0.31 ps *14*	D	
4455.6 *4*			E	
4594.8 *5*			E	
4676.62 *19*			EF	XREF: F(4707).
4707 *20*			F	
4718.54[&] *16*	8$^+$	5.5 ps *21*	D	J^π: cascades to 4$^+$ via two Q γ's.
4852.25[a] *21*	9$^-$	0.8 ps *4*	D	J^π: stretched E2 to 7$^-$, excit, 1616γ is stretched d.
4898 *20*			F	
4928.99[b] *22*	(9$^-$)	0.55 ps *21*	D	
4976.1 *11*	(9$^+$)		D	
5204.1[@] *3*	10$^+$	0.14 ps *4*	D H	J^π: stretched E2 cascade indicated by $\gamma(\theta)$ and linear polarization in (α,2nγ).
5358 *20*			F	
5373.4[@] *4*	12$^+$	43.7 ns *21*	D H	%IT=100 μ=+2.04 *24* (1990Ro10,1985Ro22) μ: from TDPAD method in (α,2nγ) (1990Ro10,1985Ro22). See also 2005St24 and 1989Ra17 compilations. J^π: stretched E2 cascade indicated by $\gamma(\theta)$ and linear polarization in (α,2nγ). $T_{1/2}$: from α,γ(t) in (α,2nγ).
5448.75[&] *19*	10$^+$	3.5 ps *14*	D	J^π: stretched E2 to 8$^+$.
5466			F	
5640.70[b] *24*	(10$^-$)	0.49 ps *21*	D	
5901.7[a] *3*	11$^-$	1.9 ps *6*	D	J^π: stretched E2 to 9$^-$.
6067.4 *11*			D	
6472.2 *4*			D	
6572.1 *4*	(12)$^-$	0.42 ps *14*	D	J^π: E1 γ to 12$^+$ consistent with ΔJ=0.

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{84}Kr Levels (continued)

E(level)[†]	J^{π}[#]	$T_{1/2}$[‡]	XREF	Comments
6590.3 *6*			D	
7015.8 *4*	$(13)^-$	0.17 ps *7*	D	J^{π}: stretched M1 to $(12)^-$.
7653.2 *5*	(14^-)	0.28 ps *7*	D	J^{π}: cascades via stretched d.
(10520.6 *3*)	$4^+,5^+$		E	E(level),J^{π}: thermal neutron-capture state by $9/2^+$ target. S(n) from 2009AuZZ,2003Au03.

† From least-squares fit to adopted gammas if γ decay is observed. Other level energies are from (p,p′).
‡ From Doppler-shift attenuation and recoil-distance technique in (α,2nγ), unless indicated otherwise.
\# J^{π} for the levels seen in (α,2nγ) are based upon $\gamma(\theta)$, excit, multipolarity of transitions.
@ Band(A): Sequence based on ground state.
& Band(B): Sequence based on 1898, 2^+.
[a] Band(C): π=−, ΔJ=2 sequence.
[b] Band(D): π=−, ΔJ=1 sequence.

γ(^{84}Kr)

E_i(level)	J_i^π	E_γ‡	I_γ	E_f	J_f^π	Mult.#	δ@	α†	Comments
881.615	2^+	881.610 *3*	100	0.0	0^+	[E2]			B(E2)(W.u.)=12.0 *4*
1837.3	0^+	955.7 *20*	100	881.615	2^+				E_γ: 950.0 *2* in (α,2nγ).
1897.783	2^+	1016.162 *13*	47.1 *16*	881.615	2^+	M1+E2	0.84 *7*		B(M1)(W.u.)=0.016 *4*; B(E2)(W.u.)=13 *3*
		1897.761 *14*	100.0	0.0	0^+	E2			B(E2)(W.u.)=3.0 *7*
2095.00	4^+	1213.39 *10*	100	881.615	2^+	E2			B(E2)(W.u.)=15 *3*
2345.46	4^+	446.9 *3*	2.73 *19*	1897.783	2^+	[E2]		0.00453 *7*	B(E2)(W.u.)=1.61 *23* α(K)=0.00400 *6*; α(L)=0.000446 *7*; α(M)=7.21×10^{-5} *11*; α(N+..)=7.15×10^{-6} *11* α(N)=7.15×10^{-6} *11*
		1463.84 *9*	100.0 *12*	881.615	2^+	E2			B(E2)(W.u.)=0.156 *20*
2489.2	$(2^+,3^-)$	394.1& *7*		2095.00	4^+				
		1607.6 *4*		881.615	2^+				
2622.98	2^+	1741.3 *2*	100 *4*	881.615	2^+	M1+E2	−1.5 *+5−10*		B(M1)(W.u.)=0.004 *3*; B(E2)(W.u.)=3.4 *19* Mult.: the large mixing ratio excludes E1+M2.
		2622.7 *4*	18 *3*	0.0	0^+				
2700.28	3^-	354.7 *2*	4.9 *5*	2345.46	4^+				
		605.1 *3*	26.6 *15*	2095.00	4^+	(E1+M2)	+0.025 *23*		B(E1)(W.u.)=(0.00018 *+12−16*); B(M2)(W.u.)=(1 *+3−1*)
		802.56 *14*	100.0 *15*	1897.783	2^+	E1			B(E1)(W.u.)=0.00030 *+20−25*
		1818.7 *4*	4.0 *6*	881.615	2^+				
2759.28	2^+	1877.80 *14*	100	881.615	2^+	(M1+E2)	−0.10 *8*		
		2758.4 *3*	53 *13*	0.0	0^+				
2770.94	5^-	425.30 *11*	100	2345.46	4^+	E1		0.001458 *21*	B(E1)(W.u.)=0.00060 *17* α(K)=0.001295 *19*; α(L)=0.0001376 *20*; α(M)=2.22×10^{-5} *4*; α(N+..)=2.23×10^{-6} α(N)=2.23×10^{-6} *4* Mult.: M2 admixture with δ<0 needed to explain large anisotropy for 424γ (1992Pr06).
2861.09	$(2^+,3,4^+)$	765.74 *25*	12 *8*	2095.00	4^+				
		963.44 *13*	61.5 *21*	1897.783	2^+				
		1979.34 *11*	100.0 *21*	881.615	2^+				
3042.11	$(2^+,3,4^+)$	946.5 *5*	77 *3*	2095.00	4^+				
		2160.48 *7*	100.0 *25*	881.615	2^+				
3082.38	3	382.0 *2*	52 *7*	2700.28	3^-				
		736.5 *3*	100 *12*	2345.46	4^+	D+Q	−0.09 *3*		
		987.62 *17*	73 *6*	2095.00	4^+	D+Q	−0.09 *4*		
		1185.0 *7*	8.4 *17*	1897.783	2^+				
		2200.85 *11*	78 *3*	881.615	2^+				
3172.55	6^+	1077.55 *25*	100	2095.00	4^+	E2			B(E2)(W.u.)=6.9 *19* Mult.: from $\gamma(\theta)$, linear polarization and α(K)exp in (α,2nγ).

$^{84}_{36}$Kr$_{48}$-5

γ(^{84}Kr) (continued)

E_i(level)	J^π_i	E_γ[‡]	I_γ	E_f	J^π_f	Mult.[#]	δ[@]	α[†]	Comments
3183.29	(2$^+$,3,4$^+$)	1087.8 *3*	76 *10*	2095.00	4$^+$				
		2302.5 *4*	100 *16*	881.615	2$^+$				
3219.35	5$^-$	448.11 *11*	41.6 *13*	2770.94	5$^-$	M1		0.00277 *4*	B(M1)(W.u.)=0.0040 *10* α(K)=0.00245 *4*; α(L)=0.000264 *4*; α(M)=4.27×10^{-5} *6*; α(N+..)=4.32×10^{-6} *6* α(N)=4.32×10^{-6} *6*
		519.3[a] *5*	9 *3*	2700.28	3$^-$				
		1124.5 *2*	100.0 *15*	2095.00	4$^+$	E1			B(E1)(W.u.)=9.7×10^{-6} *23*
3236.07	8$^+$	63.5 *1*	100	3172.55	6$^+$	E2		4.89	α(K)=3.98 *6*; α(L)=0.779 *13*; α(M)=0.1262 *20*; α(N+..)=0.01078 *17* α(N)=0.01078 *17* B(E2)(W.u.)=2.33 *6*
3288.68	5$^+$	943.36 *14*	100	2345.46	4$^+$	M1+E2	0.4 *1*		B(M1)(W.u.)=0.073 *24*; B(E2)(W.u.)=15 *9*
3312.39	(3)$^-$	541.50 *12*	71 *3*	2770.94	5$^-$				
		612.0 *3*	100 *6*	2700.28	3$^-$	M1+E2	+0.41 *3*	0.001408 *22*	α(K)=0.001250 *19*; α(L)=0.0001339 *21*; α(M)=2.17×10^{-5} *4*; α(N+..)=2.19×10^{-6} α(N)=2.19×10^{-6} *4* Mult.: the large mixing ratio excludes E1+M2.
		967.0 *5*	20 *7*	2345.46	4$^+$				
3365.88	(1,2$^+$)	2484.1 *3*	100 *10*	881.615	2$^+$				
		3365.8 *4*	43 *6*	0.0	0$^+$				
3408.15	(3$^-$,4,5$^-$)	546.98 *12*	100 *4*	2861.09	(2$^+$,3,4$^+$)				
		637.13 *18*	77 *7*	2770.94	5$^-$				
		708.24 *21*	67 *6*	2700.28	3$^-$				
3426.74	(2$^+$,3,4$^+$)	1331.89 *13*	100 *14*	2095.00	4$^+$				
		2544.72 *19*	69 *7*	881.615	2$^+$				
3463.0		243.7 *4*	100	3219.35	5$^-$				
3475.75	(1$^-$)	394.1[&] *7*		3082.38	3				
		1578.1 *4*	100 *19*	1897.783	2$^+$				
		2593.7 *6*	21 *4*	881.615	2$^+$				
3587.12	6$^-$	298.5 *1*	11.7 *13*	3288.68	5$^+$	E1		0.00375 *6*	B(E1)(W.u.)=0.00023 *7* α(K)=0.00333 *5*; α(L)=0.000355 *5*; α(M)=5.73×10^{-5} *8*; α(N+..)=5.74×10^{-6} *8* α(N)=5.74×10^{-6} *8*
		367.6 *1*	100 *11*	3219.35	5$^-$	M1+E2	0.24 *6*	0.00466 *14*	B(M1)(W.u.)=0.063 *19*; B(E2)(W.u.)=31 *18* α(K)=0.00413 *12*; α(L)=0.000448 *14*; α(M)=7.25×10^{-5} *22*; α(N+..)=7.30×10^{-6} *22* α(N)=7.30×10^{-6} *22*
		816.6 *2*	10 *3*	2770.94	5$^-$				
3638.50	(5$^-$)	419.4 *5*	100.0 *17*	3219.35	5$^-$				

$^{84}_{36}$Kr$_{48}$-6

γ(^{84}Kr) (continued)

E$_i$(level)	J_i^π	E$_\gamma$[‡]	I$_\gamma$	E$_f$	J_f^π	Mult.[#]	δ[@]	α[†]	Comments
3638.50	(5$^-$)	938.12 *13*	71 *3*	2700.28	3$^-$				
		1293.20 *13*	61 *4*	2345.46	4$^+$				
		1543.27 *19*	77.2 *26*	2095.00	4$^+$				
3651.61	7$^-$	881.0 *3*	100	2770.94	5$^-$	E2			E$_\gamma$: from E(level) difference.
3705.87	1$^{(-)}$,2,3$^{(-)}$	230.20 *20*	27 *4*	3475.75	(1$^-$)				
		339.8 *4*	6.3 *15*	3365.88	(1,2$^+$)				
		947.5 *7*	31 *7*	2759.28	2$^+$				
		1005.7 *7*	41 *11*	2700.28	3$^-$				
		1082.6 *4*	12.6 *22*	2622.98	2$^+$				
		1807.8 *8*	3.7 *11*	1897.783	2$^+$				
		2824.1 *4*	100 *15*	881.615	2$^+$				
3718.22	(3$^-$)	1623.20 *20*	100	2095.00	4$^+$				
3777.0		1682.0 *3*	100	2095.00	4$^+$				
3831.62	7$^-$	180.1 *2*	31 *5*	3651.61	7$^-$	M1+E2	−0.12 *8*	0.0277 *20*	B(M1)(W.u.)=0.09 *5*; B(E2)(W.u.)=5.E+1 *+7−5* α(K)=0.0245 *17*; α(L)=0.00272 *22*; α(M)=0.00044 *4*; α(N+..)=4.4×10^{-5} *4* α(N)=4.4×10^{-5} *4*
		244.5 *1*	52 *5*	3587.12	6$^-$	M1+E2	0.07 *3*	0.01225 *21*	B(M1)(W.u.)=0.06 *3*; B(E2)(W.u.)=6 *6* α(K)=0.01085 *19*; α(L)=0.001186 *21*; α(M)=0.000192 *4*; α(N+..)=1.94×10^{-5} *4* α(N)=1.94×10^{-5} *4*
		612.1 *2*	100 *14*	3219.35	5$^-$	E2		0.001760 *25*	B(E2)(W.u.)=25 *12* α(K)=0.001559 *22*; α(L)=0.0001704 *24*; α(M)=2.76×10^{-5} *4*; α(N+..)=2.75×10^{-6} α(N)=2.75×10^{-6} *4*
		659.1 *2*	63 *10*	3172.55	6$^+$	E1			B(E1)(W.u.)=6.E−5 *3*
3870.1	1,2,3	394.1[&] *7*		3475.75	(1$^-$)				
		2988.7 *7*		881.615	2$^+$				
3878.8	(2$^+$,3)	1119.1 *4*	100 *18*	2759.28	2$^+$				
		1255.5 *6*	32 *6*	2622.98	2$^+$				
		1534.7 *6*	71 *15*	2345.46	4$^+$				
3927.33	1$^-$	561.4 *5*	1.2 *3*	3365.88	(1,2$^+$)				
		1438.0 *7*	0.92 *25*	2489.2	(2$^+$,3$^-$)				
		2029.6 *5*	31 *6*	1897.783	2$^+$				
		3045.4 *4*	37 *6*	881.615	2$^+$				
		3927.5 *4*	100 *10*	0.0	0$^+$				
3951.23	6$^+$	662.6 *3*	≈67	3288.68	5$^+$				
		1605.7 *3*	47 *20*	2345.46	4$^+$				
		1856.2 *3*	100 *27*	2095.00	4$^+$	Q			B(E2)(W.u.)=0.6 *4*
4001.82	(4$^-$)	919.79 *19*	72 *5*	3082.38	3				
		1230.82 *11*	100 *4*	2770.94	5$^-$				

