^{88}Tc ε decay (5.8 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=y; $J^\pi=(2^+,3^+)$; $T_{1/2}$=5.8 s *2*; 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 1.7 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^+	

[†] From the Adopted Levels.

ε,β^+ radiations

E(decay)	E(level)	Iβ^+ [‡]	Iε[‡]	Log *ft*[†]	I($\varepsilon+\beta^+$)[‡]	Comments
(9.35×10^3 *15*)	1654.77	≈26	≈0.13	≈5.7	≈26	av Eβ=3938 *74*; εK=0.00426 *24*; εL=0.00051 *3*; εM+=0.000118 *7*
(1.027×10^4 *15*)	740.53	≈74	≈0.27	≈5.5	≈74	av Eβ=4388 *74*; εK=0.00314 *16*; εL=0.000377 *19*; εM+=8.7×10^{-5} *5*

[†] Approximate values, from I($\varepsilon+\beta^+$) and assuming y=0.0.

[‡] Absolute intensity per 100 decays.

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).

Eγ	E$_i$(level)	J_i^π	E$_f$	J_f^π	Mult.[†]	α	I$_{(\gamma+ce)}$[‡#]	Comments
740.53 *5*	740.53	2^+	0	0^+	E2	1.60×10^{-3}	100	ce(K)/(γ+ce)=0.001402 *20*; ce(L)/(γ+ce)=0.0001621 *23*; ce(M)/(γ+ce)=2.90×10^{-5} *4*; ce(N)/(γ+ce)=4.38×10^{-6} *7* ce(O)/(γ+ce)=2.39×10^{-7} *4* α(K)=0.001404 *20*; α(L)=0.0001624 *23*; α(M)=2.90×10^{-5} *4*; α(N)=4.39×10^{-6} *7*

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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
914.23 *18*	1654.77	4^+	740.53	2^+	E2	9.52×10^{-4}	26 *7*	ce(K)/(γ+ce)=0.000836 *12*; ce(L)/(γ+ce)=9.53×10^{-5} *14*; ce(M)/(γ+ce)=1.700×10^{-5} *24*; ce(N)/(γ+ce)=2.58×10^{-6} *4* ce(O)/(γ+ce)=1.432×10^{-7} *20* α(K)=0.000837 *12*; α(L)=9.54×10^{-5} *14*; α(M)=1.702×10^{-5} *24*; α(N)=2.58×10^{-6} *4*

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

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Decay Scheme