^{41}Sc ε decay (596.3 ms) 1980Wi13,1973Al11

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	C. D. Nesaraja, E. A. Mccutchan	NDS 133, 1 (2016)	30-Sep-2015

Parent: ^{41}Sc: E=0; $J^\pi=7/2^-$; $T_{1/2}$=596.3 ms *17*; Q(ε)=6495.48 *16*; %ε+%$β^+$ decay=100.0

1980Wi13: ^{41}Sc produced by ^{40}Ca(d,n) reaction with E(d)= 6 MeV from ONR-CIT tandem accelerator. Gammas detected with Ge(Li) detectors. Measured Iγ, deduced I(ε) and log*ft* values.

1973Al11: ^{41}Sc produced by ^{40}Ca(p,γ) reaction with E(p)= 3 MeV from Brookhaven National Laboratory Van de Graaff. Measured βγ coin with NE102 plastic scintillator for β rays and NaI(Tl) for γ-rays. Determined $T_{1/2}$ of ^{41}Sc.

Others:

$T_{1/2}$ measurements:

1973Ta04, 1965Yo02, 1962Cr04, 1960Ja12, 1960Wa04, 1952Ma55, 1941El03.

β spectrum:

1962Cr04, 1941El03.

Moment measurements:

1990Mi16 (also 1990Mi17,1990Mi18,1990Mi19): measured magnetic-dipole moment using β-NMR technique.

1993Mi09 (also 1993Mi37,1993Mi40): measured quadrupole moment using β-NNQR technique.

^{41}Ca Levels

E(level)†	J^π†
0	$7/2^-$
2574.9 *5*	$5/2^-$
2959.4 *4*	$7/2^-$

† From Adopted Levels.

ε,$β^+$ radiations

E(decay)	E(level)	I$β^+$ ‡	Iε‡	Log *ft*	I(ε+$β^+$)†‡	Comments
(3536.1 *4*)	2959.4	0.0138 *14*	0.000131 *13*	5.78 *5*	0.0139 *14*	av Eβ=1113.79 *21*; εK=0.008479 *5*; εL=0.0008397 *5*; εM+=0.000141 I(ε+$β^+$): Other: < 0.2 (1973Al11).
(3920.6 *5*)	2574.9	0.023 *3*	0.00014 *2*	5.83 *6*	0.023 *3*	av Eβ=1296.28 *25*; εK=0.005544 *3*; εL=0.0005490 *3*; εM+=9.223×10^{-5} *5* I(ε+$β^+$): Other: < 0.2 (1973Al11).
(6495.48 *16*)	0	99.869 *3*	0.0935 *9*	3.4529 *13*	99.963 *3*	av Eβ=2544.30; εK=0.0008389; εL=8.300×10^{-5}; εM+=1.394×10^{-5} Log *ft*: 3.736 *14* (Gamow-Teller part only,1980Wi13).

† From 1980Wi13. Upper limits to other levels are given (1980Wi13) as follows: <0.0034 (to 3676 level), <0.0010 (to 4342 level), <0.0011 (to 4878 level), <0.00079 (to 5355 level), <0.0011 (to 5646 level), <0.0012 (to 5796 level).

‡ Absolute intensity per 100 decays.

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γ(^{41}Ca)

E_γ ‡	I_γ †@	E_i(level)	J_i^π	E_f	J_f^π	Mult.#	δ#	Comments
2574.8	0.023 *3*	2574.9	5/2−	0	7/2−	M1+E2		δ: −0.36 8 or −1.48 11.
2959.3	0.0139 *14*	2959.4	7/2−	0	7/2−	M1+E2	−0.29 *1*	

† Implied from absolute ε+β+ feedings given by 1980Wi13.
‡ From level-energy differences.
# From Adopted Gammas.
@ Absolute intensity per 100 decays.

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Decay Scheme

Intensities: I_γ per 100 parent decays