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).

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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). T1/2: 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). T1/2: 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. T1/2: 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+. T1/2: 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). T1/2: 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). T1/2: 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). T1/2: From (HI,xnγ).
3037.85 *7*	(6−)	0.58 ns *7*	B EF	Jπ: from γ(θ) in (α,nγ). T1/2: 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). T1/2: 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	

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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

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

From ENSDF

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

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
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^+)			

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

$\gamma(^{82}$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

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

$^{82}_{36}Kr_{46}$-11

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

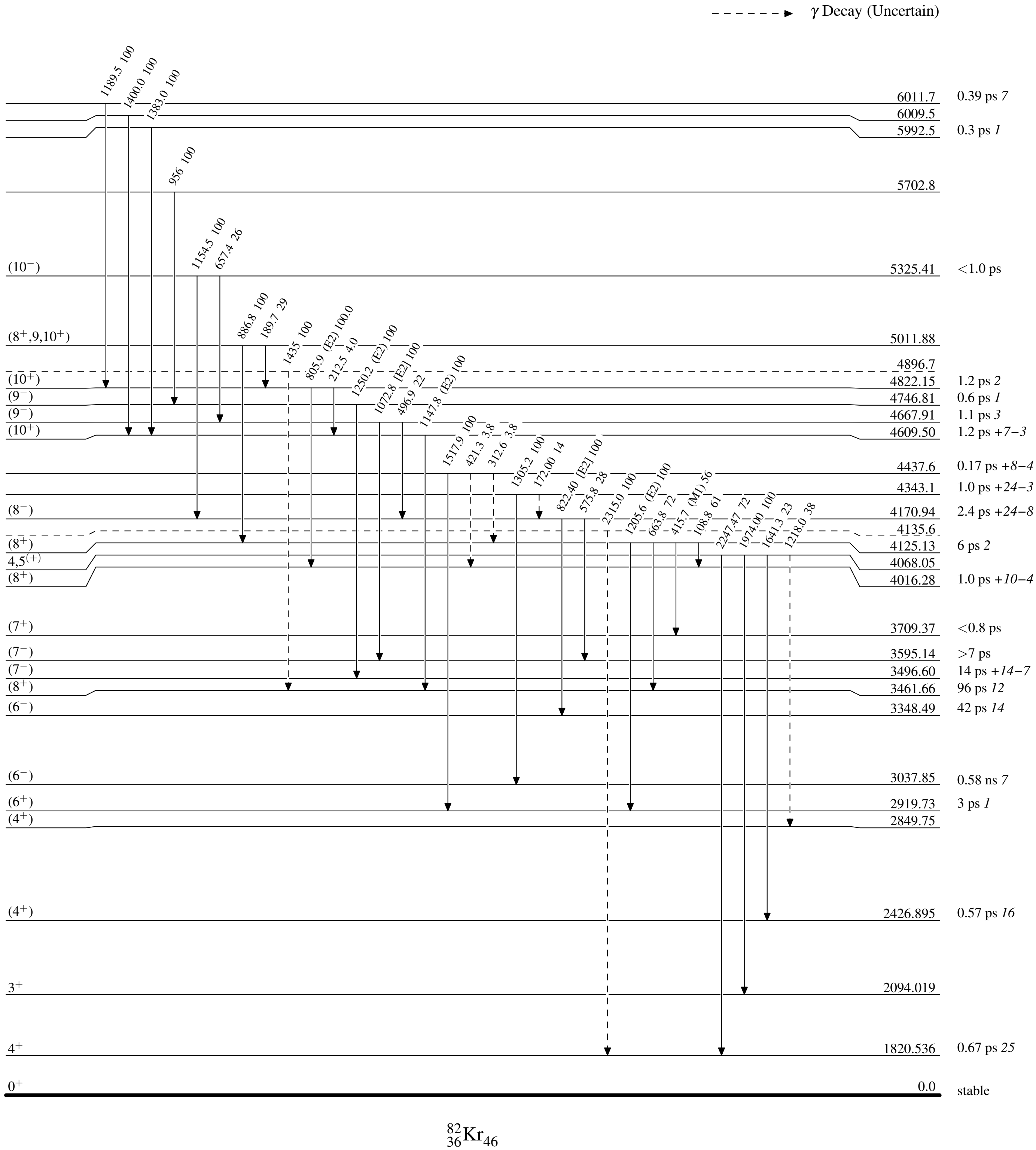
$^{82}_{36}Kr_{46}$-12

Adopted Levels, Gammas

Legend

Level Scheme

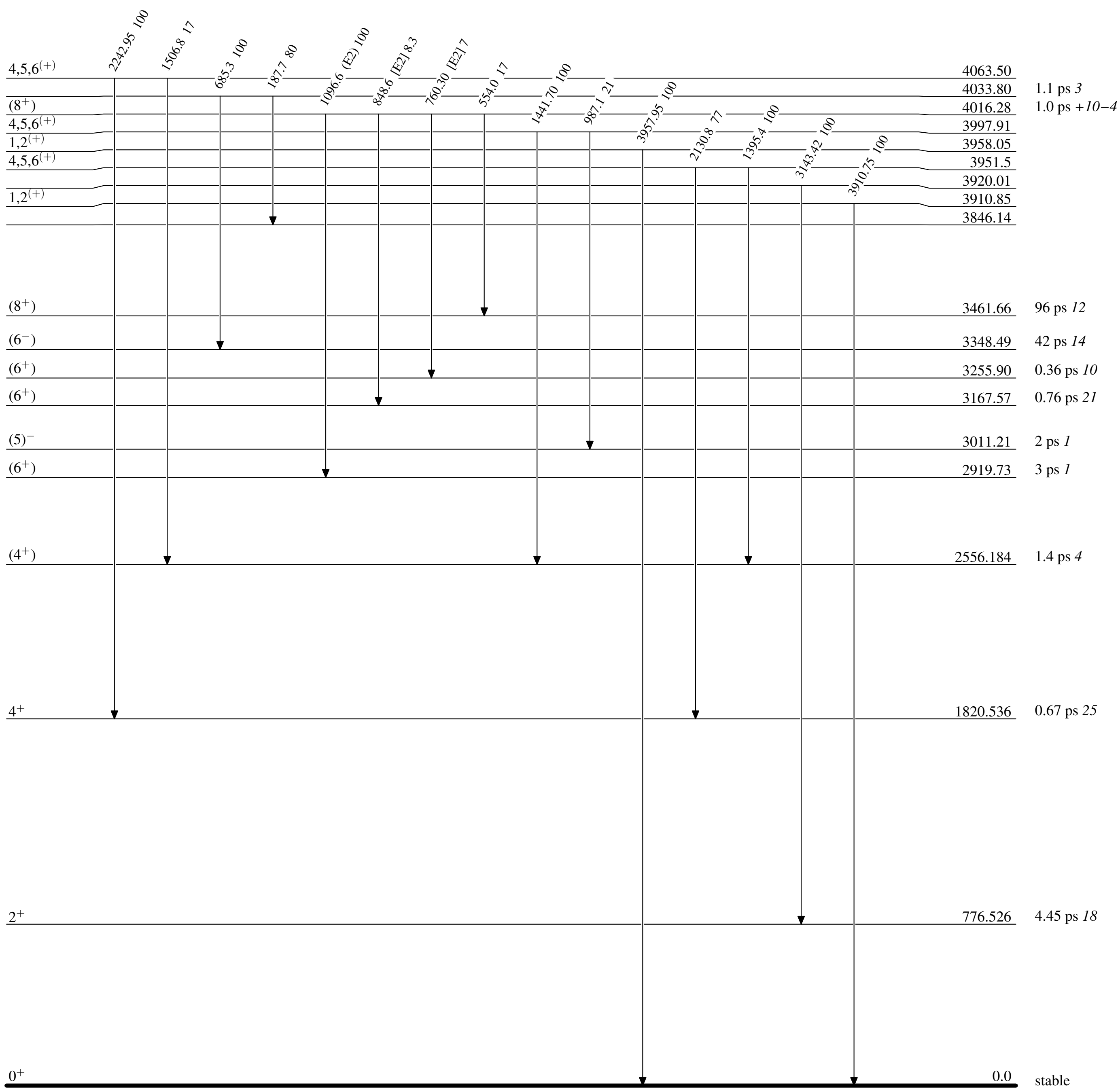
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

