^{94}Tc ε decay: mixed source 2003Fr02

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=?

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

Measured Eγ, Iγ, $\gamma\gamma$, $\gamma\gamma(\theta)$ using the OSIRIS cube coincidence spectrometer comprised of eight HPGe detectors, of which six were Compton-suppressed.

^{94}Mo Levels

E(level)†	J^π	Comments
0	0^+	
871.14 *5*	2^+	
1573.81 *9*	4^+	
1741.66 *16*	0^+	
1864.35 *6*	2^+	
2067.38 *7*	2^+	
2294.82 *18*	4^+	
2393.05 *7*	2^+	
2423.51 *12*	6^+	
2533.89 *14*	3^-	
2610.61 *22*	5^-	
2739.93 *7*	1^+	
2805.08 *20*	3^+	E(level): level not shown (in Table I of 2003Fr02) as populated in ^{94}Tc ε decay, but required by 358γ from 3163 level.
2869.93 *9*	2^+	
2872.47 *13*	6^+	
2955.61 *16*	(8^+)	
2965.46 *7*	3^+	
3128.69 *8*	1^+	
3163.33 *19*	(3^+)	
3165.83 *12*	6^+	
3331.78 *18*	(3^+)	
3339.71 *16*	6^+	
3447.7 *4*	(2)	
3511.88 *14*	$1^{(+)}$	
3534.35 *10*	2^+	
3792.91 *15*	2^+	
3892.19 *8*	(2^+)	

† From least-squares fit to Eγ.

$\gamma(^{94}$Mo)

E_i(level)	J_i^π	E_γ†	I_γ†	E_f	J_f^π	Mult.‡	δ‡	Comments
871.14	2^+	871.09 *10*	100	0	0^+			
1573.81	4^+	702.63 *10*	100	871.14	2^+	E2(+M3)	0.00 *4*	
1741.66	0^+	871.4 *5*		871.14	2^+			Eγ: from adopted gammas.
1864.35	2^+	993.1 *1*	100.0 *10*	871.14	2^+	M1+E2	−2.0 *10*	
		1864.3 *2*	10.3 *10*	0	0^+			
2067.38	2^+	1196.2 *1*	100.0 *7*	871.14	2^+	M1+E2	+0.15 *4*	
		2067.4 *1*	15.1 *7*	0	0^+			
2294.82	4^+	721.0 *2*	100.0 *2*	1573.81	4^+	M1(+E2)	+0.03 *4*	
		1423.7 *3*	13.3 *2*	871.14	2^+	E2(+M3)	+0.08 *8*	

Continued on next page (footnotes at end of table)

^{94}Tc ε decay: mixed source 2003Fr02 (continued)

