Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	E. A. Mccutchan	NDS 125, 201 (2015)	31-Dec-2014

Q(β^-)=−919.4 *23*; S(n)=7471.0 *9*; S(p)=9781.7 *13*; Q(α)=−6497.5 *4* 2012Wa38
S(2n)=18437.8 *14*; S(2p)=18179.0 *13* (2012Wa38).
See 1996Br21, 1995Ke04, 1993Ca41, 1992Sc19, 1991Pa14, 1990Sc30, 1990Ca26, 1989Tr04, 1989Br11, 1986Sc13 and 1990AlZX, for recent hfs and isotope shift data.
Additional information 1.

^{83}Kr Levels

Cross Reference (XREF) Flags

A	^{83}Br β^- decay	F	^{82}Se(α,3nγ)
B	^{83}Rb ε decay	G	Coulomb excitation
C	^{83}Kr IT decay (1.83 h)	H	^{82}Kr(d,p)
D	^{76}Ge(^{11}B,p3nγ)	I	^{84}Kr(^{3}He,α)
E	^{80}Se(α,nγ)		

E(level)[†]	J$^\pi$	T$_{1/2}$[‡]	XREF	Comments
0.0	9/2$^+$	stable	ABC EFGHI	Q=+0.26 *3*; μ=−0.970669 *3* J$^\pi$: from optical spectroscopy (1955Ra46) and atomic beam (1961Ku07). π=+ from comparison of experimental μ with Schmidt limits. μ: from atomic beam (1968Br16, 2011StZZ). Q: from collinear fast beam laser spectroscopy (1995Ke04, 2011StZZ). Others: 0.253 *5* atomic beam (1963Fa01), 0.259 *1* recalculation (2001Ke15). Additional information 2.
9.4057 *6*	7/2$^+$	156.8 ns *5*	ABC EFG	Q=+0.495 *10*; μ=−0.943 *2* J$^\pi$: M1+E2 9.4γ to 9/2$^+$, log *ft*=7.9 from ^{83}Rb ε decay with J^π=5/2$^-$. T$_{1/2}$: weighted average of 156.94 ns *34* from ^{83}Kr IT decay (1.83 h) and 155.1 ns *12* from ^{83}Rb ε decay. μ: from Mossbauer (1969Ca06, 2011StZZ). Other: −1.82 *25* DPAC (1978LeZA). Q: from Mossbauer (does not include polarization correction) (1977Ho33, 2011StZZ). Other: −0.507 *3* recalculation (2001Ke15).
41.5575 *7*	1/2$^-$	1.83 h *2*	ABC EF H	%IT=100 μ=0.591 *2* XREF: H(35). μ: from collinear fast beam laser spectroscopy (1995Ke04, 2011StZZ). J$^\pi$: E3 32γ to 7/2$^+$, log *ft*=5.0 from ^{83}Br β^- decay with J^π=3/2$^-$. T$_{1/2}$: from ^{83}Kr IT decay (1.83 h).
561.9585 *8*	5/2$^-$	6.2 ps *21*	AB E I	J$^\pi$: stretched E2 520γ to 1/2$^-$.
571.1538 *10*	(3/2$^-$)	1.04 ps *35*	AB E H	J$^\pi$: (M1+E2) 530γ to 1/2$^-$, log *ft*=6.35 from ^{83}Rb ε decay with J^π=5/2$^-$.
690.146 *8*	5/2$^-$	10.4 ps *35*	AB EF I	J$^\pi$: stretched E2 649γ to 1/2$^-$.
799.48 *3*	5/2$^+$	1.7 ps *5*	AB E GH	XREF: A(?). J$^\pi$: L(d,p)=2, stretched E2 799γ to 9/2$^+$. T$_{1/2}$: other: 1.9 ps *2* from B(E2) in Coul. Ex.
811[@] *8*	1/2$^-$,3/2$^-$		I	J$^\pi$: L(^{3}He,α)=1.
1011.80 *9*	11/2$^+$	0.76 ps *14*	EFG	J$^\pi$: stretched E2 1003γ to 7/2$^+$, (M1+E2) 1012γ to 9/2$^+$. T$_{1/2}$: other: 1.20 ps *14* from B(E2) in Coul. ex.
1100[@] *10*	(1/2$^-$,3/2$^-$)		I	J$^\pi$: L(^{3}He,α)=(1).

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Adopted Levels, Gammas (continued)

^{83}Kr Levels (continued)