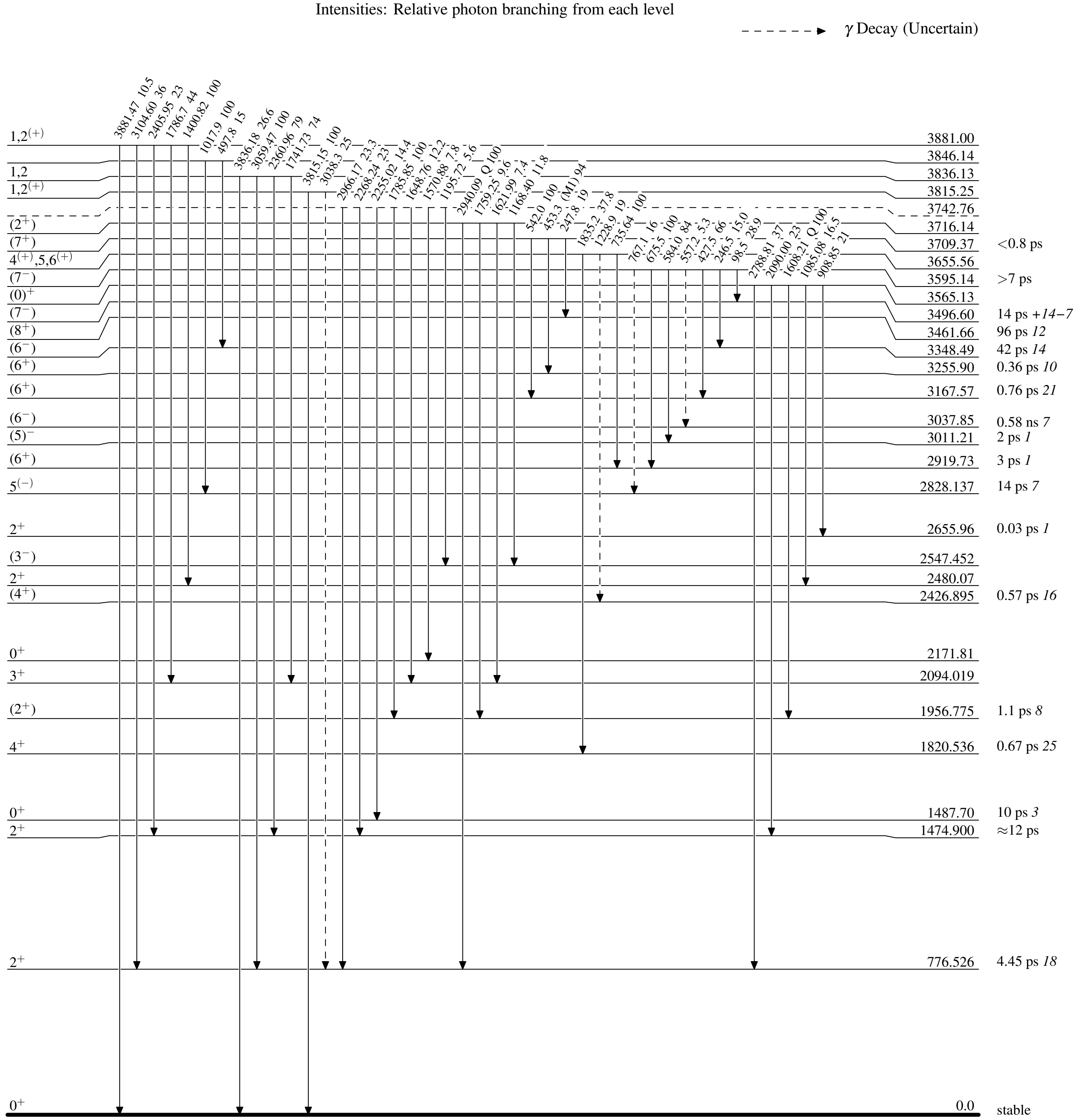


$^{82}_{36}Kr_{46}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