γ(^{94}Mo) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult.‡	δ‡	Comments
2393.05	2+	325.7 *3*	0.61 *14*	2067.38	2+			
		528.7 *3*	0.72 *3*	1864.35	2+			
		1521.8 *1*	100.0 *20*	871.14	2+	M1+E2	−0.12 *3*	
		2393.1 *1*	11.11 *22*	0	0+			
2423.51	6+	849.7 *1*	100	1573.81	4+	E2(+M3)	−0.04 *5*	
2533.89	3−	466.4 *3*	57.3 *10*	2067.38	2+	E1(+M2)	0.00 *3*	
		669.6 *2*	31.9 *13*	1864.35	2+	E1(+M2)	−0.03 *13*	
		960.1 *3*	81 *3*	1573.81	4+	E1(+M2)	0.00 *2*	
		1662.7 *3*	100.0 *22*	871.14	2+	E1(+M2)	+0.03 *7*	
2610.61	5−	1036.8 *2*	100	1573.81	4+	E1(+M2)	0.00 *4*	
2739.93	1+	672.0 *7*	3.0 *5*	2067.38	2+			
		875.5 *2*	24.4 *5*	1864.35	2+	M1+E2	−0.10 *2*	
		998.2 *2*	4.44 *10*	1741.66	0+			
		1868.8 *1*	100.0 *20*	871.14	2+	M1+E2	−0.12 *2*	
		2739.9 *1*	65.4 *13*	0	0+			
2805.08	3+	940.7 *4*		1864.35	2+			
		1231.2 *3*		1573.81	4+			
		1933.9 *4*		871.14	2+			
2869.93	2+	802.6 *2*	26.2 *15*	2067.38	2+			
		1005.5 *1*	100 *4*	1864.35	2+	M1+E2	−0.05 *4*	
		1998.9 *2*	13.1 *6*	871.14	2+	M1+E2	+1.3 *+14−4*	
		2870.0 *2*	17.3 *5*	0	0+			
2872.47	6+	449.0 *1*	100	2423.51	6+	M1+E2	+0.14 *6*	
2955.61	(8+)	532.1 *1*	100	2423.51	6+	E2(+M3)	−0.03 *5*	
2965.46	3+	898.1 *1*	23.0 *12*	2067.38	2+	M1+E2		δ: + 2.0 *+12−6* or + 0.39 *25*.
		1101.1 *1*	100.0 *23*	1864.35	2+	M1+E2	−0.09 *6*	
		1391.6 *1*	63.0 *24*	1573.81	4+	M1+E2	−0.08 *6*	
		2094.3 *1*	36.9 *14*	871.14	2+	M1+E2	+1.1 *+10−4*	
3128.69	1+	1061.1 *5*	1.16 *11*	2067.38	2+	M1+E2		δ: - 7 *+3−20* or - 0.57 *16*.
		1264.3 *1*	18.3 *4*	1864.35	2+	M1+E2	−0.08 *3*	
		2257.6 *1*	4.29 *10*	871.14	2+	M1+E2	+0.74 *21*	
		3128.5 *2*	100.0 *3*	0	0+			
3163.33	(3+)	358.0 *5*	16.7 *13*	2805.08	3+	M1+E2	−0.35 *12*	
		2292.2 *2*	100.0 *13*	871.14	2+	M1+E2	+0.17 *4*	
3165.83	6+	293.4 *1*	79.4 *25*	2872.47	6+	M1+E2	+0.18 *5*	
		742.2 *2*	29.4 *11*	2423.51	6+	M1+E2	+0.15 *7*	
		1592.0 *1*	100 *4*	1573.81	4+	E2(+M3)	−0.01 *6*	
3331.78	(3+)	1467.3 *3*	48 *3*	1864.35	2+	M1+E2	+0.3 *+29−2*	
		1758.0 *2*	100 *6*	1573.81	4+	M1+E2	−0.10 *3*	
		2460.8 *8*	7.4 *11*	871.14	2+			
3339.71	6+	916.2 *1*	100	2423.51	6+	M1(+E2)	+0.02 *7*	
3447.7	(2)	2576.5 *5*	100.0 *3*	871.14	2+	D+Q		δ: - 1.9 *+5−6* or - 0.08 *10*.
		3447.5 *10*	5.1 *3*	0	0+			
3511.88	1(+)	1770.4 *2*	49 *9*	1741.66	0+			
		2640.7 *3*	51.6 *13*	871.14	2+			
		3511.6 *2*	100.0 *11*	0	0+			
3534.35	2+	1670.0 *1*	56.1 *20*	1864.35	2+	M1(+E2)	+0.15 *19*	
		2663.2 *2*	100.0 *23*	871.14	2+	M1+E2	−0.3 *2*	
		3534.0 *4*	5.1 *6*	0	0+			
3792.91	2+	1399.9 *2*	55 *3*	2393.05	2+			
		1928.5 *2*	100 *4*	1864.35	2+			
		3792.3 *10*	77.8 *20*	0	0+			
3892.19	(2+)	1499.1 *1*	79.4 *22*	2393.05	2+			
		1824.9 *3*	25.8 *10*	2067.38	2+			
		2027.9 *2*	22.3 *10*	1864.35	2+			

Continued on next page (footnotes at end of table)

^{94}Tc ε decay: mixed source 2003Fr02 (continued)

γ(^{94}Mo) (continued)

