^{49}Ca β^- decay 1971Ei03,2003Be37

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	T. W. Burrows[a]	NDS 109, 1879 (2008)	14-Jul-2008

Parent: ^{49}Ca: E=0.0; $J^\pi=3/2^-$; $T_{1/2}$=8.718 min *6*; Q(β^-)=5262.1 *29*; %β^- decay=100.0

^{49}Ca-E,J^π,$T_{1/2}$: From ^{49}Ca Adopted Levels.

^{49}Ca-Q(β^-): From 2003Au03.

1971Ei03: measured γ's and 1409γ-3084γ(90°,180°) (NaI).

2003Be37: measured γ's (70% HPGe; characterized by 2000Lu08 for Eγ=433 to 2754 keV and calculated efficiencies from R.G. Helmer [priv. comm., December 2000]). Chemistry and apparent $T_{1/2}$'s used to identify ^{49}Ca γ's.

Others: see 1995Bu23.

^{49}Sc Levels

E(level)[†]	J^π[‡]	$T_{1/2}$[‡]	Comments
0.0	$7/2^-$	57.18 min *13*	%β^-=100 %β^-: from the Adopted Levels.
2228.6 *3*	$1/2^+$		
2371.9 *3*	$3/2^+$		
3084.52 *10*	$3/2^-$[#]		
3516.7 *5*	$3/2^-$		
4072.07 *10*	$5/2^-$		
4332.2 *10*	$5/2^-$		
4493.44 *22*	$1/2^-$		
4714.8 *8*	$1/2^-$,$3/2^-$		
4738.45 *20*	$5/2^-$		

[†] From least-squares fit to Eγ's assuming $\Delta E(\gamma)$=1 keV when not given (evaluator).

[‡] From the Adopted Levels.

[#] Confirmed by $\beta\gamma$ circular polarization of 1970Ma02 (scin, NaI).

β^- radiations

$\beta\gamma$ (scin, NaI): from 1956Ma27 and 1970Ma02.

E(decay)	E(level)	Iβ^-[†‡]	Log *ft*	Comments
(524 *3*)	4738.45	0.281 *6*	5.18 *2*	av Eβ=174.7 *12*
(547 *3*)	4714.8	0.036 *9*	6.14 *11*	av Eβ=183.9 *12*
(769 *3*)	4493.44	0.649 *13*	5.42 *1*	av Eβ=272.9 *12*
(930 *3*)	4332.2	0.0061 *16*	7.76 *12*	av Eβ=340.5 *13*
(1190 *3*)	4072.07	8.198 *25*	5.05 *1*	av Eβ=453.4 *13*
(1745 *3*)	3516.7	0.142 *9*	7.48 *3*	av Eβ=704.5 *14*
(2178 *3*)	3084.52	90.20 *5*	5.080 *3*	av Eβ=905.8 *14*
(2890 *3*)	2371.9	0.470 *20*	7.89 *2*	av Eβ=1244.3 *14*
(3034[#] *3*)	2228.6	0.018 *21*	9.4 *5*	av Eβ=1313.0 *14*
(5262[#] *3*)	0.0			Iβ^-: Iβ<1% (1956Ma27; scin). ΔJ^π=2,Noindicates log *ft*>12.8 and Iβ<8-5%.

[†] Absolute intensity from intensity balance At each state.

[‡] Absolute intensity per 100 decays.

[#] Existence of this branch is questionable.

^{49}Ca β^- decay 1971Ei03,2003Be37 (continued)

$\gamma(^{49}Sc)$

E_γ [†]	I_γ [‡&]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	Comments
143.2 *2*	0.031 *3*	2371.9	$3/2^+$	2228.6	$1/2^+$		
712.6[#]	0.0135 *17*	3084.52	$3/2^-$	2371.9	$3/2^+$		
856.1 *5*	0.146 *5*	3084.52	$3/2^-$	2228.6	$1/2^+$		
976.7[#]	0.0075 *24*	4493.44	$1/2^-$	3516.7	$3/2^-$		
987.3 *5*	0.077 *5*	4072.07	$5/2^-$	3084.52	$3/2^-$		
1144.5 *5*	0.098 *6*	3516.7	$3/2^-$	2371.9	$3/2^+$		
1288.4 *5*	0.051 *6*	3516.7	$3/2^-$	2228.6	$1/2^+$		
1408.9 *2*	0.599 *10*	4493.44	$1/2^-$	3084.52	$3/2^-$	D+Q	δ>−1.8<0.0 δ: other values excluded by adopted J^π.
2228.9 *5*	0.319 *16*	2228.6	$1/2^+$	0.0	$7/2^-$		
2264.7[#]	0.042 *7*	4493.44	$1/2^-$	2228.6	$1/2^+$		
2371.7 *5*	0.550 *18*	2371.9	$3/2^+$	0.0	$7/2^-$		
2486.3[#]	0.031 *8*	4714.8	$1/2^-$,$3/2^-$	2228.6	$1/2^+$		
3084.4[@] *1*	90.72 *4*	3084.52	$3/2^-$	0.0	$7/2^-$	E2	
4071.9[@] *1*	8.121 *24*	4072.07	$5/2^-$	0.0	$7/2^-$		
4332.0[#]	0.0061 *16*	4332.2	$5/2^-$	0.0	$7/2^-$		
4493[a]	<0.07	4493.44	$1/2^-$	0.0	$7/2^-$		I_γ: from 1971Ei03. Not reported by 2003Be37.
4714.4	0.0051 *16*	4714.8	$1/2^-$,$3/2^-$	0.0	$7/2^-$		
4738.2[@] *2*	0.281 *6*	4738.45	$5/2^-$	0.0	$7/2^-$		

[†] From 1971Ei03, except As noted.
[‡] From 2003Be37. Absolute intensities assuming No direct feeding of the ^{49}Sc g.s..
[#] Nominal energy from 2003Be37.
[@] From 1969Ch24.
[&] Absolute intensity per 100 decays.
[a] Placement of transition in the level scheme is uncertain.

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Decay Scheme

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