

Adopted Levels, Gammas

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	E. Browne, J. K. Tuli		NDS 114, 1849 (2013)	31-Dec-2012

Q(β^-)=13.26×10³ 3I; S(n)=3.48×10³ 27; S(p)=14887 SY; Q(α)=-10936 SY 2012Wa38

$\Delta S(p)$ =457 syst, $\Delta Q(\alpha)$ =457 syst (2012Wa38).

2003So02: ⁷⁰Ge³⁰⁺ beam on ⁵⁸Ni, E=61.8 MeV/A, measured β^- . Deduced T_{1/2}= 68 ms 5 which authors consider for a composite of two isomers.

1999Le67,1999So20: ⁸⁶Kr³⁴⁺ beam on ⁵⁸Ni, E=60.4 MeV/A, measured β^- .

1999DaZQ: ⁸⁶Kr³⁴⁺ beam on ⁵⁸Ni, E=60.3 MeV/A, measured γ , $\gamma(t)$.

Mass measurements: 2011Es06.

Discovery of vanadium isotopes: 2010Sh05.

⁶⁰V Levels

From finite-range droplet model 2000So02 expect ⁶⁰V g.s. to be oblate, with $\beta_2=-0.011$. A prolate configuration, $\beta_2=+0.11$, is expected to lie about 115 keV higher. A configuration=((ν ,[404]9/2⁺)(π ,[303]5/2⁻)) is possible to yield $\pi=-$, J=2 to 7 for the oblate shape. For prolate shape states with $\pi=+$, J=1 to 4 are expected. Authors expect many close lying levels with possibly large spin differences.

Cross Reference (XREF) Flags

- A ⁶⁰Ti β^- decay
- B ⁶⁰V IT decay (0.32 μ s)

E(level)	J ^{π}	T _{1/2}	XREF	Comments
0.0+x		122 ms 18	AB	% β^- =100; % β^-n =?; % β^-2n ? T _{1/2} : From 1999So20. Others: 200 ms 40 (1998Am04), 220 ms 30 (1995AmZX). J ^{π} : 3 ⁺ from syst (2012Au07).
0.0+y		40 ms 15	A	% β^- =100; % β^-n =?; % β^-2n ? T _{1/2} : adopted from fit to ⁶⁰ Ti decay component (2003So02). Direct measurement of ⁶⁰ V decay gives T _{1/2} = 68 ms 5 which 2003So02 consider for a composite of two isomers. J ^{π} : (1 ⁺) suggested by 1999DaZQ on the basis of possible configuration= ((π f _{7/2}) ³ (ν f _{5/2}) ⁻¹) and comparison with ⁵⁸ Mn which has configuration= ((π f _{7/2}) ⁻³ (ν f _{5/2}) ¹) and J ^{π} =1 ⁺ .
103.2+x	(2 ⁺)	13 ns 3	B	T _{1/2} : From 2010Da06. J ^{π} : (2 ⁺) suggested by 1999DaZQ, 2010Da06 based on proposed mult.
202.1+x	(4 ⁺)	0.32 μ s 9	B	%IT=100 T _{1/2} : From 2010Da06. Other: 0.229 +25-23 (2012Ka36). J ^{π} : (4 ⁺) suggested by 2010Da06, 1999DaZQ based on proposed mult.

γ (⁶⁰V)

E _i (level)	J _i ^{π}	E _{γ} ^{\ddagger}	I _{γ}	E _f	Mult.	α^{\ddagger}	Comments
103.2+x	(2 ⁺)	103.2 [#] 5	100	0.0+x	(M1+E2)	0.18 16	$\alpha(K)$ =0.16 15; $\alpha(L)$ =0.016 14; $\alpha(M)$ =0.0020 18; $\alpha(N+..)$ =9.E-5 9 $\alpha(N)$ =9.E-5 9 Mult.: From 1999DaZQ based on level T _{1/2} and RUL. E _{γ} : 104.0 (2012Ka36).

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Adopted Levels, Gammas (continued) $\gamma({}^{60}\text{V})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ^\ddagger	I_γ	E_f	J_f^π	Mult.	α^\dagger	Comments
202.1+x	(4 ⁺)	98.9 [#] 5	100	103.2+x	(2 ⁺)	(E2)	0.395 10	$\alpha(\text{K})=0.356$ 9; $\alpha(\text{L})=0.0350$ 9; $\alpha(\text{M})=0.00453$ 12; $\alpha(\text{N}+\dots)=0.000208$ 5 $\alpha(\text{N})=0.000208$ 5 Mult.: From 1999DaZQ based on level $T_{1/2}$ and RUL. E_γ : 99.7 (2012Ka06).

[†] Additional information 1.

[‡] From 1999DaZQ, 2010Da06.

[#] Placement of transition in the level scheme is uncertain.

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Legend

Level SchemeIntensities: Relative $I_{(\gamma+ce)}$

- ▶ $I_\gamma < 2\% \times I_\gamma^{\text{max}}$
- ▶ $I_\gamma < 10\% \times I_\gamma^{\text{max}}$
- ▶ $I_\gamma > 10\% \times I_\gamma^{\text{max}}$
- ▶ γ Decay (Uncertain)

