^{145}Pm ε decay 1974To04,1959Br65

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. Browne, J. K. Tuli	NDS 110, 507 (2009)	1-Oct-2008

Parent: ^{145}Pm: E=0.0; $J^\pi=5/2^+$; $T_{1/2}$=17.7 y *4*; Q(ε)=163.4 *22*; %ε decay=100.0

Additional information 1.

Measured: Eγ, Iγ, K x ray, (K x ray) γ-coin (1974To04,1959Br65), γ(t) (1959Br65,1967My01,1970Ka36).

I(K x ray)/I(67γ+72γ)=23.8 *7* (1959Br65), L x ray/K x ray=0.161 *16* (1972Ni16); I(K x ray)/I(67γ+72γ)=23.3 *20* (1971Ge11).

^{145}Nd Levels

E(level)	J^π[†]	$T_{1/2}$[‡]
0.0	$7/2^-$	
67.2 *1*	$3/2^-$	29.4 ns *10*
72.4 *1*	$5/2^-$	0.72 ns *5*

[†] Adopted values.

[‡] Quoted by 1970Ka36 (see 1967My01). See also 1959Br65.

ε radiations

E(decay)	E(level)	Iε[†]	Log *ft*	Comments
(91.0 *22*)	72.4	10.3 *5*	8.03 *5*	εK=0.636 *10*; εL=0.275 *8*; εM+=0.089 *3* Iε: From Ti(72γ)=10.3% 5.
(96.2 *22*)	67.2	7.2 *4*	8.26 *4*	εK=0.657 *9*; εL=0.260 *6*; εM+=0.0834 *22* Iε: From Ti(67γ)=7.2% 4. Iε: ε(L+M+N)/εK(exp)=0.85 *3* (1959Br65); εK(exp)/ε(K+L+)=0.606 *25* (1974To04).
(163.4 *22*)	0.0	82.5 *10*	7.85 *2*	εK=0.7654 *16*; εL=0.1797 *12*; εM+=0.0548 *5* Iε: Iε=100−Ti(67)−I(72)=100 − (329 *6* + 465 *8*)x0.022 1=82.5% 10, deduced by evaluators.

[†] Absolute intensity per 100 decays.

γ(^{145}Nd)

Iγ normalization: From I(K x ray)/I(67γ+72γ)=23.7 *7*, weighted average of 23.8 *7* (1959Br65) and 23.3 *20* (1971Ge11); Iγ(67γ + 72γ)=131.0 *5*, εK(exp)(g.s.)/εK(exp)(67 *7272* levels)=5.9 *3* (1959Br65), and theoretical ε(K)/ε(Total) ratios for the ground state and 67 *7272* levels.

E_γ	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	α[†]	Comments
67.2 *1*	31.0 *5*	67.2	$3/2^-$	0.0	$7/2^-$	E2	9.49	α(K)=3.32 *5*; α(L)=4.81 *8*; α(M)=1.102 *18*; α(N+..)=0.268 *5* α(N)=0.237 *4*; α(O)=0.0300 *5*; α(P)=0.0001419 *21* I_γ: Weighted average of Iγ=31.3 *5* (1992Ca11), Iγ=29.9 *8* (1974To04), and Iγ=31.7 *5* (1971Ge11). Other value: Iγ=23 *5* (1959Br65). Mult.: From α(K)exp=3.3, K/L=1.1 *2*.
72.4 *1*	100	72.4	$5/2^-$	0.0	$7/2^-$	M1	3.59	α(K)=3.05 *5*; α(L)=0.426 *7*; α(M)=0.0905 *14*; α(N+..)=0.0235 *4* α(N)=0.0203 *3*; α(O)=0.00307 *5*; α(P)=0.000198 *3* Mult.: From α(M)exp(72)=0.12 *3*, deduced by evaluators from K(72)/K(67)=2.3 *2*, K(72)/M(72)=19 *4* (1959Br65), and Iγ(72)=100, Iγ(67)=31.0 *5*.

Continued on next page (footnotes at end of table)

^{145}Pm ε decay 1974To04,1959Br65 (continued)

γ(^{145}Nd) (continued)

† Additional information 2.
‡ For absolute intensity per 100 decays, multiply by 0.022 *1*.

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Decay Scheme

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