^{102}Tc β^- decay (4.35 min) 1969Bl16,1970Hu02

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	D. De Frenne	NDS 110, 1745 (2009)	31-Dec-2008

Parent: ^{102}Tc: E=0.0+x; J^π=(4,5); $T_{1/2}$=4.35 min *7*; Q(β^-)=4532 *9*; %β^- decay=100.0
See also ^{102}Tc IT decay.

^{102}Ru Levels

E(level)‡	Jπ†	E(level)‡	Jπ†	E(level)‡	Jπ†	E(level)‡	Jπ†
0	0^+	1521.70 *23*	3^+	2421.1 *17*	$(3,4^+)$	2719.1 *5*	$(3,4^+)$
475.21 *10*	2^+	1602.7 *4*	$(3,4^+)$	2441.8 *4*	$(3,4^+)$	2814.3 *4*	$(3,4^+)$
1103.20 *25*	2^+	1798.1# *5*	4^+	2614.4 *15*	$(3,4^+)$	2913.8 *8*	$(3,4^+)$
1105.6 *3*	4^+	2218.7 *6*	5^+	2701.2 *5*	$(3,4^+)$	3010.2 *8*	$(3,4^+)$

† From Adopted Levels.
‡ From a least-squares procedure using the γ's given in this data set.
# From 1969Bl16.

β^- radiations

For β^- and $\beta\gamma$-measurements, see 1969Bl16. Since $\Delta E\beta$=100 keV, assignment to individual β-branches is difficult.

E(decay)	E(level)	Iβ⁻†‡	Log *ft*	Comments
(1522 *9*)	3010.2	2.81 *16*	6.00 *3*	av Eβ= 573 *6*
(1618 *9*)	2913.8	10.4 *4*	5.539 *23*	av Eβ= 616 *6*
(1718 *9*)	2814.3	7.6 *5*	5.78 *4*	av Eβ= 661 *6*
(1813 *9*)	2719.1	34.8 *14*	5.213 *23*	av Eβ= 704 *6*
(1831 *9*)	2701.2	9.1 *4*	5.812 *24*	av Eβ= 712 *6*
(1918 *9*)	2614.4	2.70 *14*	6.42 *3*	av Eβ= 751 *6*
(2090 *9*)	2441.8	6.4 *3*	6.199 *24*	av Eβ= 830 *6*
(2111 *9*)	2421.1	2.45 *13*	6.63 *3*	av Eβ= 840 *6*
(2313 *9*)	2218.7	8.5 *5*	6.26 *3*	av Eβ= 933 *6*
(2734 *9*)	1798.1	4.86 *12*	6.804 *16*	av Eβ= 1129 *6*
(2929 *9*)	1602.7	7.1 *9*	6.77 *6*	av Eβ= 1221 *6*
(3426# *9*)	1105.6	1.7 *13*	7.7 *4*	av Eβ= 1456 *6*

† From I(γ+ce)-imbalance at each level.
‡ Absolute intensity per 100 decays.
# Existence of this branch is questionable.

$\gamma(^{102}Ru)$

Iγ normalization: Absolute γ-intensities were obtained by assuming no β-branching to the ground state and 2% isomeric branching (1969Bl16).
$\gamma\gamma$-coin data are from 1969Bl16.

Continued on next page (footnotes at end of table)

^{102}Tc β^- decay (4.35 min) 1969Bl16,1970Hu02 (continued)

$\gamma(^{102}Ru)$ (continued)

