^{51}Ca β^- decay 1980Hu14

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Wang Jimin and Huang Xiaolong	NDS 144, 1 (2017)	1-Mar-2016

Parent: ^{51}Ca: E=0.0; $J^\pi=3/2^{(-)}$; $T_{1/2}$=10.0 s *8*; Q(β^-)=6.896×10^3 *20*; %β^- decay=100.0
Source produced by U(p,X) E=600 MeV, mass separated, Ge(Li) detectors; measured delayed Eγ, Iγ, $\gamma\gamma$ coincidences, and $T_{1/2}$.

^{51}Sc Levels

E(level)†	J^π‡	$T_{1/2}$	E(level)†	J^π‡
0.0	$(7/2)^-$	12.4 s *1*	2708.8 *3*	$(3/2^-)$
861.62 *10*	$(3/2^-)$		3038.69 *23*	$(3/2^-,5/2^-)$
1167.33 *20*	$(3/2,5/2,7/2^+)$		3195.2 *4*	$(3/2^-,5/2^-)$
1394.02 *17*	(3/2,5/2)		3390.6 *6*	(1/2,3/2,5/2)
1715.02 *19*			3772.1 *6*	$(3/2^-,5/2^-)$
2347.2 *4*	$(1/2^-)$			

† From decay scheme and Eγ's, using least-squares fit to data.
‡ From Adopted Levels.

β^- radiations

E(decay)	E(level)	Iβ^-†‡	Log *ft*	Comments
(3124 *20*)	3772.1	6.5 *7*	5.44 *8*	av Eβ=1578 *47*
(3505 *20*)	3390.6	3.6 *5*	5.89 *9*	av Eβ=1763 *47*
(3701 *20*)	3195.2	25.5 *13*	5.14 *7*	av Eβ=1858 *47*
(3857 *20*)	3038.69	19.2 *11*	5.33 *7*	av Eβ=1934 *47*
(4187 *20*)	2708.8	9.9 *8*	5.77 *7*	av Eβ=2094 *47*
(4549 *20*)	2347.2	12.9 *12*	5.80 *7*	av Eβ=2271 *47*
(5181 *20*)	1715.02	<3.1	>6.7	av Eβ=2580 *47*
(5502 *20*)	1394.02	14.9 *16*	6.08 *7*	av Eβ=2737 *47*
(5729 *20*)	1167.33	2.5 *15*	6.9 *3*	av Eβ=2848 *47*
(6034 *20*)	861.62	5.1 *19*	6.72 *17*	av Eβ=2998 *47*

† From intensity imbalance at each level. Values are those of the authors.
‡ Absolute intensity per 100 decays.

$\gamma(^{51}Sc)$

Iγ normalization: Based on ΣIγ(to g.s.)=100.

Eγ	Iγ†#	E$_i$(level)	J^π_i	E$_f$	J^π_f
352.4 *23*	0.5	3390.6	(1/2,3/2,5/2)	3038.69	$(3/2^-,5/2^-)$
532.2 *4*	11	1394.02	(3/2,5/2)	861.62	$(3/2^-)$
547.7 *1*	57	1715.02		1167.33	$(3/2,5/2,7/2^+)$
861.6 *1*	100	861.62	$(3/2^-)$	0.0	$(7/2)^-$
1167.5 *3*	68	1167.33	$(3/2,5/2,7/2^+)$	0.0	$(7/2)^-$
1314.8 *6*	13	2708.8	$(3/2^-)$	1394.02	(3/2,5/2)
1323.7 *2*	40	3038.69	$(3/2^-,5/2^-)$	1715.02	
1394.0 *2*	77	1394.02	(3/2,5/2)	0.0	$(7/2)^-$
1424.0 *7*	7	3772.1	$(3/2^-,5/2^-)$	2347.2	$(1/2^-)$

Continued on next page (footnotes at end of table)

^{51}Ca β^- decay 1980Hu14 (continued)

$\gamma(^{51}Sc)$ (continued)

E_γ	I_γ[†#]	E_i(level)	J_i^π	E_f	J_f^π
1480.1 *3*	65	3195.2	(3/2$^-$,5/2$^-$)	1715.02	
1485.3 *4*	47	2347.2	(1/2$^-$)	861.62	(3/2$^-$)
1644.4 *4*	14	3038.69	(3/2$^-$,5/2$^-$)	1394.02	(3/2,5/2)
1714.8 *3*	23	1715.02		0.0	(7/2)$^-$
1847.1 *3*	18	2708.8	(3/2$^-$)	861.62	(3/2$^-$)
1996.5 *5*	11	3390.6	(1/2,3/2,5/2)	1394.02	(3/2,5/2)
2027.5 *27*	2.6	3195.2	(3/2$^-$,5/2$^-$)	1167.33	(3/2,5/2,7/2$^+$)
2333.4 *18*	3.6	3195.2	(3/2$^-$,5/2$^-$)	861.62	(3/2$^-$)
2378.7 *14*	3.3	3772.1	(3/2$^-$,5/2$^-$)	1394.02	(3/2,5/2)
2912.0 *10*	4.1	3772.1	(3/2$^-$,5/2$^-$)	861.62	(3/2$^-$)
3038.9 *7*	7	3038.69	(3/2$^-$,5/2$^-$)	0.0	(7/2)$^-$
3196.5 *11*	9	3195.2	(3/2$^-$,5/2$^-$)	0.0	(7/2)$^-$
3771.7 *11*	6	3772.1	(3/2$^-$,5/2$^-$)	0.0	(7/2)$^-$
[x]4379.0[‡] *15*	3.4				

[†] Relative intensity normalized to Iγ(861.6γ)=100. No uncertainties are given by the authors; however, they also give branching ratios and Iβ (from Iγ imbalances) with uncertainties. The branching ratio data are given in adopted γ's.

[‡] Assignment to ^{51}Ca β^- decay is not definitely established.

[#] For absolute intensity per 100 decays, multiply by 0.345.

[x] γ ray not placed in level scheme.

^{51}Ca β^- decay 1980Hu14

Decay Scheme

Intensities: I_γ per 100 parent decays