^{47}K β^- decay 1984Al18,1970Wa29

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

Parent: ^{47}K: E=0.0; $J^\pi=1/2^+$; $T_{1/2}$=17.50 s *24*; Q(β^-)=6644 *8*; %β^- decay=100.0

^{47}K-Q(β^-): From 2003Au03.

1970Wa29: measured γ's and γ(t);Ge(Li), pneumatic shutter. Note that 1984Al18 give data from the study by 1970Wa29 which were not explicitly included in the paper.

1984Al18: Measured γ's; Ge(Li), rabbit system. New delayed γ's from ^{48}Ca+t reactions assigned by comparison of spectra from enriched and natural $CaCO_3$ targets and half-life considerations.

Others: 1995Bu05.

^{47}Ca Levels

E(level)[†]	J^π[‡]	$T_{1/2}$	Comments
0.0	$7/2^-$	4.536 d *3*	%β^-=100 $T_{1/2}$,%β^-: from the Adopted Levels.
2013.51 *10*	$3/2^-$		
2578.31 *10*	$3/2^+$		
2599.52 *12*	$1/2^+$		
4524.7? *8*	($3/2^+$)		Not included in decay scheme by 1984Al18 due to the uncertain placement of the 2511γ. See discussion on possible J^π's and configuration of this state by 1984Al18.

[†] From 1984Al18, except for the 4525 state.

[‡] From the Adopted Levels.

β^- radiations

Iβ normalization: >0.97 (1984Al18) based on assumption of no direct feeding of g.s. and any other γ decay to the first three excited states is <2%.

All data are from 1984Al18, except As noted.

E(decay)	E(level)	Iβ^-[†‡]	Log *ft*	Comments
(2119[#] *8*)	4524.7?	1.2 *2*	5.4 *1*	av Eβ=879.8 *38* Iβ,log *ft* calculated by evaluator. Not included in decay scheme by 1984Al18 due to the uncertain placement of the 2511γ.
(4044 *8*)	2599.52	81.0 *15*	4.82 *1*	av Eβ=1803.4 *39*
(4066 *8*)	2578.31	19.0 *3*	5.46 *1*	av Eβ=1813.7 *39*
(4630 *8*)	2013.51	<2.0	>6.7	av Eβ=2088.7 *39*

[†] Uncertainties given are two standard deviations.

[‡] For absolute intensity per 100 decays, multiply by 0.985 *15*.

[#] Existence of this branch is questionable.

^{47}K β^- decay 1984Al18,1970Wa29 (continued)

$\gamma(^{47}Ca)$

Iγ normalization: From Σ Iγ(g.s.)=100. No direct feeding of g.s. expected.
All data are from 1984Al18, except for Iγ normalization and mult.

E_γ	I_γ [†#]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	α[@]	Comments
564.79 *8*	14.22 *26*	2578.31	3/2$^+$	2013.51	3/2$^-$	(E1)	0.0001400 *20*	α=0.0001400 *20*; α(K)=0.0001279 *18*; α(L)=1.098×10^{-5} *16*; α(M)=1.303×10^{-6} *19* α(N+..)=7.37×10^{-8} *11* α(N)=7.37×10^{-8} *11*
586.01 *8*	85.4 *15*	2599.52	1/2$^+$	2013.51	3/2$^-$	(E1)	0.0001280 *18*	α=0.0001280 *18*; α(K)=0.0001169 *17*; α(L)=1.004×10^{-5} *14*; α(M)=1.191×10^{-6} *17* α(N+..)=6.74×10^{-8} *10* α(N)=6.74×10^{-8} *10*
2013.45 *18*	100	2013.51	3/2$^-$	0.0	7/2$^-$	(E2)	0.000342 *5*	α=0.000342 *5*; α(K)=1.91×10^{-5} *3*; α(L)=1.640×10^{-6} *23*; α(M)=1.95×10^{-7} *3*; α(N+..)=0.000321 *5* α(N)=1.108×10^{-8} *16*; α(IPF)=0.000321 *5*
2511.1[&] *8*	1.3 *2*	4524.7?	(3/2$^+$)	2013.51	3/2$^-$			1984Al18 warn that this assignment is speculative. Another possible placement is from the ^{50}Ti 5186-keV state in ^{50}Sc 0.35-sec β^- decay.
2578.26 *12*	6.00 *10*	2578.31	3/2$^+$	0.0	7/2$^-$	(M2)	0.000336 *5*	α=0.000336 *5*; α(K)=1.81×10^{-5} *3*; α(L)=1.548×10^{-6} *22*; α(M)=1.84×10^{-7} *3*; α(N+..)=0.000317 *5* α(N)=1.048×10^{-8} *15*; α(IPF)=0.000317 *5*
2599.40 *20*	1.12 *8*	2599.52	1/2$^+$	0.0	7/2$^-$	(E3)	0.000412 *6*	α=0.000412 *6*; α(K)=1.82×10^{-5} *3*; α(L)=1.557×10^{-6} *22*; α(M)=1.85×10^{-7} *3*; α(N+..)=0.000392 *6* α(N)=1.053×10^{-8} *15*; α(IPF)=0.000392 *6*

† Relative photon intensity.
‡ From the Adopted Gammas.
# For absolute intensity per 100 decays, multiply by 0.9335 *11*.
@ 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.

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Decay Scheme

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays