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^{π}[#]	$T_{1/2}$[‡]	XREF	Comments
0.0[@]	0^+	stable	ABCDEFGH	<r^2>$^{1/2}$=4.1882 fm *14* (2004An14 evaluation). J^{π}: 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^{π}: 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)($\uparrow$)=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)($\uparrow$)=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$^-$.

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Adopted Levels, Gammas (continued)

^{84}Kr Levels (continued)

E(level)[†]	Jπ[#]	$T_{1/2}$[‡]	XREF	Comments
3426.74 *12*	(2+,3,4+)		E	Jπ: γ's to 2+ and 4+.
3463.0 *5*			E	
3475.75 *21*	(1−)		A F	Jπ: L(p,p')=(1).
3570 *20*	(3−)		F	Jπ: L(p,p')=(3).
3587.12[b] *11*	6−	5.5 ps *14*	DE	Jπ: deexcites by M1+E2 to 5−, fed by M1+E2 from 7−.
3638.50 *10*	(5−)	0.69 ps *+28−21*	DEF	Jπ: L(p,p')=(5). γ's to 3− and 5−.
3651.61[a] *18*	7−		D	Jπ: 180γ from 3832, 7− level is ΔJ=0, M1+E2 from γ(θ), linear pol in (α,2nγ).
3705.87 *19*	1(−),2,3(−)		A	Jπ: log *ft*=6.0, log *f*1u*t*=6.5 from 2−. γ's to (1−) and 3−.
3718.22 *22*	(3−)		EF	Jπ: L(p,p')=(3).
3777.0 *3*			EF	
3831.62[b] *12*	7−	4.9 ps *21*	D	Jπ: stretched E2 to 5−, E1 to 6+, excit.
3870.1 *5*	1,2,3		A	Jπ: log *ft*=6.9, log *f*1u*t*=7.2 from 2−.
3878.8 *3*	(2+,3)		A	Jπ: log *ft*=6.6, log *f*1u*t*=7.0 from 2−. γ to 4+.
3927.33 *22*	1−		A F	Jπ: log *ft*=4.9 from 2−. Strong γ to 0+.
3951.23[&] *16*	6+	0.9 ps *5*	D	Jπ: cascades to 4+ via stretched Q.
4001.82 *11*	(4−)	0.35 ps *10*	DEF	
4084.3 *5*	(1,2+)		A F	Jπ: γ to 0+.
4116.8 *5*	1−,2−		A	Jπ: log *ft*=5.2 from 2−. Weak γ to 0+.
4189.2 *5*	(2+,3)		A F	XREF: F(4157). Jπ: 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	Jπ: 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	Jπ: cascades to 4+ via two Q γ's.
4852.25[a] *21*	9−	0.8 ps *4*	D	Jπ: 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	Jπ: stretched E2 cascade indicated by γ(θ) 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. Jπ: stretched E2 cascade indicated by γ(θ) 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	Jπ: 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	Jπ: stretched E2 to 9−.
6067.4 *11*			D	
6472.2 *4*			D	
6572.1 *4*	(12)−	0.42 ps *14*	D	Jπ: E1 γ to 12+ consistent with ΔJ=0.

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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): $\pi=-$, ΔJ=2 sequence.
[b] Band(D): $\pi=-$, ΔJ=1 sequence.

Adopted Levels, Gammas (continued)

$\gamma(^{84}$Kr)

E_i(level)	J^{π}_i	E_γ[‡]	I_γ	E_f	J^{π}_f	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

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

From ENSDF

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

E_i(level)	J_i^π	E_γ[‡]	I_γ	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_γ: 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⁻				

$^{84}_{36}Kr_{48}$-7

Adopted Levels, Gammas (continued)

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

E_i(level)	J_i^π	E_γ[‡]	I_γ	E_f	J_f^π	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*

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.

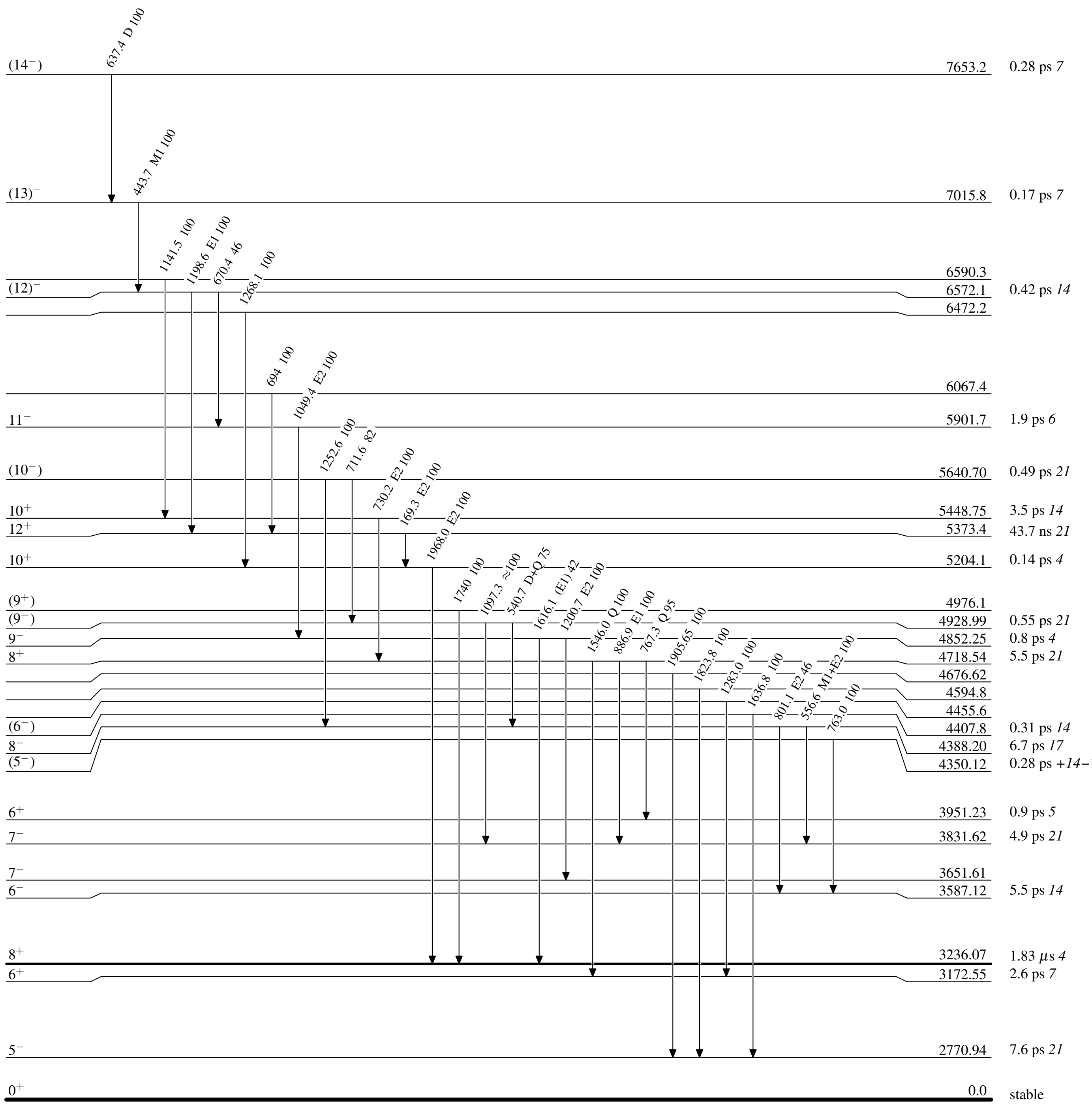
From ENSDF

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

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level