E(level)[†]	Jπ	$T_{1/2}$[‡]	XREF	Comments
1102.73 *11*	9/2+	0.24 ps *8*	EFG	Jπ: stretched E2 619γ from 13/2+, (M1+E2) 1093γ to 7/2+, (M1+E2) 1103γ to 9/2+. $T_{1/2}$: other: 0.21 ps *6* from B(E2) in Coul. ex.
1122.03 *8*	13/2+	1.3 ps *4*	EFG	Jπ: stretched E2 1122γ to 9/2+. $T_{1/2}$: other: 0.99 ps *7* from B(E2) in Coul. ex.
1170.40 *7*	(7/2−)	2.1 ps *6*	EF	Jπ: (E1) 1170γ to 9/2+, (M1+E2) 480γ to 5/2−.
1214	3/2+,5/2+		H	Jπ: L(d,p)=2.
1221.856 *20*	(5/2,7/2−)	1.3 ps *5*	E	Jπ: 1212γ to 7/2+, 651γ to (3/2−).
1277.9 *3*	1/2+		E H	XREF: H(1271). Jπ: L(d,p)=0.
1517.05 *21*	(7/2+)	0.31 ps *14*	E	Jπ: (M1+E2) 718γ to 5/2+, (M1+E2) 1517γ to 9/2+.
1529.14 *16*	9/2−	0.90 ps *21*	E	Jπ: stretched E2 967γ to 5/2−.
1533.66 *21*			E	
1642.46 *21*	(7/2+,9/2,11/2+)	0.21 ps *7*	E	Jπ: 631γ to 11/2+, 1633γ to 7/2+.
1668?[@] *15*	(5/2−,7/2−)		I	E(level): possible doublet. Jπ: L(^{3}He,α)=(3).
1721.43 *11*	13/2+	0.49 ps *14*	EF	Jπ: stretched E2 1722γ to 9/2+, (M1+E2) 710γ to 11/2+.
1738.19 *12*	11/2+	0.35 ps *+14−7*	EF	Jπ: stretched E2 1729γ to 7/2+, (M1+E2) 1738γ to 9/2+.
1888.89 *23*	(−)	0.7 ps *3*	E	Jπ: E2 1199γ to 5/2−.
2035 *15*	(5/2−,7/2−)		I	Jπ: L(^{3}He,α)=(3).
2121 *15*	(3/2+,5/2,7/2−)		I	Jπ: L(^{3}He,α)=(2,3).
2188 *15*	(3/2+,5/2,7/2−)		I	Jπ: L(^{3}He,α)=(3,2).
2236	3/2+,5/2+		H	Jπ: L(d,p)=2.
2261? *20*	(3/2+,5/2,7/2−)		I	Jπ: L(^{3}He,α)=(3,2).
2265.80 *10*	(15/2+)	1.0 ps *5*	EF	Jπ: (E2) 528γ to 11/2+, (M1+E2) 1144γ to 13/2+.
2271.3 *3*			EF	
2290.31 *17*			EF	
2338.06 *15*	(11/2−)		EF	Jπ: stretched (E2) 1167γ to (7/2−).
2379	1/2+		H	Jπ: L(d,p)=0.
2470.42[a] *13*	(17/2−)	24 ps *10*	DEF	Jπ: E1 205γ to (15/2+).
2478.1 *3*	(15/2+)		F	Jπ: stretched (E2) 1467γ to 11/2+.
2483.84 *18*	17/2+	0.21 ps *+14−7*	EF	Jπ: stretched E2 γ to 13/2+.
2495? *20*	(1/2−,3/2−)		I	Jπ: L(^{3}He,α)=(1).
2510.15[b] *14*	(13/2−)	2.1 ps *+21−10*	DEF	Jπ: (M1+E2) 172γ to (11/2−).
2550.85 *15*	17/2+	0.9 ps *7*	DEF	Jπ: stretched E2 830γ to 13/2+.
2585 *20*	3/2+,5/2+		HI	Jπ: L(d,p)=2. E(level): from (^{3}He,α).
2640.63[b] *13*	(15/2−)	4 ps *2*	DEF	Jπ: (M1+E2) 130.5γ to (13/2−); band assignment.
2733? *20*	(5/2−,7/2−)		I	Jπ: L(^{3}He,α)=(3).
2733.8 *3*	(9/2+,17/2+)	0.35 ps *10*	E	Jπ: stretched E2 1162γ to 13/2+.
2841.20[b] *13*	(17/2−)	1.73 ps *35*	DEF	$T_{1/2}$: from DSAM in ^{76}Ge(^{11}B,p3nγ). Other: 4.9 ps *14* from RDDS in ^{80}Se(α,nγ). Jπ: (M1+E2) 200.6γ to (15/2−); band assignment.
2944	3/2+,5/2+		H	Jπ: L(d,p)=2.
2985.9 *3*	(11/2,13/2,15/2)		F	Jπ: (D+Q) 1864γ to 13/2+.
3140	1/2+		H	Jπ: L(d,p)=0.
3157.51[b] *16*	(19/2−)	1.11 ps *7*	DEF	Jπ: M1(+E2) 316γ to (17/2−); band assignment. $T_{1/2}$: from DSAM in ^{76}Ge(^{11}B,p3nγ). Others: 1.2 ps *+6−3* from RDDS in ^{80}Se(α,nγ), 2.8 ps *+14−7* from DSAM in ^{82}Se(α,3nγ).
3322.0 *4*			F	
3367.03[a] *24*	(21/2−)	4[#] ps *+4−1*	F	Jπ: E2 897γ to (17/2−); band assignment.
3411.54 *20*	(21/2+)		F	Jπ: (E2) 928γ to 17/2+.
3493.2? *7*			F	

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Adopted Levels, Gammas (continued)

^{83}Kr Levels (continued)

E(level)[†]	Jπ	$T_{1/2}$[‡]	XREF	Comments
3603.06[b] *24*	(21/2⁻)	0.69 ps *14*	D F	$T_{1/2}$: from DSAM in ^{76}Ge(^{11}B,p3nγ). Other: 1.0 ps *+4−3* from DSAM in ^{82}Se(α,3nγ). Jπ: 761γ to (17/2⁻), (M1+E2) 446γ to (19/2⁻); band assignment.
3685.8 *6*			F	
3718	3/2⁺,5/2⁺		H	Jπ: L(d,p)=2.
3772	7/2⁺,9/2⁺		H	Jπ: L(d,p)=4.
3804.4 *6*			F	
3820.7 *3*			F	
3906.4 *3*	(19/2⁺)		F	Jπ: stretched (E2) 1428γ to (15/2⁺).
4025.7 *3*	(21/2⁺)		F	Jπ: stretched (E2) 1542γ to 17/2⁺.
4172.3[&] *3*	(21/2⁺)		F	Jπ: stretched (E2) 1621γ to 17/2⁺.
4218.4[b] *3*	(23/2⁻)	0.42 ps *9*	D F	$T_{1/2}$: from DSAM in ^{76}Ge(^{11}B,p3nγ). Other: 0.55 ps *+35−21* from DSAM in ^{82}Se(α,3nγ). Jπ: (M1+E2) 615γ to (21/2⁻), 1061γ to (19/2⁻); band assignment.
4585.2[&] *3*	(23/2⁺)		F	Jπ: (M1+E2) 413γ to (21/2⁺); band assignment.
4629.8 *5*			F	
4694.6[a] *4*	(25/2⁻)	1.5[#] ps *+4−3*	F	Jπ: stretched (E2) 1328γ to (21/2⁻); band assignment.
4870.0[b] *3*	(25/2⁻)	0.6[#] ps *1*	D F	$T_{1/2}$: other: < 0.7 ps from DSAM in ^{76}Ge(^{11}B,p3nγ). Jπ: stretched (E2) 1267γ to (21/2⁻); band assignment.
5103.3[&] *4*	(25/2⁺)	≤0.4[#] ps	F	Jπ: (D+Q) 518γ to (23/2⁺); band assignment.
5183.9 *4*			F	
5641.2[b] *8*	(27/2⁻)		D F	Jπ: 771γ to (25/2⁻), 1423γ to (23/2⁻); band assignment.
5683.4[&] *6*	(27/2⁺)		F	Jπ: 580γ to (25/2⁺); band assignment.
5736.0[a] *5*	(29/2⁻)		F	Jπ: 1041γ to (25/2⁻); band assignment.
5778.4 *4*			A	
6373.4[&] *12*	(29/2⁺)	≤0.2[#] ps	F	Jπ: 690γ to (27/2⁺); band assignment.

