^{142}Sm ε decay 1969Ar24,1972De23

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	T. D. Johnson, D. Symochko(a), M. Fadil(b), and J. K. Tuli	NDS 112, 1949 (2011)	1-Jun-2010

Parent: ^{142}Sm: E=0.0; $J^\pi=0^+$; $T_{1/2}$=72.49 min *5*; Q(ε)=2.17×10^3 *3*; %ε+%$β^+$ decay=100.0

Measured: γ (1969Ar24,1972De23), $β^+$ (1960Ma27), K x ray, $γ^\pm$ (1991Fi03).

1969Ar24 studied ^{142}Sm+^{142}Pm ε decay, and only those γ′s were attributed to ^{142}Sm decay which were not seen by 1973Ra01 in ^{142}Pm ε decay. 1991Fi03 did not see any γ′s in this decay. From $γ^\pm$ I$β^+$<5% (1991Fi03).

Others: 1970Ha29, 1970HaYJ.

^{142}Pm Levels

E(level)	J^π[†]	Comments
0.0	1^+	
679.0 *10*	$(2)^-$	E(level): level introduced by 1976Fu07 (d,2n).

[†] Adopted values.

ε,$β^+$ radiations

E(decay)	E(level)	I$β^+$ [†]	Iε[†]	Log *ft*	I(ε+$β^+$)[†]	Comments
(1.49×10^3 *3*)	679.0		≈0.1	≈8.7[1u]	≈0.1	εK=0.8321 *3*; εL=0.1298 *3*; εM+=0.03770 *10*
2050 *70*	0.0	7.4	92.5	5.2	99.9	av Eβ=521 *14*; εK=0.781 *6*; εL=0.1128 *8*; εM+=0.03238 *24* E(decay): Eβ+=1030 *70*, ε/$β^+$=8 *2* (1960Ma27).

[†] Absolute intensity per 100 decays.

γ(^{142}Pm)

Iγ normalization: I(1576γ, ^{142}Pm decay)=3.3% from normalization in ^{142}Pm ε decay.

Eγ	Iγ[‡#]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	α[†]	Comments
679 *1*	3.0 *6*	679.0	$(2)^-$	0.0	1^+	E1	0.00212 *3*	α=0.00212 *3*; α(K)=0.00182 *3*; α(L)=0.000235 *4*; α(M)=4.98×10^{-5} *8*; α(N+..)=1.297×10^{-5} *19* α(N)=1.119×10^{-5} *16*; α(O)=1.681×10^{-6} *25*; α(P)=1.055×10^{-7} *16* Mult.: from Adopted Gammas.
[x]849 *1*	2.4 *5*							Iγ: weak. Eγ: from 1972De23.
[x]954 *1*								
[x]1243 *3*	8							
[x]1345 *2*	4.0 *6*							Iγ: weak.
[x]1830								

[†] Additional information 1.
[‡] Relative to I(1576γ in ^{142}Pm ε decay)=100.
[#] For absolute intensity per 100 decays, multiply by ≈0.033.
[x] γ ray not placed in level scheme.

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Decay Scheme

Intensities: I_γ per 100 parent decays