Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	T. W. Burrows	NDS 108,923 (2007)	20-Feb-2007

Q(β^-)=6631 *3*; S(n)=8369.4 *16*; S(p)=1.327×10^4 *4*; Q(α)=−1.381×10^4 *10* 2012Wa38
Note: Current evaluation has used the following Q record 6644 8 *8349* 1613270 40 2003Au03.

^{47}K Levels

Cross Reference (XREF) Flags

A ^{47}Ar β^- decay: tentative
B ^{48}Ca(μ,nγ): At rest
C ^{48}Ca(e,e′p) E=440 MeV
D ^{48}Ca(d,^{3}He),(pol d,^{3}He),(t,α)
E ^{48}Ca(^{48}Ca,Xγ) E=210 MeV
F ^{198}Pt(^{48}Ca,Xγ)

E(level)[†]	J$^\pi$[‡]	T$_{1/2}$[#]	XREF	Comments
0	1/2$^+$[@][&][a]	17.50 s *24*	ABCDEF	%β^-=100 μ=+1.933 *9* (2005St24,1982To02) T=9/2; Configuration=((48CA 0$^+$)(ν 2s$_{1/2}$)$^{-1}$) (1984Al18) J$^\pi$: J=1/2 from ABLS (1982To02). J$^\pi$=1/2$^+$ from L=0. T$_{1/2}$: weighted average of 17.5 s *4* (1981HuZT. β(t), 4$\pi\beta$, or γ(t)) and 17.5 s *3* (1964Ku02. γ(t); Eγ>1.85 MeV, NaI. Chem). Other: 18.0 s *10* (1970Wa29. γ(t)). μ: ABLS. ^{39}K standard.
360.0[b] *10*	3/2$^+$[&][ac]	1.1 ns *3*	ABCDEF	T=9/2
2020.0[b] *15*	(7/2$^-$)[&]	6.3 ns *4*	A DEF	J$^\pi$: (7/2$^-$) from $\sigma(\theta)$ and A(θ) in (d,^{3}He),(pol d,^{3}He). Either 7/2$^-$ or 5/2$^+$; a pure L=3 transfer does not reproduce $\sigma(\theta)$ (1987Og01) in (t,α). 7/2$^-$ from comparison of experimental to calculated decay patterns (2004We09) in β^- decay.
2287.0[b] *18*			E	
3.35×10^3 *3*	5/2$^+$,3/2$^+$[d]		DE	
3432 *19*	(5/2)$^+$[a]		CD	
3717.6[b] *7*	(3/2$^-$)[&][e]		A D	
3762.1[b] *18*	(5/2$^-$)[&][e]		A	
3.85×10^3 *2*	1/2$^+$[@]		CD	
3.93×10^3 *2*	3/2$^+$[c]		CD	
4.17×10^3 *6*			D	
4.36×10^3 *4*			D	
4434.1[b] *20*			E	
4.74×10^3 *4*			D	
4.90×10^3 *4*			D	
5220 *20*	5/2$^+$		CD	
5465 *25*	5/2$^+$		CD	
5.79×10^3 *2*			D	
5842.4[b] *18*	(5/2$^-$)[&][e]		A	
6.15×10^3 *4*	5/2$^+$,3/2$^+$[d]		D	
6.26×10^3 *4*			D	
6.42×10^3 *4*			D	
6462 *32*	(5/2)$^+$		CD	
6.87×10^3 *4*	(5/2)$^+$		CD	
7.15×10^3 *5*			D	
7.38×10^3 *4*			D	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{47}K Levels (continued)

E(level)[†]	J$^{\pi}$[‡]	XREF
7.57×10^3 *3*	(5/2)$^+$	D
7762 *33*	(5/2)$^+$	CD
8035 *38*	(5/2)$^+$	CD
8530? *20*	5/2$^+$,3/2$^+$[*d*]	D

† From ^{48}Ca(d,^{3}He),(pol d,^{3}He),(t,α), except as noted.
‡ From comparison to A(θ) for the 3.93- and 5.46-MeV states in (pol d,^{3}He), except as noted.
# From $\gamma\gamma$(t) in ^{198}Pt(^{48}Ca,Xγ), except as noted.
@ The strength of the g.s. and 3.85-MeV state exhaust 90% of shell-model sum rule (1985Ba14) in (d,^{3}He).
& See β^- decay for configurations suggest by 2004We09.
[a] See 2006Ga31 for a study of the systematics of the d3/2-s1/2 proton hole splitting in the odd-mass K, Cl, and P isotopes for N=20-28 and d5/2-d3/2 for ^{39}K and ^{47}K.
[b] From least-squares fit to Eγ's assuming ΔE(γ)=1 keV.
[c] The combined strength of the 360 and 3930 states exceeds the shell-model sum rule for d3/2 (1987Og01,1985Ba14) in (d,^{3}He) and (t,α).
[d] From angular momentum transfer in (d,^{3}He).
[e] From comparison of experimental to calculated decay patterns (2004We09) in β^- decay.

Adopted Levels, Gammas (continued)

$\gamma(^{47}K)$

See β^- decay for unplaced gammas.

