55 Sc β⁻ decay (96 ms) 2010Cr02

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Parent: ⁵⁵Sc: E=0; $J^{\pi}=(7/2^{-})$; $T_{1/2}=96$ ms 2; $Q(\beta^{-})=1099\times10^{1}$ 70; % β^{-} decay=100.0

2010Cr02: measured Eγ, Iγ, γγ, and T_{1/2} of ⁵⁵Sc decay using SeGA array with 16 HPGe detectors and BCS detectors at NSCL-MSU facility. ⁵⁵Sc produced in fragmentation of 130 MeV/nucleon ⁷⁶Ge³⁰⁺ beam from K500 and K1200 cyclotrons with ⁹Be target, followed by separation of fragments using A1900 fragment separator and Time-of-flight technique. Fully stripped secondary fragments were sent to NSCL Beta Counting System (BCS). System of three Si PIN detectors, a double-sided silicon strip detector and six single sided silicon strip detectors, and SeGA array for γ rays.

2004Li75 (also 2004Li72): 55 Sc isotope produced in 9 Be(86 Kr $^{34+}$,X) fragmentation reaction at E=140 MeV/nucleon using A1900 fragment separator at NSCL-MSU facility. Measured E γ , T $_{1/2}$ using a double-sided Si microstrip detector (DSSD) and SeGA array with six HPGe detectors. Only one γ ray of 593 keV I with an absolute of 40% 20 was reported without placement in level scheme.

⁵⁵Ti Levels

E(level) [†]	$J^{\pi \ddagger}$	$T_{1/2}^{\ddagger}$
0.0	(1/2)	1.3 s <i>1</i>
591.7 <i>3</i>	$(5/2^{-})$	
1795.5 <i>4</i>	$(7/2^{-})$	
2145.7 <i>4</i>	$(9/2^{-})$	
2507.8 5	$(5/2^-,7/2^-,9/2^-)$	

[†] From least-squares fit to Eγ data.

β^- radiations

E(decay)	E(level)	$I\beta^{-\dagger}$	Log ft	Comments
$(8.5 \times 10^3 \ 7)$	2507.8	11 <i>I</i>	5.2 2	av E β =4.51×10 ³ 40
$(8.8 \times 10^3 7)$	2145.7	11 <i>I</i>	5.3 2	av E β =4.69×10 ³ 40
$(9.2 \times 10^3 7)$	1795.5	22 3	5.0 2	av E β =4.86×10 ³ 40
$(1.04 \times 10^4 7)$	591.7	39 6	5.0 2	av E β =5.45×10 ³ 40

[†] Absolute intensity per 100 decays.

$$\gamma$$
(55Ti)

Iy normalization: Absolute γ intensities were measured by 2010Cr02.

E_{γ}^{\dagger}	$I_{\gamma}^{\dagger \ddagger}$	$E_i(level)$	J_i^{π}	\mathbb{E}_f	\mathbf{J}_f^{π}	Comments
349.6 <i>7</i> 591.7 <i>3</i>		2145.7 591.7	(9/2 ⁻) (5/2 ⁻)	1795.5 0.0	(7/2 ⁻) (1/2) ⁻	E_{γ} , I_{γ} : 591 <i>I</i> with I_{γ} (absolute)=40% 20 (2004Li75). This γ was also reported in 2002Sh43 and 2008Ma01.
712.3 <i>3</i>	11 <i>I</i>	2507.8	$(5/2^-,7/2^-,9/2^-)$	1795.5	$(7/2^{-})$	1

 $^{^{55}}$ Sc-J $^{\pi}$,T_{1/2}: From 55 Sc Adopted Levels, where half-life is adopted from 2010Cr02.

⁵⁵Sc-Q(β^-): From 2021Wa16.

 $^{^{55}}$ Sc-%β $^{-}$ decay: Delayed neutron decay branch is estimated as 17% 7 (2010Cr02) from missing β-feeding intensity.

[‡] From the Adopted Levels.

$^{55}{\rm Sc}\,\beta^-$ decay (96 ms) 2010Cr02 (continued)

γ (55Ti) (continued)

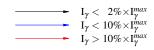
[†] From 2010Cr02. ‡ Absolute intensity per 100 decays.

⁵⁵Sc β^- decay (96 ms) 2010Cr02

Decay Scheme

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

Legend



1.3 s *1*