Adopted Levels, Gammas (continued)

$\gamma(^{84}$Kr) (continued)

E_i(level)	J^π_i	E_γ‡	I_γ	E_f	J^π_f	Mult.#	δ@	α†	Comments
4001.82	(4⁻)	1656.15 *18*	90 *14*	2345.46	4⁺				
4084.3	(1,2⁺)	3202.1 *7*	76 *15*	881.615	2⁺				
		4084.6 *6*	100 *15*	0.0	0⁺				
4116.8	1⁻,2⁻	2218.5 *12*	3.3 *16*	1897.783	2⁺				
		3235.3 *5*	100 *16*	881.615	2⁺				
		4115.8 *15*	0.19 *4*	0.0	0⁺				
4189.2	(2⁺,3)	2094.2 *5*	100	2095.00	4⁺				
4214.43		902.11 *15*	58 *5*	3312.39	(3)⁻				
		1443.43 *11*	100 *4*	2770.94	5⁻				
4238.5		236.7 *5*	100	4001.82	(4⁻)				
4278.3		1507.3 *5*	100	2770.94	5⁻				
4350.12	(5⁻)	763.0 *2*	100	3587.12	6⁻				
4388.20	8⁻	556.6 *2*	100 *12*	3831.62	7⁻	M1+E2	0.17 *4*	0.00169 *3*	B(M1)(W.u.)=0.013 *4*; B(E2)(W.u.)=1.4 *8* α(K)=0.001501 *23*; α(L)=0.0001606 *25*; α(M)=2.60×10^{-5} *4*; α(N+..)=2.63×10^{-6} *4* α(N)=2.63×10^{-6} *4*
		801.1 *3*	46 *14*	3587.12	6⁻	E2			B(E2)(W.u.)=3.7 *16*
4407.8	(6⁻)	1636.8 *4*	100	2770.94	5⁻				
4455.6		1283.0 *3*	100	3172.55	6⁺				
4594.8		1823.8 *5*	100	2770.94	5⁻				
4676.62		1905.65 *17*	100	2770.94	5⁻				
4718.54	8⁺	767.3 *2*	95 *15*	3951.23	6⁺	Q			B(E2)(W.u.)=5.7 *25*
		886.9 *2*	100 *15*	3831.62	7⁻	E1			B(E1)(W.u.)=3.1×10^{-5} *14*
		1546.0 *2*	100 *20*	3172.55	6⁺	Q			B(E2)(W.u.)=0.18 *8*
4852.25	9⁻	1200.7 *2*	100 *19*	3651.61	7⁻	E2			B(E2)(W.u.)=9 *5*
		1616.1 *2*	42 *12*	3236.07	8⁺	(E1)			Mult.: ΔJ=1 dipole from $\gamma(\theta)$, $\Delta\pi$=yes from level scheme.
4928.99	(9⁻)	540.7 *2*	75 *25*	4388.20	8⁻	D+Q	0.18 *5*	0.00181 *3*	α(K)=0.00161 *3*; α(L)=0.000172 *3*; α(M)=2.79×10^{-5} *5*; α(N+..)=2.82×10^{-6} *5* α(N)=2.82×10^{-6} *5* B(M1)(W.u.)=0.11 *7*; B(E2)(W.u.)=14 *11*
		1097.3 *3*	≈100	3831.62	7⁻				
4976.1	(9⁺)	1740 *1*	100	3236.07	8⁺				
5204.1	10⁺	1968.0 *2*	100	3236.07	8⁺	E2			B(E2)(W.u.)=6.3 *18*
5373.4	12⁺	169.3	100	5204.1	10⁺	E2		0.1324	α(K)=0.1153 *17*; α(L)=0.01455 *21*; α(M)=0.00235 *4*; α(N+..)=0.000223 *4* α(N)=0.000223 *4* B(E2)(W.u.)=3.76 *22* Mult.: from $\gamma(\theta)$, linear polarization, and α(K)exp in (α,2nγ).
5448.75	10⁺	730.2 *1*	100	4718.54	8⁺	E2		0.001084 *16*	B(E2)(W.u.)=36 *15* α(K)=0.000962 *14*; α(L)=0.0001041 *15*; α(M)=1.685×10^{-5} *24* α(N)=1.689×10^{-6} *24*

$^{84}_{36}$Kr$_{48}$-8

Adopted Levels, Gammas (continued)

$\gamma(^{84}Kr)$ (continued)

E_i(level)	J^π_i	E_γ[‡]	I_γ	E_f	J^π_f	Mult.[#]	α[†]	Comments
5640.70	(10^-)	711.6 *2*	82 *27*	4928.99	(9^-)			
		1252.6 *2*	100 *27*	4388.20	8^-			
5901.7	11^-	1049.4 *2*	100	4852.25	9^-	E2		B(E2)(W.u.)=11 *4*
6067.4		694 *1*	100	5373.4	12^+			
6472.2		1268.1 *3*	100	5204.1	10^+			
6572.1	$(12)^-$	670.4 *2*	46 *17*	5901.7	11^-			
		1198.6 *2*	100 *21*	5373.4	12^+	E1		B(E1)(W.u.)=0.00033 *15*
6590.3		1141.5 *5*	100	5448.75	10^+			
7015.8	$(13)^-$	443.7 *2*	100	6572.1	$(12)^-$	M1	0.00283 *4*	B(M1)(W.u.)=1.5 *7* α(K)=0.00251 *4*; α(L)=0.000270 *4*; α(M)=4.37×10^{-5} *7*; α(N+..)=4.42×10^{-6} *7* α(N)=4.42×10^{-6} *7*
7653.2	(14^-)	637.4 *3*	100	7015.8	$(13)^-$	D		

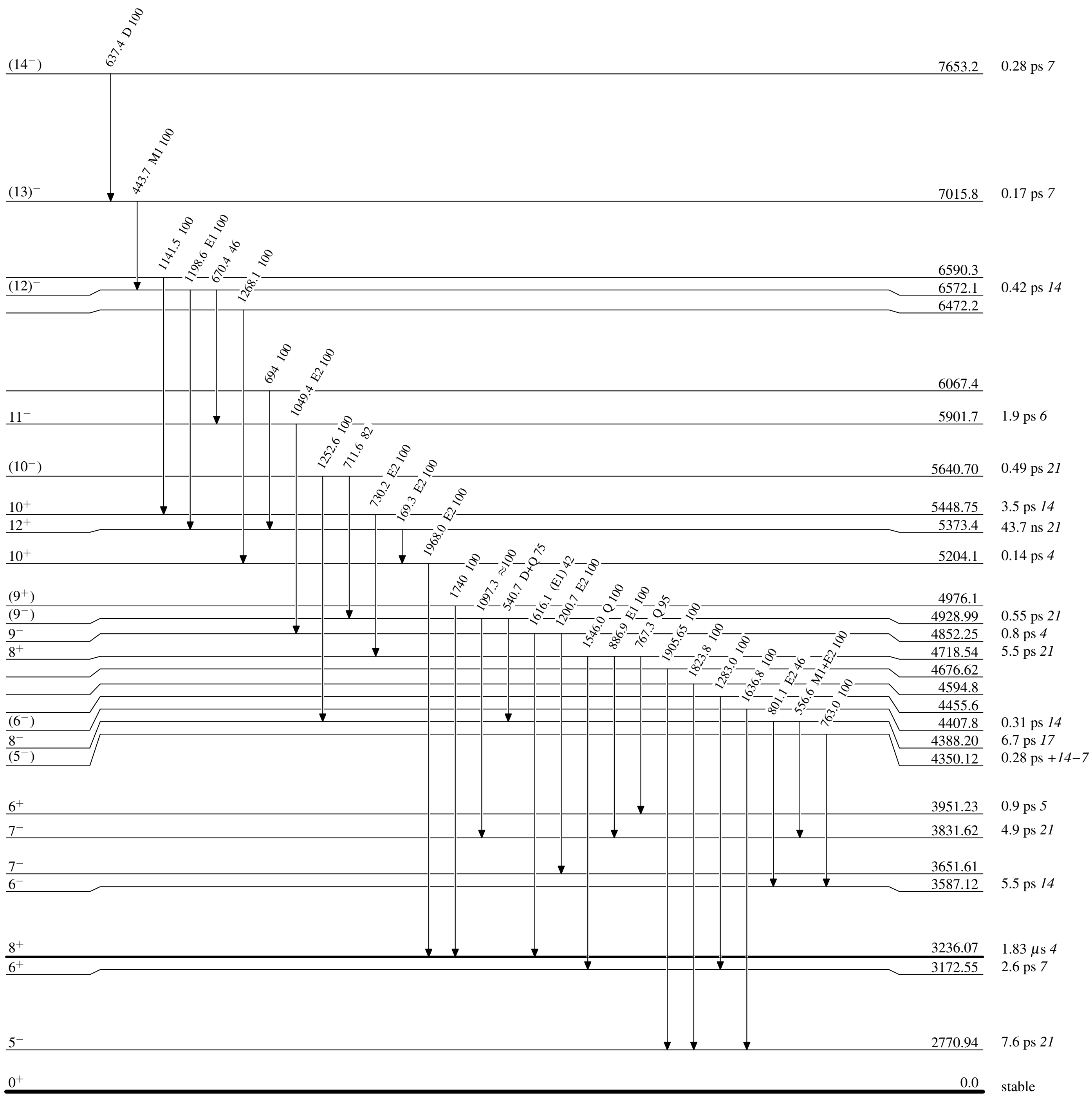
† Additional information 1.
‡ Most precise value from β^- decay, β^+ decay, (n,γ), (α,2nγ), or weighted average of the most precise values.
# From $\gamma\gamma(\theta)$ in (n,γ) and β^- decay (31.76 min), $\gamma(\theta)$, α(K)exp, linear polarization measurements in (α,2nγ), unless indicated otherwise.
@ From $\gamma\gamma(\theta)$ observed in (n,γ) and β^- decay (31.76 min) or $\gamma(\theta)$ in (α,2nγ).
& Multiply placed.
a Placement of transition in the level scheme is uncertain.