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

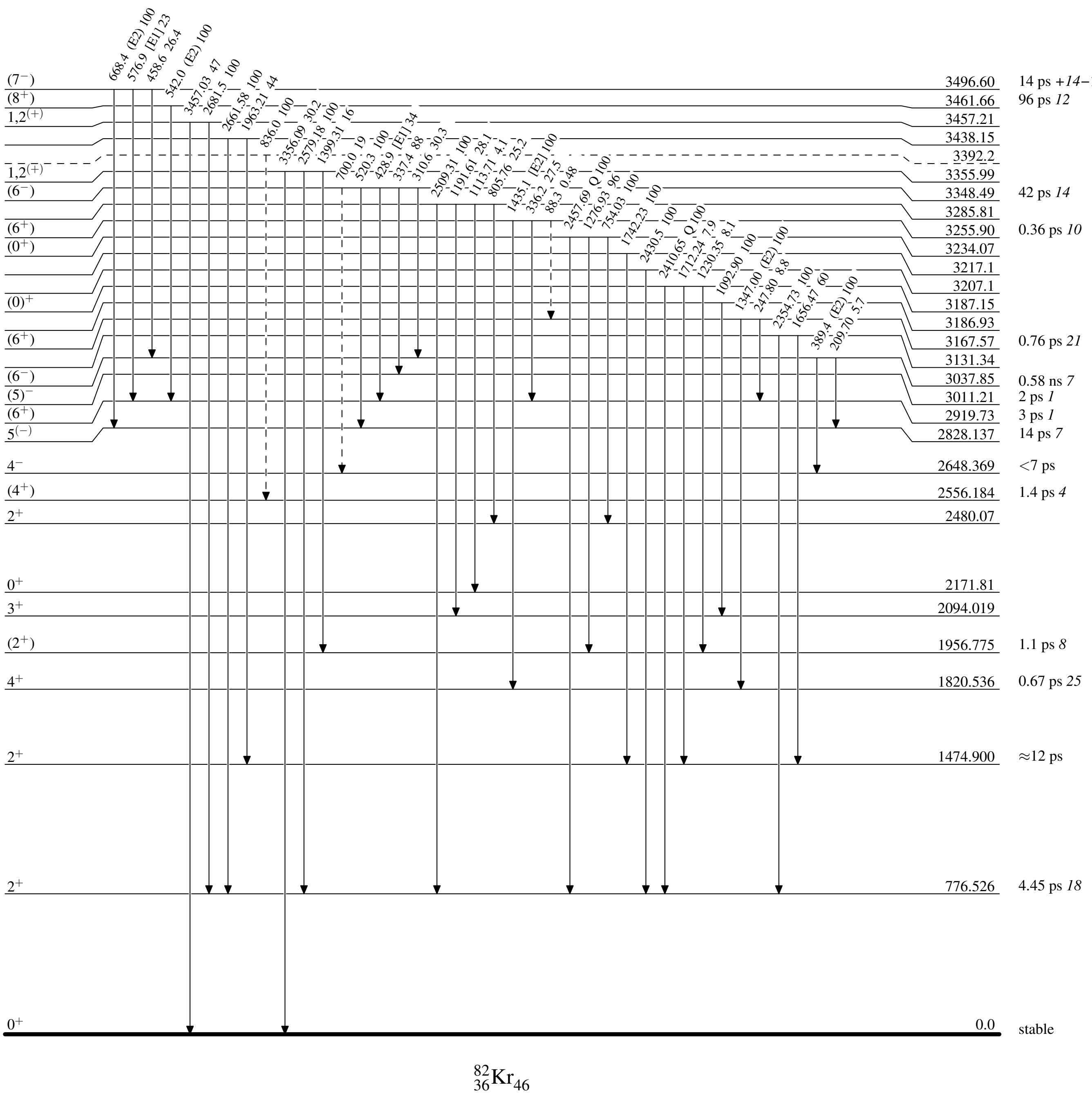
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

