

Adopted Levels, Gammas

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

$Q(\beta^-)=1.444\times 10^4$ 35; $S(n)=4.60\times 10^3$ 43; $S(p)=16830$ syst; $Q(\alpha)=-1.334\times 10^4$ 42 [2021Wa16](#)

$\Delta S(p)=530$ (syst,[2021Wa16](#)).

$S(2n)=7710$ 410, $S(2p)=36820$ 690 (syst), $Q(\beta^-n)=11040$ 340 ([2021Wa16](#)).

XUNDL datasets compiled by M. Birch and B. Singh (McMaster University), and E.A. McCutchan (NNDC, BNL) have been consulted and incorporated into the this update. Consult the XUNDL database for details of those datasets.

${}^{63}\text{V}$ isotope was first produced via the $\text{Pb}({}^{238}\text{U},\text{F})$ reaction with $E=750$ MeV/nucleon and identified by time-of-flight at GSI ([1995CzZZ](#),[1997Be70](#)). See also [2010Sh05](#) about the discovery.

Mass measurement: [2020Mi13](#) (mass excess= -21740 340, TOF-B ρ at RIKEN).

Other measurements:

[2014Su07](#): ${}^9\text{Be}({}^{76}\text{Ge},\text{X})$ $E=120$ MeV/nucleon at NSCL. Measured $T_{1/2}$.

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

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

Theoretical calculations:

[2016Ku21](#): calculated β -decay $T_{1/2}$.

[1995Ri05](#): calculated binding energies.

${}^{63}\text{V}$ Levels

Cross Reference (XREF) Flags

A ${}^1\text{H}({}^{63}\text{V},\text{p}'\gamma)$

E(level) [†]	J^π [‡]	$T_{1/2}$	XREF	Comments
0.0	$(3/2^-, 5/2^-)$	19.6 ms 10		$\% \beta^- = 100$; $\% \beta^- n > 29$ (2014Su07) J^π : from systematic of neighboring odd-A V isotopes (2014Su07 , 2021Ko07); Other: 2021Ju04 propose $3/2^-$ from shell-model calculations. $T_{1/2}$: weighted average of 20 ms 1 (2014Su07), 19.2 ms 24 (2011Da08 , 2002MaZN), and 17 ms 3 (2003So02). Other: >150 ns (1995CzZZ). $\% \beta^- n$: estimated by 2014Su07 based on measured intensity of 2^+ to 0^+ transition in ${}^{62}\text{Cr}$. Others: >35 (2003So02), >41 16 (2002MaZN).
0.0+x	$(7/2^-)$		A	
x+696 8	$(11/2^-)$		A	
x+889 16	$(9/2^-)$		A	

[†] Level proposed by [2021Ju04](#) in ${}^1\text{H}({}^{63}\text{V},\text{p}'\gamma)$.

[‡] From a comparison to shell-model calculations for excited states ([2021Ju04](#)).

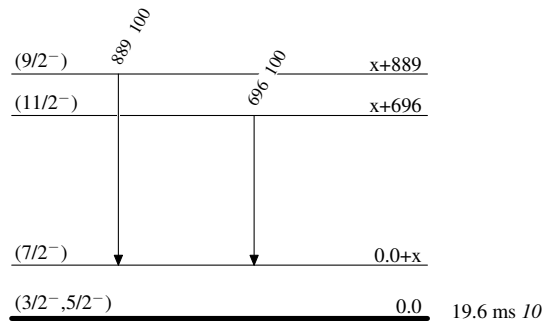
$\gamma({}^{63}\text{V})$

$E_i(\text{level})$	J_i^π	E_γ [†]	I_γ [†]	E_f	J_f^π
x+696	$(11/2^-)$	696 8	100	0.0+x	$(7/2^-)$
x+889	$(9/2^-)$	889 16	100	0.0+x	$(7/2^-)$

[†] From ${}^1\text{H}({}^{63}\text{V},\text{p}'\gamma)$ ([2021Ju04](#)).

Adopted Levels, GammasLevel Scheme

Intensities: Relative photon branching from each level

 ${}^{63}_{23}\text{V}_{40}$