^{38}K ε decay (924.4 ms) 2008Le12,2010Ba43,2000Bb01

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 152, 1 (2018)	30-Sep-2017

Parent: ^{38}K: E=130.22 *16*; $J^{\pi}=0^+$; $T_{1/2}$=924.4 ms *3*; Q(ε)=5914.07 *4*; %ε+%β^+ decay=99.967 *4*

^{38}K-E,J^{π},$T_{1/2}$: From Adopted Levels of ^{38}K.

^{38}K-$T_{1/2}$: Additional information 1.

^{38}K-$T_{1/2}$: Additional information 2.

^{38}K-Q(ε): From 2017Wa10.

^{38}K-%ε+%β^+ decay: From 100−(measured branch=0.0330 *43* from isomer to g.s. decay) per 100 decays (2008Le12).

2008Le12: ^{38}K isomer was produced in the reaction Ta(p,X) with a 500 MeV beam provided by the ISAC facility at TRIUMF on a 22 g/cm^2 Ta target. β particles were measured by the Scintillating Electron Positron Tagging Array (SCEPTAR) of 20 plastic scintillators and γ rays were detected by a 8π array of 20 HPGe detectors. Measured Eγ, Iγ, Eβ, Iβ, $\gamma\beta$-coin, $\gamma\beta$(t). Deduced supperallowed β^+ decay branching ratio and Ft, parent $T_{1/2}$.

2010Ba43: ^{38m}K was produced at the ISAC facility at TRIUMF in spallation reaction by bombarding $CaZrO_3$ target with a 500 MeV proton beam. β particles were detected with a 4π continuous gas-flow proportional β counter. Sample purity was monitored by an HPGe γ-ray detector. Measured parent $T_{1/2}$.

2000Bb01: ^{38m}K produced by ^{38}Ar(p,n) with 7 MeV proton beam provided by the University of Auckland tandem. Measured positron spectrum, parent $T_{1/2}$.

1983Ko22: ^{38m}K produced via ^{12}C(^{28}Si,pn) with 120 MeV ^{28}Si beam provided by the Chalk River on-line isotope separator. Measured parent $T_{1/2}$.

2005Go11, 2003Tr01, 2000Go54: measured Eβ, (recoil)β, deduced $\beta(\nu)$ correlations.

2005Sa44: mass analysis.

1998Di15: measured β spectrum, (recoil)β coin.

1998Ha36: measured positron yield.

1997Be35: measured optical isotope shifts, mean square radii.

1994Ha43: measured β-delayed γ spectra, deduced limits.

1984Ch22, 1981Ch34: measured Fermi β decay $T_{1/2}$.

1978Th02: measured β spectrum, $T_{1/2}$.

1976Wi08, 1975Sq01, 1972Ha82: measured $T_{1/2}$.

Others: 1967Va27, 1962Go13, 1961Ja22, 1960Ja12, 1960Li05, 1957Cl23, 1954Kl36.

Additional information 3.

Total decay energy deposit of 6042.69 *23* keV calculated using RADLIST code is in agreement with the expected value 6042.3 *3* indicating the completeness of the decay scheme.

^{38}Ar Levels

E(level)	J^{π}
0	0^+

ε,β^+ radiations

E(decay)	E(level)	Iβ^+ †	Iε†	Log *ft*	I($\varepsilon+\beta^+$)†	Comments
(6044.29 *17*)	0	99.883 *4*	0.0837 *8*	3.48482 *13*	99.967 *4*	av Eβ=2323.05; εK=0.0007539; εL=7.290×10^{-5}; εM+=1.068×10^{-5} E(decay): β^+ end-point measurement: 5000 *70* (1961Ja22). I($\varepsilon+\beta^+$): from 2008Le12. ft=3052.1 s *10*, Ft=3072.7 s *24* (2008Le12) for superallowed β decay.

† Absolute intensity per 100 decays.