- - - - - - ► γ Decay (Uncertain)



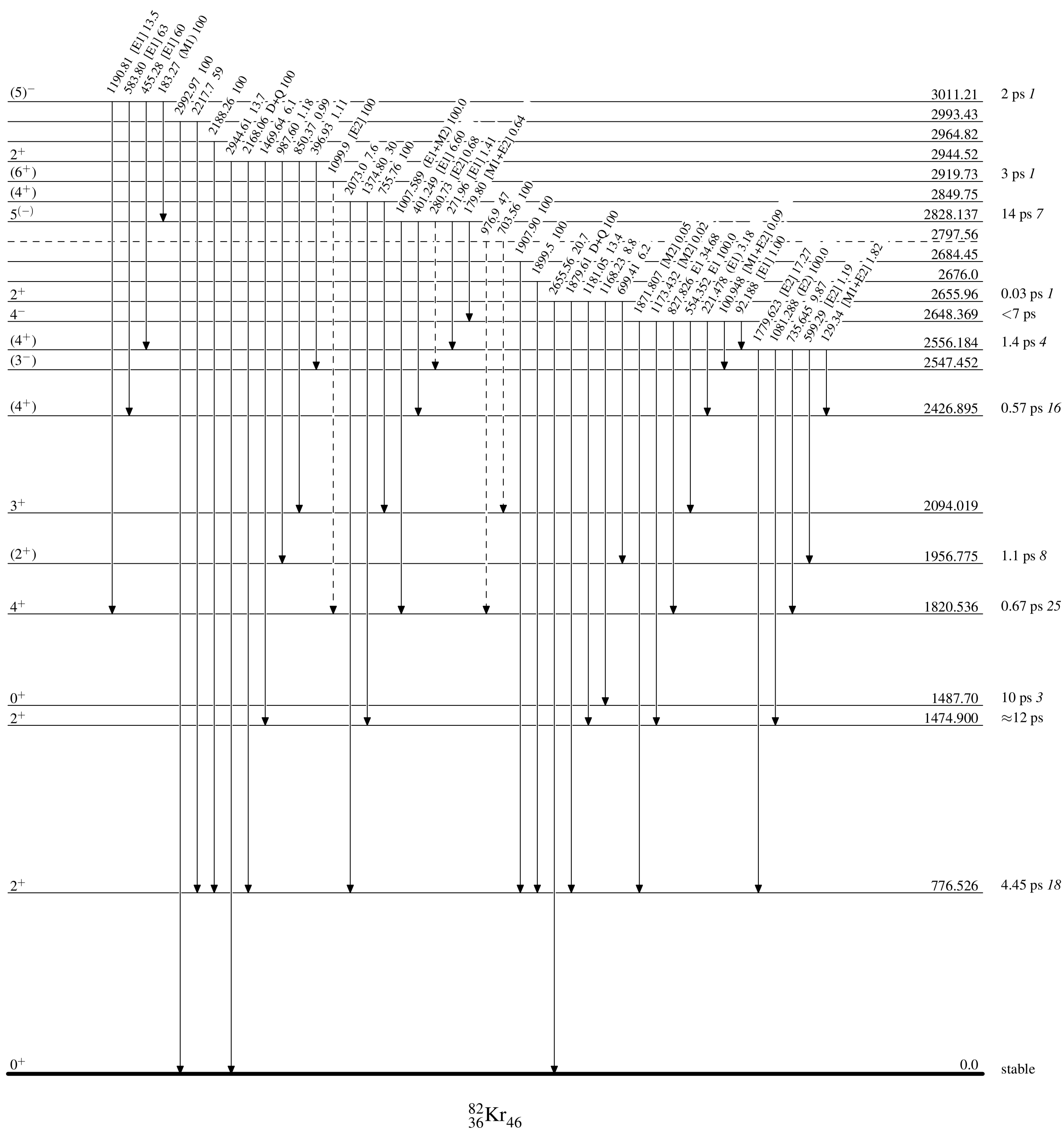
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