$^{84}_{36}Kr_{48}$-9

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level

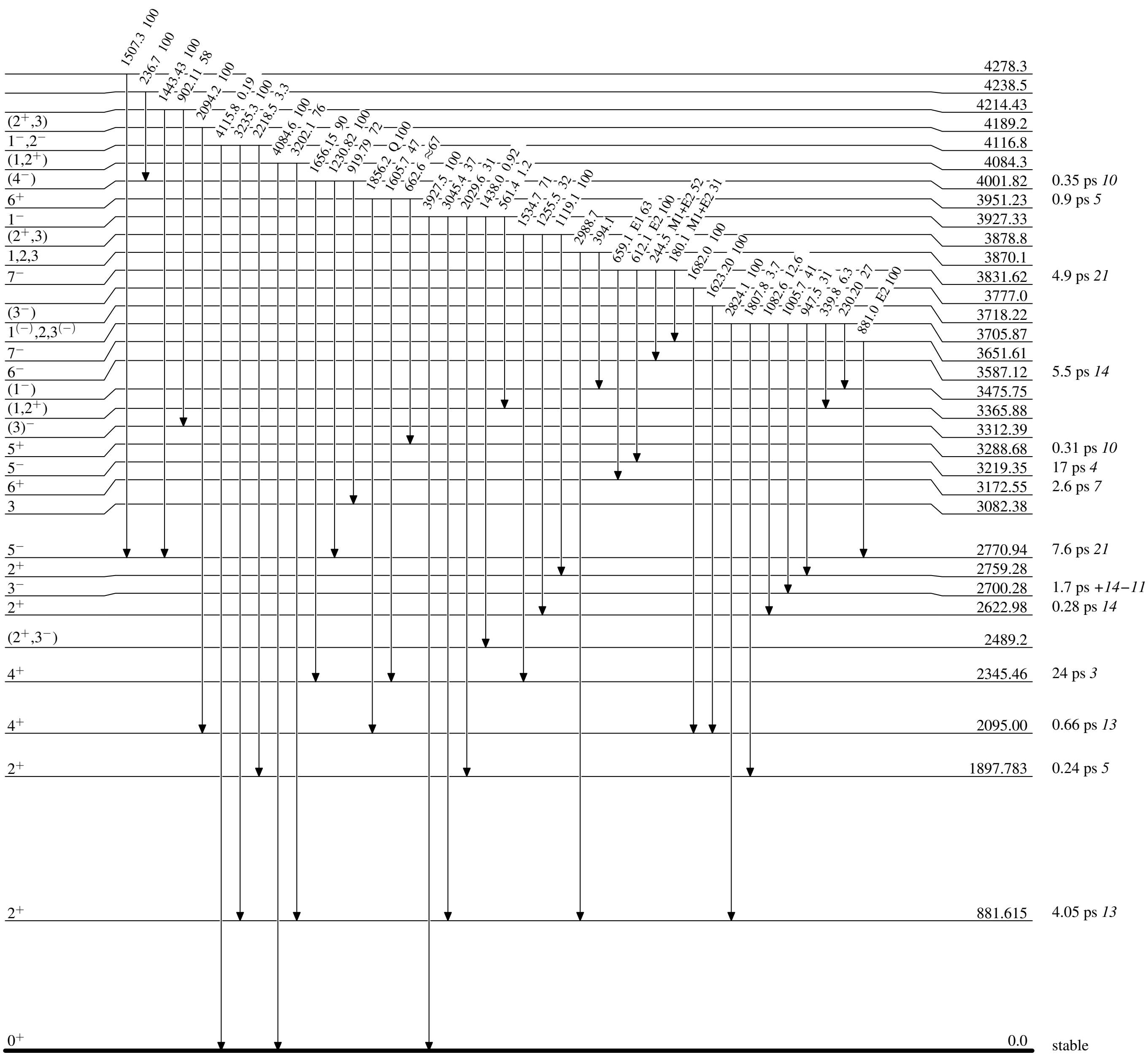


$^{84}_{36}Kr_{48}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

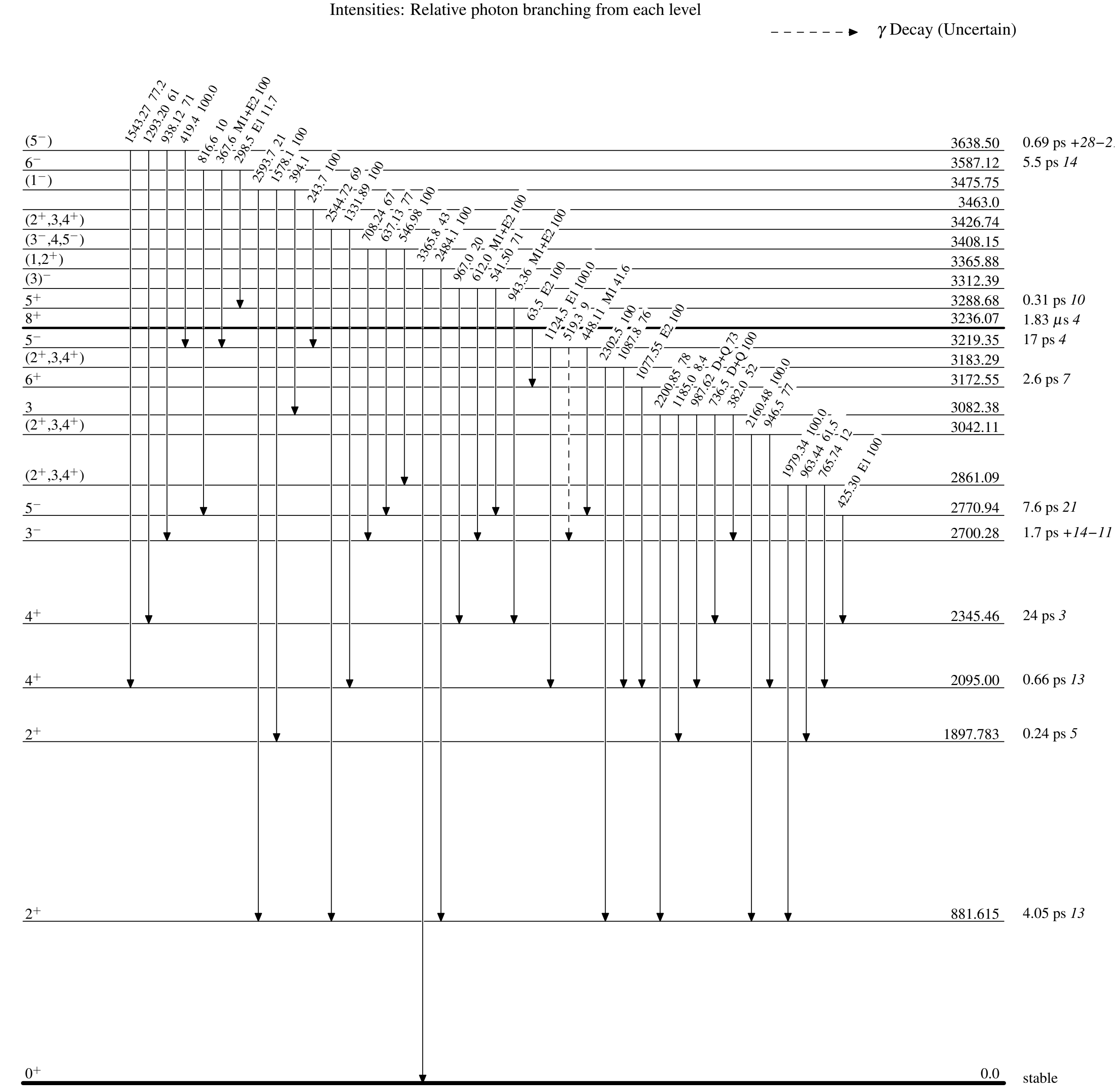


$^{84}_{36}Kr_{48}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

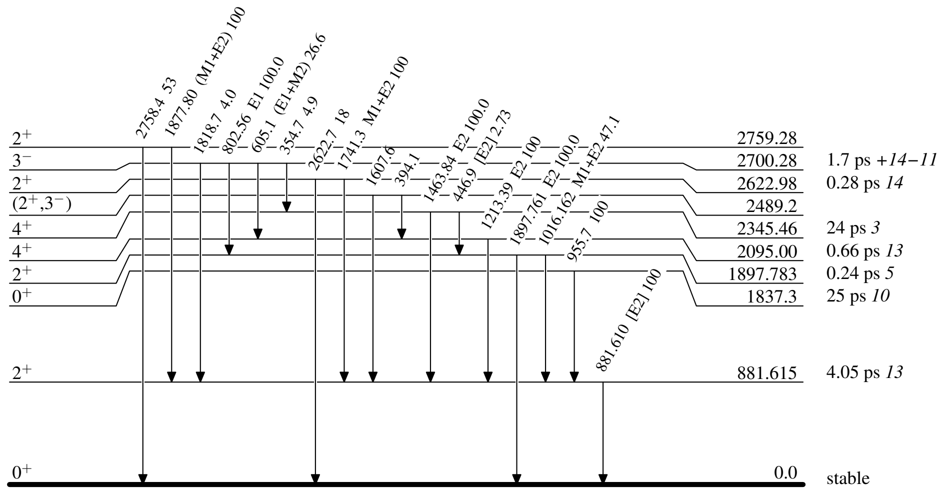


$^{84}_{36}Kr_{48}$

Adopted Levels, Gammas

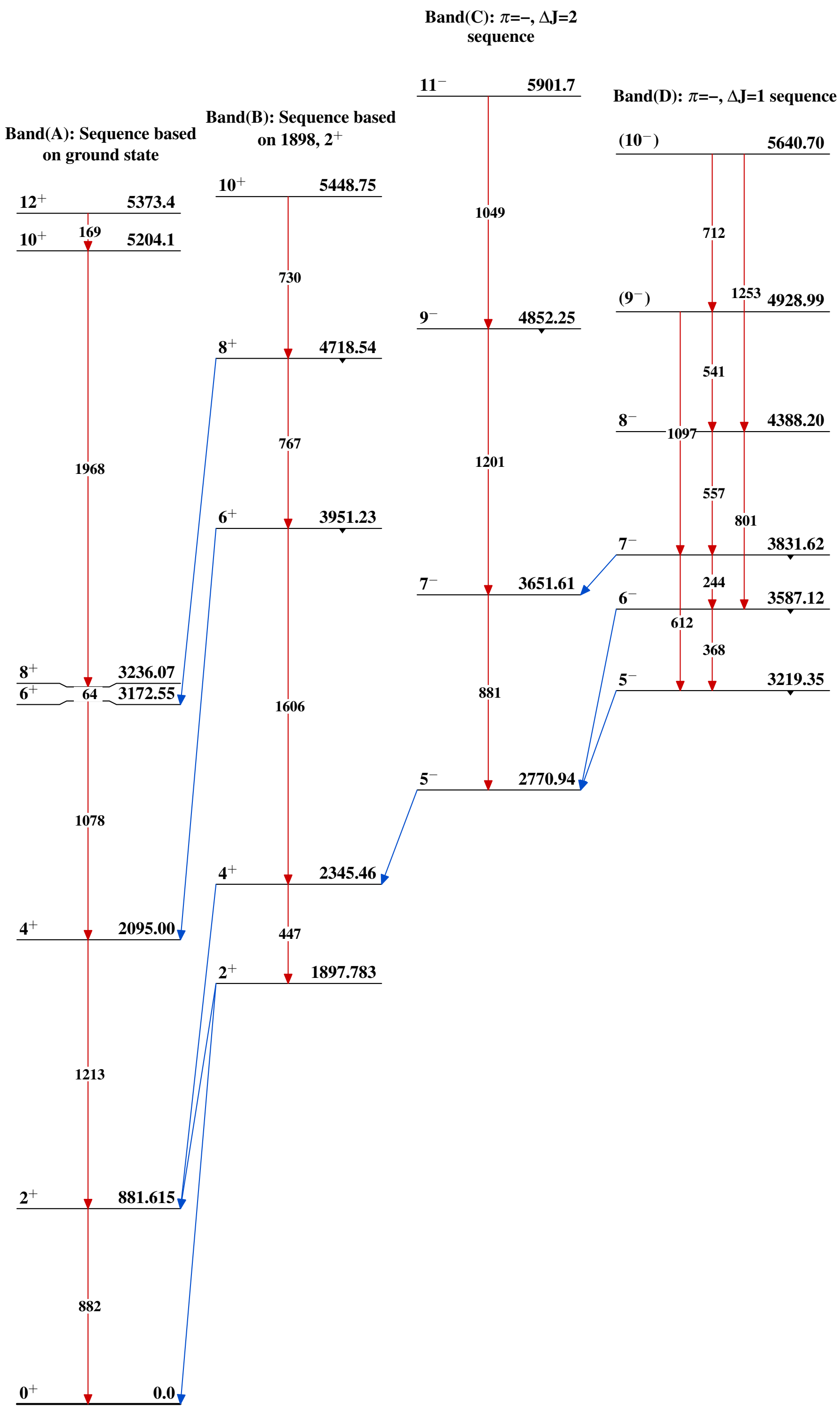
Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{84}_{36}Kr_{48}$

Adopted Levels, Gammas



$^{84}_{36}Kr_{48}$

Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Alexandru Negret, Balraj Singh	NDS 124, 1 (2015)	30-Nov-2014

Q(β^-)=−518.66 *20*; S(n)=9856.7 *20*; S(p)=11979 *3*; Q(α)=−8096.7 *14* 2012Wa38
S(2n)=16968.96 *1*, S(2p)=21895.9 *20*, Q($2\beta^-$)=1257.5 *11* (2012Wa38).
^{86}Kr isotope identified in mass spectroscopic studies by Aston, Nature 105, 8 (1920); also 1921As01.
Other reaction:
^{86}Kr(n,n) E≤1 MeV: 1989Jo01 analyzed σ(E) to deduce optical model parameter.
Mean square charge radius and isotopic shift: 2000Ga58, 1995Ke04, 1992Sc19, 1990Ca26.
Additional information 1.

^{86}Kr Levels

Cross Reference (XREF) Flags

A	^{86}Br β^- decay (55.1 s)	F	^{86}Kr(γ,γ')	K	^{87}Rb(d,^{3}He)
B	^{86}Rb ε decay (18.642 d)	G	^{86}Kr(n,n$'\gamma$)	L	^{87}Rb(t,α)
C	^{87}Br β^-n decay (55.65 s)	H	^{86}Kr(p,p$'$)	M	^{208}Pb(^{18}O,Fγ)
D	^{82}Se(^{7}Li,p2nγ)	I	^{86}Kr(d,d$'$)		
E	^{84}Kr(t,p)	J	Coulomb excitation		

E(level)†	J$^\pi$‡	$T_{1/2}$	XREF	Comments
0	0$^+$	stable	ABCDEFGHIJKLM	Spin: optical spectroscopy measurement (1933Ko02). RMS charge radius <r^2>$^{1/2}$=4.1835 fm *21* (2013An02).
1564.61 *7*	2$^+$	0.286 ps *+28−24*	A DEFGHIJKLM	μ=+2.20 *10* (2014Ku10) B(E2)↑=0.106 *10* (2013PrZY) β_2=0.106 (1974Ar29) μ: from g factor=+1.10 *5* (2014Ku10) measured using transient-field technique in Coulomb excitation. Other: +2.24 *28* (2001Me20,2014StZZ). J$^\pi$: L(t,p)=2. $T_{1/2}$: weighted average of 0.308 ps *17* (DSA, 2001Me20) and B(E2)=0.128 *10* (1981Ji03), both in Coulomb excitation. Other: B(E2)=0.11 *3* (1981Ca01) in Coulomb excitation. μ: (2001Me20).
2250.01 *10*	4$^+$	3.1 ns *6*	A DE GHIJKLM	μ=+4.12 *56* (2014Ku10) μ: from g=+1.03 *14* (2014Ku10) measured using transient-field technique in Coulomb excitation. J$^\pi$: L(p,p$'$)=4. $T_{1/2}$: from γ(t) in ^{82}Se(^{7}Li,p2nγ). Configuration=$\pi f^{-1}_{5/2}\otimes\pi p^{-1}_{3/2}$.
2349.47 *7*	2$^+$		A EFGHI KL	J$^\pi$: L(t,p)=2.
2726.4 *4*	0$^+$		E GH KL	J$^\pi$: L(t,p)=0.
2850.72 *9*	(2,3)$^+$		A HI KL	J$^\pi$: L(t,α)=1 from 3/2$^-$; γ to 2$^+$; γ from (3$^-$).
2916.83 *11*	(3$^-$)		A G	J$^\pi$: γ rays to 2$^+$ and 4$^+$; possible β feeding from (1$^-$) parent; No γ to g.s..
2926.16 *8*	(2)$^+$		A GH KL	J$^\pi$: γ to 0$^+$; L(t,α)=3 from 3/2$^-$; γ from (3$^-$).
3009.43 *11*	(1,2)$^+$		A GH L	J$^\pi$: L(t,α)=3 from 3/2$^-$; γ to g.s..
3098.85 *9*	3$^-$		A E GHI L	J$^\pi$: L(p,p$'$)=3. B(E3)=0.036 *12* (2002Ki06 evaluation based on β_3 from data in 1974Ar29 and 1978Ma11).
3328.1 *5*	(3$^+$,4$^+$)		GH L	J$^\pi$: L(p,p$'$)=(4) suggests (4$^+$); L(t,α)=(1) from 3/2$^-$ suggests (≤3)$^{(+)}$; γ to 2$^+$.
3541.3 *4*	0$^+$		E GH L	J$^\pi$: L(t,p)=0; γ to 2$^+$.

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Adopted Levels, Gammas (continued)

^{86}Kr Levels (continued)

E(level)†	J^{π}‡	XREF	Comments
3583.4 *5*	(0^+ to 4^+)	GH	J^{π}: γ to 2^+.
3782.8 *4*	(≤3)$^{(+)}$	F H L	J^{π}: L(t,α)=(1) from $3/2^-$.
3816.32 *19*	(5^+)	D Gh M	J^{π}: ΔJ=1 γ from (6^+); γ to 4^+.
3832 *10*	0^+	E h	J^{π}: L(t,p)=0.
3935.1 *3*	(5)	D GH M	XREF: H(3938). J^{π}: L(p,p′)=(5) suggests 5^-. J^{π}=5^+ is also proposed in (p,p′) from $\sigma(\theta)$ data and $\nu(d_{5/2}g_{9/2}^{-1})$ excitation.
3959 *10*	(3^-,4^+)	E L	XREF: L(3930). J^{π}: L(t,p)=3,4; L(t,α)=(3) from $3/2^-$ suggests (1 to 5)$^{(+)}$. E(level): this level is most likely different from 3935 due to different spin assignments implied from L-transfers.
4038.6 *3*	$(2,3)^-$	F H L	J^{π}: L(t,α)=4 from $3/2^-$; γ to g.s..
4064.12 *19*	(6^+)	D G M	Configuration=$\pi f_{5/2}^{-3}\otimes\pi p_{3/2}^{-1}\otimes\pi p_{1/2}^{+2}{}_{0+}\otimes\ \nu g_{9/2}^{-1}\otimes\nu d_{5/2}^{+1}$. J^{π}: ΔJ=2, E2 γ to 4^+.
4072 *10*	(5^-)	E H	XREF: H(4090). J^{π}: L(t,p)=(5).
4111 *10*	2^+	E	J^{π}: L(t,p)=2.
4175 *20*	(4^+)	H l	J^{π}: L(p,p′)=(4).
4194 *10*	2^+	E l	E(level): this level is most likely different from 4175 due to different spin assignments implied from L-transfers. J^{π}: L(t,p)=2.
4277 *10*	(7^+)#	H L	
4315.82 *8*	(2^-)	A E H	XREF: E(4298)H(4308). J^{π}: γ rays to 2^+ and 3^-; no γ rays to 0^+ and 4^+; level not populated in (γ,γ'); possible allowed β transition (log *ft*=5.4) from (1^-) parent. L(t,p)=3,4 is inconsistent, unless S=1 is involved with L=3 in the transfer of two neutrons.
4399 *20*	(4^+)#	H	
4400.82 *10*	1@	F	
4430.50 *25*	(6^-)	D M	J^{π}: ΔJ=1, D+Q γ to (5^-) and probable configuration= $\pi g_{9/2}^{+1}\otimes\pi f_{5/2}^{-1}\otimes\pi g_{9/2}^{+1}\otimes\pi p_{3/2}^{-1}$.
4559 *20*	(4^+)#	H	
4666 *10*	(3^-,4^+)	E H	J^{π}: L(t,p)=3,4.
4693.3 *3*	(7)	D M	J^{π}: ΔJ=1 γ rays to (6^-) and (6^+).
4706 *9*		E H	
4755.77 *25*	(7^+)	D M	J^{π}: ΔJ=1, D+Q γ rays to (6^-) and (6^+); possible configuration=$\nu g_{9/2}^{-1}\otimes\nu d_{5/2}^{+1}$.
4819 *12*	(2^+)	E H	J^{π}: L(t,p)=(2).
4867.5 *6*	(1^-)@	F	
4928 *10*	(4^+)	H	J^{π}: L(p,p′)=(4).
4932.55 *20*		F	
4948 *10*	(2^+)	E	J^{π}: L(t,p)=(2).
4991 *10*		E	
5127 *20*		H	
5203 *20*		H	
5313.98 *20*		A H	
5406.10 *23*	(1,2)	A H	J^{π}: γ to 0^+.
5438 *10*		E	
5517.42 *18*	1^-@	A EF	
5571.2 *12*	1@	F H	
5637? *10*		E	
5660.3 *3*	(8^+)	D M	J^{π}: ΔJ=(2) γ to (6^+); ΔJ=1, D+Q γ to (7^+) and possible configuration=$\pi g_{9/2}^{+2}$.
5669.1 *5*		D M	
5707 *10*		E	
5788.4 *3*	(1)@	F	
5799 *9*		E H	

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Adopted Levels, Gammas (continued)

^{86}Kr Levels (continued)

E(level)[†]	Jπ[‡]	XREF	Comments
5814.5 *4*	(9+)	D M	Jπ: ΔJ=2 γ to (7+); ΔJ=1 γ to (8+).
5862 *9*		E H	
5924.3 *4*	1−[@]	F H	
5981 *10*		E	
6085.1 *5*		D M	
6089.1 *5*	(1,2)	A	Jπ: γ to 0+.
6118 *10*		E	
6160.34 *20*	1−[@]	A F	
6211.8 *3*	1[@]	A EF	
6248.0 *4*	(10)	D M	Jπ: ΔJ=1 γ to (9+).
6318 *10*		E	
6328.8 *3*	1−[@]	F	
6397 *10*		E	
6432.16 *20*	1−[@]	F	
6463.2 *3*	1−[@]	F	
6531.97 *20*	1−[@]	F	
6678.9 *5*	1[@]	F	
6720.5 *6*	(1,2)	A	Jπ: γ to 0+.
6768.30 *22*	(1,2)	A	Jπ: γ to 0+.
6818.6 *4*	1−[@]	F	
7028.4 *4*	1−[@]	F	
7128.1 *5*	(10)	D	Jπ: ΔJ=(1) γ to (9+); γ to (10).
7234.6 *4*	(1)[@]	F	
7304.5 *5*	1−[@]	F	
7314.6 *3*	1−[@]	F	
7459.5 *5*	(11)	D	Jπ: ΔJ=1 γ to (10).
7570.0 *4*	1−[@]	F	
7675.7 *4*	1[@]	F	
7745.8 *4*	1[@]	F	
7797.9 *4*	1−[@]	F	
7846.6 *5*	1−[@]	F	
7874.2 *7*	1−[@]	F	
7876.4 *6*	(12)	D	Jπ: ΔJ=(1) γ to (11).
7958.4 *4*	1−[@]	F	
8428.6 *4*	1−[@]	F	
8621.7 *8*	1−[@]	F	
8651.3 *3*	1−[@]	F	
8802.5 *6*	1[@]	F	
8841.6 *8*	1−[@]	F	
9014.4 *6*	1−[@]	F	
9068.1 *10*	1[@]	F	
9086.1 *8*	1−[@]	F	
9452.9 *5*	1[@]	F	
9478.0 *18*		F	
10116.2 *8*	1[@]	F	

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Adopted Levels, Gammas (continued)

^{86}Kr Levels (continued)

† From least-squares fit to Eγ values for levels populated in γ-ray studies. Others are weighted averages of values observed in particle reaction studies.
‡ For high-spin (J>6), the assignments are based on γ(θ) data in (^{7}Li,p2nγ), unless otherwise stated.
# From σ(θ) in (p,p′) and assumption of $\nu(d_{5/2}g_{9/2}^{-1})$ excitation.
@ From (γγ′) data, transition to 0^+ g.s. is E1 or dipole.

γ(^{86}Kr)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.	Comments
1564.61	2^+	1564.67† 9	100	0	0^+	E2	B(E2)(W.u.)=9.4 8
2250.01	4^+	685.35 7	100	1564.61	2^+	E2	B(E2)(W.u.)=0.054 11
2349.47	2^+	784.96 8	41 4	1564.61	2^+		I_γ: unweighted average from ^{86}Br β^- and (n,n′γ).
		2349.37 12	100	0	0^+		
2726.4	0^+	376.8	70 6	2349.47	2^+		
		1162.0	100	1564.61	2^+		
2850.72	$(2,3)^+$	501.25 7	22.2 20	2349.47	2^+		
		1286.08 9	100.0 19	1564.61	2^+		
2916.83	(3^-)	666.77 7	100	2250.01	4^+		
		1352.1	25 4	1564.61	2^+		γ from (n,n′γ) only, not reported in β^- decay.
2926.16	$(2)^+$	576.72 8	4.8 4	2349.47	2^+		γ from β^- decay only, not reported in (n,n′γ).
		1361.63 10	100	1564.61	2^+		
		2925.93 20	21.3 25	0	0^+		
3009.43	$(1,2)^+$	660.02 10	79 6	2349.47	2^+		
		3009.0 3	100	0	0^+		
3098.85	3^-	1534.24 8	100	1564.61	2^+		
3328.1	$(3^+,4^+)$	1763.5	100	1564.61	2^+		
3541.3	0^+	1191.6	100	2349.47	2^+		
		1976.9	50 8	1564.61	2^+		
3583.4	$(0^+$ to $4^+)$	2018.8	100	1564.61	2^+		
3782.8	$(\le3)^{(+)}$	3782.7 4	100	0	0^+		
3816.32	(5^+)	1566.3 2	100	2250.01	4^+		
3935.1	(5)	1685.1 3	100	2250.01	4^+		
4038.6	$(2,3)^-$	4038.5 3	100	0	0^+	[M2,E3]	
4064.12	(6^+)	247.8 3	38	3816.32	(5^+)	D+Q	E_γ: γ not reported In (n,n′γ).
		1814.1 2	100	2250.01	4^+	E2	
4315.82	(2^-)	1217.02 9	34.6 7	3098.85	3^-		
		1306.57 25	2.01 23	3009.43	$(1,2)^+$		
		1389.73 9	53.2 10	2926.16	$(2)^+$		
		1398.48 22	1.8 3	2916.83	(3^-)		
		1465.09 10	39.0 10	2850.72	$(2,3)^+$		
		1966.27 11	34.4 10	2349.47	2^+		
		2751.06 15	100 3	1564.61	2^+		
		4316.5‡ 6	0.6 3	0	0^+	[M2]	
4400.82	1	4400.7 1	100	0	0^+	D	
4430.50	(6^-)	495.3 4	42	3935.1	(5)		
		614.2 3	100	3816.32	(5^+)		
4693.3	(7)	262.8 3	100	4430.50	(6^-)		
		629.3 4	76	4064.12	(6^+)		
		758.2 4	≈32	3935.1	(5)		
4755.77	(7^+)	325.3 4	20	4430.50	(6^-)		
		691.6 2	100	4064.12	(6^+)		
4867.5	(1^-)	4867.4 6	100	0	0^+	(E1)	
4932.55		4932.4 2	100	0	0^+		

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Adopted Levels, Gammas (continued)

$\gamma(^{86}Kr)$ (continued)

E_i(level)	J^{π}_i	E_{γ}	I_{γ}	E_f	J^{π}_f	Mult.	Comments
5313.98		2387.79 *18*	100 *11*	2926.16	$(2)^+$		
		3064.38‡ *19*	34 *4*	2250.01	4^+		
5406.10	(1,2)	2480.4 *5*	7.1 *11*	2926.16	$(2)^+$		
		5405.80 *25*	100 *6*	0	0^+		
5517.42	1^-	2418.24 *23*	22 *9*	3098.85	3^-		E_{γ}: γ from ^{86}Br decay only.
		5517.58 *25*	100 *5*	0	0^+	E1	
5571.2	1	5571.0 *12*	100	0	0^+	D	
5660.3	(8^+)	904.4 *4*	63	4755.77	(7^+)		
		967.0 *4*	100	4693.3	(7)		
		1596.2 *4*	88	4064.12	(6^+)		
5669.1		1238.6 *4*	100	4430.50	(6^-)		
5788.4	(1)	5788.2 *3*	100	0	0^+	(D)	
5814.5	(9^+)	154.2 *3*	100	5660.3	(8^+)		
		1058.7 *3*	63	4755.77	(7^+)		
5924.3	1^-	5924.1 *4*	100	0	0^+	E1	
6085.1		1391.8 *4*	100	4693.3	(7)		
6089.1	(1,2)	6088.9 *5*	100	0	0^+		
6160.34	1^-	6160.1 *2*	100	0	0^+	E1	
6211.8	1	6211.6 *3*	100	0	0^+	D	
6248.0	(10)	433.5 *2*	100	5814.5	(9^+)		
6328.8	1^-	6328.6 *3*	100	0	0^+	E1	
6432.16	1^-	6431.9 *2*	100	0	0^+	E1	
6463.2	1^-	6462.9 *3*	100	0	0^+	E1	
6531.97	1^-	6531.7 *2*	100	0	0^+	E1	
6678.9	1	6678.6 *5*	100	0	0^+	D	
6720.5	(1,2)	6720.2 *6*	100	0	0^+		
6768.30	(1,2)	3758.8 *3*	100 *12*	3009.43	$(1,2)^+$		
		6768.0 *3*	14.8 *16*	0	0^+		
6818.6	1^-	6818.3 *4*	100	0	0^+	E1	
7028.4	1^-	7028.1 *4*	100	0	0^+	E1	
7128.1	(10)	880.0 *4*	≈100	6248.0	(10)		
		1313.7 *4*	≈70	5814.5	(9^+)		
7234.6	(1)	7234.3 *4*	100	0	0^+	(D)	
7304.5	1^-	7304.2 *5*	100	0	0^+	E1	
7314.6	1^-	7314.3 *3*	100	0	0^+	E1	
7459.5	(11)	331.4 *3*	100	7128.1	(10)		
		1211.5 *4*	≈25	6248.0	(10)		
7570.0	1^-	7569.6 *4*	100	0	0^+	E1	
7675.7	1	7675.3 *4*	100	0	0^+	D	
7745.8	1	7745.4 *4*	100	0	0^+	D	
7797.9	1^-	7797.5 *4*	100	0	0^+	E1	
7846.6	1^-	7846.2 *5*	100	0	0^+	E1	
7874.2	1^-	7873.8 *7*	100	0	0^+	E1	
7876.4	(12)	416.9 *3*	100	7459.5	(11)		
7958.4	1^-	7958.0 *4*	100	0	0^+	E1	
8428.6	1^-	8428.2 *4*	100	0	0^+	E1	
8621.7	1^-	8621.2 *8*	100	0	0^+	E1	
8651.3	1^-	8650.8 *3*	100	0	0^+	E1	
8802.5	1	8802.0 *6*	100	0	0^+	D	
8841.6	1^-	8841.1 *8*	100	0	0^+	E1	
9014.4	1^-	9013.9 *6*	100	0	0^+	E1	
9068.1	1	9067.6 *10*	100	0	0^+	D	
9086.1	1^-	9085.6 *8*	100	0	0^+	E1	
9452.9	1	9452.3 *5*	100	0	0^+	D	

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Adopted Levels, Gammas (continued)

$\gamma(^{86}Kr)$ (continued)

E_i(level)	J^{π}_i	E_{γ}	I_{γ}	E_f	J^{π}_f	Mult.
9478.0		9477.4 *18*	100	0	0^+	
10116.2	1	10115.6 *8*	100	0	0^+	D

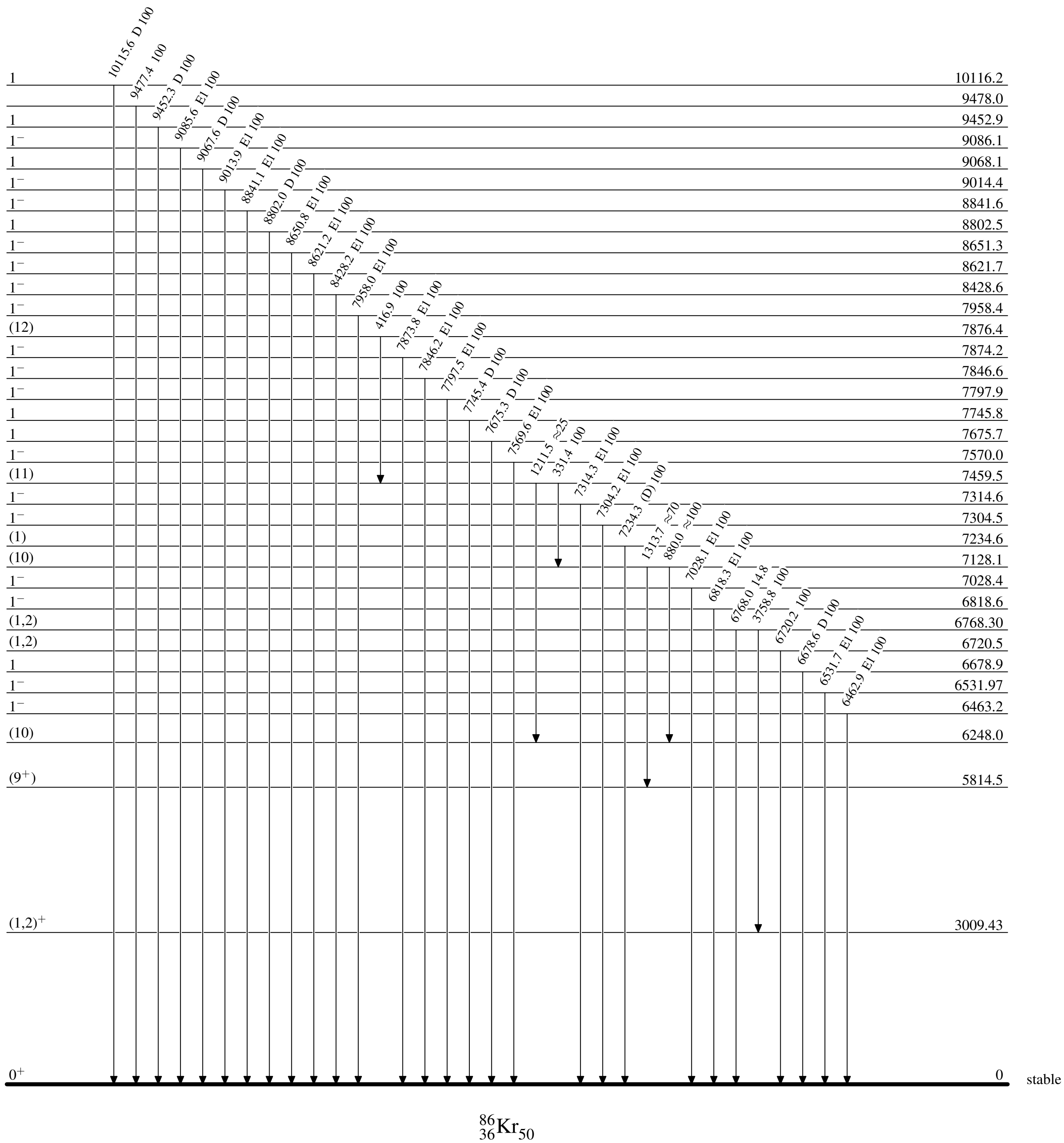
† Weighted average from $^{86}Br\ \beta^-$ and (^{7}Li,p2nγ).

‡ Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level

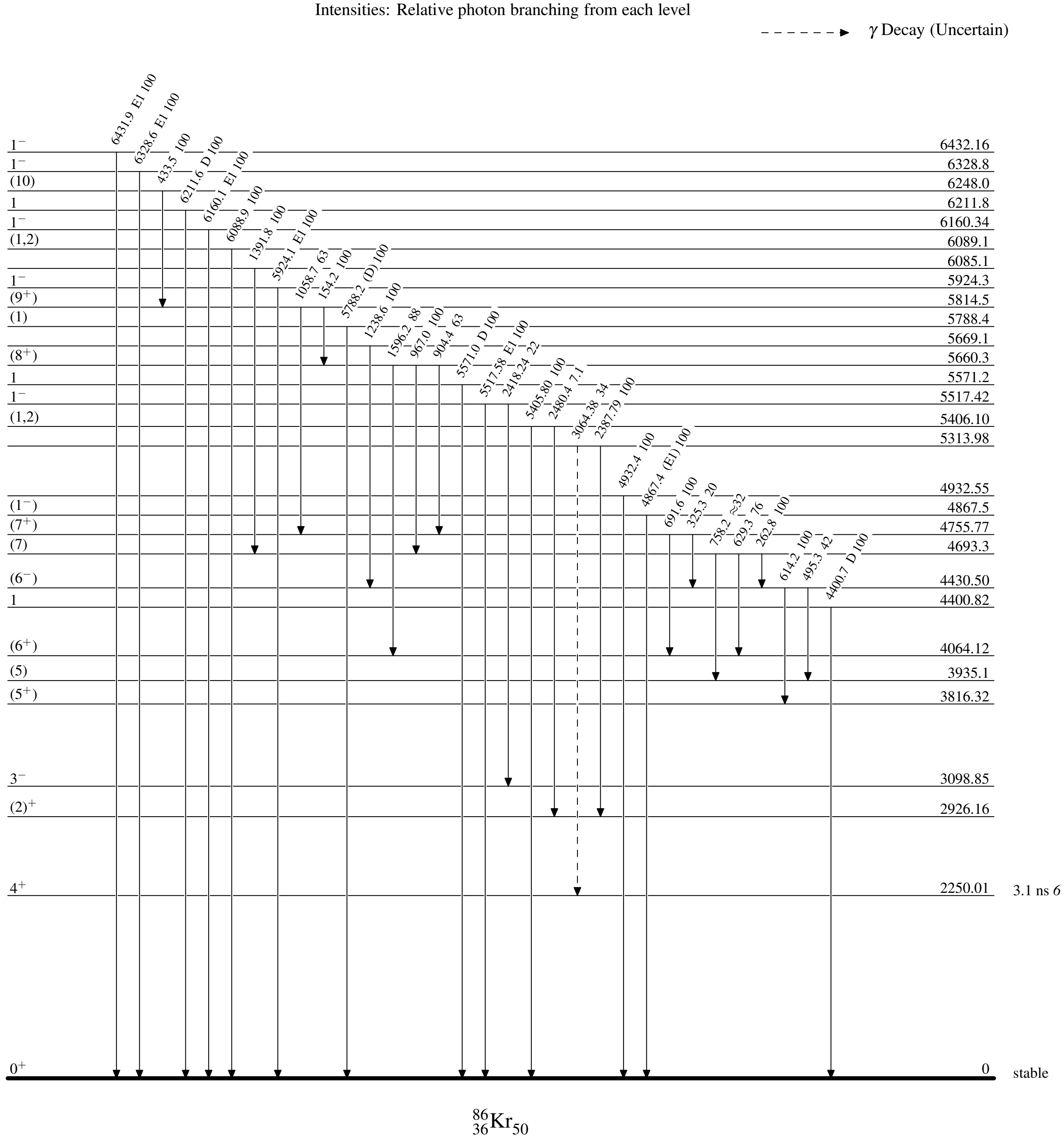


Adopted Levels, Gammas

Legend

Level Scheme (continued)

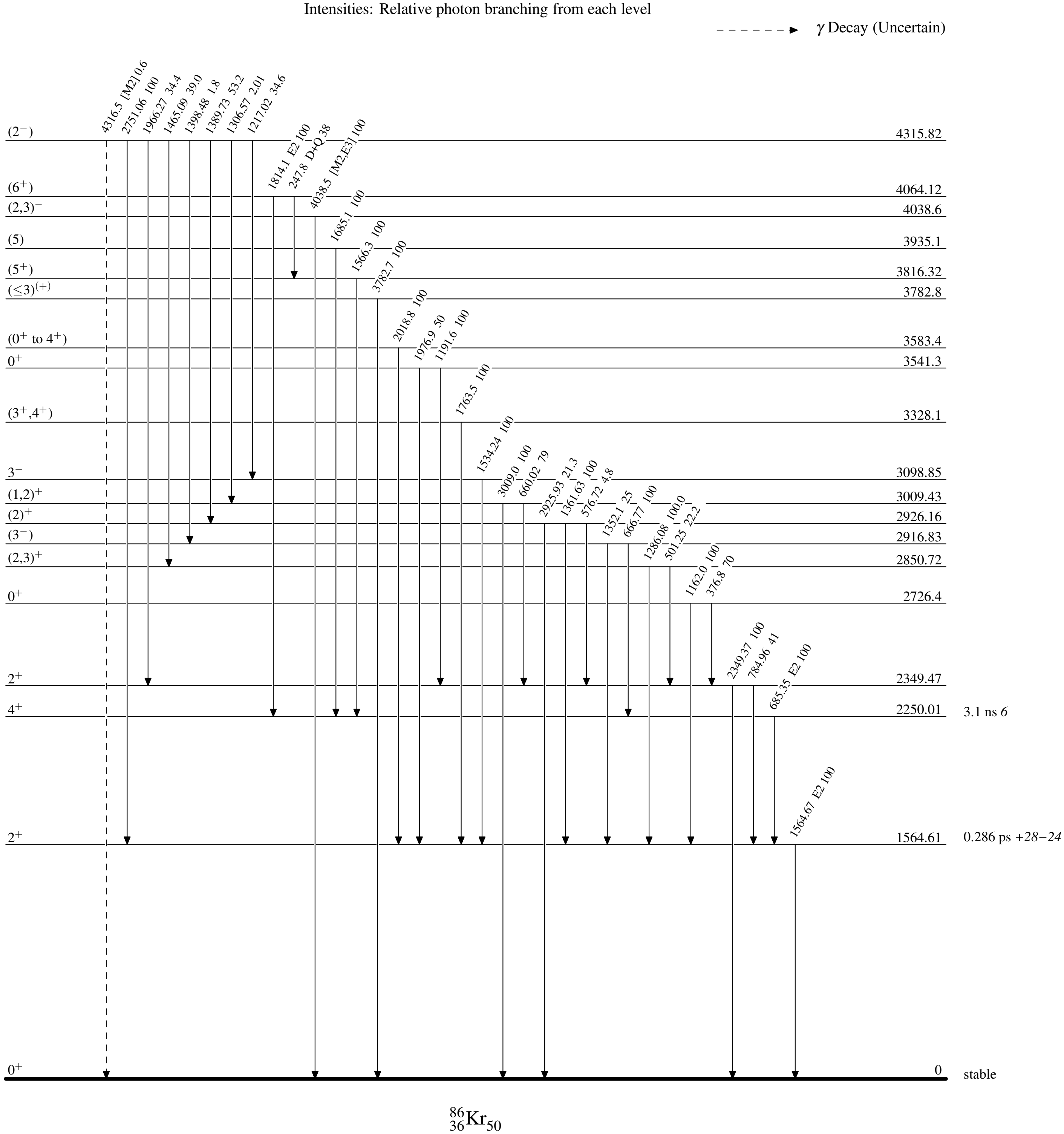
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. A. Mccutchan and A. A. Sonzogni	NDS 115, 135 (2014)	1-Nov-2013

Q(β^-)=2918 *3*; S(n)=7053 *3*; S(p)=13089 *4*; Q(α)=−6168 *3* 2012Wa38
S(2n)=12568 *3*; S(2p)=23766 *4* (2012Wa38).
α: Additional information 1.

