^{47}V $\varepsilon+\beta^+$ decay 1973Fi02

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	S. Ota and E. A. Mccutchan	NDS 203,1 (2025)	1-Apr-2025

Parent: ^{47}V: E=0.0; $J^\pi=3/2^-$; $T_{1/2}$=32.6 min *3*; Q($\varepsilon+\beta^+$)=2930.54 *9*; %$\varepsilon+\beta^+$ decay=100

1973Fi02: ^{47}V source from ^{47}Ti(p,n), with E(p)=5 MeV. Measured Eγ, Iγ, using Ge(Li) detector and I$\gamma(\gamma^\pm)$/ΣIγ with plexiglass to stop β^+'s close to the source.

Others: 1967Ro12, 1967Ak02, 1962Ba27, 1962Ru01.

^{47}Ti Levels

E(level)[†]	J^π[‡]	$T_{1/2}$[‡]
0.0	$5/2^-$	stable
159.6 *3*	$7/2^-$	210 ps *6*
1549.9 *3*	$3/2^-$	1.5 ps *4*
1794.1 *4*	$1/2^-$	1.7 ps *+17−6*
2163.0 *5*	$3/2^-$	25 fs *4*
2166.9 *11*	5/2	19 fs *5*
2525.8 *4*	$3/2^-$,$5/2^-$	94 fs *19*
2548.8 *5*	$3/2^-$	6.2 fs *7*
2793.4 *5*	$1/2^-$	

[†] From a least-squares fit to Eγ, by evaluators.
[‡] From the Adopted Levels.

ε,β^+ radiations

av Eβ: Additional information 1.

E(decay)	E(level)	Iβ^+ [‡]	Iε[†‡]	Log *ft*	I($\varepsilon+\beta^+$)[‡]	Comments
(137.1 *11*)	2793.4		0.0031 *6*	5.20 *8*	0.0031 *6*	εK=0.88106 *46*; εL=0.10211 *31*; εM+=0.01683 *14*
(381.7 *11*)	2548.8		0.0067 *5*	5.776 *33*	0.0067 *5*	εK=0.88540 *42*; εL=0.09845 *28*; εM+=0.01615 *13*
(404.7 *11*)	2525.8		0.0172 *9*	5.418 *24*	0.0172 *9*	εK=0.88553 *42*; εL=0.09834 *28*; εM+=0.01613 *13*
(763.6 *15*)	2166.9		0.0099 *7*	6.214 *31*	0.0099 *7*	εK=0.88657 *42*; εL=0.09746 *28*; εM+=0.01597 *13*
(767.5 *11*)	2163.0		0.071 *3*	5.363 *19*	0.071 *3*	εK=0.88657 *41*; εL=0.09746 *28*; εM+=0.01597 *13*
(1136.4 *11*)	1794.1	4.33×10^{-4} *19*	0.285 *10*	5.103 *16*	0.285 *10*	av Eβ=50.44 *21*; εK=0.88560 *41*; εL=0.09699 *27*; εM+=0.01589 *12*
(1380.6 *11*)	1549.9	0.0055 *7*	0.043 *6*	6.09 *5*	0.049 *6*	av Eβ=149.77 *17*; εK=0.7873 *11*; εL=0.08612 *27*; εM+=0.01410 *11*
(2930.5 *14*)	0.0	96.527 *11*	3.025 *11*	4.9143 *40*	99.552 *15*	av Eβ=830.60 *14*; εK=0.02696 *22*; εL=0.002940 *25*; εM+=4.81×10^{-4} *5*

[†] From an intensity balance at each level for excited levels. Ground state feeding from I$\gamma(\gamma^\pm)=1.01\times10^5$ *3* and theoretical ε/β^+ ratio.
[‡] Absolute intensity per 100 decays.

^{47}V $\varepsilon+\beta^+$ decay 1973Fi02 (continued)

$\gamma(^{47}Ti)$

Iγ normalization: From I$\gamma(\gamma^{\pm})$=1.01×10^5 *3*, theoretical ε/β^+ ratio for g.s. feeding (β^+ feeding to other states negligible), and Σ[Iγ(1+α)+(Iβ^++Iε)(to g.s.)]=100.

