^{47}Ti(p,γ) 1972Bb14

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 179, 1 (2022)	30-Nov-2021

$J^\pi(^{47}\text{Ti g.s.})=5/2^-$.

1972Bb14: E≈1.6 MeV proton beam was produced from an electrostatic generator (in USSR). Target was titanium oxide deposited on a tantalum substrate, with a thickness corresponding to a proton energy loss of ≈100 keV. γ rays were detected with a ≈30 cm^3 Ge(Li) detector (FWHM=4-5 keV for energy up to ≈2 MeV and 5-8 keV for energy up to ≈5 MeV). Measured Eγ, Iγ. Deduced levels. Comparisons with available data.

All data are from 1972Bb14.

^{48}V Levels

E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡
0.0	4^+	766.9 *11*	3^+	2339.2 *23*	$(3,4^+)$	2824 *3*	(4^-)
308.9 *7*	2^+	1057.3 *13*	3^-	2448.6 *19*	$(2^+,3^-)$	3013 *3*	(1,2,3,4)
427.7 *12*	5^+	1102.5 *25*	4^-	2471 *3*	$(2,3)^-$	3075 *3*	$1^+,2^+,3^+,4^+$
519.7 *10*	1^-	1121.0 *16*	$(2,3,4)^+$	2495.8 *20*	$(3^+,4,5^-)$	3243.9 *22*	$(2)^+$
615.1 *14*	4^+	1691.6 *24*	$(2^+,3^-)$	2604.9 *25*	$(2^+,3,4^+)$	3565 *3*	$(3,4)^+$
746.9 *13*	2^-	2196 *4*	$(3,4)^-$	2789.6 *23*	$(3,4)^-$		

† From a least-squares fit to γ-ray energies.
‡ From Adopted Levels.

$\gamma(^{48}V)$

Eγ	Iγ	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$
210.7 *8*	23 *4*	519.7	1^-	308.9	2^+
227.2† *8*	40 *10*	746.9	2^-	519.7	1^-
308.5 *8*	100	308.9	2^+	0.0	4^+
428.0 *12*	20 *3*	427.7	5^+	0.0	4^+
457.2 *15*	7.5 *15*	766.9	3^+	308.9	2^+
537.0 *15*	3 *1*	1057.3	3^-	519.7	1^-
616.1 *15*	19 *4*	615.1	4^+	0.0	4^+
x629.8 *20*	4.0 *15*				
767.4 *15*	7.5 *15*	766.9	3^+	0.0	4^+
811.0 *20*	1.2 *5*	1121.0	$(2,3,4)^+$	308.9	2^+
x835.5 *15*	1.9 *5*				
913.0 *25*	1.0 *4*	2604.9	$(2^+,3,4^+)$	1691.6	$(2^+,3^-)$
1057.0 *25*	2.3 *8*	1057.3	3^-	0.0	4^+
1102.5 *25*	17 *4*	1102.5	4^-	0.0	4^+
1123.0 *30*	2.3 *5*	1121.0	$(2,3,4)^+$	0.0	4^+
1143.0# *30*	2.8 *6*	2196	$(3,4)^-$	1057.3	3^-
1173.0# *30*	3 *1*	1691.6	$(2^+,3^-)$	519.7	1^-
1216.5 *40*	3.3 *6*	2339.2	$(3,4^+)$	1121.0	$(2,3,4)^+$
1236#		2339.2	$(3,4^+)$	1102.5	4^-
x1254.0 *40*	4.0 *15*				
1388 *3*	1.6 *5*	2448.6	$(2^+,3^-)$	1057.3	3^-
1439 *3*	1.7 *5*	2495.8	$(3^+,4,5^-)$	1057.3	3^-
x1614.0 *25*	1.9 *5*				
1669 *3*	2.4 *5*	2789.6	$(3,4)^-$	1121.0	$(2,3,4)^+$
1691 *3*	6.7 *10*	1691.6	$(2^+,3^-)$	0.0	4^+
1724.5 *30*	4.8 *8*	2339.2	$(3,4^+)$	615.1	4^+

Continued on next page (footnotes at end of table)

^{47}Ti(p,γ) 1972Bb14 (continued)

$\gamma(^{48}V)$ (continued)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π
1837 *3*	1.5 *6*	2448.6	$(2^+,3^-)$	615.1	4^+
1926 *4*	1.3 *6*	2448.6	$(2^+,3^-)$	519.7	1^-
1955 *4*	≈0.3	2471	$(2,3)^-$	519.7	1^-
1986.0‡# *35*		2604.9	$(2^+,3,4^+)$	615.1	4^+
x1996.0‡ *35*	4.0 *5*				
2031 *4*	1.6 *8*	2339.2	$(3,4^+)$	308.9	2^+
2055 *4*	1.5 *8*	2824	(4^-)	766.9	3^+
2072 *4*	1.3 *6*	2495.8	$(3^+,4,5^-)$	427.7	5^+
2159.0 *35*	7.3 *25*	2471	$(2,3)^-$	308.9	2^+
2196.0 *35*	8.4 *25*	2196	$(3,4)^-$	0.0	4^+
2250# *5*	≈0.3	3013	(1,2,3,4)	766.9	3^+
2300 *4*	1.7 *8*	2604.9	$(2^+,3,4^+)$	308.9	2^+
2451 *4*	≈0.8	2448.6	$(2^+,3^-)$	0.0	4^+
2493 *3*	1.9 *6*	2495.8	$(3^+,4,5^-)$	0.0	4^+
2600 *5*	≈0.8	2604.9	$(2^+,3,4^+)$	0.0	4^+
2704 *3*	≈2.5	3013	(1,2,3,4)	308.9	2^+
2725 *3*	≈0.5	3243.9	$(2)^+$	519.7	1^-
2766 *3*	≈5.3	3075	$1^+,2^+,3^+,4^+$	308.9	2^+
2789 *3*	2.0 *8*	2789.6	$(3,4)^-$	0.0	4^+
2825 *4*	0.4 *2*	2824	(4^-)	0.0	4^+
x2847 *4*	1.1 *6*				
x2881 *5*	0.30 *15*				
x2964 *4*	0.4 *2*				
3137 *5*	0.30 *15*	3565	$(3,4)^+$	427.7	5^+
3243 *3*	0.6 *3*	3243.9	$(2)^+$	0.0	4^+
3565 *3*	0.4 *2*	3565	$(3,4)^+$	0.0	4^+
x3597 *4*	0.10 *5*				

