^{144}Pm ε decay 1975Av01,1999Ro18

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	A. A. Sonzogni	NDS 93, 599 (2001)	1-Dec-2000

Parent: ^{144}Pm: E=0.0; $J^\pi=5^-$; $T_{1/2}$=363 d *14*; Q(ε)=2331.7 *22*; %ε+%$β^+$ decay=100.0

Adopted information: ce from 1975Av01, γγ(θ) from 1999Ro18 (Gammasphere experiment).

1998Za03: Using Gammasphere array, determined an upper limit of 7.4×10^{-6}% for the $β^+$ decay to 697 keV *2+* state; $β^+$ decay to higher lying levels is not energetically possible, and the decay to 0^+ g.s. is highly hindered due to Δl=5.

Others: 1973Ra10, 1990BeZG, 1994Hi05, 1996Ro13.

^{144}Nd Levels

E(level)	J^π[†]	$T_{1/2}$	Comments
0.0	0^+		
696.561	2^+		
1314.662	4^+		
1510.794	3^-		
1791.433	6^+	20.8 ps *21*	$T_{1/2}$: from 2000Ro29.
2093.33	5^-		
2109.964	4^+		
2204.79	4^-		

[†] From Adopted Levels.

ε,$β^+$ radiations

E(decay)	E(level)	Iε[†]	Log *ft*	I(ε+$β^+$)[†]	Comments
(126.9 *22*)	2204.79	0.6 *1*	8.44 *8*	0.6 *1*	εK=0.728 *4*; εL=0.2076 *25*; εM+=0.0647 *9*
(221.7 *22*)	2109.964	0.0043 *1*	11.208 *23*	0.0043 *1*	εK=0.7934 *8*; εL=0.1590 *6*; εM+=0.04761 *19*
(238.4 *22*)	2093.33	1.9 *1*	8.64 *3*	1.9 *1*	εK=0.7983 *6*; εL=0.1553 *5*; εM+=0.04635 *16*
(540.3 *22*)	1791.433	42.0 *8*	8.090 *19*	42.0 *8*	εK=0.82968 *9*; εL=0.13197 *7*; εM+=0.03835 *3*
(1017.0 *22*)	1314.662	55.3 *13*	8.549 *20*	55.3 *13*	εK=0.8394; εL=0.12472 *2*; εM+=0.035890 *6*

[†] Absolute intensity per 100 decays.

γ(^{144}Nd)

Iγ normalization: from Ti(696γ)=100.

E_γ[†]	I_γ[‡&]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[a]	Comments
301.7 *2*	0.18 *4*	2093.33	5^-	1791.433	6^+	E1	0.0134	α(K)=0.01146; α(L)=0.00152 α(K)exp=0.0129 *25* I_γ: from 1973Ra10. If Mult.=M2+E1, δ=−0.005 *+9−8* (1999Ro18).
476.78 *3*	44 *2*	1791.433	6^+	1314.662	4^+	E2	0.0134	α(K)=0.01109; α(L)=0.00184 α(K)exp=0.0110 *5* If Mult.=M3+E2, δ=−0.002 *+3−2* (1999Ro18).
582.4 *2*	0.19 *2*	2093.33	5^-	1510.794	3^-	E2	0.00762	α(K)= 0.00659; α(L)=0.00103 α(K)exp=0.0072 *11* I_γ: from 1973Ra10. If Mult.=M3+E2, δ=0.006 *+13−12* (1999Ro18).

Continued on next page (footnotes at end of table)

^{144}Pm ε decay 1975Av01,1999Ro18 (continued)

γ(^{144}Nd) (continued)

E_γ[†]	I_γ[‡&]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ[@]	α[a]	Comments
618.01 *3*	99 *3*	1314.662	4^+	696.561	2^+	E2		0.00685	α(K)=0.00569; α(L)=0.00087 Other ce values normalized assuming this is an E2 transition. If Mult.=M3+E2, δ=−0.001 *+3−4* (1999Ro18).
694.0 *2*	0.55 *10*	2204.79	4^-	1510.794	3^-	E2+M1	−0.65 *3*	0.00708 *5*	α(K)=0.000624 *5*; α(L)=0.00084 *6* I_γ: from 1973Ra10.
696.49 *3*	100	696.561	2^+	0.0	0^+	E2		0.00511	α(K)=0.00427; α(L)=0.00063 α(K)exp=0.00430 *24*
778.57 *6*	1.51 *3*	2093.33	5^-	1314.662	4^+	E1		0.0014 *8*	α(K)= 0.00131; α(L)=0.00017 α(K)exp=0.0195 *13* If Mult.=M2+E1, δ=−0.004 *+3−4* (1999Ro18).
814.14 *6*	0.55 *1*	1510.794	3^-	696.561	2^+	E1		0.00135	α(K)=0.00120; α(L)=0.00015 α(L+M+...)exp=0.00020 *5*. If Mult.=M2+E1, δ=−0.012 *4* (1999Ro18).
890.1 *2*	0.039 *1*	2204.79	4^-	1314.662	4^+	E1			α(K)exp=0.0168 *24*, inconsistent with γγ(θ) value. If Mult.=M2+E1, δ=−0.01 *+3−4* (1999Ro18).
1396.6 *3*	0.00049 *7*	2093.33	5^-	696.561	2^+	E3			Mult.: from 1996Ro13.
1413	0.0043 *1*	2109.964	4^+	696.561	2^+	E2			
1508.1	0.00020 *15*	2204.79	4^-	696.561	2^+				
1510.6	0.00013 *2*	1510.794	3^-	0.0	0^+	E3			

[†] From 1973Ra10.
[‡] From 1996Ro13, unless noted otherwise.
[#] From γγ(θ) and ce values.
[@] From γγ(θ) 1999Ro18.
[&] For absolute intensity per 100 decays, multiply by 0.9949 *2*.
[a] Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

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Decay Scheme

Intensities: I_γ per 100 parent decays