^{88}Kr Levels

Cross Reference (XREF) Flags

A	^{88}Br β^- decay	E	^{252}Cf SF decay
B	^{89}Br β^-n decay	F	Coulomb excitation:projectile
C	^{86}Kr(t,p)	G	^{208}Pb(^{18}O,Xγ)
D	^{248}Cm SF decay		

E(level)[†]	J$^\pi$	T$_{1/2}$	XREF	Comments
0.0	0$^+$	2.825 h *19*	ABCDEFG	%β^-=100 T$_{1/2}$: weighted average of 2.804 h *15* (2012Wa21), 2.860 h *17* (1972Eh02) and 2.805 h *25* (1964Cl01). Others: 2.78 h *6* (1949Ko13), 2.92 h *17* (1940Gl05). δ<r^2>=0.282 fm^2 *4* relative to ^{86}Kr (2013An02 evaluation). Measured values: 0.282 fm^2 *53* (1995Ke04) and 0.304 fm^2 *37* (1990Sc30).
775.32 *4*	2$^+$	11.1 ps *12*	ABCDEFG	B(E2)↑=0.090 *9* J$^\pi$: L(t,p)=2. T$_{1/2}$: deduced from measured B(E2) and adopted γ-ray properties. B(E2)↑: preliminary result given in 2007Mu07, 2009MuZW.
1577.43 *4*	2$^+$		ABCD	XREF: C(1588). J$^\pi$: L(t,p)=2.
1643.78 *6*	4$^+$		ABCDE G	XREF: B(?)C(1654). J$^\pi$: (E2) 868γ to 2$^+$, L(t,p)=3,4.
2103.81 *8*	(4$^+$)		A CDE G	XREF: C(2115). J$^\pi$: stretched Q or ΔJ=0, D 460γ gives J=4 or 6. 1328γ to 2$^+$ prefers J=4 and non-zero mixing ratio suggests positive parity.
2216.08 *6*	2$^+$		A C	XREF: C(2224). J$^\pi$: L(t,p)=2.
2341.99 *6*	(3,4$^+$)[‡]		A	
2370.26 *7*			A C	XREF: C(2379).
2419.62 *6*	(3$^-$)		A C	XREF: C(2428). J$^\pi$: L(t,p)=3,4 with L=3 better fit.
2550.34 *11*	(4$^+$)		A C	XREF: C(2558). J$^\pi$: L(t,p)=3,4 with L=4 better fit.
2630.58 *6*	(3,4$^+$)[‡]		A	
2651.21 *6*	2$^+$		A C	XREF: C(2658). J$^\pi$: L(t,p)=2.
2775.83 *10*	0$^+$		A C	XREF: C(2789). J$^\pi$: L(t,p)=0.
2828.49 *7*	(1,2$^+$)[@]		A	
2855.5 *3*	(5)	≤1 ps	E G	J$^\pi$: D+Q 752γ to (4$^+$). T$_{1/2}$: from observed Doppler broadening of the 752γ in ^{208}Pb(^{18}O,Xγ).
2875.04 *7*	(2$^+$)		A	J$^\pi$: 1231γ to 4$^+$, 2875γ to 0$^+$.
2929.32 *8*	(3,4$^+$)[‡]		A	
2945.45 *10*	(1,2$^+$)[@]		A	
2966 *10*	(3$^-$)		C	J$^\pi$: L(t,p)=3,4 with L=3 slightly better fit.
3044.64 *9*			A	

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Adopted Levels, Gammas (continued)

^{88}Kr Levels (continued)

E(level)†	Jπ	$T_{1/2}$	XREF	Comments
3113.51 *21*	(1,2+)@		A	
3160.93& *25*	(5)		c E G	Jπ: (D+Q) 1517γ to 4+, L(p,t)≥5 for level at 3169 *10*.
3163.43 *9*	(3,4+)‡		A	
3167.15& *25*	(6)		c E G	Jπ: Q 1523γ to 4+, L(p,t)≥5 for level at 3169 *10*.
3204.00 *11*			A	
3246 *10*	3−,4+		C	Jπ: L(t,p)=3,4.
3295.2 *3*	(5,6)	≤1 ps	E G	$T_{1/2}$: from observed Doppler broadening of the 752γ in ^{208}Pb(^{18}O,Xγ). Jπ: D 440γ to (5).
3312 *10*			C	Jπ: L(t,p)≥5.
3331.62 *21*	(1,2+)@		A	
3335.92 *8*	(3,4+)‡		A	
3341.49 *11*	(2+)		A	Jπ: 1698γ to 4+, 3341γ to 0+.
3362.13 *7*			A	
3399.19 *8*	(1,2+)@		A	
3519 *10*			C	
3553.3 *10*			E	
3608 *10*	2+		C	Jπ: L(t,p)=2.
3652 *10*	3−,4+		C	Jπ: L(t,p)=3,4.
3710.04 *11*	(3)		A C	XREF: C(3706). Jπ: L(t,p)=3,4 with L=4 better fit but log *ft*=7.1 from (2−).
3761 *10*	3−,4+		C	Jπ: L(t,p)=3,4.
3770.78 *8*	(1−,2+)		A	Jπ: 1351γ to (3−), 3770γ to 0+.
3866 *10*			C	
3904.7 *5*			E G	
3920.9 *3*	(7)		DE G	Jπ: D+Q 754γ to (6), Q 760γ to (5).
3932 *10*			C	
4048.4 *3*	(2+)		A C	XREF: C(4036). Jπ: L(t,p)=(2).
4100.34 *11*	(3−)		A C	XREF: C(4075). Jπ: L(t,p)=(3).
4220 *10*	(3−,4+)		C	Jπ: L(t,p)=(3,4).
4268.32 *11*	(1−,2,3)		A C	XREF: C(4261). Jπ: 1849γ to (3−), 3493γ to 2+, log *ft*=6.9 from (2−).
4287.7 *3*	(1,2+)@		A	
4342.6 *4*	(8)		G	Jπ: 422γ to (7), 1175.5γ to (6).
4372 *10*			C	
4430 *10*	(2+)		C	Jπ: L(t,p)=(2).
4479.2 *7*			G	
4560.15 *22*	(1,2,3)#		A	
4563.2 *3*	(1,2+)@		A	
4596.85 *17*	(1−,2+)		A	Jπ: 2177γ to (3−), 4597γ to 0+.
4707.78 *15*	(1−,2+)		A	Jπ: 2288γ to (3−), 4708γ to 0+.
4857.5 *5*			G	
4923.51 *10*	(1−,2,3)		A	Jπ: 2504γ to (3−), log *ft*=6.2 from (2−).
4985.75 *15*	(1,2+)@		A	
5018.7 *3*	(1,2+)@		A	
5070.27 *18*	(2+,3,4+)		A	Jπ: 3426γ to 4+, 3493γ to 2+.
5088.2 *4*	(1,2+)@		A	
5193.0 *5*	(9)		G	Jπ: 850γ to (8), 1272γ to (7).
5270.5 *5*	(1,2,3)#		A	
5439.4 *5*	(1,2,3)#		A	
5495.81 *20*	(1,2,3)		A	Jπ: 3076γ to (3−), log *ft*=6.0 from (2−).

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{88}Kr Levels (continued)

E(level)[†]	J^{π}	XREF	Comments
5503.3 *3*	$(1,2^{+})$[@]	A	
5627.1 *4*	(1,2,3)[#]	A	
5693.4 *3*	(1,2,3)	A	J^{π}: 3274γ to (3^{-}), log *ft*=7.2 from (2^{-}).
5726.2 *3*		A	
5856.8 *6*		G	
5914.99 *20*	$(1^{-},2^{+},3^{-})$	A	J^{π}: 3496γ to 3^{-}, 5916γ to 0^{+}.
5972.9 *5*	(1,2,3)[#]	A	
5977.47 *23*	(1,2,3)[#]	A	
5988.5 *3*	(1,2,3)	A	J^{π}: 3569γ to (3^{-}); log *ft*=6.3 from (2^{-}).
6034.4 *4*	$(1,2^{+})$[@]	A	
6071.2 *4*	$(1,2^{+})$[@]	A	
6109.2 *12*		G	
6231.7 *3*	$(1,2^{+})$[@]	A	
6233.5 *7*		G	
6539.2 *5*	(1,2,3)[#]	A	
6718.3 *4*	(1,2,3)[#]	A	
6758.0 *5*	(1,2,3)[#]	A	
6999.5 *5*	$(1,2^{+})$[@]	A	
7490.6 *10*		G	
7969.5 *11*		G	

[†] Levels with ΔE<2 keV are deduced from the Adopted Gammas using least-squares fit, the others are from (t,p).
[‡] From γ to 2^{+} and 4^{+} levels, no γ to 0^{+}, log *ft*=7.4 – 8.0 in β^{-} decay of (2^{-}) ^{88}Br.
[#] From γ to 2^{+}, log *ft*=6.2 – 7.3 in β^{-} decay of (2^{-}) ^{88}Br.
[@] From γ to 0^{+}.
[&] Ordering of the 754γ-1524γ and 760γ-1517γ cascades is reversed in ^{248}Cm SF decay (2000Rz02) and ^{252}Cf SF decay (2011Li34) resulting in levels at 2397 and 2404 in the former and 3161 and 3168 in the latter. The level scheme of 2011Li34 is adopted here based on the observation of an additional linking transition and the presence of a corresponding level observed in (t,p).

$\gamma(^{88}Kr)$

E_i(level)	J^π_i	E_γ†	I_γ†	E_f	J^π_f	Mult.	δ	α	Comments
775.32	2^+	775.28 *6*	100	0.0	0^+	E2		9.27×10^{-4}	α(K)=0.000822 *12*; α(L)=8.88×10^{-5} *13*; α(M)=1.436×10^{-5} *21*; α(N)=1.442×10^{-6} *21* B(E2)(W.u.)=7.8 *9* Mult.: from $\gamma\gamma(\theta)$ in ^{248}Cm SF decay and Coulomb Excitation.
1577.43	2^+	802.14 *6*	100.0 *10*	775.32	2^+				
		1577.41 *6*	26.34 *24*	0.0	0^+				
1643.78	4^+	868.4 *1*	100	775.32	2^+	(E2)		6.96×10^{-4}	α(K)=0.000617 *9*; α(L)=6.63×10^{-5} *10*; α(M)=1.073×10^{-5} *15*; α(N)=1.079×10^{-6} *16* Mult.: Q from $\gamma\gamma(\theta)$ in ^{252}Cf SF decay, assumed E2.
2103.81	(4^+)	460.02 *5*	100‡ *17*	1643.78	4^+	M1+E2	+0.26# *4*		Mult.: D+Q from $\gamma\gamma(\theta)$ in ^{252}Cf SF decay, $\Delta\pi$=no from level scheme.
		1328.9‡ *3*	13‡ *4*	775.32	2^+				
2216.08	2^+	1440.5 *1*	100.0 *12*	775.32	2^+				
		2216.3 *3*	17.1 *12*	0.0	0^+				
2341.99	$(3,4^+)$	125.9 *1*	1.1 *4*	2216.08	2^+				
		698.2 *1*	11.3 *9*	1643.78	4^+				
		764.6 *1*	21.7 *13*	1577.43	2^+				
		1566.7 *1*	100 *19*	775.32	2^+				
2370.26		792.9 *1*	100 *4*	1577.43	2^+				
		1594.8 *1*	17 *8*	775.32	2^+				
2419.62	(3^-)	1644.3 *1*	100.0 *21*	775.32	2^+				
2550.34	(4^+)	1775.0 *1*	100	775.32	2^+				
2630.58	$(3,4^+)$	288.68 *10*	13.1 *17*	2341.99	$(3,4^+)$				
		986.4 *1*	19.5 *21*	1643.78	4^+				
		1053.5 *1*	100.0 *21*	1577.43	2^+				
		1855.2 *1*	51 *4*	775.32	2^+				
2651.21	2^+	309.2 *3*	8 *3*	2341.99	$(3,4^+)$				
		1073.74 *6*	100 *3*	1577.43	2^+				
		1876.0 *1*	32 *5*	775.32	2^+				
		2650.8 *3*	15 *5*	0.0	0^+				
2775.83	0^+	1198.4 *1*	100 *7*	1577.43	2^+				
		2000.4 *3*	55 *9*	775.32	2^+				
2828.49	$(1,2^+)$	486.5 *1*	25 *7*	2341.99	$(3,4^+)$				
		612.4 *1*	100 *20*	2216.08	2^+				
		1251.1 *1*	40 *10*	1577.43	2^+				
		2053.08 *12*	64 *5*	775.32	2^+				
		2828.5 *3*	74 *6*	0.0	0^+				
2855.5	(5)	751.8‡ *3*	100‡	2103.81	(4^+)	D+Q#			
2875.04	(2^+)	658.9 *1*	13 *3*	2216.08	2^+				
		1231.3 *1*	9.6 *22*	1643.78	4^+				
		1297.6 *1*	10.4 *11*	1577.43	2^+				
		2099.6 *3*	14 *3*	775.32	2^+				