E_γ[†]	I_γ[†@]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	δ[‡]	α[#]	Comments
159.8 *5*	55.9 *25*	159.6	7/2$^-$	0.0	5/2$^-$	M1+E2	−0.099 *9*	0.0045 *3*	%Iγ=0.107 *6* α(K)exp=0.00406 *21*; α(L)exp≈0.000406 *21* α(K)=0.00556 *12*; α(L)=0.000509 *11*; α(M)=6.50×10^{-5} *14*; α(N)=3.46×10^{-6} *7*
244.4 *5*	49.1 *23*	1794.1	1/2$^-$	1549.9	3/2$^-$	M1+E2	−0.30 *6*	0.00272 *29*	α(K)=0.00247 *26*; α(L)=0.000225 *24*; α(M)=2.87×10^{-5} *30*; α(N)=1.53×10^{-6} *16* %Iγ=0.094 *5*
1243.5 *5*	1.3 *3*	2793.4	1/2$^-$	1549.9	3/2$^-$				%Iγ=0.0025 *+7−6*
1390.4 *4*	41.5 *12*	1549.9	3/2$^-$	159.6	7/2$^-$	E2		1.09×10^{-4} *2*	%Iγ=0.0793 *34* α(K)=5.20×10^{-5} *7*; α(L)=4.65×10^{-6} *7*; α(M)=5.94×10^{-7} *8*; α(N)=3.23×10^{-8} *5*
1549.9 *4*	34.8 *10*	1549.9	3/2$^-$	0.0	5/2$^-$	M1+E2	+0.35 *15*	1.24×10^{-4} *4*	%Iγ=0.0665 *28* α(K)=3.73×10^{-5} *7*; α(L)=3.32×10^{-6} *6*; α(M)=4.25×10^{-7} *8*; α(N)=2.32×10^{-8} *4*
1793.9 *4*	100	1794.1	1/2$^-$	0.0	5/2$^-$	(E2)		2.49×10^{-4} *4*	α(K)=3.12×10^{-5} *4*; α(L)=2.78×10^{-6} *4*; α(M)=3.56×10^{-7} *5*; α(N)=1.938×10^{-8} *27* %Iγ=0.191 *6*
2003.1 *10*	1.9 *2*	2163.0	3/2$^-$	159.6	7/2$^-$	(E2)		3.43×10^{-4} *5*	%Iγ=0.0036 *5* α(K)=2.54×10^{-5} *4*; α(L)=2.266×10^{-6} *32*; α(M)=2.90×10^{-7} *4*; α(N)=1.578×10^{-8} *22*
2007.3 *10*	5.2 *3*	2166.9	5/2	159.6	7/2$^-$	D(+Q)	0.00 *17*		%Iγ=0.0099 *7*
2163.0 *5*	35.1 *8*	2163.0	3/2$^-$	0.0	5/2$^-$	(M1(+E2))	0.0 *1*	3.42×10^{-4} *5*	%Iγ=0.0670 *26* α(K)=2.070×10^{-5} *29*; α(L)=1.842×10^{-6} *26*; α(M)=2.356×10^{-7} *33*; α(N)=1.285×10^{-8} *18*
2366.3 *5*	4.4 *3*	2525.8	3/2$^-$,5/2$^-$	159.6	7/2$^-$				%Iγ=0.0084 *6*
2525.6 *5*	4.6 *2*	2525.8	3/2$^-$,5/2$^-$	0.0	5/2$^-$				%Iγ=0.0088 *5*
2548.7 *5*	3.5 *2*	2548.8	3/2$^-$	0.0	5/2$^-$	M1(+E2)	<0.5	5.12×10^{-4} *12*	α(K)=1.592×10^{-5} *24*; α(L)=1.416×10^{-6} *21*; α(M)=1.812×10^{-7} *27*; α(N)=9.88×10^{-9} *15* %Iγ=0.0067 *5*
2793.3 *10*	0.34 *6*	2793.4	1/2$^-$	0.0	5/2$^-$				%Iγ=6.5×10^{-4} *14*

Continued on next page (footnotes at end of table)

^{47}V $\varepsilon+\beta^+$ decay 1973Fi02 (continued)

$\gamma(^{47}Ti)$ (continued)

† From 1973Fi02.
‡ From the Adopted Gammas.
# Additional information 2.
@ For absolute intensity per 100 decays, multiply by 1.91×10^{-3} *6*.

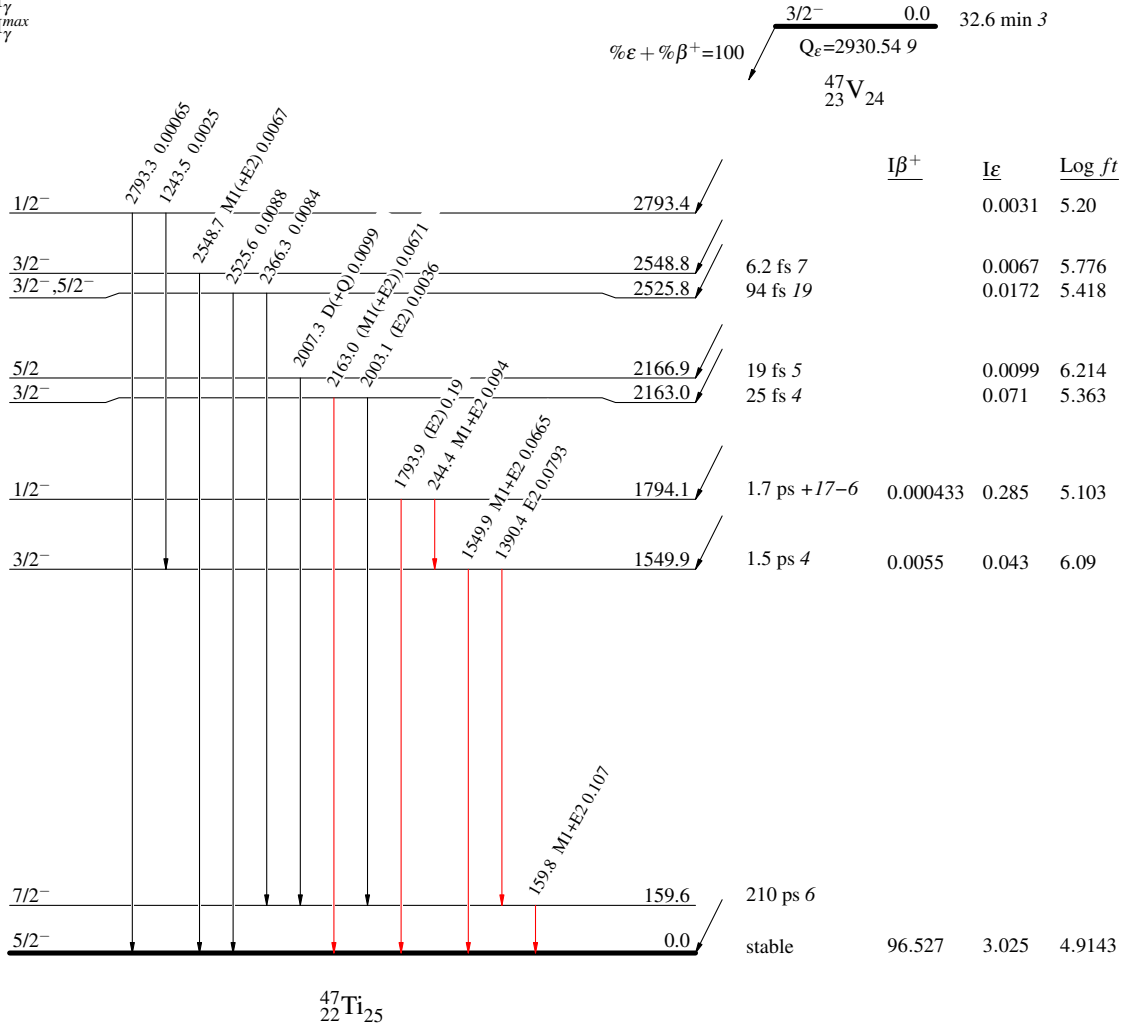
^{47}V $\varepsilon+\beta^+$ decay 1973Fi02

Decay Scheme

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

Legend

$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$



		Iβ+	Iε	Log *ft*
2793.4			0.0031	5.20
2548.8	6.2 fs *7*		0.0067	5.776
2525.8	94 fs *19*		0.0172	5.418
2166.9	19 fs *5*		0.0099	6.214
2163.0	25 fs *4*		0.071	5.363
1794.1	1.7 ps *+17−6*	0.000433	0.285	5.103
1549.9	1.5 ps *4*	0.0055	0.043	6.09
159.6	210 ps *6*			
0.0	stable	96.527	3.025	4.9143