$^{63}V\beta^{-}$ decay (19.6 ms) 2014Su07

History								
Туре	Author	Citation	Literature Cutoff Date					
Full Evaluation	Jun Chen	NDS 196,17 (2024)	30-Sep-2023					

Parent: ⁶³V: E=0.0; $J^{\pi}=(3/2^{-},5/2^{-})$; $T_{1/2}=19.6$ ms *10*; $Q(\beta^{-})=1.444\times10^{4}$ *35*; $\%\beta^{-}$ decay=100

 63 V-J^{π}: From systematic of neighboring odd-A V isotopes (2014Su07,2021Ko07). 3/2⁻ is proposed in 2021Ju04 from shell-model calculations.

⁶³V-T_{1/2}: From Adopted Levels of ⁶³V, weighted average of 20 ms *1* (2014Su07), 19.2 ms 24 (2011Da08), and 17 ms 3 (2003So02). Other: >150 ns (1995CzZZ).

 63 V-Q(β^{-}): From 2021Wa16.

Adapted from the XUNDL dataset for 2014Su07 compiled by M. Walters and B. Singh on April 7, 2014.

2014Su07: ⁶³V source was produced from fragmentation of 120 MeV/nucleon ⁷⁶Ge beam on ⁹Be target, followed by mass separation by A1900 separator at NSCL-MSU accelerator facility. The resulting cocktail ion beam was transported to the Beta Counting System and implanted into a 1-mm-thick double-sided silicon strip detector. Measured E γ , I γ , $\gamma\gamma$ -coin using SeGA array. Deduced levels, J, π , estimate of % β^{-n} . Comparisons made with shell-model calculations.

Others:

2011Da08 (also 2002MaZN): Ta(⁸⁶Kr,X) E=57.8 MeV/nucleon at GANIL. Measured $T_{1/2}$.

2003So02: $^{58}\text{Ni}(^{76}\text{Ge},X)$ E=61.8 MeV/nucleon at GANIL. Measured $T_{1/2}.$

⁶³Cr Levels

E(level) [†]	J^{π}	T _{1/2}	Comments	
0.0 120.3 <i>4</i> 203.4 7	(1/2-)	129 ms 2	$J^{\pi}, T_{1/2}$: from Adopted Levels.	

[†] From $E\gamma$ data.

$\gamma(^{63}Cr)$

I γ normalization: Absolute intensities/100 decays of ⁶³V are given in 2014Su07. Based on observation of 446-keV transition in ⁶²Cr, $\%\beta^-$ n>29 is estimated by 2014Su07. Estimated population of 4⁺ state in ⁶²Cr is <4% from upper limit of intensity of 4⁺ to 2⁺ transition in ⁶²Cr. Others: $\%\beta^-$ n>35 (2003So02), >41 *16* (2002MaZN).

E_{γ}^{\dagger}	$I_{\gamma}^{\dagger \#}$	E _i (level)	E_f	J_f^π
83.1 [‡] 6	4 2	203.4	120.3	
120.3 [‡] 4	15 <i>3</i>	120.3	0.0	$(1/2^{-})$
^x 414.0 6	42			

[†] From 2014Su07.

[‡] Ordering of 83.1-120.3 γ cascade is proposed by 2014Su07 based on intensities. But if the 83.1-keV transition is highly converted, the ordering of the cascade may be reversed (2014Su07).

[#] Absolute intensity per 100 decays.

^{*x*} γ ray not placed in level scheme.

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