^{51}Sc β^- decay 1976Da16

History

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

Parent: ^{51}Sc: E=0.0; $J^\pi=(7/2)^-$; $T_{1/2}$=12.4 s *1*; Q(β^-)=6504 *20*; %β^- decay=100
Source produced by ^{48}Ca(α,p) E=18 MeV; Ge(Li) detectors, measured Eγ, Iγ, $\gamma\gamma$ coin, and $T_{1/2}$. Deduced decay scheme.

^{51}Ti Levels

E(level)†	Jπ‡	$T_{1/2}$	E(level)†	Jπ‡
0.0	$3/2^-$	5.76 min *1*	2919.3 *4*	$(5/2,7/2)^-$
1166.5 *6*	$1/2^-$		3062.3 *4*	$(7/2,9/2)^-$
1437.3 *3*	$7/2^-$		3237.4 *21*	(5/2 to 9/2)
1567.6 *3*	$5/2^-$		3618.6 *4*	$(5/2 \text{ to } 9/2)^-$
2144.0 *3*	$5/2^-$		4095.0 *15*	(7/2,9/2)
2344.6 *4*	$(11/2)^-$		4186.6 *21*	(5/2 to 9/2)
2691.4 *8*	$7/2^-$		4882.1 *21*	$(5/2 \text{ to } 9/2)^-$
2731.2 *4*	$(7/2,9/2)^-$			

† 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
(1622 *20*)	4882.1	0.17 *5*	5.67 *13*	av Eβ=649.2 *92*
(2317 *20*)	4186.6	0.33 *5*	6.03 *7*	av Eβ=973.1 *95*
(2409 *20*)	4095.0	0.40 *8*	6.01 *9*	av Eβ=1016.4 *95*
(2885 *20*)	3618.6	13.0 *4*	4.838 *19*	av Eβ=1243.3 *96*
(3267 *20*)	3237.4	0.30 *6*	6.71 *9*	av Eβ=1426.4 *97*
(3442 *20*)	3062.3	13.1 *4*	5.170 *18*	av Eβ=1510.8 *97*
(3585 *20*)	2919.3	3.84 *16*	5.781 *22*	av Eβ=1579.9 *97*
(3773 *20*)	2731.2	4.6 *4*	5.80 *4*	av Eβ=1671.0 *97*
(3813 *20*)	2691.4	2.03 *18*	6.18 *4*	av Eβ=1690.3 *97*
(4360 *20*)	2144.0	34.0 *11*	5.214 *17*	av Eβ=1956.2 *98*
(5067 *20*)	1437.3	27.5 *6*	5.601 *13*	av Eβ=2300.8 *98*

† From intensity imbalance at each level.
‡ Absolute intensity per 100 decays.

$\gamma(^{51}Ti)$

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

Eγ	Iγ†#	E_i(level)	J_i^π	E_f	J_f^π
331.2 *4*	5.49 *25*	3062.3	$(7/2,9/2)^-$	2731.2	$(7/2,9/2)^-$
386.7 *4*	3.52 *18*	2731.2	$(7/2,9/2)^-$	2344.6	$(11/2)^-$
576.3 *4*	6.44 *24*	2144.0	$5/2^-$	1567.6	$5/2^-$
706.6 *7*	1.82 *13*	2144.0	$5/2^-$	1437.3	$7/2^-$
717.7 *4*	13.7 *5*	3062.3	$(7/2,9/2)^-$	2344.6	$(11/2)^-$
775.6 *7*	1.17 *13*	2919.3	$(5/2,7/2)^-$	2144.0	$5/2^-$
887.0 *7*	1.61 *18*	3618.6	$(5/2 \text{ to } 9/2)^-$	2731.2	$(7/2,9/2)^-$

Continued on next page (footnotes at end of table)

^{51}Sc β^- decay 1976Da16 (continued)

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

E_γ	I_γ[†#]	E_i(level)	J_i^π	E_f	J_f^π	Mult.
907.2 *4*	17.9 *6*	2344.6	$(11/2)^-$	1437.3	$7/2^-$	E2[‡]
977.2 *7*	1.21 *15*	2144.0	$5/2^-$	1166.5	$1/2^-$	
1033 *2*	0.50 *13*	4095.0	(7/2,9/2)	3062.3	$(7/2,9/2)^-$	
1124 *1*	2.8 *3*	2691.4	$7/2^-$	1567.6	$5/2^-$	
1163 *1*	0.64 *10*	2731.2	$(7/2,9/2)^-$	1567.6	$5/2^-$	
1166 *1*	1.23 *14*	1166.5	$1/2^-$	0.0	$3/2^-$	
1253.8 *15*	0.76 *13*	2691.4	$7/2^-$	1437.3	$7/2^-$	
1293.8 *4*	11.8 *5*	2731.2	$(7/2,9/2)^-$	1437.3	$7/2^-$	
1351.8 *7*	1.37 *13*	2919.3	$(5/2,7/2)^-$	1567.6	$5/2^-$	
1437.3 *4*	100	1437.3	$7/2^-$	0.0	$3/2^-$	
1474.4 *4*	3.73 *20*	3618.6	$(5/2 \text{ to } 9/2)^-$	2144.0	$5/2^-$	
1481.9 *4*	4.00 *20*	2919.3	$(5/2,7/2)^-$	1437.3	$7/2^-$	
1567.5 *4*	28.7 *9*	1567.6	$5/2^-$	0.0	$3/2^-$	
1625.0 *4*	6.5 *3*	3062.3	$(7/2,9/2)^-$	1437.3	$7/2^-$	
1750 *2*	0.27 *7*	4095.0	(7/2,9/2)	2344.6	$(11/2)^-$	
1800 *2*	0.57 *11*	3237.4	(5/2 to 9/2)	1437.3	$7/2^-$	
2051.1 *4*	15.9 *5*	3618.6	$(5/2 \text{ to } 9/2)^-$	1567.6	$5/2^-$	
2144.1 *4*	61.2 *19*	2144.0	$5/2^-$	0.0	$3/2^-$	
2181.5 *7*	3.73 *16*	3618.6	$(5/2 \text{ to } 9/2)^-$	1437.3	$7/2^-$	
2619 *2*	0.63 *8*	4186.6	(5/2 to 9/2)	1567.6	$5/2^-$	
2691 *2*	0.44 *5*	2691.4	$7/2^-$	0.0	$3/2^-$	
2738 *2*	0.33 *8*	4882.1	$(5/2 \text{ to } 9/2)^-$	2144.0	$5/2^-$	
2919 *2*	0.84 *7*	2919.3	$(5/2,7/2)^-$	0.0	$3/2^-$	

† Relative photon intensities normalized to $I\gamma(1437\gamma)=100$.
‡ From Adopted Gammas.
# For absolute intensity per 100 decays, multiply by 0.520 *6*.

^{51}Sc β^- decay 1976Da16

Decay Scheme

Intensities: I_γ per 100 parent decays