$^{88}_{36}Kr_{52}$-4

$\gamma(^{88}Kr)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.	Comments
2875.04	(2^+)	2875.1 *3*	100 *4*	0.0	0^+		
2929.32	(3,4^+)	1285.9 *1*	35.4 *23*	1643.78	4^+		
		1351.5 *1*	100 *23*	1577.43	2^+		
		2154.1 *3*	54 *8*	775.32	2^+		
2945.45	(1,2^+)	1368.0 *1*	41 *3*	1577.43	2^+		
		2169.8 *3*	27.6 *21*	775.32	2^+		
		2945.7 *3*	100 *3*	0.0	0^+		
3044.64		1467.0 *1*	47 *3*	1577.43	2^+		
		2269.67 *14*	100 *7*	775.32	2^+		
3113.51	(1,2^+)	2338.2 *3*	100 *33*	775.32	2^+		
		3113.4 *3*	50 *27*	0.0	0^+		
3160.93	(5)	1517.1[‡] *3*	100[‡]	1643.78	4^+	(D+Q)[#]	
3163.43	(3,4^+)	743.7 *1*	100 *23*	2419.62	(3^-)		
		1519.8 *1*	13 *3*	1643.78	4^+		
		2387.7 *3*	51 *5*	775.32	2^+		
3167.15	(6)	1523.4[‡] *3*	100[‡]	1643.78	4^+		Mult.: Q from $\gamma\gamma(\theta)$ in $^{208}Pb(^{18}O,X\gamma)$.
3204.00		862.0 *1*	27 *5*	2341.99	(3,4^+)		
		2428.7 *3*	100 *8*	775.32	2^+		
3295.2	(5,6)	439.8 *3*	100 *30*	2855.5	(5)	D	E_γ,I_γ,Mult.: From $^{208}Pb(^{18}O,X\gamma)$.
		1191.2 *5*	40 *13*	2103.81	(4^+)		E_γ,I_γ: From $^{208}Pb(^{18}O,X\gamma)$.
3331.62	(1,2^+)	2556.1 *3*	100 *20*	775.32	2^+		
		3331.7 *3*	40 *20*	0.0	0^+		
3335.92	(3,4^+)	1692.0 *1*	16 *10*	1643.78	4^+		
		1758.6 *1*	100 *12*	1577.43	2^+		
3341.49	(2^+)	1697.7 *1*	25 *15*	1643.78	4^+		
		3341.4 *3*	100 *50*	0.0	0^+		
3362.13		942.5 *1*	90 *15*	2419.62	(3^-)		
		1146.0 *1*	69 *13*	2216.08	2^+		
		1784.7 *1*	46 *7*	1577.43	2^+		
		2586.9 *3*	100 *12*	775.32	2^+		
3399.19	(1,2^+)	1028.9 *1*	23 *4*	2370.26			
		1821.7 *1*	15 *3*	1577.43	2^+		
		2624.0 *3*	100 *4*	775.32	2^+		
		3399.5 *3*	37 *5*	0.0	0^+		
3553.3		1909.5[‡]	100[‡]	1643.78	4^+		
3710.04	(3)	1290.4 *1*	21.2 *16*	2419.62	(3^-)		
		2132.7 *3*	2.8 *16*	1577.43	2^+		
		2934.7 *3*	100 *4*	775.32	2^+		
3770.78	(1^-,2^+)	1351.2 *1*	71 *48*	2419.62	(3^-)		
		1428.8 *1*	100 *10*	2341.99	(3,4^+)		
		2995.2 *3*	100 *17*	775.32	2^+		
		3770.3 *3*	29 *10*	0.0	0^+		

$^{88}_{36}Kr_{52}$-5

$\gamma(^{88}Kr)$ (continued)

E_i(level)	J^π_i	E_γ†	I_γ†	E_f	J^π_f	Mult.	Comments
3904.7		609.5 *4*	100	3295.2	(5,6)		E_γ,I_γ: From $^{208}Pb(^{18}O,X\gamma)$.
3920.9	(7)	753.8‡ *2*	100‡ *25*	3167.15	(6)	D+Q#	
		760.0‡ *2*	88‡ *25*	3160.93	(5)	Q#	
4048.4	(2^+)	2470.9 *3*	20 *8*	1577.43	2^+		
		4048.2 *5*	100 *50*	0.0	0^+		
4100.34	(3^-)	2522.87 *10*	100	1577.43	2^+		
4268.32	(1^-,2,3)	1848.7 *1*	4.2 *16*	2419.62	(3^-)		
		3492.8 *3*	100 *11*	775.32	2^+		
4287.7	(1,2^+)	3512.5 *3*	100 *33*	775.32	2^+		
		4287.2 *5*	53 *23*	0.0	0^+		
4342.6	(8)	421.6 *4*	100 *50*	3920.9	(7)		E_γ,I_γ: From $^{208}Pb(^{18}O,X\gamma)$.
		1175.5 *7*	70 *30*	3167.15	(6)		E_γ,I_γ: From $^{208}Pb(^{18}O,X\gamma)$.
4479.2		574.4 *4*	100	3904.7			E_γ,I_γ: From $^{208}Pb(^{18}O,X\gamma)$.
4560.15	(1,2,3)	2983.1 *3*	100 *13*	1577.43	2^+		
		3784.3 *3*	21 *10*	775.32	2^+		
4563.2	(1,2^+)	2192.9 *3*	5.0 *16*	2370.26			
		4563.3 *5*	100.0 *20*	0.0	0^+		
4596.85	(1^-,2^+)	2177.3 *3*	34 *3*	2419.62	(3^-)		
		3019.3 *3*	100 *6*	1577.43	2^+		
		3821.4 *3*	13.5 *24*	775.32	2^+		
		4596.7 *5*	4.1 *18*	0.0	0^+		
4707.78	(1^-,2^+)	2288.0 *3*	11.8 *8*	2419.62	(3^-)		
		2492.0 *3*	8.2 *16*	2216.08	2^+		
		3130.4 *3*	18 *3*	1577.43	2^+		
		3932.0 *3*	100 *3*	775.32	2^+		
		4707.8 *5*	8.2 *16*	0.0	0^+		
4857.5		936.6 *4*	100	3920.9	(7)		E_γ,I_γ: From $^{208}Pb(^{18}O,X\gamma)$.
4923.51	(1^-,2,3)	2503.90 *12*	10.9 *16*	2419.62	(3^-)		
		2707.3 *3*	6.4 *6*	2216.08	2^+		
		4148.05 *13*	100 *3*	775.32	2^+		
4985.75	(1,2^+)	4209.9 *5*	6 *3*	775.32	2^+		
		4985.64 *16*	100 *3*	0.0	0^+		
5018.7	(1,2^+)	3440.9 *3*	13 *3*	1577.43	2^+		
		5019.5 *5*	100 *4*	0.0	0^+		
5070.27	(2^+,3,4^+)	2650.8 *3*	46 *16*	2419.62	(3^-)		
		3426.2 *3*	100 *14*	1643.78	4^+		
		3492.8 *3*	40 *20*	1577.43	2^+		
5088.2	(1,2^+)	4312.4 *5*	100 *9*	775.32	2^+		
		5088.4 *5*	42 *10*	0.0	0^+		
5193.0	(9)	850 *1*	15 *7*	4342.6	(8)		E_γ,I_γ: From $^{208}Pb(^{18}O,X\gamma)$.
		1272.1 *5*	100 *30*	3920.9	(7)		E_γ,I_γ: From $^{208}Pb(^{18}O,X\gamma)$.
5270.5	(1,2,3)	4495.1 *5*	100	775.32	2^+		

$\gamma(^{88}Kr)$ (continued)

E_i(level)	J^π_i	E_γ†	I_γ†	E_f	J^π_f	Comments
5439.4	(1,2,3)	4663.9 *5*	100	775.32	2^+	
5495.81	(1,2,3)	3076.4 *3*	2.8 *19*	2419.62	(3^-)	
		3279.2@ *3*	100 *9*	2216.08	2^+	
		4720.9 *5*	88 *6*	775.32	2^+	
5503.3	$(1,2^+)$	3161.2 *3*	100 *33*	2341.99	$(3,4^+)$	
		5503.2 *5*	13 *10*	0.0	0^+	
5627.1	(1,2,3)	4049.6 *5*	32 *21*	1577.43	2^+	
		4851.6 *5*	100 *7*	775.32	2^+	
5693.4	(1,2,3)	3273.7 *3*	100	2419.62	(3^-)	
5726.2		3510.0 *3*	100	2216.08	2^+	
5856.8		999.2 *4*	100	4857.5		E_γ,I_γ: From $^{208}Pb(^{18}O,X\gamma)$.
5914.99	$(1^-,2^+,3^-)$	3495.5 *3*	100 *11*	2419.62	(3^-)	
		3698.3 *3*	55 *41*	2216.08	2^+	
		5915.7 *5*	23 *5*	0.0	0^+	
5972.9	(1,2,3)	5197.4 *5*	100	775.32	2^+	
5977.47	(1,2,3)	3635.3 *3*	14 *7*	2341.99	$(3,4^+)$	
		4400.0 *5*	70 *7*	1577.43	2^+	
		5202.2 *5*	100 *43*	775.32	2^+	
5988.5	(1,2,3)	3568.8 *3*	60 *7*	2419.62	(3^-)	
		5213.1 *5*	100 *9*	775.32	2^+	
6034.4	$(1,2^+)$	5259.3 *5*	38 *23*	775.32	2^+	
		6033.8 *5*	100 *23*	0.0	0^+	
6071.2	$(1,2^+)$	5295.7 *5*	100 *6*	775.32	2^+	
		6071.0 *5*	7 *4*	0.0	0^+	
6109.2		1630 *1*	100	4479.2		E_γ,I_γ: From $^{208}Pb(^{18}O,X\gamma)$.
6231.7	$(1,2^+)$	4015.5 *5*	59 *10*	2216.08	2^+	
		5456.3 *5*	100 *6*	775.32	2^+	
		6231.5 *5*	5 *3*	0.0	0^+	
6233.5		1040.5 *5*	100	5193.0	(9)	E_γ,I_γ: From $^{208}Pb(^{18}O,X\gamma)$.
6539.2	(1,2,3)	5763.7 *5*	100	775.32	2^+	
6718.3	(1,2,3)	4376.2 *5*	100 *63*	2341.99	$(3,4^+)$	
		5942.8 *5*	100 *50*	775.32	2^+	
6758.0	(1,2,3)	5982.5 *5*	100	775.32	2^+	
6999.5	$(1,2^+)$	6999.2 *5*	100	0.0	0^+	
7490.6		1257.1 *7*	100	6233.5		E_γ,I_γ: From $^{208}Pb(^{18}O,X\gamma)$.
7969.5		478.9 *4*	100	7490.6		E_γ,I_γ: From $^{208}Pb(^{18}O,X\gamma)$.

† From ^{88}Br β^- decay, unless noted otherwise.
‡ From ^{252}Cf SF decay.
\# From $\gamma\gamma(\theta)$ in ^{252}Cf SF decay.
@ Placement of transition in the level scheme is uncertain.