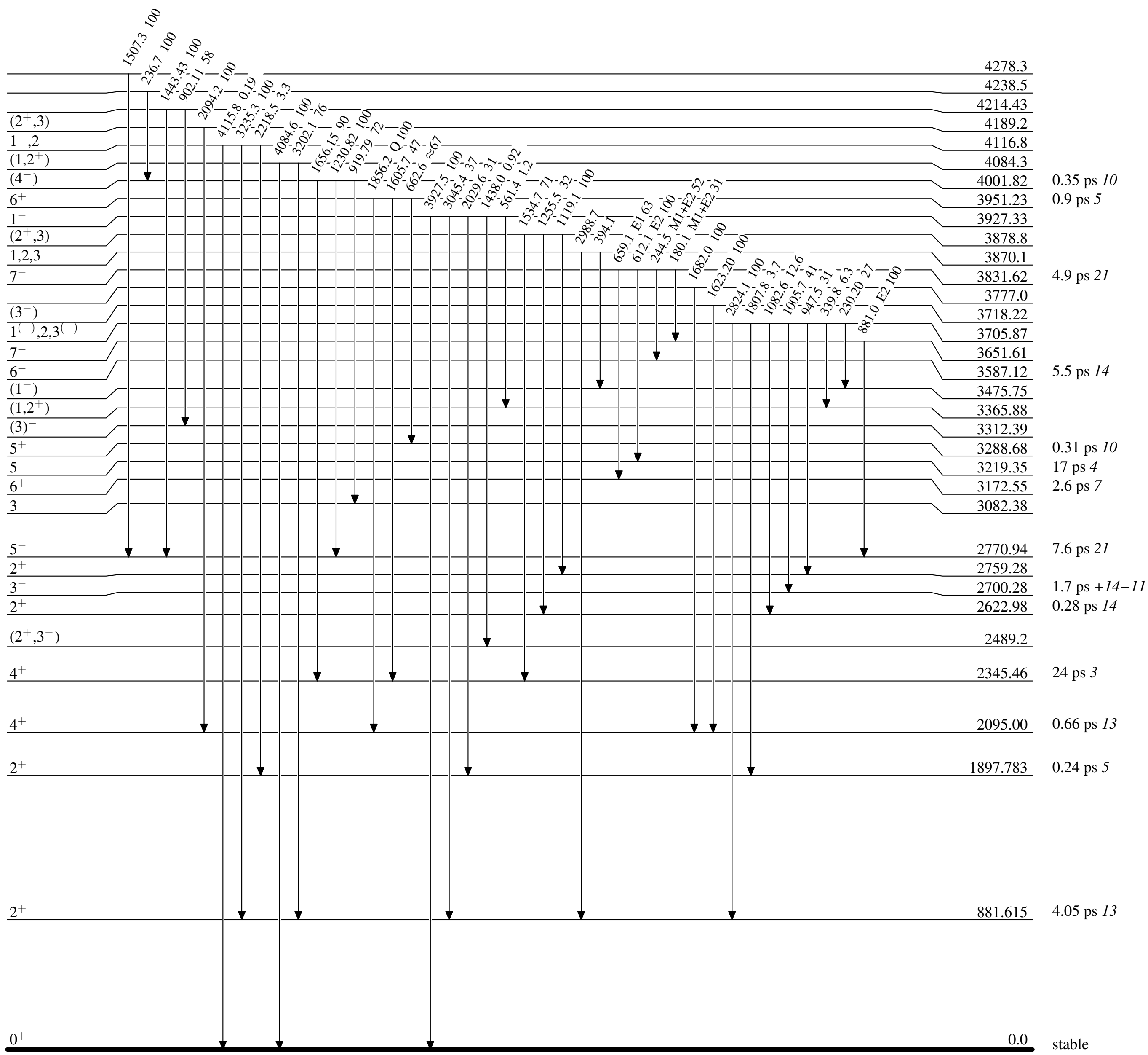


$^{84}_{36}Kr_{48}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

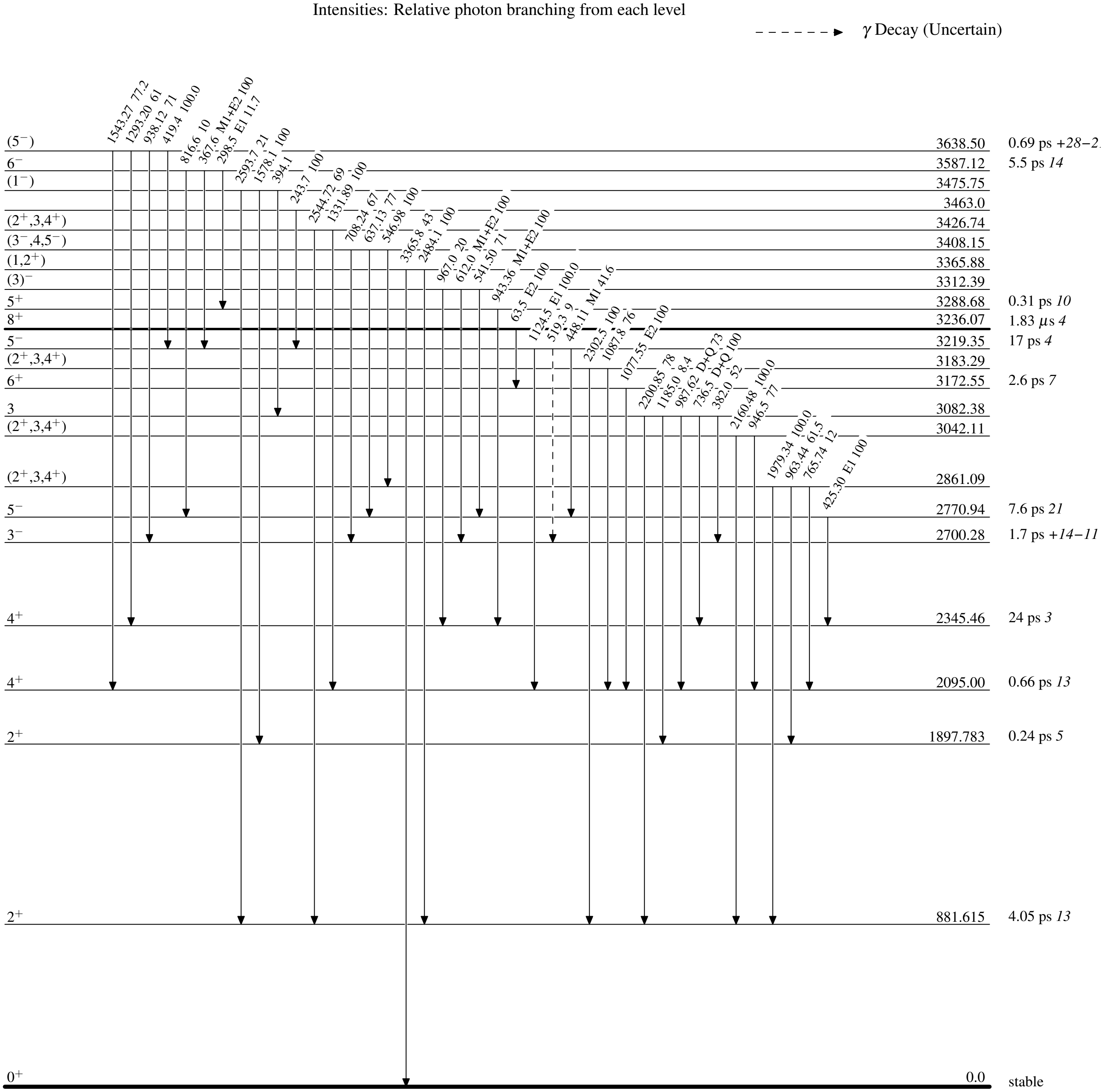


$^{84}_{36}Kr_{48}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

