^{94}Tc ε decay (293 min) 1969Ba09

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=0.0; $J^\pi=7^+$; $T_{1/2}$=293 min *1*; 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.

1979Ka22: Ge(Li), FWHM=1.9 keV at 1.33 MeV. NaI(Tl). Measured γγ(θ).

1977Be38: Ge(Li), FWHM=3 keV at 1.17 MeV. NaI(Tl). Measured γγ(θ), γγ(pol) correlation.

1977Be19: Ge(Li). Measured γ(θ,H,t) from low-temperature oriented nuclei. Deduced mult., δ.

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

1971Br54: Ge(Li), NaI(Tl). Measured xγ coin.

Other: 1968Ka25.

The decay scheme is based mainly on 1969Ba09 with the following modifications:

In accordance with (α,2nγ), the 532 and 449 γ's have been placed deexciting the 2956 and 2873 levels, respectively, instead of introducing new levels at 2106 keV and 3614 keV. The 1509γ could then not be placed in the level scheme.

^{94}Mo Levels

E(level)‡	Jπ†
0	0^+
871.05 *7*	2^+
1573.73 *10*	4^+
2423.47 *12*	6^+
2872.7 *3*	6^+
2955.6 *3*	8^+
3165.80 *20*	6^+
3339.57 *19*	6^+

† From Adopted Levels.

‡ From least-squares fit to Eγ.

ε,$β^+$ radiations

E(decay)	E(level)	Iβ+ †	Iε†	Log *ft*	I(ε+β+)†	Comments
(916 *4*)	3339.57		7.9 *4*	5.400 *23*	7.9 *4*	εK=0.8674; εL=0.10772 *2*
(1090 *4*)	3165.80		3.5 *3*	5.91 *4*	3.5 *3*	εK=0.8681; εL=0.10716 *2*
(1300 *4*)	2955.6	0.011 *1*	4.0 *3*	6.01 *4*	4.0 *3*	av Eβ=129.0; εK=0.8665 *2*; εL=0.10640 *3*
(1383 *4*)	2872.7	0.013 *2*	1.7 *3*	6.43 *8*	1.7 *3*	av Eβ=164.6; εK=0.8625 *3*; εL=0.10573 *5*
(1833 *4*)	2423.47	10.5 *3*	70.8 *17*	5.058 *11*	81.3 *19*	av Eβ=358.3; εK=0.7570 *17*; εL=0.09224 *21*

† Absolute intensity per 100 decays.

γ(^{94}Mo)

Iγ normalization: Assuming Σ Iγ (g.s.)=100%.

Eγ‡	Iγ‡#	Ei(level)	J_i^π	E_f	J_f^π	Mult.†	α@	Comments
83	0.49	2955.6	8^+	2872.7	6^+	E2	2.39	α=2.39; α(K)=1.88 *6*; α(L)=0.420 *13*; α(M)=0.0761 *23*; α(N+..)=0.0124 *4* Eγ: from 1971Br54. Iγ: from 1971Br54.

Continued on next page (footnotes at end of table)

^{94}Tc ε decay (293 min) 1969Ba09 (continued)

γ(^{94}Mo) (continued)

E_γ ‡	I_γ ‡#	E_i(level)	J_i^π	E_f	J_f^π	Mult. †	δ †	α @	Comments
449.2 *3*	3.3 *3*	2872.7	6^+	2423.47	6^+	(M1(+E2))	+0.14 *9*	0.00510 *5*	α=0.00510 *5*; α(K)=0.00443 *4*; α(L)=0.00050 *1* δ: other: 0.0 *+2−1* or +0.7 *2* from γ(θ,H,t) (1977Be19).
532.1 *3*	2.35 *25*	2955.6	8^+	2423.47	6^+	(E2)		0.00400	α=0.00400; α(K)=0.00345 *11*; α(L)=0.00041 *1* δ=−0.10 *12* (1979Ka22) for the M1 component of this γ is consistent with ΔJ=2 for this transition.
702.67 *7*	99.7 *18*	1573.73	4^+	871.05	2^+	E2		0.00186	α=0.00186; α(K)=0.00161 *5*; α(L)=0.00019 *1*
742.3 *2*	1.21 *18*	3165.80	6^+	2423.47	6^+	(M1(+E2))	+0.15 *7*	0.00158	α=0.00158; α(K)=0.00137; α(L)=0.00015 δ: +0.14 *+26−48*.
849.74 *7*	95.8 *18*	2423.47	6^+	1573.73	4^+	E2(+M3)	−0.04 *5*	0.00116 *4*	α=0.00116 *4*; α(K)=0.00100 *3*; α(L)=0.00011
871.05 *7*	100	871.05	2^+	0	0^+	E2		0.00108	α=0.00108; α(K)=0.00094 *3*; α(L)=0.00011
916.10 *15*	7.6 *4*	3339.57	6^+	2423.47	6^+	(M1(+E2))	−0.04 *4*	0.00099	α=0.00099; α(K)=0.00086 δ: from γγ(θ) of 1977Be38. Other: δ=−0.07 *+7−5* from γ(θ,H,t) (1977Be19).
[x]1509.3 *4*	0.68 *7*								
1592.1 *3*	2.25 *20*	3165.80	6^+	1573.73	4^+	(E2(+M3))	−0.01 *6*		
1765.6 *7*	0.29 *5*	3339.57	6^+	1573.73	4^+				

† From adopted gammas.
‡ From 1969Ba09.
# For absolute intensity per 100 decays, multiply by 0.999.
@ 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