^{56}Sc β^- decay (26 ms) 2010Cr02

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	ENSDF	25-Mar-2022

Parent: ^{56}Sc: E=0; $J^\pi=(1^+)$; $T_{1/2}$=26 ms *6*; Q(β^-)=1391×10[1] *28*; %β^- decay=100.0

^{56}Sc-E,J^π: From ^{56}Sc Adopted Levels.

^{56}Sc-$T_{1/2}$: Measured by fitting the implants-correlated isomeric transition decay curve to a single exponential function with a constant background (2010Cr02).

^{56}Sc-Q(β^-): From 2021Wa16.

2010Cr02: ^{56}Sc activity was produced in ^{9}Be(^{76}Ge,X) at E^{76}Ge) of 130 MeV/nucleon provided by the K500 and K1200 cyclotrons at NSCL, followed by fragment separation using A1900 fragment separator, and time-of-flight technique. Fully stripped secondary fragments were sent to Beta Counting System (BCS) of three Si PIN detectors, a double-sided silicon strip detector, six single sided silicon strip detectors, and 16 HPGe detectors of the Segmented Germanium Array (SeGA). Measured Eγ, Iγ, $\gamma\gamma$-coin, and $T_{1/2}$ of ^{56}Sc decay.

^{56}Ti Levels

E(level)[†]	J^π[‡]	$T_{1/2}$[‡]	Comments
0	0^+	200 ms *5*	
1128.7 *3*	2^+		
1879.6 *5*			J^π: $(0,1,2)^+$ proposed by 2010Cr02 based on β feeding from (1^+). However, evaluator considers the observed β feeding as an apparent value only.

† From Eγ values.

‡ From the Adopted Levels.

β^- radiations

The decay scheme is likely incomplete as only apparent Iβ feedings are given, and in view of large Q value of 13.9 MeV and highest level in ^{56}Ti populated at 1880 keV in this decay. Thus, no log *ft* values are deduced.

E(decay)	E(level)	Iβ^-[†‡]	Comments
(1.20×10^4 *3*)	1879.6	8 *2*	av Eβ=5.61×10^3 *35*
(1.28×10^4 *3*)	1128.7	10 *5*	av Eβ=5.97×10^3 *35*
(1.39×10^4 *3*)	0	≤45	av Eβ=6.52×10^3 *35* Iβ^-: ≤38 *7* in 2010Cr02 from estimated ≈70% β feeding to levels in ^{56}Ti, from measured ratio of γ-ray intensities in decays of β^-n daughter ^{55}Ti and β^- grand-daughter ^{56}V.

† Apparent β feedings from transition intensity balances.

‡ Absolute intensity per 100 decays.

$\gamma(^{56}Ti)$

E$_\gamma$[†]	I$_\gamma$[†‡]	E$_i$(level)	J_i^π	E$_f$	J_f^π	Comments
750.9 *4*	8 *2*	1879.6		1128.7	2^+	
1128.7 *3*	18 *5*	1128.7	2^+	0	0^+	Total observed intensity=48 *4* (2010Cr02) from the two activities.
[x]1711.6 *3*	3 *1*					

† From 2010Cr02.

Continued on next page (footnotes at end of table)

^{56}Sc β^- decay (26 ms) 2010Cr02 (continued)

$\gamma(^{56}Ti)$ (continued)

‡ Absolute intensity per 100 decays.
x γ ray not placed in level scheme.

^{56}Sc β^- decay (26 ms) 2010Cr02

Decay Scheme

Intensities: I_γ per 100 parent decays