[†] From a least-squares fit to Eγ, by evaluator, when Eγ data are available. For levels observed in transfer reactions, level energy is from the indicated dataset.

[‡] From DSAM and RDDS in ^{80}Se(α,nγ), except where noted.

[#] From DSAM in ^{82}Se(α,3nγ).

[@] From ^{84}Kr(^{3}He,α). The L value suggests a level different from the neighboring levels seen in ^{80}Se(α,nγ). However, angular distributions in ^{84}Kr(^{3}He,α) are rather structureless. So this level may be identical to the neighboring level.

[&] Band(A): Proposed 3 quasi-particle band. Configuration = $\pi g_{9/2}^2 \nu g_{9/2}$.

[a] Band(B): Negative parity band built on (17/2⁻) state. Proposed configuration = $\nu g_{9/2}^{-2} p_{1/2}$.

[b] Band(C): Negative parity band built on (13/2⁻) state.

Adopted Levels, Gammas (continued)

γ(^{83}Kr)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[c]	Comments
9.4057	7/2$^+$	9.4057[&] *6*	100	0.0	9/2$^+$	M1+E2	0.0129 *3*	17.09 *5*	α(L)=14.03; α(M)=2.297 *23* B(E2)(W.u.)=21.0 *10*; B(M1)(W.u.)=0.00933 *4* Mult.,δ: from ^{83}Kr IT decay, derived from L/M-subshell conversion ratio.
41.5575	1/2$^-$	32.1516[&] *5*	100	9.4057	7/2$^+$	E3		2035	α(K)=495; α(L)=1256; α(M)=212.6 B(E3)(W.u.)=0.00623 *11* Mult.: from α(K)exp in ^{83}Kr IT decay.
561.9585	5/2$^-$	520.3991[#] *5*	100[@] *1*	41.5575	1/2$^-$	E2		0.00287	α(K)=0.00250; α(L)=0.000275 B(E2)(W.u.)=8.E+1 *3*
		552.5512[#] *7*	35.5[@] *4*	9.4057	7/2$^+$	(E1)			B(E1)(W.u.)=9.E−5 *3*
		562.16[#e] *7*	0.019[#] *2*	0.0	9/2$^+$				E_γ: observed in ^{83}Rb ε decay only. Placement is questionable as it would indicate M2 or E3 multipolarity for the transition, the latter is excluded by comparison to RUL.
571.1538	(3/2$^-$)	529.5945[#] *6*	100[#]	41.5575	1/2$^-$	(M1+E2)	−0.20 *+5−1*	0.00194	α(K)=0.00170; α(L)=0.000181 B(E2)(W.u.)=23 *8*; B(M1)(W.u.)=0.14 *5*
690.146	5/2$^-$	118.96[@] *3*	17.8[@] *12*	571.1538	(3/2$^-$)	(M1+E2)		0.28 *20*	Mult.: (D+Q) from γ(θ) in ^{80}Se(α,nγ), Δπ=no from level scheme. I_γ: others: 17 *3* in ^{83}Rb ε decay and 8.9 *17* in ^{80}Se(α,nγ).
		128.55[@e] *8*	0.49[@] *10*	561.9585	5/2$^-$	[M1,E2]		0.22 *15*	
		648.587[@] *10*	100[@] *1*	41.5575	1/2$^-$	E2		0.00151	α(K)=0.00132; α(L)=0.000143 B(E2)(W.u.)=15 *6*
		680.727[@] *19*	30.4[@] *6*	9.4057	7/2$^+$	[E1]			B(E1)(W.u.)=2.3×10^{-5} *9*
799.48	5/2$^+$	790.15[#] *4*	100[#] *3*	9.4057	7/2$^+$	M1+E2	>9		B(E2)(W.u.)>26; B(M1)(W.u.)<0.00031
		799.37[#] *5*	36.1[#] *14*	0.0	9/2$^+$	E2			α(K)=7.6×10^{-04}; α(L)=8.11×10^{-05} B(E2)(W.u.)=13 *4*
1011.80	11/2$^+$	1002.6 *3*	5.2 *12*	9.4057	7/2$^+$	E2			B(E2)(W.u.)=1.7 *6*
		1011.8 *1*	100 *8*	0.0	9/2$^+$	(M1+E2)	−1.07 *+10−20*		B(E2)(W.u.)=17 *4*; B(M1)(W.u.)=0.012 *3*
1102.73	9/2$^+$	1093.4 *2*	100 *8*	9.4057	7/2$^+$	(M1+E2)	0.27 *+7−6*		B(E2)(W.u.)=4.4 *15*; B(M1)(W.u.)=0.060 *21*
		1102.7 *3*	9.2 *21*	0.0	9/2$^+$	(M1+E2)	1.3 *+4−3*		B(E2)(W.u.)=3.6 *15*; B(M1)(W.u.)=0.0021 *9*
1122.03	13/2$^+$	1122.0 *1*	100	0.0	9/2$^+$	E2			B(E2)(W.u.)=11 *4*
1170.40	(7/2$^-$)	480.38 *13*	58 *6*	690.146	5/2$^-$	(M1+E2)	−0.58 *3*	0.00266	α(K)=0.00237; α(L)=0.000256; α(M)=0.0000396 B(E2)(W.u.)=27 *8*; B(M1)(W.u.)=0.016 *5* I_γ: from ^{80}Se(α,nγ). Other: 106 *17* in ^{82}Se(α,3nγ).
		608.37 *17*	34 *6*	561.9585	5/2$^-$	(M1+E2)	−0.36 *2*	0.00144	α(K)=0.00126; α(L)=0.000134 B(E2)(W.u.)=2.2 *8*; B(M1)(W.u.)=0.0054 *18*
		1160.97 *11*	100 *7*	9.4057	7/2$^+$	(E1)			B(E1)(W.u.)=4.1×10^{-5} *13*
		1170.30 *15*	69 *8*	0.0	9/2$^+$	(E1)			B(E1)(W.u.)=2.8×10^{-5} *9*