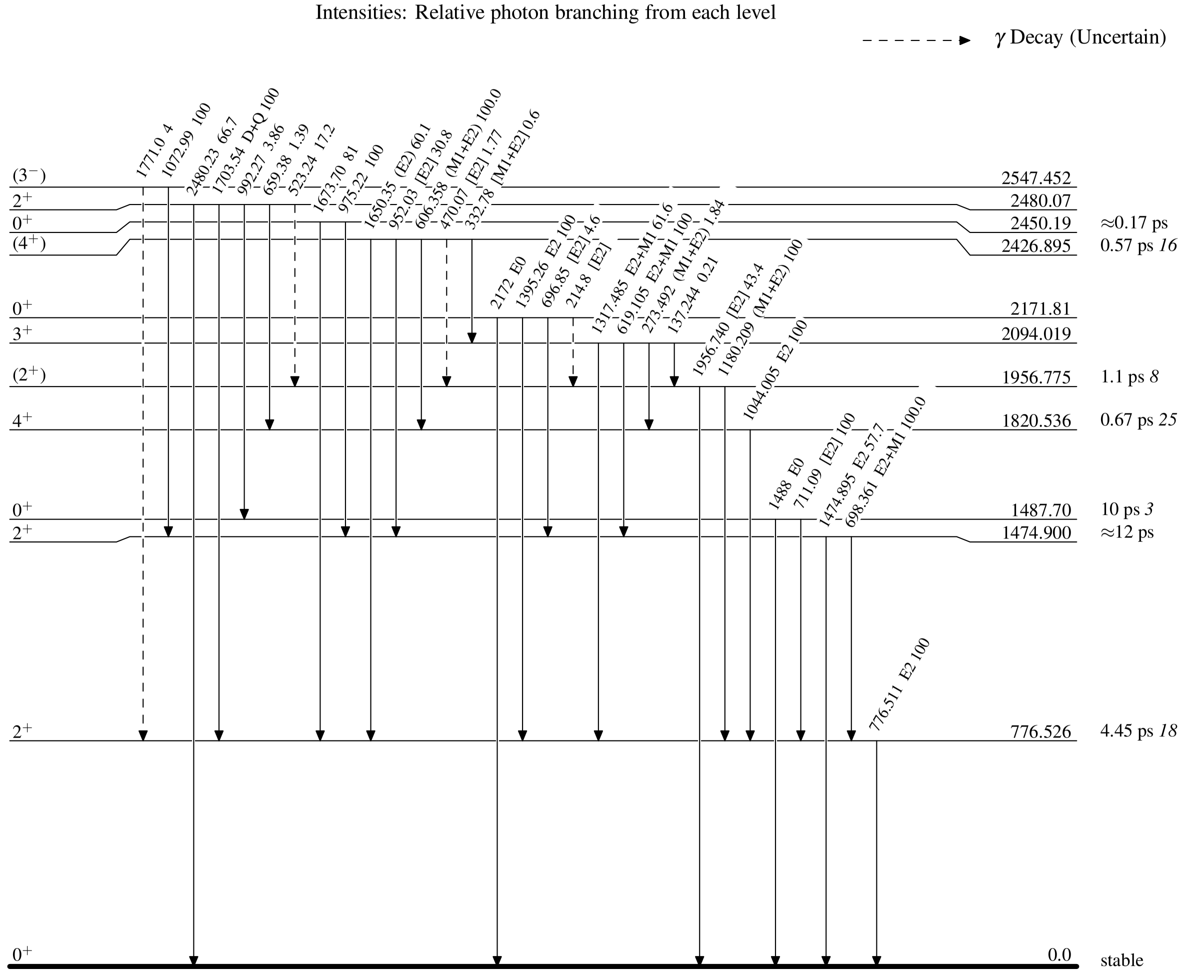
$^{82}_{36}Kr_{46}$

Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level



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

Adopted Levels, Gammas