† Placement based on Adopted Gammas; unplaced by 1972Bb14.
‡ Probable doublet (1972Bb14).
# Placement of transition in the level scheme is uncertain.
x γ ray not placed in level scheme.

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Level Scheme

Intensities: Relative I_γ

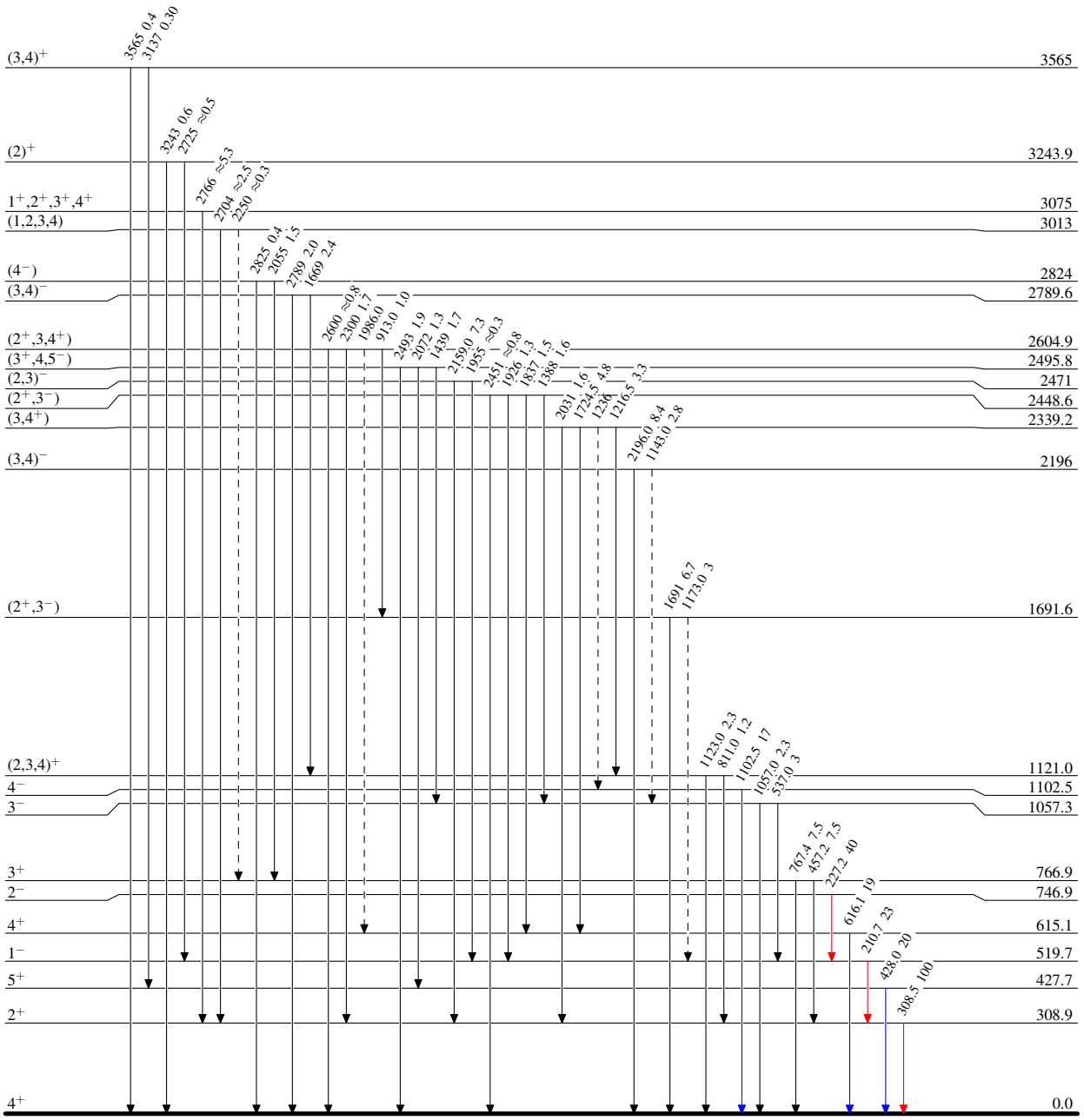
Legend

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

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

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

γ Decay (Uncertain)



$^{48}_{23}V_{25}$