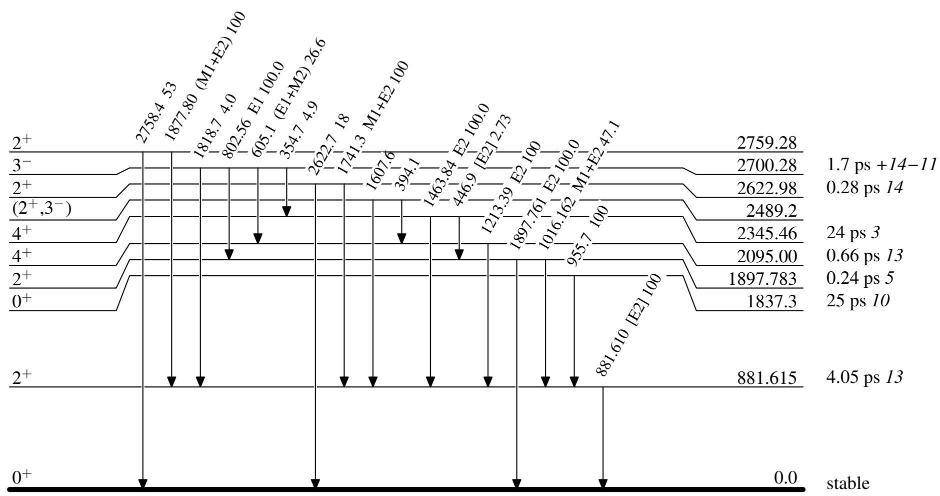


$^{84}_{36}Kr_{48}$

Adopted Levels, Gammas

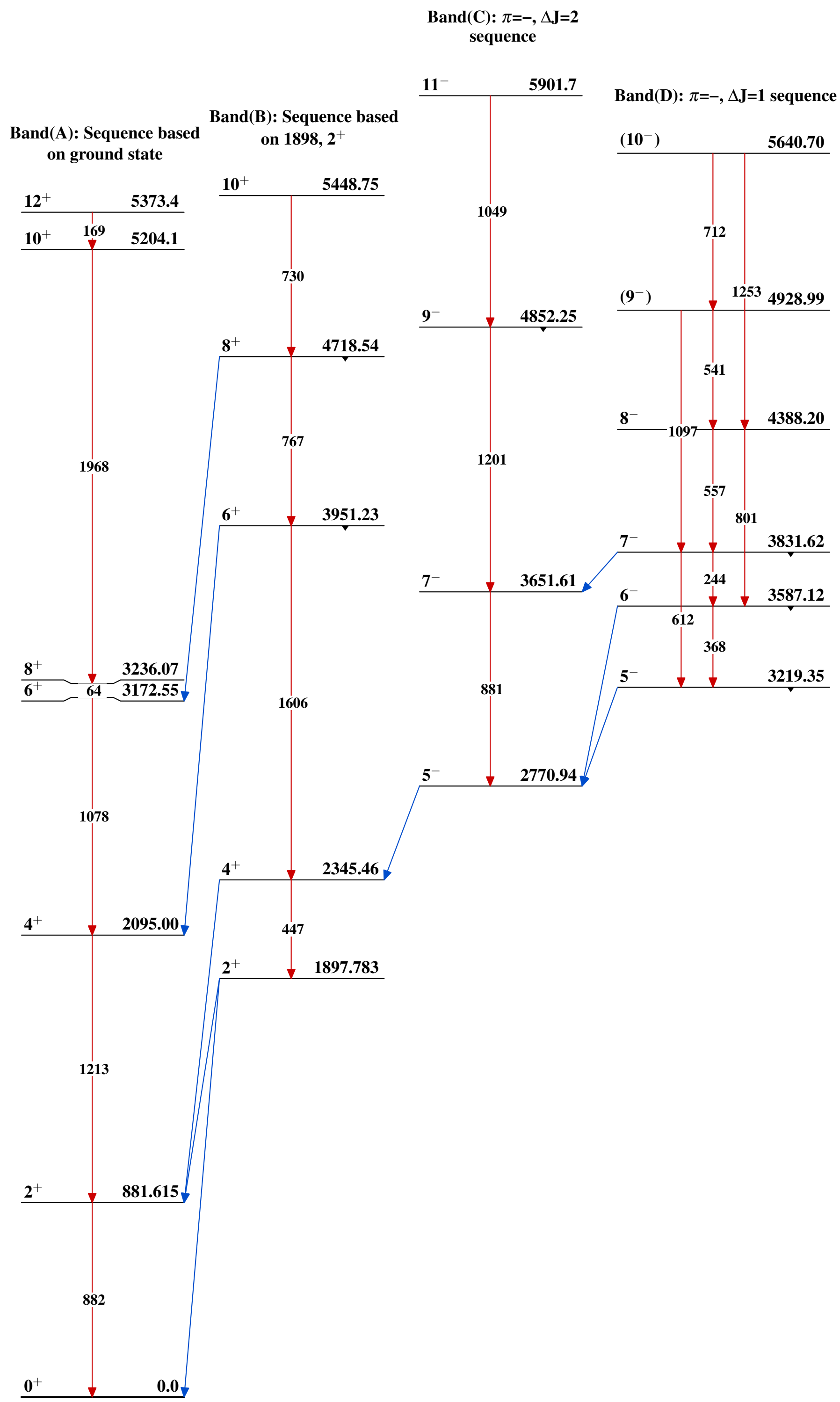
Level Scheme (continued)

Intensities: Relative photon branching from each level



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

Adopted Levels, Gammas



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