^{145}Nd(α,4nγ) 1991Pi06

History

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

E=55 MeV.
Measured: γ, $\gamma\gamma$, $\gamma(\theta)$, γ(t), ce (in ^{146}Nd(α,5nγ) at E(α)=63 MeV).

^{145}Sm Levels

E(level)	J$^\pi$	E(level)	J$^\pi$	E(level)	J$^\pi$	E(level)	J$^\pi$
0.0	7/2$^-$	2229.9 *4*	17/2$^-$	2930.1 *4*	21/2$^+$	3119.0 *4*	23/2$^+$
1105.0 *2*	13/2$^+$	2436.4 *4*	17/2$^+$	2964.2 *5*	19/2$^{(+)}$	3322.1 *6*	(21/2)
2049.8 *3*	15/2$^-$	2710.6 *4*	19/2$^-$	2978.9 *4*	21/2$^+$	3483.2 *5*	25/2$^+$

γ(^{145}Sm)

E$_\gamma$	I$_\gamma$[‡]	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.[#]	α[†]	Comments
(14.7)		2978.9	21/2$^+$	2964.2	19/2$^{(+)}$			E$_\gamma$: from level scheme, introduced on basis of $\gamma\gamma$ data.
140.1[@] *2*	296 *15*	3119.0	23/2$^+$	2978.9	21/2$^+$	D		Mult.: A$_2$=−0.13 *1*, A$_4$=+0.03 *1*.
[x]161.2 *4*	77					D		Mult.: A$_2$=−0.14 *2*, A$_4$=+0.03 *3*.
180.1 *2*	392 *20*	2229.9	17/2$^-$	2049.8	15/2$^-$	M1	0.322	α(K)=0.273 *4*; α(L)=0.0384 *6*; α(M)=0.00824 *12*; α(N+..)=0.00217 *4* α(N)=0.00187 *3*; α(O)=0.000280 *4*; α(P)=1.739×10^{-5} *25* Mult.: A$_2$=0.17 *1*, A$_4$-+0.02 *1*; α(K)exp=0.28 *4*.
189.0 *2*	269 *14*	3119.0	23/2$^+$	2930.1	21/2$^+$	M1	0.282	α(K)=0.239 *4*; α(L)=0.0336 *5*; α(M)=0.00720 *11*; α(N+..)=0.00189 *3* α(N)=0.001634 *24*; α(O)=0.000245 *4*; α(P)=1.522×10^{-5} *22* Mult.: A$_2$=−0.22 *1*, A$_4$=+0.02 *1*; α(K)exp=0.18 *4*. I$_\gamma$: contaminated by impurity.
[x]192.7 *4*	78					D		Mult.: A$_2$=−0.15 *3*, A$_4$=−0.02 *4*.
219.5 *2*	132 *7*	2930.1	21/2$^+$	2710.6	19/2$^-$	E1	0.0330	α(K)=0.0281 *4*; α(L)=0.00388 *6*; α(M)=0.000828 *12*; α(N+..)=0.000215 *3* α(N)=0.000186 *3*; α(O)=2.71×10^{-5} *4*; α(P)=1.502×10^{-6} *22* Mult.: A$_2$=−0.24 *2*, A$_4$=+0.02 *3*; α(K)exp=0.044 *20*.
268.3 *2*	235 *12*	2978.9	21/2$^+$	2710.6	19/2$^-$	E1	0.0196	α(K)=0.01667 *24*; α(L)=0.00228 *4*; α(M)=0.000486 *7*; α(N+..)=0.0001262 *18* α(N)=0.0001093 *16*; α(O)=1.601×10^{-5} *23*; α(P)=9.08×10^{-7} *13* Mult.: A$_2$=−0.24 *1*, A$_4$=+0.01 *2*; α(K)exp=0.026 *6*.
[x]275.9 *3*	51					Q+D		Mult.: A$_2$=+0.15 *5*, A$_4$=+0.02 *8*.
[x]282.0 *3*	42					D		Mult.: A$_2$=−0.16 *8*, A$_4$=0-0.03 *12*.
[x]306.2 *3*	53					D+Q		Mult.: A$_2$=+0.34 *5*, A$_4$=+0.09 *7*.
364.2 *2*	447 *23*	3483.2	25/2$^+$	3119.0	23/2$^+$	M1	0.0486	α(K)=0.0413 *6*; α(L)=0.00569 *8*; α(M)=0.001219 *18*; α(N+..)=0.000321 *5* α(N)=0.000276 *4*; α(O)=4.15×10^{-5} *6*; α(P)=2.60×10^{-6} *4* Mult.: A$_2$=−0.−0.05 *1*, A$_4$=+0.05 *1*; α(K)exp=0.042 *6*.
392.0 *4*	50 *5*	3322.1	(21/2)	2930.1	21/2$^+$	D		Mult.: A$_2$=−0.02 *3*, A$_4$=−0.02 *5*.
[x]396.7 *4*	60					D		Mult.: A$_2$=−0.24 *4*, A$_4$=+0.05 *7*.