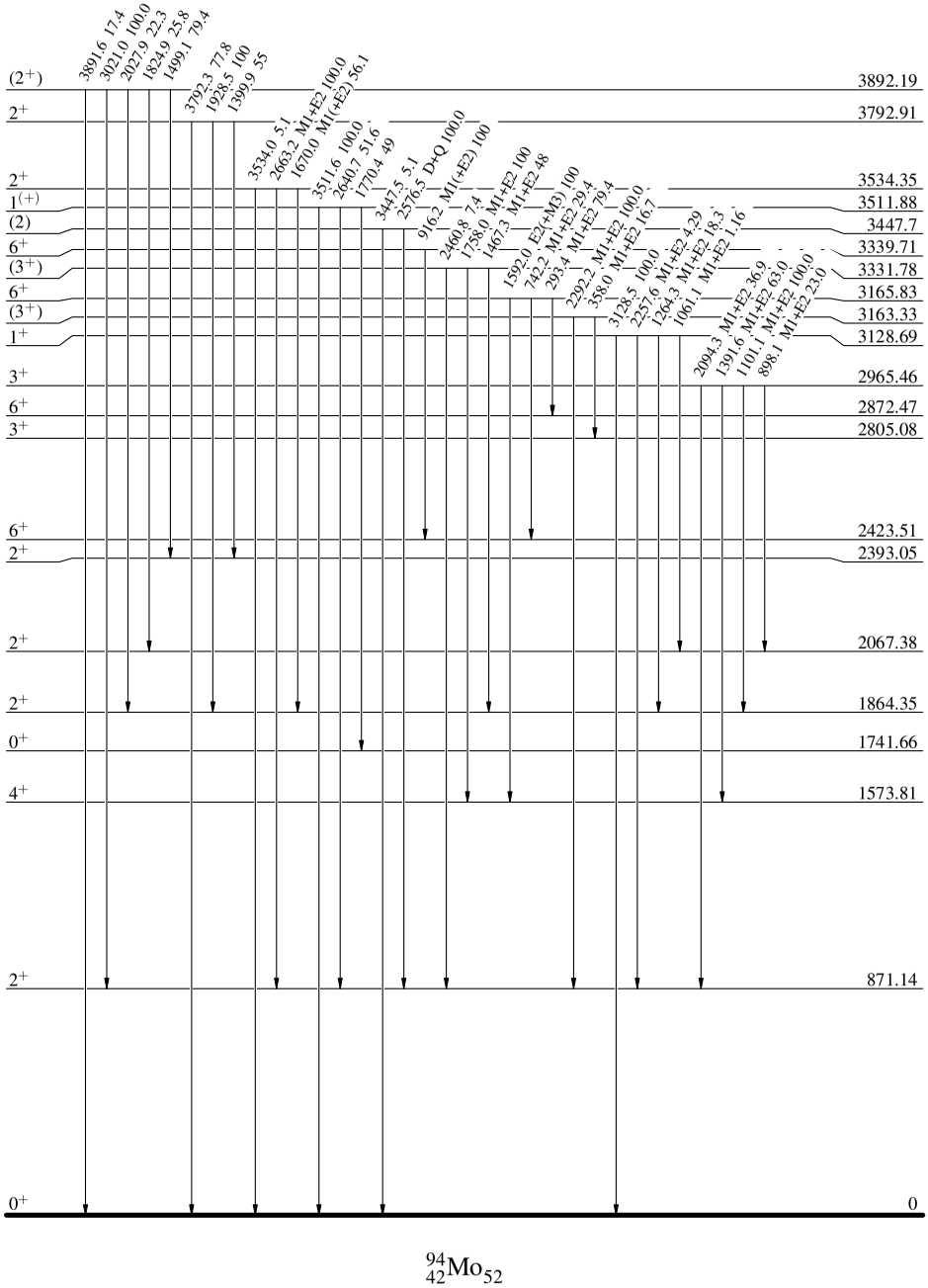
E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π
3892.19	(2$^+$)	3021.0 *1*	100.0 *24*	871.14	2$^+$
		3891.6 *10*	17.4 *9*	0	0$^+$

† From a combination of four experiments: (γ,γ′), ^{94}Tc ε decay, (α,nγ), and (n,n′γ).
‡ From a combination of three experiments: ^{94}Tc ε decay, (α,nγ), and (n,n′γ).