$^{83}_{36}Kr_{47}$-4

Adopted Levels, Gammas (continued)

γ(^{83}Kr) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult.‡	δ‡	α[c]	Comments
1221.856	(5/2,7/2$^-$)	650.8 *3*	100 *28*	571.1538	(3/2$^-$)				
		1212.44 *2*	66 *14*	9.4057	7/2$^+$				
1277.9	1/2$^+$	706.7 *3*	100	571.1538	(3/2$^-$)				
1517.05	(7/2$^+$)	717.9 *3*	100 *21*	799.48	5/2$^+$	(M1+E2)	0.47 *+40−20*		B(E2)(W.u.)=47 *25*; B(M1)(W.u.)=0.09 *5*
		1516.7 *3*	71 *21*	0.0	9/2$^+$	(M1+E2)	−0.6 *+4−5*		B(E2)(W.u.)=1.2 *7*; B(M1)(W.u.)=0.006 *4*
1529.14	9/2$^-$	839.2 *4*	21 *7*	690.146	5/2$^-$	E2			B(E2)(W.u.)=7 *3*
		967.4 *3*	100 *12*	561.9585	5/2$^-$	E2			B(E2)(W.u.)=16 *5*
		1519.5 *3*	48 *9*	9.4057	7/2$^+$	[E1]			B(E1)(W.u.)=2.6×10^{-5} *8*
		1529.0 *3*	42 *7*	0.0	9/2$^+$	[E1]			B(E1)(W.u.)=2.2×10^{-5} *7*
1533.66		843.7 *3*	100 *21*	690.146	5/2$^-$				
		971.5 *3*	45 *15*	561.9585	5/2$^-$				
1642.46	(7/2$^+$,9/2,11/2$^+$)	630.6 *3*	100 *21*	1011.80	11/2$^+$				
		1633.0 *3*	96 *29*	9.4057	7/2$^+$				
		1643.5 *10*	100 *29*	0.0	9/2$^+$	(D+Q)			
1721.43	13/2$^+$	599.3 *2*	54 *3*	1122.03	13/2$^+$	(M1+E2)			Mult.: (D+Q) from γ(θ) in ^{82}Se(α,3nγ), Δπ=no from level scheme.
		618.8 *2*	≈44	1102.73	9/2$^+$	E2			B(E2)(W.u.)≈88.6
		709.7 *2*	100 *6*	1011.80	11/2$^+$	(M1+E2)	0.6 *+4−2*	0.00104 *4*	α(K)=0.00091 *3*; α(L)=0.000097 *3* B(E2)(W.u.)=27 *8*; B(M1)(W.u.)=0.031 *9*
		1721.4 *3*	96 *6*	0.0	9/2$^+$	E2			B(E2)(W.u.)=1.2 *4*
1738.19	11/2$^+$	616.9 *3*	43 *29*	1122.03	13/2$^+$	(M1+E2)	+0.18 *1*	0.00136	α(K)=0.00119; α(L)=0.000126 B(E2)(W.u.)=4 *3*; B(M1)(W.u.)=0.04 *3*
		635.42 *13*	54 *4*	1102.73	9/2$^+$	(M1+E2)	+1.1 *+1−5*	0.00145 *4*	α(K)=0.00127 *4*; α(L)=0.000136 *3* B(E2)(W.u.)=70 *+30−50*; B(M1)(W.u.)=0.020 *+9−5*
		1728.7 *3*	100 *10*	9.4057	7/2$^+$	E2			B(E2)(W.u.)=1.6 *+4−5*
		1738.1 *3*	108 *6*	0.0	9/2$^+$	(M1+E2)	+0.84 *10*		B(E2)(W.u.)=0.69 *+35−29*; B(M1)(W.u.)=0.0025 *+13−10*
1888.89	(−)	1198.7 *3*		690.146	5/2$^-$	E2			
		1318[e]		571.1538	(3/2$^-$)				
		1326.8[e] *4*		561.9585	5/2$^-$				
2265.80	(15/2$^+$)	527.8 *3*	11.5 *12*	1738.19	11/2$^+$	(E2)[a]		0.00275	α(K)=0.00240; α(L)=0.000263 B(E2)(W.u.)=5.E+1 *3*
		544.4 *2*	32 *3*	1721.43	13/2$^+$	(M1+E2)	0.15 *+2−1*	0.00180	α(K)=0.00158; α(L)=0.000168 B(E2)(W.u.)=2.7 *14*; B(M1)(W.u.)=0.030 *15*
		1143.7 *1*	100 *2*	1122.03	13/2$^+$	(M1+E2)	−1.73 *+25−7*		B(E2)(W.u.)=7 *4*; B(M1)(W.u.)=0.0026 *13*
2271.3		1168.6 *5*	100	1102.73	9/2$^+$				
2290.31		552.2 *2*	100	1738.19	11/2$^+$	(D+Q)[a]			
2338.06	(11/2$^-$)	1167.6 *5*	100 *10*	1170.40	(7/2$^-$)	(E2)			
		1235.4 *2*	15 *5*	1102.73	9/2$^+$				
2470.42	(17/2$^-$)	204.6 *1*	100	2265.80	(15/2$^+$)	E1[a]			B(E1)(W.u.)=0.0017 *8*
2478.1	(15/2$^+$)	1356.1 *5*	100 *26*	1122.03	13/2$^+$				
		1466.7 *5*	42 *10*	1011.80	11/2$^+$	(E2)			Mult.: Q from γ(θ) in ^{82}Se(α,3nγ), E2 from assumed band structure.

$^{83}_{36}Kr_{47}$-5

Adopted Levels, Gammas (continued)

γ(^{83}Kr) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult.‡	δ‡	Comments
2483.84	17/2$^+$	594[e]		1888.89	(−)			
		1361.8 *2*		1122.03	13/2$^+$	E2[a]		
2510.15	(13/2$^-$)	172.1 *1*	100 *8*	2338.06	(11/2$^-$)	(M1+E2)		Mult.: (D+Q) from γ(θ) in ^{80}Se(α,nγ), E1+M2 excluded by comparison to RUL.
		238.8 *3*	27 *4*	2271.3		(D+Q)		
		772 *1*	≈21	1738.19	11/2$^+$	[E1]		
2550.85	17/2$^+$	285.1 *2*	82 *15*	2265.80	(15/2$^+$)	(M1+E2)		Mult.: (D+Q) from γ(θ) in ^{80}Se(α,nγ), Δπ=no from level scheme.
		829.5 *3*	59 *6*	1721.43	13/2$^+$	E2[a]		
		1428.5 *3*	100 *18*	1122.03	13/2$^+$	(E2)		
2640.63	(15/2$^-$)	130.5 *1*	100 *10*	2510.15	(13/2$^-$)	(M1+E2)		Mult.: (D+Q) from γ(θ) in ^{80}Se(α,nγ), E1+M2 excluded by comparison to RUL.
		350.4 *2*	65 *3*	2290.31		(D+Q)		
		374.7 *3*	23.4 *21*	2265.80	(15/2$^+$)			
		919.2 *3*	13.8 *14*	1721.43	13/2$^+$	(E1+M2)		Mult.: (D+Q) from γ(θ) in ^{82}Se(α,3nγ), Δπ=yes from level scheme.
		1519 *1*	14 *4*	1122.03	13/2$^+$	(E1+M2)		Mult.: (D+Q) from γ(θ) in ^{82}Se(α,3nγ), Δπ=yes from level scheme.
2733.8	(9/2$^+$,17/2$^+$)	1611.7 *3*	100	1122.03	13/2$^+$	E2		B(E2)(W.u.)=6.9 *20*
2841.20	(17/2$^-$)	200.6 *1*	100 *5*	2640.63	(15/2$^-$)	(M1+E2)	+0.035[b] *10*	B(E2)(W.u.)=49 *10*; B(M1)(W.u.)=1.3 *3*
		370.76 *7*	18.1 *13*	2470.42	(17/2$^-$)	E2[a]		B(E2)(W.u.)=3.3×10^2 *7*
2985.9	(11/2,13/2,15/2)	1863.8 *3*	100	1122.03	13/2$^+$	(D+Q)		
3157.51	(19/2$^-$)	316.3 *1*	100 *6*	2841.20	(17/2$^-$)	M1(+E2)	+0.008[b] *30*	B(E2)(W.u.)=0.43 *4*; B(M1)(W.u.)=0.57 *6* Mult.: (D+Q) from γ(θ) in ^{80}Se(α,nγ), E1+M2 excluded by comparison to RUL.
		606.6 *5*	2.1 *10*	2550.85	17/2$^+$			I_γ: from ^{76}Ge(^{11}B,p3nγ). Other: ≈5 in ^{82}Se(α,3nγ).
		687.2 *3*	8.7 *10*	2470.42	(17/2$^-$)			
3322.0		336.1 *3*	100	2985.9	(11/2,13/2,15/2)			
3367.03	(21/2$^-$)	896.6 *2*	100	2470.42	(17/2$^-$)	E2[a]		B(E2)(W.u.)=11 *+4−6*
3411.54	(21/2$^+$)	860.7 *2*	40 *2*	2550.85	17/2$^+$	(E2)		Mult.: (Q) from γ(θ) in ^{82}Se(α,3nγ), assumed E2.
		927.7 *2*	100 *3*	2483.84	17/2$^+$	(E2)		Mult.: (Q) from γ(θ) in ^{82}Se(α,3nγ), assumed E2.
3493.2?		2371[e]		1122.03	13/2$^+$			
3603.06	(21/2$^-$)	445.6 *2*	100 *5*	3157.51	(19/2$^-$)	(M1+E2)	−0.042[b] *2*	B(E2)(W.u.)=3.2 *7*; B(M1)(W.u.)=0.31 *7* Mult.: (D+Q) from γ(θ) in ^{82}Se(α,3nγ) and ^{76}Ge(^{11}B,p3nγ); Δπ=no from level scheme.
		761	18 *5*	2841.20	(17/2$^-$)	[E2]		B(E2)(W.u.)=23 *8* I_γ: from ^{76}Ge(^{11}B,p3nγ). Other: ≈17 in ^{82}Se(α,3nγ).
3685.8		363.8 *4*	100	3322.0		(D+Q)[a]		
3804.4		482.4 *4*	100	3322.0				
3820.7		409.2 *2*	100	3411.54	(21/2$^+$)			
3906.4	(19/2$^+$)	413 *1*	43 *11*	3493.2?				
		1422.5 *4*	54 *7*	2483.84	17/2$^+$			

$^{83}_{36}Kr_{47}$-6

Adopted Levels, Gammas (continued)

