^{88}Tc ε decay (6.4 s) 1996Od01

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. A. Mccutchan and A. A. Sonzogni	NDS 115, 135 (2014)	1-Nov-2013

Parent: ^{88}Tc: E=x; J^π=(5$^+$,6$^+$,7$^+$); $T_{1/2}$=6.4 s *8*; Q(ε)=1.101×10^4 *15*; %ε+%β^+ decay=100.0

^{88}Tc activity produced by ^{58}Ni(^{32}S,pn), E=100-105 MeV. Measured Eγ, Iγ, $\gamma\gamma$ and $\gamma\beta$ coincidences, and $T_{1/2}$ using two HPGe detectors and one LEPS detector. Channel selection performed with a tape transport system and a rotation disk. Also 1993OdZY, 1995ShZX. Single and coincident γ ray spectra are published in 1993OdZY.

Other: 1992We02, ^{88}Tc activity produced by ^{58}Ni(^{36}Ar,αpn), E=145 MeV. Measured Eγ, Iγ in coincidence with delayed 511 keV annihilation radiation. Observed transitions depopulating the yrast 8$^+$ and 7$^-$ levels in ^{88}Mo. Experimental setup not optimized for a β-decay study and thus the results are not adopted here.

With a Q value of 11 MeV and levels populated only up to 2.6 MeV, it is likely that the decay scheme is incomplete and Log ϕt and I(ε+β^+) values should be considered approximate.

α: Additional information 1.

^{88}Mo Levels

E(level)	J^π[†]	$T_{1/2}$[†]
0	0$^+$	8.0 min *2*
740.53 *5*	2$^+$	
1654.77 *19*	4$^+$	
2100.7 *5*	(4$^+$,5$^+$,6$^+$)	
2626.8 *3*	6$^+$	

[†] From the Adopted Levels.

ε,β^+ radiations

E(decay)	E(level)	Iβ^+ [‡]	Iε[‡]	Log *ft*[†]	I(ε+β^+)[‡]	Comments
(8.38×10^3 *15*)	2626.8	74 *14*	0.81 *17*	4.77	75 *14*	av Eβ=2963; εK=0.0095 *10*; εL=0.00114 *12*; εM+=0.00026 *3*
(8.91×10^3[#] *15*)	2100.7	25 *11*	0.22 *10*	5.41	25 *11*	av Eβ=3220; εK=0.0075 *7*; εL=0.00090 *9*; εM+=0.000207 *19*

[†] Approximate values, from I(ε+β^+) and assuming x=0.0.
[‡] Absolute intensity per 100 decays.
[#] Existence of this branch is questionable.

γ(^{88}Mo)

The gamma intensities are obtained from a mixed source experiment, assuming that the 6.4 s isomer only feeds the 2627 and the 2101 levels, while the 5.8 s isomer only feeds the 1655 and the 741 levels. Alternatively, the 6.4 s isomer could feed only the 2627 level, while the 5.8 s isomer could feed the 2101, 1655, and 741 levels. The mixed source intensities are 100 % (740.5γ), 44 % *6* (914.2γ), 6 % *3* (445.9γ), 19 % *4* (972.1γ).

E$_\gamma$	E$_i$(level)	J_i^π	E$_f$	J_f^π	Mult.[‡]	α	I$_{(\gamma+ce)}$[†#]	Comments
445.9 *4*	2100.7	(4$^+$,5$^+$,6$^+$)	1654.77	4$^+$			25 *11*	
740.53 *5*	740.53	2$^+$	0	0$^+$	E2	0.001600 *23*	100	α=0.001600 *23*; α(K)=0.001404 *20*; α(L)=0.0001624 *23*; α(M)=2.90×10^{-5}

Continued on next page (footnotes at end of table)

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γ(^{88}Mo) (continued)

E_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.‡	α	$I_{(\gamma+ce)}$†#	Comments
								4 α(O)=2.39×10^{-7} *4*; α(N+..)=4.63×10^{-6}
914.23 *18*	1654.77	4$^+$	740.53	2$^+$	E2	0.000952 *14*	100	α=0.000952 *14*; α(K)=0.000837 *12*; α(L)=9.54×10^{-5} *14*; α(M)=1.702×10^{-5} *24* α(O)=1.433×10^{-7} *20*; α(N+..)=2.73×10^{-6}
972.07 *23*	2626.8	6$^+$	1654.77	4$^+$	E2	0.000824 *12*	75 *15*	α=0.000824 *12*; α(K)=0.000725 *11*; α(L)=8.23×10^{-5} *12*; α(M)=1.469×10^{-5} *21* α(O)=1.243×10^{-7} *18*; α(N+..)=2.35×10^{-6}

† From I(ε+β$^+$) values.
‡ From the Adopted Gammas.
# Absolute intensity per 100 decays.

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Decay Scheme