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.	α[@]	Comments
360.0	$3/2^+$	360[‡]	100	0	$1/2^+$	(M1,E2)	0.0011 *7*	α(K)=0.0010 *6*; α(L)=9.E−5 *5*; α(M)=1.0×10^{-5} *6*; α(N+..)=3.5×10^{-7} *20* Mult.: D,E2 from comparison to RUL. $\Delta\pi$=no from level scheme.
2020.0	$(7/2^-)$	1660	100 *10*	360.0	$3/2^+$	(M2)[#]	9.12×10^{-5} *13*	B(M2)(W.u.)=0.026 *4* α(K)=3.70×10^{-5} *6*; α(L)=3.10×10^{-6} *5*; α(M)=3.37×10^{-7} *5*; α(N+..)=5.08×10^{-5} *8* α(N)=1.242×10^{-8} *18*; α(IPF)=5.07×10^{-5} *8*
		2020[&]	13.2 *19*	0	$1/2^+$	[E3]	0.000206 *3*	B(E3)(W.u.)=1.25 *23* α(K)=2.61×10^{-5} *4*; α(L)=2.19×10^{-6} *3*; α(M)=2.38×10^{-7} *4*; α(N+..)=0.0001779 *25* α(N)=8.76×10^{-9} *13*; α(IPF)=0.0001779 *25*
2287.0		267[‡]		2020.0	$(7/2^-)$			
3.35×10^3	$5/2^+,3/2^+$	1319[‡]		2020.0	$(7/2^-)$			
3717.6	$(3/2^-)$	3357[&]	7 *7*	360.0	$3/2^+$			
		3718[&]	100 *15*	0	$1/2^+$			
3762.1	$(5/2^-)$	1742	100 *10*	2020.0	$(7/2^-)$			
		3402[&]	10 *5*	360.0	$3/2^+$			
4434.1		1094[‡]		3.35×10^3	$5/2^+,3/2^+$			
		2147[‡]		2287.0				
5842.4	$(5/2^-)$	3822	100	2020.0	$(7/2^-)$			

[†] From β^- decay, except as noted.
[‡] From ^{48}Ca(^{48}Ca,Xγ).
[#] ΔJ=2 from W(in plane)/W(out of plane) in ^{198}Pt(^{48}Ca,Xγ); $\Delta\pi$=yes from level scheme.
[@] 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.
[&] Placement of transition in the level scheme is uncertain.

$^{47}_{19}K_{28}$-3

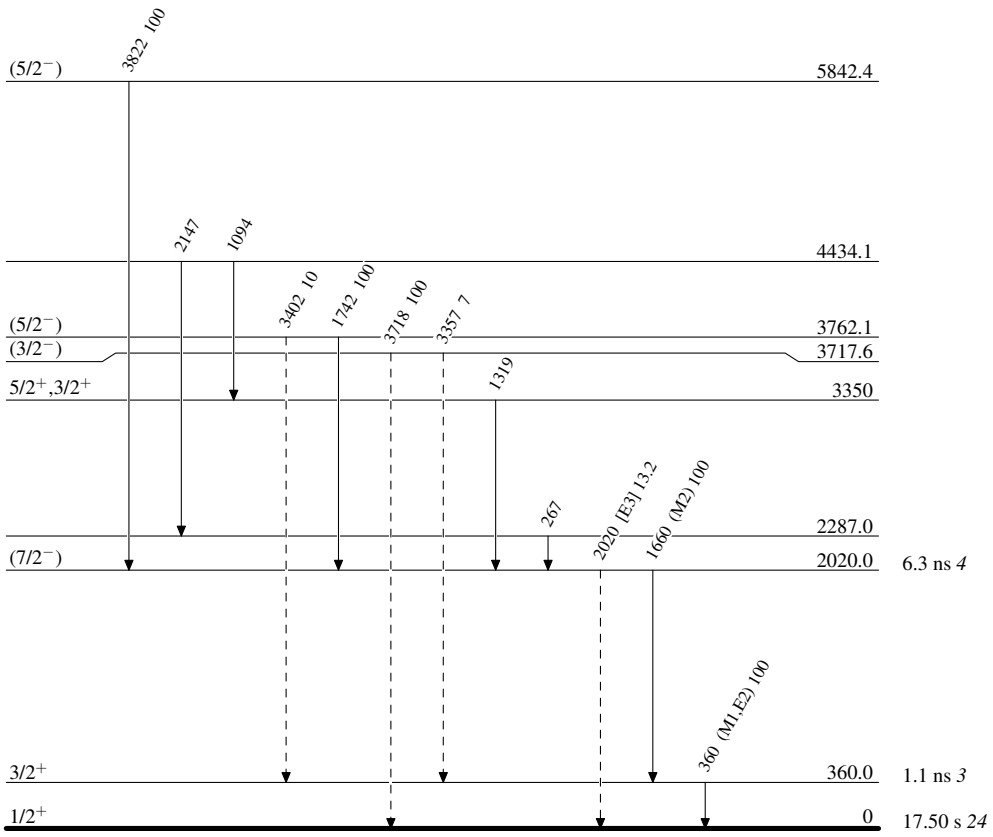
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

- - - - - - ► γ Decay (Uncertain)



$^{47}_{19}K_{28}$