γ(^{83}Kr) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult.‡	δ‡	Comments
3906.4	(19/2$^+$)	1428.4 *3*	100 *15*	2478.1	(15/2$^+$)	(E2)		Mult.: (Q) from γ(θ) in ^{82}Se(α,3nγ); E2 from assumed band structure.
4025.7	(21/2$^+$)	1541.8 *3*	100	2483.84	17/2$^+$	(E2)		Mult.: (Q) from γ(θ) in ^{82}Se(α,3nγ); E2 from assumed band structure.
4172.3	(21/2$^+$)	266.0 *2*	100 *6*	3906.4	(19/2$^+$)	(M1+E2)		Mult.: (D+Q) from γ(θ) in ^{82}Se(α,3nγ); Δπ=no from level scheme.
		761[d]	≈29[d]	3411.54	(21/2$^+$)			
		1621.3 *4*	31 *3*	2550.85	17/2$^+$	(E2)		Mult.: (Q) from γ(θ) in ^{82}Se(α,3nγ); E2 from assumed band structure.
4218.4	(23/2$^-$)	615.3 *2*	100 *18*	3603.06	(21/2$^-$)	(M1+E2)	−0.21[b] *9*	B(E2)(W.u.)=24 *8*; B(M1)(W.u.)=0.17 *5* Mult.: (D+Q) from γ(θ) in ^{82}Se(α,3nγ) and ^{76}Ge(^{11}B,p3nγ); E1+M2 excluded by comparison to RUL.
		1060.8 *5*	27 *10*	3157.51	(19/2$^-$)	[E2]		B(E2)(W.u.)=10 *5* I_γ: from ^{76}Ge(^{11}B,p3nγ). Other: ≈23 in ^{82}Se(α,3nγ).
4585.2	(23/2$^+$)	412.9 *2*	100 *10*	4172.3	(21/2$^+$)	(M1+E2)[a]		Mult.: (D+Q) from γ(θ) in ^{82}Se(α,3nγ), (M1+E2) from assumed band structure.
		559 *1*	≈24	4025.7	(21/2$^+$)			
4629.8		1026.7 *4*	100	3603.06	(21/2$^-$)	(D+Q)[a]		
4694.6	(25/2$^-$)	1327.6 *3*	100	3367.03	(21/2$^-$)	(E2)		B(E2)(W.u.)=4.3 *+11−9* Mult.: (Q) from γ(θ) in ^{82}Se(α,3nγ), M2 excluded by comparison to RUL.
4870.0	(25/2$^-$)	651.4 *3*	63 *6*	4218.4	(23/2$^-$)	(M1+E2)		Mult.: (D+Q) from R_{DCO} in ^{76}Ge(^{11}B,p3nγ); Δπ=no from level scheme,
		1267.1 *4*	100 *9*	3603.06	(21/2$^-$)	(E2)		B(E2)(W.u.)=8.2 *17* Mult.: (Q) from γ(θ) in ^{82}Se(α,3nγ), M2 excluded by comparison to RUL.
5103.3	(25/2$^+$)	518.1 *2*	100	4585.2	(23/2$^+$)	(M1+E2)[a]		Mult.: (D+Q) from γ(θ) in ^{82}Se(α,3nγ), (M1+E2) from assumed band structure.
5183.9		1772.3 *4*	100	3411.54	(21/2$^+$)	(D+Q)		
5641.2	(27/2$^-$)	771 *1*	≈100	4870.0	(25/2$^-$)			
		1423[e]	97 *13*	4218.4	(23/2$^-$)			
5683.4	(27/2$^+$)	580.1 *5*	100	5103.3	(25/2$^+$)			
5736.0	(29/2$^-$)	1041.4 *3*	100	4694.6	(25/2$^-$)			
5778.4		1957.6 *3*	100	3820.7		(Q)[a]		
6373.4	(29/2$^+$)	690 *1*	100	5683.4	(27/2$^+$)			

† Weighted average of values from ^{80}Se(α,nγ) and ^{82}Se(α,3nγ), except where noted.
‡ From γ(θ) and linear polarization measurements in ^{80}Se(α,nγ), except where noted. Sign of δ is only relative, since sign convention is not given by 1981Ca01.
# From ^{83}Rb ε decay.
@ From ^{83}Br β^- decay.
& From IT decay.
[a] From γ(θ) and linear polarization measurements in ^{82}Se(α,3nγ).
[b] From γγ(θ) (R_{DCO}) measurements in ^{76}Ge(^{11}B,p3nγ).
[c] 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.

$^{83}_{36}Kr_{47}$-7

Adopted Levels, Gammas (continued)

$\gamma(^{83}Kr)$ (continued)

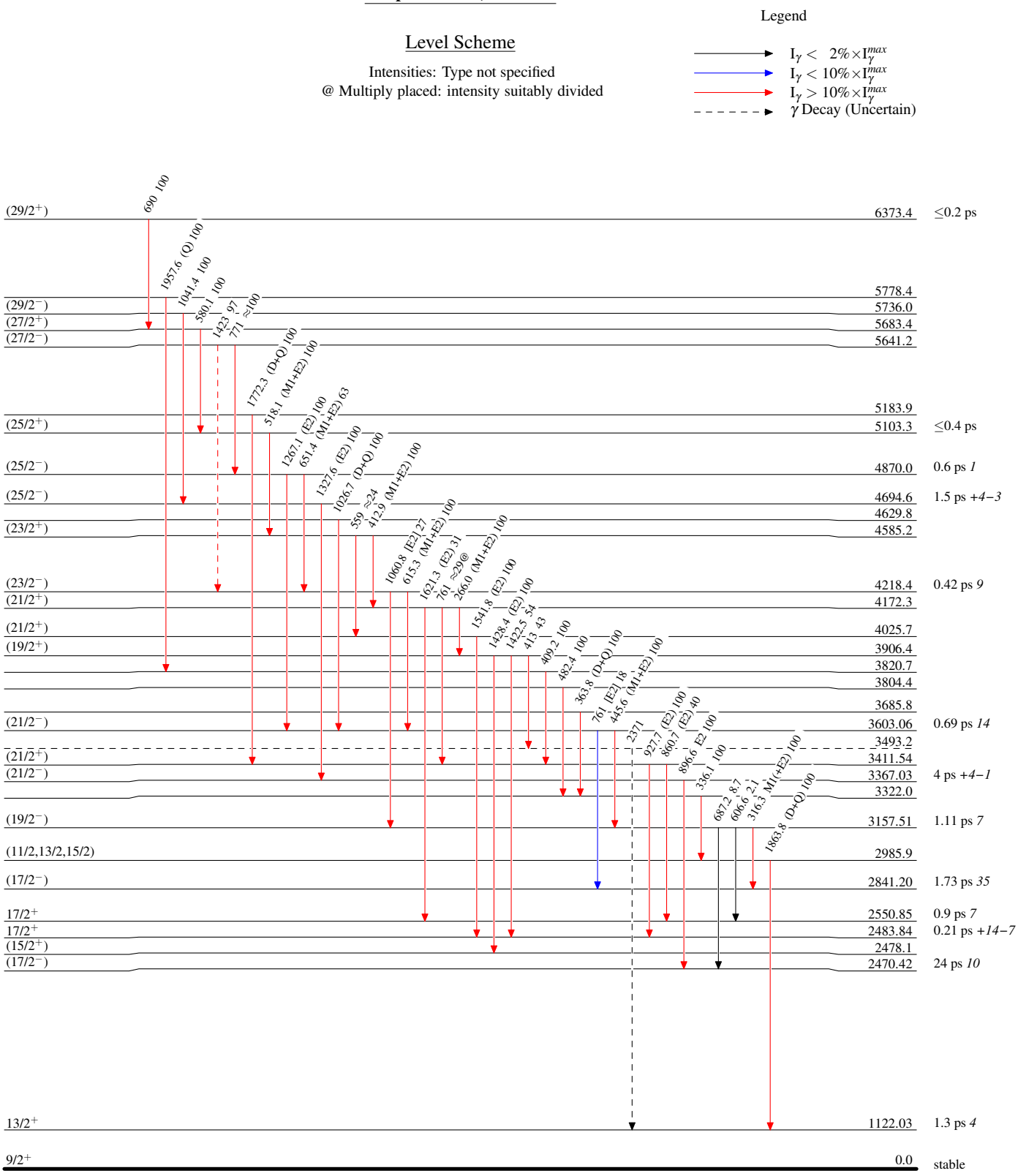
[d] Multiply placed with intensity suitably divided.
[e] Placement of transition in the level scheme is uncertain.