^{94}Tc ε decay: mixed source 2003Fr02

Decay Scheme

Intensities: Relative photon branching from each level

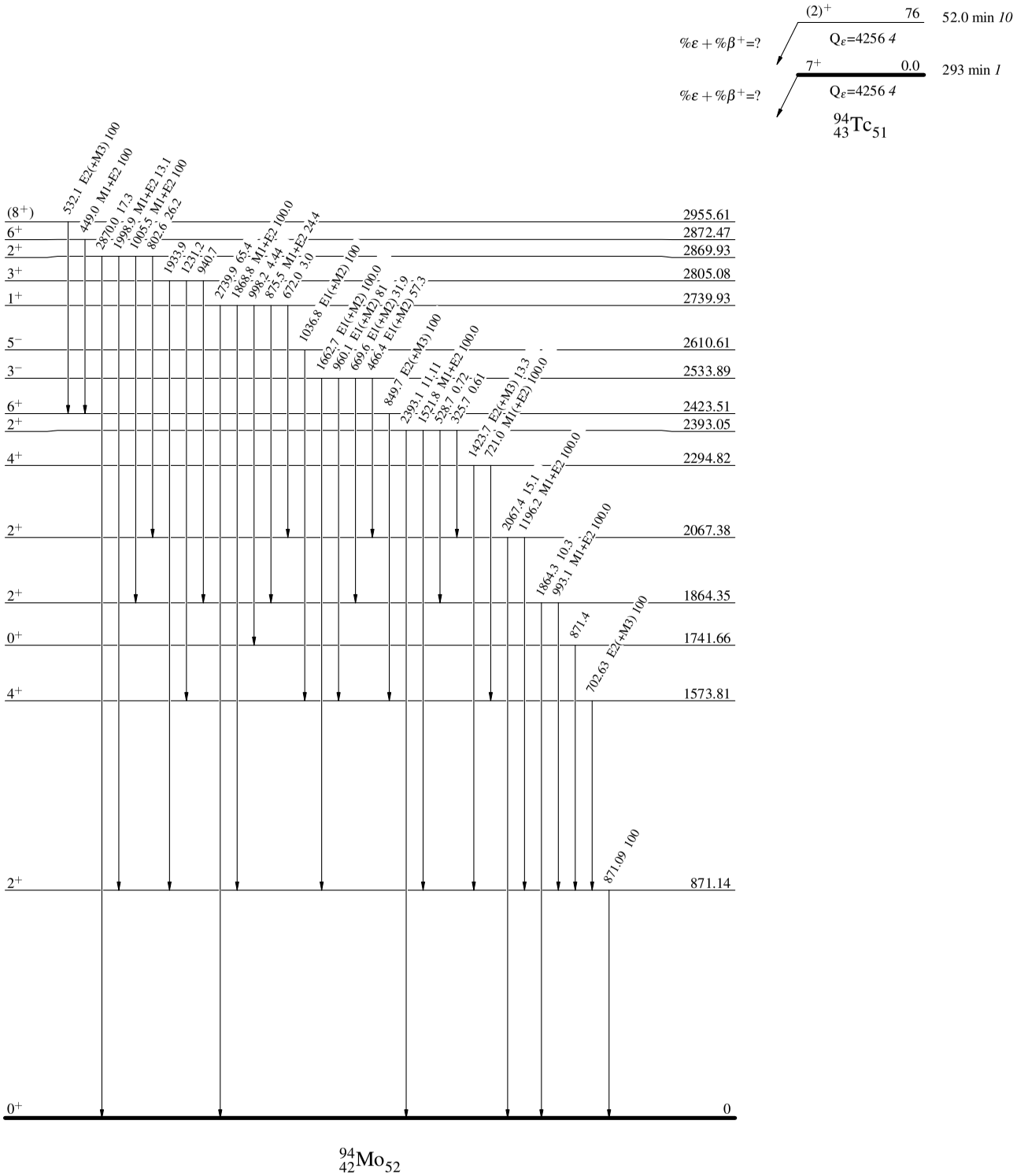


$^{94}_{42}Mo_{52}$

^{94}Tc ε decay: mixed source 2003Fr02

Decay Scheme (continued)

Intensities: Relative photon branching from each level



$^{94}_{42}Mo_{52}$