E_γ †	I_γ †@	E_i(level)	J_i^π	E_f	J_f^π	E_γ †	I_γ †@	E_i(level)	J_i^π	E_f	J_f^π
416.3 *4*	0.95 *10*	1521.70	3^+	1105.6	4^+	1318 *3*	1.07 *8*	2421.1	$(3,4^+)$	1105.6	4^+
418.4 *3*	5.4 *4*	1521.70	3^+	1103.20	2^+	1323#&		1798.1	4^+	475.21	2^+
475.2 *1*	100	475.21	2^+	0	0^+	1338.6 *3*	4.8 *2*	2441.8	$(3,4^+)$	1103.20	2^+
497.2 *6*	7.0 *10*	1602.7	$(3,4^+)$	1105.6	4^+	1488.1 *10*	0.79 *4*	3010.2	$(3,4^+)$	1521.70	3^+
628.1 *6*	30.7 *20*	1103.20	2^+	475.21	2^+	1511.1 *20*	1.08 *10*	2614.4	$(3,4^+)$	1103.20	2^+
630.2 *5*	18.5 *10*	1105.6	4^+	475.21	2^+	1596.2‡ *8*	3.25 *20*	2701.2	$(3,4^+)$	1105.6	4^+
691.8# *5*	2.7	1798.1	4^+	1105.6	4^+	1615.3 *7*	18.1 *7*	2719.1	$(3,4^+)$	1103.20	2^+
695.6# *5*	3.0	1798.1	4^+	1103.20	2^+	1711.2‡ *15*	3.3 *2*	2814.3	$(3,4^+)$	1103.20	2^+
696.9 *9*	7.3 *5*	2218.7	5^+	1521.70	3^+	1810.7 *10*	6.8 *3*	2913.8	$(3,4^+)$	1103.20	2^+
920.2 *9*	0.96 *15*	2441.8	$(3,4^+)$	1521.70	3^+	1907.3 *10*	1.92 *15*	3010.2	$(3,4^+)$	1103.20	2^+
1046.4 *3*	14.8 *9*	1521.70	3^+	475.21	2^+	1945.8 *20*	1.80 *10*	2421.1	$(3,4^+)$	475.21	2^+
[x]1074.7 *5*	1.5 *3*					1967 *3*	1.70 *10*	2441.8	$(3,4^+)$	475.21	2^+
1103.3 *4*	14.5 *11*	1103.20	2^+	0	0^+	2139.2 *20*	2.09 *10*	2614.4	$(3,4^+)$	475.21	2^+
1113.1 *6*	2.64 *15*	2218.7	5^+	1105.6	4^+	2225.7 *15*	6.7 *3*	2701.2	$(3,4^+)$	475.21	2^+
1127.5 *4*	1.37 *8*	1602.7	$(3,4^+)$	475.21	2^+	2244.7 *15*	13.9 *5*	2719.1	$(3,4^+)$	475.21	2^+
1179.2 *6*	0.72 *10*	2701.2	$(3,4^+)$	1521.70	3^+	2340.0 *15*	0.64 *8*	2814.3	$(3,4^+)$	475.21	2^+
1197.6 *5*	8.8 *10*	2719.1	$(3,4^+)$	1521.70	3^+	2438.4 *10*	5.4 *2*	2913.8	$(3,4^+)$	475.21	2^+
1292.5 *3*	5.0 *5*	2814.3	$(3,4^+)$	1521.70	3^+	2536 *3*	0.58 *4*	3010.2	$(3,4^+)$	475.21	2^+

† Eγ and Iγ are from 1970Hu02, unless noted otherwise.
‡ Possibly unresolved doublet feeding the 1103 and 1105 levels (1969Bl16).
# From 1969Bl16.
@ For absolute intensity per 100 decays, multiply by 0.87 *1*.
& Placement of transition in the level scheme is uncertain.
x γ ray not placed in level scheme.

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Decay Scheme

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

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

(4,5) 0.0+x
4.35 min 7
Q_{β^-}=4532 9
$\%\beta^-$=100
$^{102}_{43}Tc_{59}$

Iβ⁻	Log ft		
2.81	6.00	(3,4⁺)	3010.2
10.4	5.539	(3,4⁺)	2913.8
7.6	5.78	(3,4⁺)	2814.3
34.8	5.213	(3,4⁺)	2719.1
9.1	5.812	(3,4⁺)	2701.2
2.70	6.42	(3,4⁺)	2614.4
6.4	6.199	(3,4⁺)	2441.8
2.45	6.63	(3,4⁺)	2421.1
8.5	6.26	5⁺	2218.7
4.86	6.804	4⁺	1798.1
7.1	6.77	(3,4⁺)	1602.7
		3⁺	1521.70
1.7	7.7	4⁺	1105.6
		2⁺	1103.20
		2⁺	475.21
		0⁺	0

2536 0.50, 1907.3 1.67, 1488.1 0.69, 2438.4 4.79, 1810.7 5.9, 2340.0 0.56, 1711.2 2.96, 1292.5 4.4, 2244.7 12.1, 1615.3 15.7, 1197.6 7.7, 2225.7 5.8, 1596.2 2.83, 1179.2 0.63, 2139.2 1.82, 1511.1 0.94, 1967 1.48, 1338.6 4.26, 920.2 0.84, 1945.8 1.57, 1318 0.93, 1113.1 2.30, 696.9 6.4, 1323, 695.6 2.61, 691.8 2.35, 1127.5 1.19, 497.2 6.1, 1046.4 12.9, 418.4 4.7, 416.3 0.83, 630.2 16.1, 1103.3 12.6, 628.1 26.7, 475.2 88

$^{102}_{44}Ru_{58}$