$^{88}_{36}Kr_{52}$-7

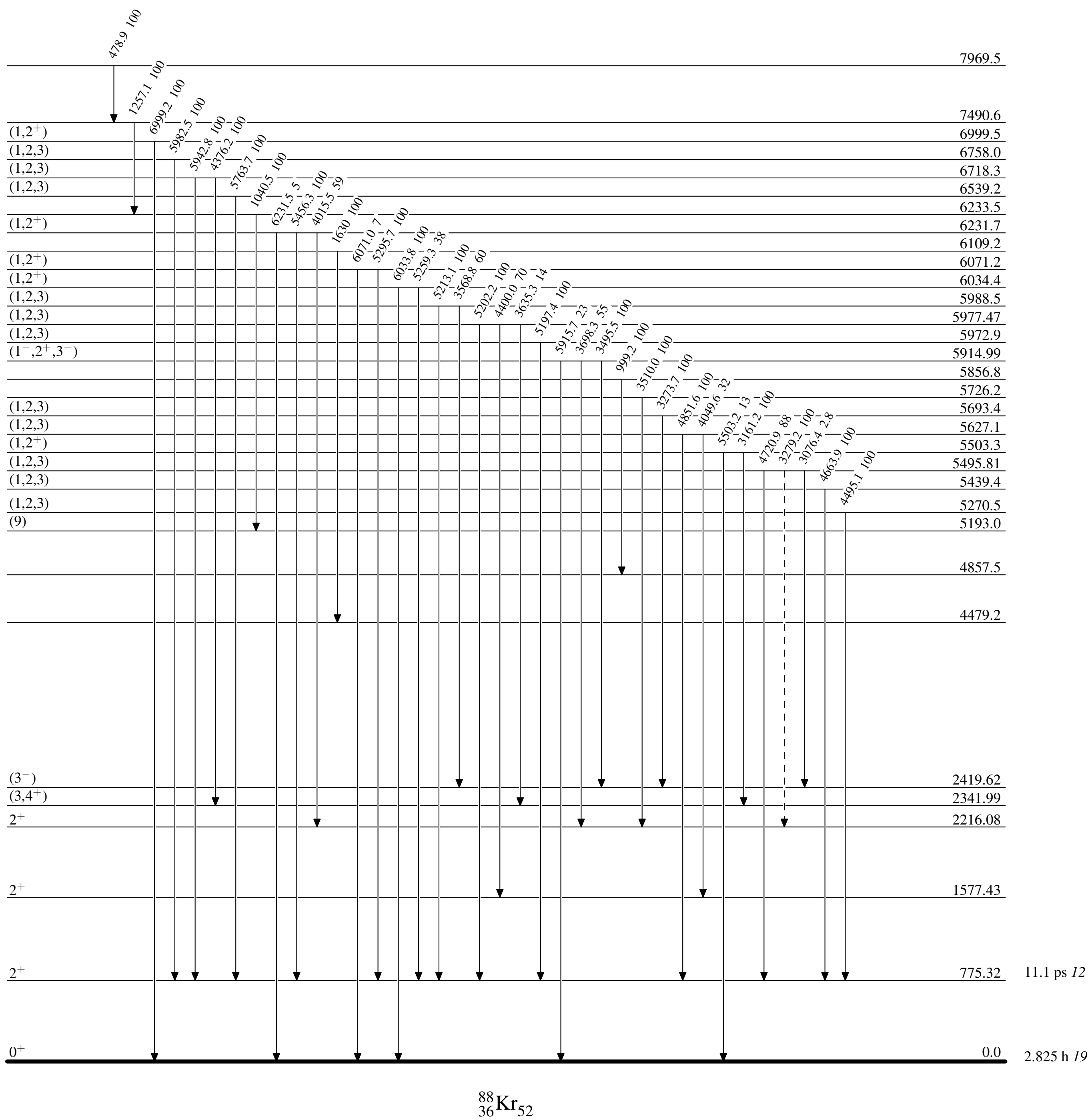
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

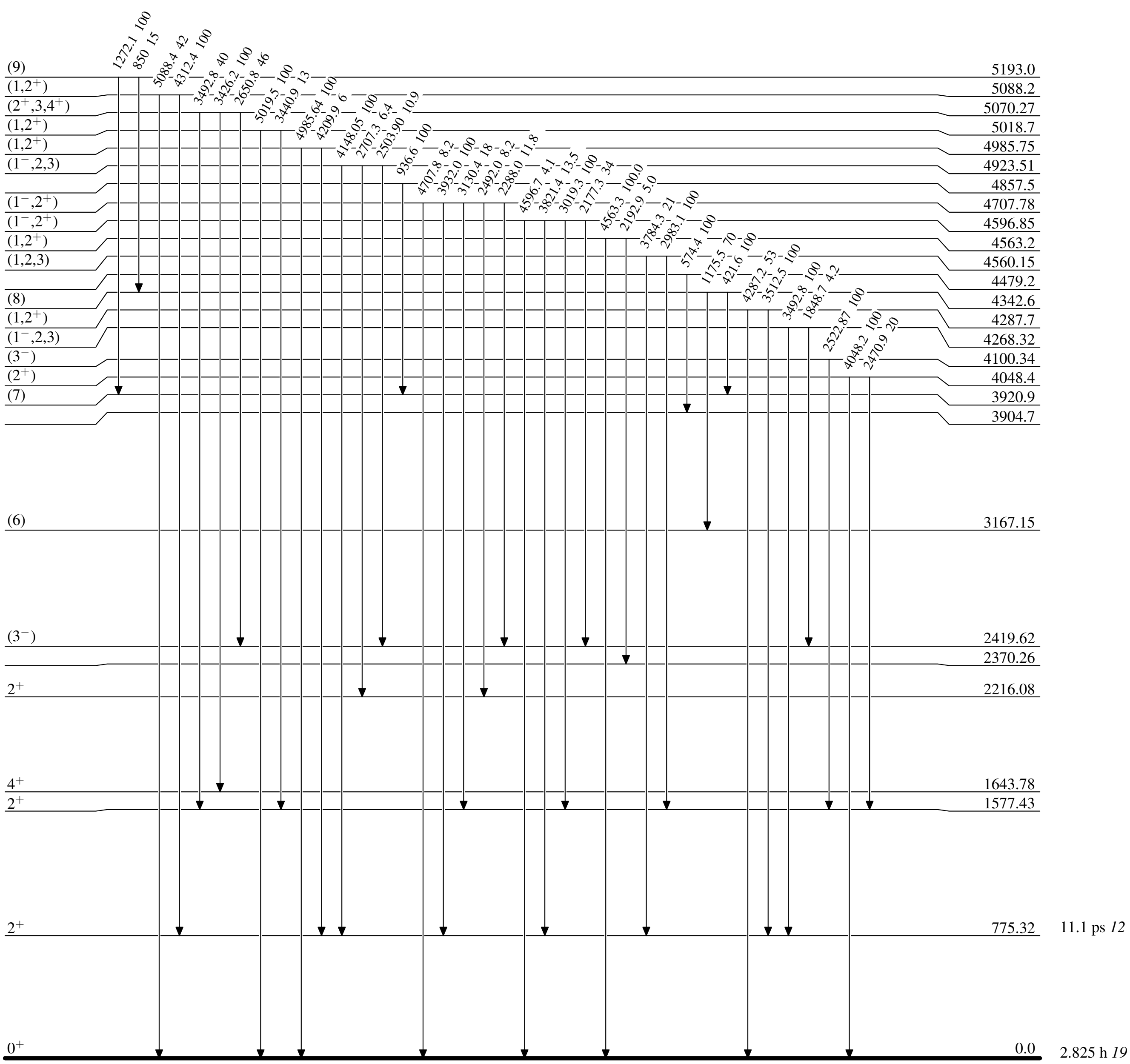
γ Decay (Uncertain)



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

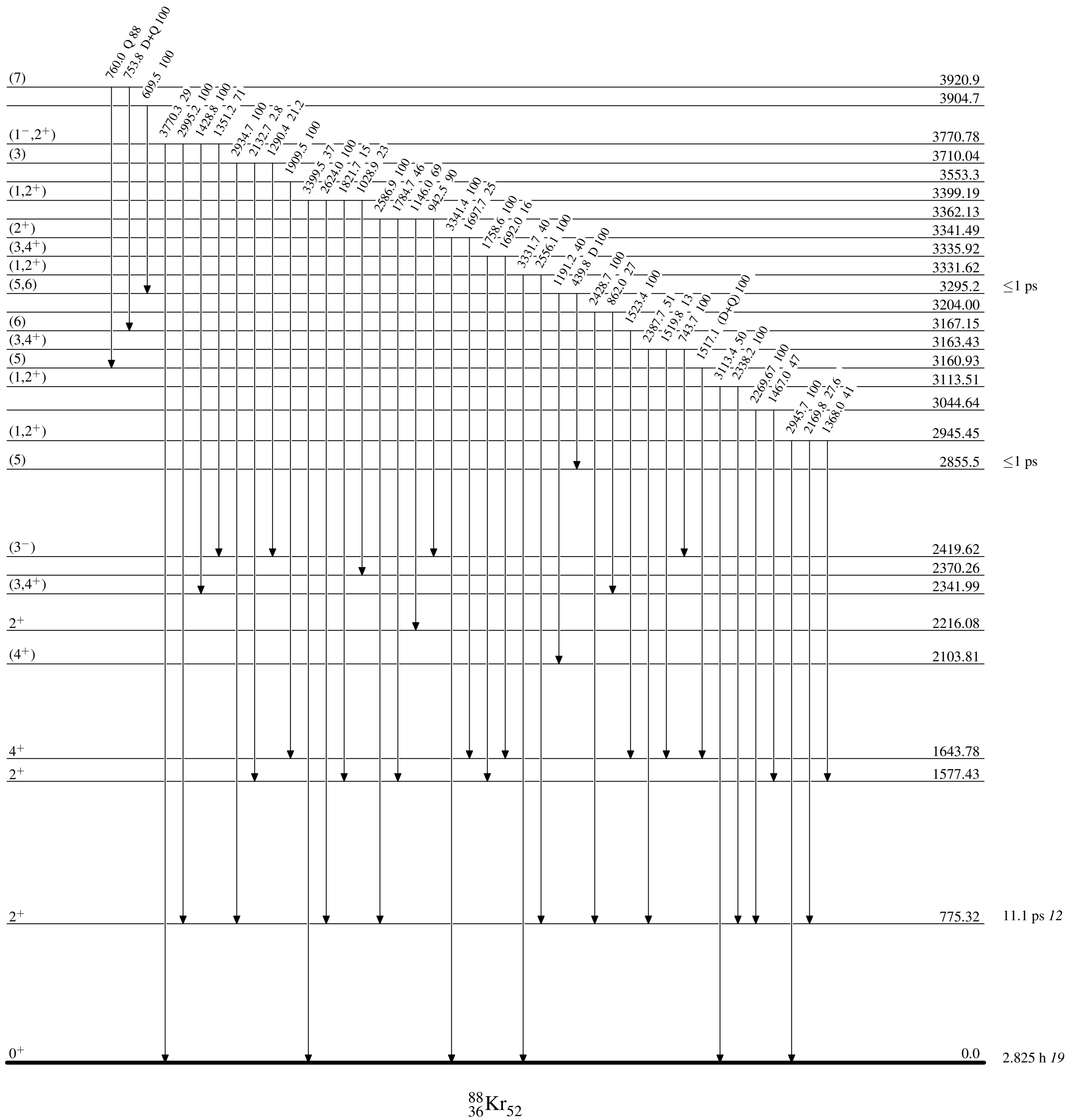


$^{88}_{36}Kr_{52}$

Adopted Levels, Gammas

Level Scheme (continued)

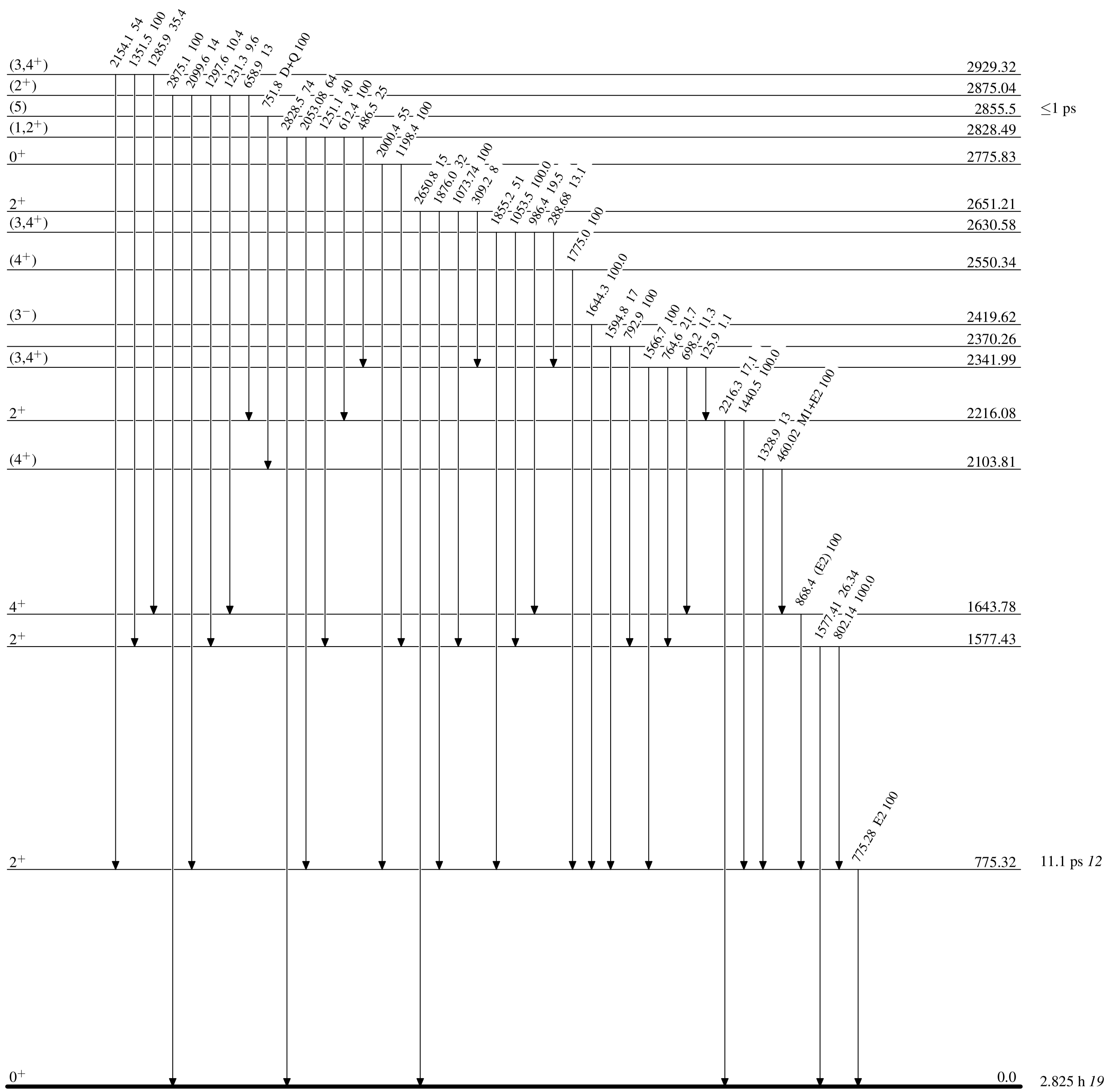
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{88}_{36}Kr_{52}$