$^{83}_{36}Kr_{47}$-8

Adopted Levels, Gammas

Level Scheme

Intensities: Type not specified
@ Multiply placed: intensity suitably divided

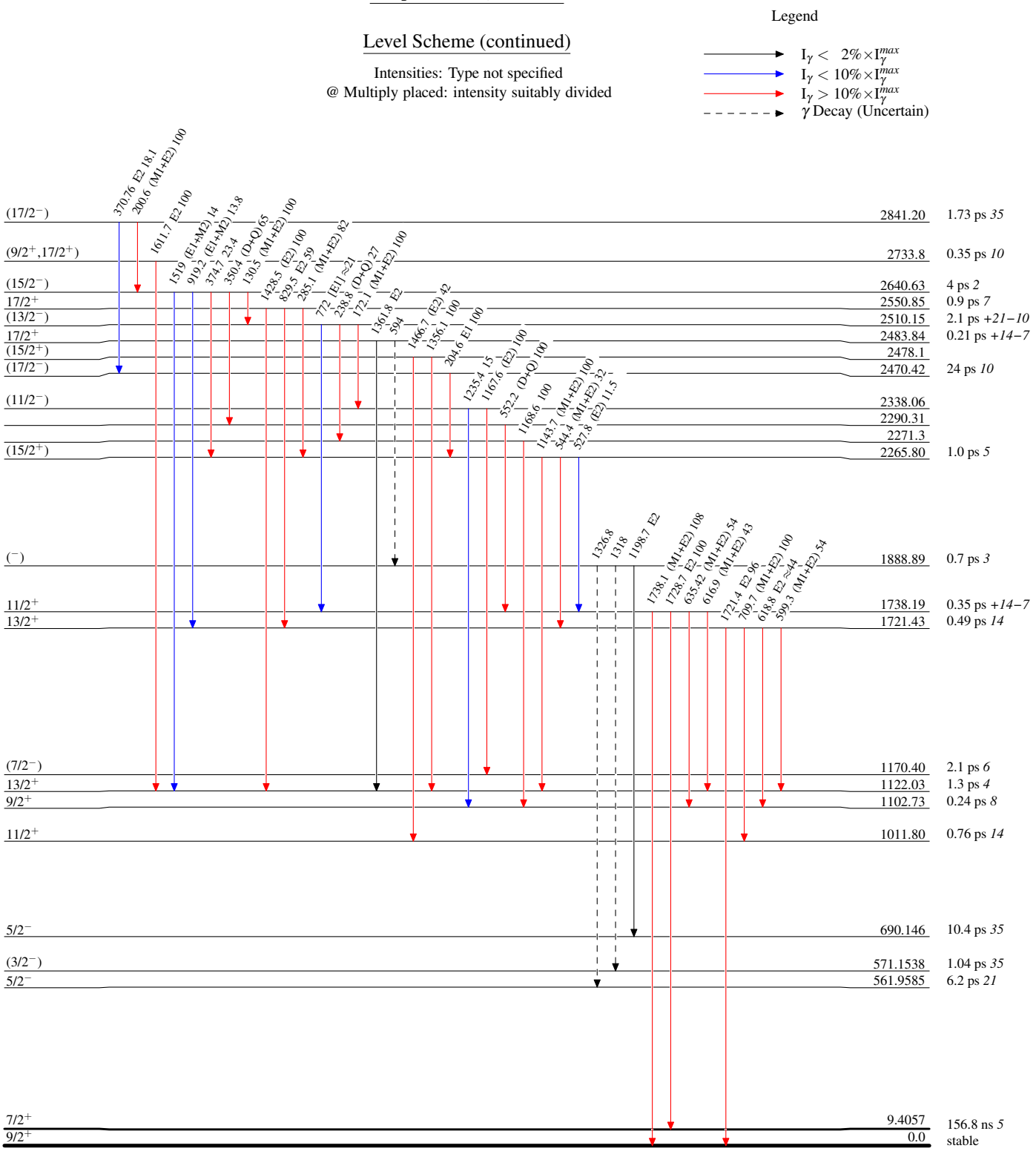


$^{83}_{36}Kr_{47}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified
@ Multiply placed: intensity suitably divided

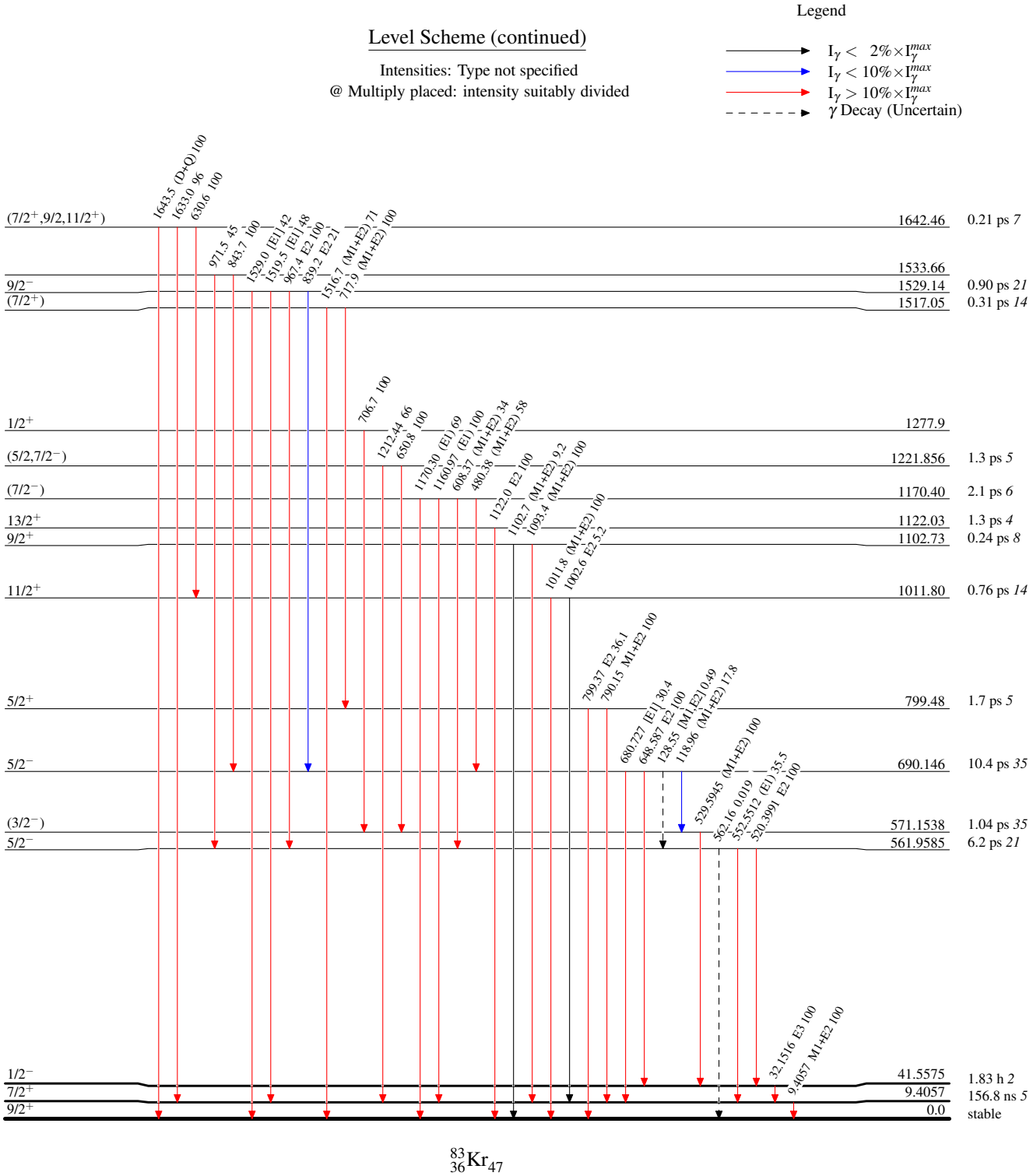


$^{83}_{36}Kr_{47}$

Adopted Levels, Gammas

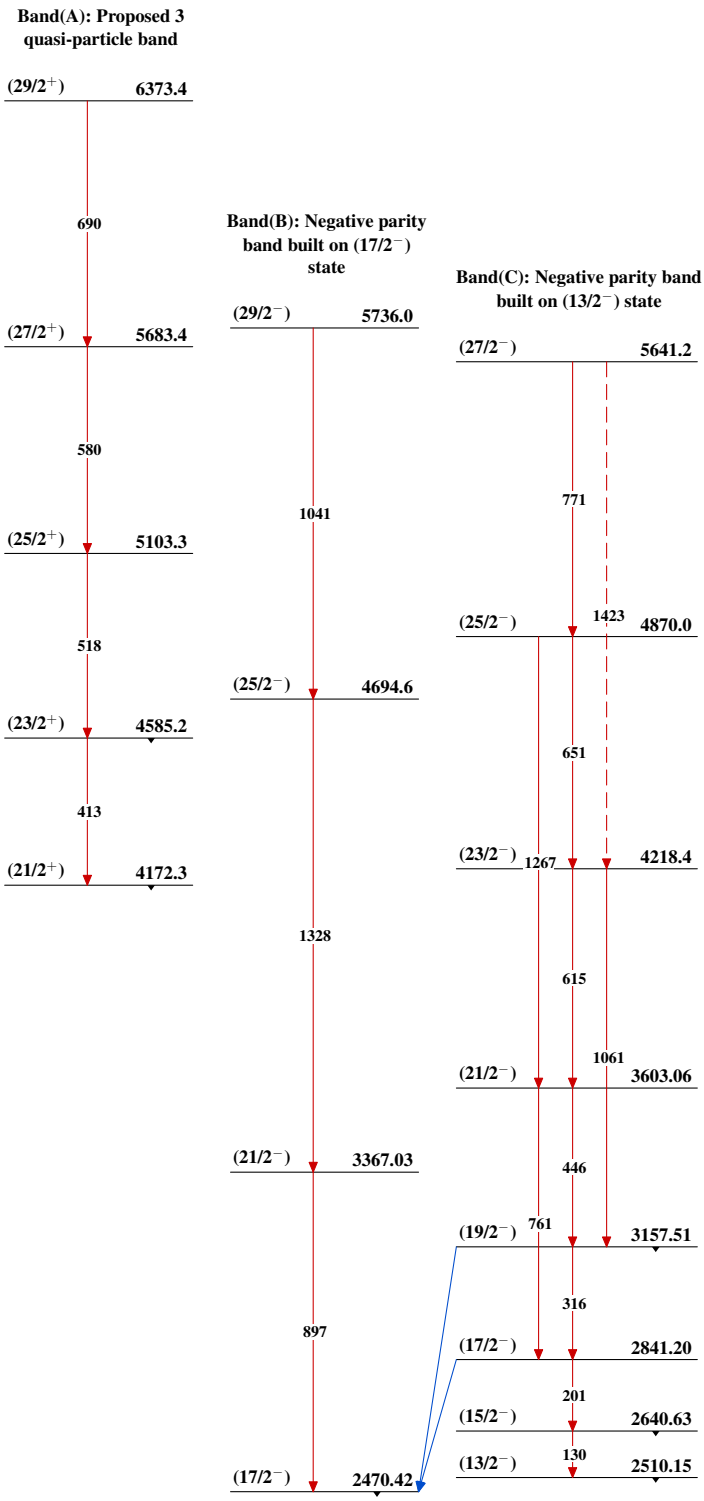
Level Scheme (continued)

Intensities: Type not specified
@ Multiply placed: intensity suitably divided



$^{83}_{36}Kr_{47}$

Adopted Levels, Gammas



$^{83}_{36}Kr_{47}$