^{42}Sc ε decay (61.7 s) 1978Be61,1974Wi14,1969Ga27

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jun Chen# and Balraj Singh	NDS 135, 1 (2016)	31-May-2016

Parent: ^{42}Sc: E=616.28 *6*; $J^\pi=7^+$; $T_{1/2}$=61.7 s *4*; Q(ε)=6426.10 *10*; %ε+%$β^+$ decay=100.0
^{42}Sc-E,J^π,$T_{1/2}$: From Adopted Levels of ^{42}Sc.
^{42}Sc-Q(ε): From 2012Wa38.
^{42}Sc decays mainly (>99%) through $β^+$ decay.
γ: 1969Ga27, 1965Ne02, 1963Ro10.
$β^+$: 1965Ne02, 1963Ro10.
β+γ: 1969Me12, 1965Ne02.
βγ(t): 1969Me12.
$T_{1/2}$(^{42}Sc isomer): 1978Be61, 1974Wi14, 1965Ne02, 1963Ro10.
^{42}Sc isomer beam production in ^{12}C(^{40}Ca,^{42}Sc)^{10}B: 1994Uz01, 1994Ke07.

^{42}Ca Levels

E(level)	J^π†
0.0	0^+
1524.73 *3*	2^+
2424.17 *4*	2^+
2752.41 *4*	4^+
3189.33 *14*	6^+

† From Adopted Levels.

ε,$β^+$ radiations

E(decay)	E(level)	Iβ+ †	Iε†	Log *ft*	I(ε+β+)†	Comments
(3853.05 *18*)	3189.33	99.336 *7*	0.664 *7*	4.163 *10*	100	av Eβ=1264.00; εK=0.005951; εL=0.0005892; εM+=9.899×10^{-5} E(decay): 2870 *100* (1963Ro10).

† Absolute intensity per 100 decays.

γ(^{42}Ca)

Iγ normalization: Ti(1524.7γ+2424.1γ)=100.

E_γ	I_γ‡#	E_i(level)	J_i^π	E_f	J_f^π
328	1.0 *4*	2752.41	4^+	2424.17	2^+
437.5† *5*	100	3189.33	6^+	2752.41	4^+
899	0.70 *30*	2424.17	2^+	1524.73	2^+
1227.0† *5*	99.0 *4*	2752.41	4^+	1524.73	2^+
1524.5† *5*	99.70 *12*	1524.73	2^+	0.0	0^+
2424	0.30 *12*	2424.17	2^+	0.0	0^+

† From 1969Ga27.
‡ From level scheme using Adopted Branching and assuming Iγ(437γ)=100.
# Absolute intensity per 100 decays.

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Decay Scheme

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