^{94}Tc ε decay (52.0 min) 1969Ba09,1986AgZX

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	D. Abriola(a), A. A. Sonzogni	NDS 107, 2423 (2006)	1-Jan-2006

Parent: ^{94}Tc: E=76 *3*; $J^\pi=(2)^+$; $T_{1/2}$=52.0 min *10*; Q(ε)=4256 *4*; %ε+%$β^+$ decay=100.0

1969Ba09: Ge(Li), FWHM=3.1 keV and 2.4 keV at 1.33 MeV. NaI. Measured Eγ, Iγ, γγ.

1968Ar06: Ge(Li), NaI. Measured Eγ, Iγ, γγ, γγ(θ).

1986AgZX: report 39 gammas based on their γ, γγ measurements. Their decay scheme is not available.

The level scheme is from 1969Ba09. γ's seen by 1986AgZX but not placed in decay scheme by 1969Ba09 are reported as unplaced.

^{94}Mo Levels

E(level)	J^π †	E(level)	J^π †	E(level)	J^π †	E(level)	J^π †
0.0	0^+	2393.02 *6*	2^+	3128.66 *7*	1^+	3511.86 *14*	$1^{(+)}$
871.098 *16*	2^+	2739.91 *7*	1^+	3163.29 *19*	$(3)^+$	3792.87 *15*	2^+
1864.31 *5*	2^+	2869.90 *8*	2^+	3400.83 *17*		3892.16 *7*	$(1,2^+)$
2067.35 *6*	2^+	2965.41 *6*	3^+	3447.6 *4*	$(1,2^+)$		

† From Adopted Levels.

ε,$β^+$ radiations

E(decay)	E(level)	Iβ+ †	Iε†	Log *ft*	I(ε+β+)†	Comments
(440 *5*)	3892.16		0.09 *6*	5.9 *3*	0.09 *6*	εK=0.8624 *1*; εL=0.11172 *9*
(539 *5*)	3792.87		0.13 *5*	5.96 *17*	0.13 *5*	εK=0.8642; εL=0.11028 *6*
(820 *5*)	3511.86		0.091 *21*	6.49 *10*	0.091 *21*	εK=0.8669; εL=0.10815 *3*
(884 *5*)	3447.6		0.12 *5*	6.43 *19*	0.12 *5*	εK=0.8673; εL=0.10786 *2*
(931 *5*)	3400.83		0.31 *8*	6.07 *12*	0.31 *8*	εK=0.8675; εL=0.10767 *2*
(1169 *5*)	3163.29		0.050 *17*	7.06 *15*	0.050 *17*	εK=0.8682; εL=0.10694 *2*
(1203 *5*)	3128.66		1.60 *16*	5.58 *5*	1.60 *16*	εK=0.8681; εL=0.10683 *2*
(1367 *5*)	2965.41	0.00026 *9*	0.042 *14*	7.28 *15*	0.042 *14*	av Eβ=157.5; εK=0.8635 *3*; εL=0.10590 *5*
(1462 *5*)	2869.90	0.0024 *13*	0.15 *8*	6.79 *24*	0.15 *8*	av Eβ=198.2; εK=0.8554 *6*; εL=0.10473 *8*
(1592 *5*)	2739.91	0.38 *2*	8.9 *4*	5.083 *21*	9.3 *4*	av Eβ=254.1; εK=0.8340 *10*; εL=0.10191 *13*
(1939 *5*)	2393.02	0.92 *6*	4.1 *2*	5.60 *3*	5.0 *3*	av Eβ=404.5; εK=0.7089 *22*; εL=0.0863 *3*
(2265 *5*)	2067.35	0.32 *4*	0.52 *6*	6.63 *6*	0.84 *10*	av Eβ=548.4; εK=0.5349 *24*; εL=0.0649 *3*
(2468 *5*)	1864.31	0.93 *9*	0.91 *8*	6.46 *5*	1.84 *17*	av Eβ=639.3; εK=0.4299 *22*; εL=0.0521 *3*
(3461 *5*)	871.098	67.6 *4*	12.8 *1*	5.605 *10*	80.4 *4*	av Eβ=1094.2; εK=0.1391 *7*; εL=0.01680 *8*

† Absolute intensity per 100 decays.

γ(^{94}Mo)

Iγ normalization: From Σ Iγ to g.s. = 100.

E_γ‡	I_γ‡&	E_i(level)	J_i^π	E_f	J_f^π	Mult.†	δ†	α[a]	Comments
871.05 *7*	100	871.098	2^+	0.0	0^+	E2		0.00108	α=0.00108; α(K)=0.00094 *3*; α(L)=0.00011
[x]875.1 *3*	0.84 *20*								
993.19 *9*	2.35 *3*	1864.31	2^+	871.098	2^+	M1+E2	−2.0 *3*	0.00080	α=0.00080; α(K)=0.00070 δ: −2.00 +*25*−*33*.
[x]998.2 *3*	0.23 *2*								

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γ(^{94}Mo) (continued)

E_γ ‡	I_γ ‡&	E_i(level)	J_i^π	E_f	J_f^π	Mult. †	δ †	α [a]	Comments
1005.8 @ 3	0.16 8	2869.90	2+	1864.31	2+				
x 1022.2 3	0.29 15								
x 1037.2 3	0.047 15								
1101.3 3	0.045 15	2965.41	3+	1864.31	2+				
1196.4 3	0.80 10	2067.35	2+	871.098	2+	M1+E2	+0.15 4	0.00048	α=0.00048; α(K)=0.00048
1264.9 4	0.23 8	3128.66	1+	1864.31	2+				
x 1357.4 15	0.20 8								
x 1499.0 3	0.062 20								
1522.1 2	4.80 30	2393.02	2+	871.098	2+	M1+E2	−0.12 3		δ: −1.9 +4−6.
x 1670.1 3	0.037 12								
x 1757.9 3	0.16 2								
x 1769.9 3	0.020 8								
1864.0	≤0.25	1864.31	2+	0.0	0+	E2			
1868.68 8	6.10 30	2739.91	1+	871.098	2+				
1928.8 20	0.09 5	3792.87	2+	1864.31	2+				
x 2027.5 3	0.025 6								
2067.4 5	0.09 3	2067.35	2+	0.0	0+	E2			
x 2257.5 3	0.056 18								
2292.2 # 3	0.053 # 18	3163.29	(3)+	871.098	2+				
2393.2 4	0.50 20	2393.02	2+	0.0	0+				
2529.8 3	0.33 8	3400.83		871.098	2+				
2577.2 @ 20	0.13 5	3447.6	(1,2+)	871.098	2+				
2641.6 15	0.037 9	3511.86	1(+)	871.098	2+				
x 2664.1 20	0.07 6								
2740.1 3	3.74 35	2739.91	1+	0.0	0+				
x 2869.9 3	0.022 7								
3021.6 10	0.08 6	3892.16	(1,2+)	871.098	2+				
x 3065.6 3	0.012 4								
x 3085.8 3	0.017 4								
3129.1 5	1.47 15	3128.66	1+	0.0	0+				
x 3400.8 3	0.005 2								
x 3447.0 3	0.005 2								
3512.5 15	0.06 2	3511.86	1(+)	0.0	0+				
x 3640.6 3	0.007 2								
3793.1 15	0.05 2	3792.87	2+	0.0	0+				
3892.7 25	0.016 10	3892.16	(1,2+)	0.0	0+				
x 4136.2 3	0.007 1								

† From adopted gammas.
‡ From 1969Ba09. Unplaced γ's are from 1986AgZX.
# From 1986AgZX. Placement from (n,n′γ).
@ Not placed by 1969Ba09 but placement is known from (n,n′γ).
& For absolute intensity per 100 decays, multiply by 0.942 5.
[a] Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.
x γ ray not placed in level scheme.

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Decay Scheme

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

Legend

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