^{52}K β^-2n decay (110 ms) 2006Pe16

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jun Chen and Balraj Singh	NDS 157, 1 (2019)	15-Apr-2019

Parent: ^{52}K: E=0; J^π=(2$^-$); $T_{1/2}$=110 ms *5*; Q(β^-2n)=6307 *30*; %β^-2n decay=2.3 *3*

^{52}K-J^π: From systematic trend in 2017Au03 compilation.

^{52}K-$T_{1/2}$: From weighted average of values in 1983La23, 1985Hu03 and 2006Pe16.

^{52}K-Q(β^-2n): Deduced by evaluators from mass excesses of ^{52}K, ^{50}Ca and neutron in 2017Wa10.

^{52}K-%β^-2n decay: %β^-2n=2.3 *3* in 2006Pe16 determined from measured P_n/P_{2n} ratio, where P_n is from measured I(n)/I(β^-) and using detector efficiencies for neutrons and β^-.

2006Pe16: ^{52}K isotope produced in spallation reaction by bombarding a UC_x target by a 1.4 GeV proton beam produced by the CERN proton-synchrotron booster (PSB). Spallation products analyzed using the high resolution separator (HRS). Measured Eγ, $\gamma\gamma$, β, βn coin, βnγ coin, $\beta\gamma$ coin, and $\beta\gamma\gamma$ coin. The γ rays were detected using two large Ge clusters from the MINIBALL array. Low energy neutrons detected using six detectors each composed of a thick BC400 plastic scintillator. High energy neutrons were detected using 11 curved BC400 scintillating plastic bars from the TONNERRE array. The β particles were detected using a cylindrical plastic scintillator.

^{50}Ca Levels

E(level)	J^π[†]
0	0$^+$
1027 *1*	2$^+$

[†] From Adopted Levels.

γ(^{50}Ca)

Iγ normalization: 2006Pe16 give absolute photon intensity.

Eγ	Iγ[†]	E$_i$(level)	J_i^π	E$_f$	J_f^π
1027 *1*	0.55 *6*	1027	2$^+$	0	0$^+$

[†] Absolute intensity per 100 decays.

Delayed Neutrons (^{50}Ca)

E(^{50}Ca)	I(n)[†]
0	1.8 *3*
1027	0.5 *1*

[†] Absolute intensity per 100 decays.

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Decay Scheme

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays