

⁹⁰Tc ε decay (8.7 s) 1981Ox01

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	S. K. Basu, E. A. Mccutchan		NDS 165, 1 (2020)	1-Mar-2020

Parent: ⁹⁰Tc: E=144.1 17; J^π=1⁺; T_{1/2}=8.7 s 2; Q(ε)=9448 4; %ε+%β⁺ decay=100.0

1981Ox01: Produced by ⁹²Mo(p,3n) reaction at E(p)=43 MeV; measured γ(t) with Ge(Li) and Ge detectors, γγ and βγ coincidences with Ge(Li) and magnetic spectrometer. The decay scheme is established from γγ-coin data.

Other: 1974Ia01.

With a Q value of 9.4 MeV and the highest observed level at 0.9 MeV, this decay scheme is likely incomplete and ε+β⁺ feedings and log ft values should be taken as lower and upper limits respectively.

α: [Additional information 1](#).

⁹⁰Mo Levels

E(level)	J ^π	T _{1/2}	Comments
0.0	0 ⁺	5.56 h 9	T _{1/2} : from the Adopted Levels.
948.1 2	2 ⁺		

ε,β⁺ radiations

ε+β⁺ branches are obtained from I(γ+ce) imbalance at each level.

E(decay)	E(level)	Iβ ⁺ †	Iε †	Log ft	I(ε+β ⁺) †	Comments
(8644 4)	948.1	78 10	0.50 6	5.3 1	78 10	av Eβ=3589.2 22; εK=0.005536 10; εL=0.0006646 1; εM+=0.0001526 3
(9592 4)	0.0	22 10	0.10 5	6.05 20	22 10	av Eβ=4055.0 22; εK=0.003930 6; εL=0.0004715 7; εM+=0.00010830

† Absolute intensity per 100 decays.

γ(⁹⁰Mo)

Iγ normalization: From measurement of γ(±) for the gs band, and theoretical ε/β⁺ values. The contribution to γ(±) from other sources were eliminated by following γ(±)(t) (1981Ox01).

E _γ	I _γ †	E _i (level)	J _i ^π	E _f	J _f ^π	Mult.	α	Comments
948.1 2	78 10	948.1	2 ⁺	0.0	0 ⁺	E2	8.74×10 ⁻⁴	α(K)=0.000768 11; α(L)=8.74×10 ⁻⁵ 13; α(M)=1.559×10 ⁻⁵ 22; α(N)=2.37×10 ⁻⁶ 4; α(O)=1.317×10 ⁻⁷ 19

† Absolute intensity per 100 decays.

${}^{90}\text{Tc}$ ϵ decay (8.7 s) 1981Ox01Decay SchemeIntensities: $I_{(\gamma+ce)}$ per 100 parent decays