

^{95}Tc ε decay (20.0 h) 1977Me12

Type	Author	History	Citation	Literature Cutoff Date
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Parent: ^{95}Tc : $E=0.0$; $J^\pi=9/2^+$; $T_{1/2}=20.0$ h I ; $Q(\varepsilon)=1691$ 5; $\% \varepsilon + \% \beta^+$ decay=100.0

1971He20 measured γ 's (Ge(Li)).

1974An05 measured γ 's and $\gamma\gamma$ -coincidences (Ge(Li)) and β^+ 's and ce 's; β spectrometer.

1974Kr08 measured γ 's and $\gamma\gamma$ -coincidences; Ge(Li).

1977Me12 measured γ 's (Compton-suppressed Ge(Li) with Pb absorber and planar Ge(Li)) and ce 's (Si(Li)) for mixed 20-h and 61-d ^{95}Tc and pure 61-d sources.

All data are from 1977Me12, except as noted. Other: 1959Le25. See 1983Lu03 for additional references.

α : Additional information 1.

 ^{95}Mo Levels

E(level)	J^π †	$T_{1/2}$ †	E(level)	J^π †	E(level)	J^π †
0.0	$5/2^+$	stable	1056.7 3	$5/2^+$	1551.724 16	$(9/2)^+$
204.119 10	$3/2^+$		1073.720 14	$7/2^+$	1645.1 7	$7/2^{(+)}$
765.793 9	$7/2^+$		1425.72 5	$(5/2)^+$	1683.0?	$7/2, 9/2^{(+)}$
947.676 16	$9/2^+$		1540.787 13	$11/2^+$		

† From the Adopted Levels.

 ε, β^+ radiations

E(decay)	E(level)	$I\varepsilon$ †	Log ft	$I(\varepsilon + \beta^+)$ †	Comments
(8‡ 5)	1683.0?	9.4×10^{-6}	6.6	9.4×10^{-6}	$\varepsilon L=0.7$ 7; $\varepsilon M+=0.3$ 7
(46 5)	1645.1	0.0012 5	6.84 25	0.0012 5	$\varepsilon K=0.71$ 4; $\varepsilon L=0.23$ 4; $\varepsilon M+=0.060$ 9
(139 5)	1551.724	0.498 14	5.48 4	0.498 14	$\varepsilon K=0.8378$ 16; $\varepsilon L=0.1310$ 12; $\varepsilon M+=0.0311$ 4
(150 5)	1540.787	0.038 8	6.67 10	0.038 8	$\varepsilon K=0.8408$ 13; $\varepsilon L=0.1287$ 10; $\varepsilon M+=0.0305$ 3
(617 5)	1073.720	4.13 4	5.943 9	4.13 4	$\varepsilon K=0.8652$; $\varepsilon L=0.10948$ 5; $\varepsilon M+=0.02532$ 2
(743 5)	947.676	1.582 23	6.525 9	1.582 23	$\varepsilon K=0.8664$; $\varepsilon L=0.10856$ 3; $\varepsilon M+=0.025079$ 8
(925 5)	765.793	93.77 6	4.946 6	93.77 6	$\varepsilon K=0.8675$; $\varepsilon L=0.10769$ 2; $\varepsilon M+=0.024847$ 6

† Absolute intensity per 100 decays.

‡ Existence of this branch is questionable.

⁹⁵Tc ε decay (20.0 h) 1977Me12 (continued)

γ(⁹⁵Mo)

I_γ normalization: From ΣI(γ+ce)(1+α)(to g.s.)=100. ΔJ^π=2. No for direct g.s. feeding.

Coincidences shown on the drawing are from 1974Kr08.

α(K)exp, α(L)exp, K/L: see also 61-d ⁹⁵Tc ε decay.

<u>E_γ</u>	<u>I_γ[#]</u>	<u>E_i(level)</u>	<u>J_i^π</u>	<u>E_f</u>	<u>J_f^π</u>	<u>Mult.[†]</u>	<u>δ[†]</u>	<u>α[†]</u>	<u>Comments</u>
(125.8 [‡] 3)	0.44 [‡] 4	1073.720	7/2 ⁺	947.676	9/2 ⁺	(M1)		0.1331	α(K)=0.1165 18; α(L)=0.01376 22; α(M)=0.00247 4; α(N)=0.000374 6; α(O)=2.07×10 ⁻⁵ 4 α(N+..)=0.000395 7
126.03 [@] 4	0.11 1	1551.724	(9/2) ⁺	1425.72	(5/2) ⁺	(E2)		0.522	α(K)=0.433 6; α(L)=0.0734 11; α(M)=0.01328 19; α(N)=0.00190 3; α(O)=6.40×10 ⁻⁵ 9 α(N+..)=0.00196 3
181.88 5	0.027 8	947.676	9/2 ⁺	765.793	7/2 ⁺	(M1,E2)		0.09 5	α(K)=0.08 4; α(L)=0.011 6; α(M)=0.0020 11; α(N)=0.00029 16; α(O)=1.3×10 ⁻⁵ 6 α(N+..)=0.00031 17
204.12 1	3.24 24	204.119	3/2 ⁺	0.0	5/2 ⁺	M1+E2	-0.62 7	0.052 3	α(K)=0.0449 23; α(L)=0.0058 4; α(M)=0.00103 7; α(N)=0.000154 9; α(O)=7.5×10 ⁻⁶ 4 α(N+..)=0.000161 10
307.93 2	0.37 1	1073.720	7/2 ⁺	765.793	7/2 ⁺	(M1,E2)		0.017 5	I _γ : weighted av of 3.3 4 (1977Me12) and 3.2 3 (1974Kr08). α(K)=0.015 4; α(L)=0.0019 6; α(M)=0.00033 11; α(N)=5.0×10 ⁻⁵ 16; α(O)=2.5×10 ⁻⁶ 6 α(N+..)=5.3×10 ⁻⁵ 16
467.10 [@] 477.7 4	≤0.001 0.14 5	1540.787 1551.724	11/2 ⁺ (9/2) ⁺	1073.720 1073.720	7/2 ⁺ 7/2 ⁺				E _γ : unweighted av of 478.0 5 (1977Me12) and 477.3 2 (1974Kr08).
495.16 [@] 561.67 10 593.16 6 604.04 2 765.789 9	≤0.015 0.15 6 0.23 7 3.24 9 1000 2	1551.724 765.793 1540.787 1551.724 765.793	(9/2) ⁺ 7/2 ⁺ 11/2 ⁺ (9/2) ⁺ 7/2 ⁺	1056.7 204.119 947.676 947.676 0.0	5/2 ⁺ 3/2 ⁺ 9/2 ⁺ 9/2 ⁺ 5/2 ⁺	M1+E2	-0.14 9	0.001445 21	α(K)exp=0.00134 5 (1974An05); α(L)exp=0.00015 2 α=0.001445 21; α(K)=0.001272 18; α(L)=0.0001428 20; α(M)=2.55×10 ⁻⁵ 4 α(O)=2.22×10 ⁻⁷ 4; α(N+..)=4.11×10 ⁻⁶ E _γ : weighted av of 765.79 1 (1977Me12) and 765.786 19 (1971He20). α(K)exp: Other: 0.00128 9 (1977Me12).
774.99 1 785.93 2 869.60 3 947.67 2	0.18 5 1.55 9 3.38 8 20.8 2	1540.787 1551.724 1073.720 947.676	11/2 ⁺ (9/2) ⁺ 7/2 ⁺ 9/2 ⁺	765.793 765.793 204.119 0.0	7/2 ⁺ 7/2 ⁺ 3/2 ⁺ 5/2 ⁺				α(K)exp: ≈0.001? α(K)exp=0.0007 1 α(K)exp: Other: 0.00087 18 (1974An05).

⁹⁵Tc ε decay (20.0 h) [1977Me12](#) (continued)

γ(⁹⁵Mo) (continued)

<u>E_γ</u>	<u>I_γ[#]</u>	<u>E_i(level)</u>	<u>J_i^π</u>	<u>E_f</u>	<u>J_f^π</u>	<u>Comments</u>
1056.70 25	0.016 9	1056.7	5/2 ⁺	0.0	5/2 ⁺	
1073.71 2	39.9 4	1073.720	7/2 ⁺	0.0	5/2 ⁺	α(K)exp=0.00057 7; α(L)exp=0.00005 1 α(K)exp: Other: 0.0008 1 (1974An05).
1221.90 15	0.10 4	1425.72	(5/2) ⁺	204.119	3/2 ⁺	
1441.0 9	0.007 4	1645.1	7/2 ⁽⁺⁾	204.119	3/2 ⁺	
1551.71 5	0.218 18	1551.724	(9/2) ⁺	0.0	5/2 ⁺	I _γ : unweighted av of 0.235 9 (1977Me12) and 0.20 2 (1974Kr08).
1645.0 9	0.006 3	1645.1	7/2 ⁽⁺⁾	0.0	5/2 ⁺	
1683 @	0.0001	1683.0?	7/2,9/2 ⁽⁺⁾	0.0	5/2 ⁺	

† From the adopted gammas.

‡ From the adopted gammas. I_γ obtained from adopted branching ratios and I_γ(1074γ). [1977Me12](#) looked for but did not observe a 127γ (I_γ≤0.005).

For absolute intensity per 100 decays, multiply by 0.09382 19.

@ Placement of transition in the level scheme is uncertain.

⁹⁵Tc ε decay (20.0 h) 1977Me12

Legend

- I_γ < 2% × I_γ^{max}
- I_γ < 10% × I_γ^{max}
- I_γ > 10% × I_γ^{max}
- - - - γ Decay (Uncertain)
- Coincidence

Decay Scheme

Intensities: I_(γ+ce) per 100 parent decays