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^{145}Nd(α,4nγ) 1991Pi06 (continued)

$\gamma(^{145}Sm)$ (continued)

E_γ	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[†]	Comments
[x]438.5 *2*	263 *13*					M1	0.0301	α(K)=0.0256 *4*; α(L)=0.00350 *5*; α(M)=0.000750 *11*; α(N+..)=0.000197 *3* α(N)=0.0001701 *24*; α(O)=2.56×10^{-5} *4*; α(P)=1.608×10^{-6} *23*
480.6 *2*	403 *20*	2710.6	19/2$^-$	2229.9	17/2$^-$	M1	0.0238	α(K)=0.0203 *3*; α(L)=0.00277 *4*; α(M)=0.000592 *9*; α(N+..)=0.0001557 *22* α(N)=0.0001343 *19*; α(O)=2.02×10^{-5} *3*; α(P)=1.271×10^{-6} *18* Mult.: A_2=−0.08 *1*, A_4=+0.02 *1*; α(K)exp=0.019 *3*.
493.7 *2*	362 *18*	2930.1	21/2$^+$	2436.4	17/2$^+$	E2	0.01327	α(K)=0.01088 *16*; α(L)=0.00187 *3*; α(M)=0.000409 *6*; α(N+..)=0.0001055 *15* α(N)=9.18×10^{-5} *13*; α(O)=1.313×10^{-5} *19*; α(P)=6.25×10^{-7} *9* Mult.: A_2=+0.25 *1*, A_4=−0.06 *2*; α(K)exp=0.0090 *20*.
[x]499.2 *2*	119 *6*							Mult.: A_2=−0.04 *3*, A_4=−0.03 *5*.
734.3 *4*	98 *10*	2964.2	19/2$^{(+)}$	2229.9	17/2$^-$	D		Mult.: A_2=−0.20 *4*, A_4=+0.02 *5*.
[x]744.4 *5*	53					D		Mult.: A_2=−0.03 *6*, A_4=+0.07 *9*.
944.8 *2*	482 *24*	2049.8	15/2$^-$	1105.0	13/2$^+$	E1	0.001148 *16*	α=0.001148 *16*; α(K)=0.000987 *14*; α(L)=0.0001272 *18*; α(M)=2.70×10^{-5} *4*; α(N+..)=7.08×10^{-6} α(N)=6.11×10^{-6} *9*; α(O)=9.14×10^{-7} *13*; α(P)=5.71×10^{-8} *8* Mult.: A_2=−0.24 *1*, A_4=+0.05 *2*; α(K)exp=0.0011 *2*.
1105.0 *2*	1000 *50*	1105.0	13/2$^+$	0.0	7/2$^-$	E3	0.00419 *6*	α=0.00419 *6*; α(K)=0.00348 *5*; α(L)=0.000552 *8*; α(M)=0.0001200 *17*; α(N+..)=3.13×10^{-5} *5* α(N)=2.71×10^{-5} *4*; α(O)=3.97×10^{-6} *6*; α(P)=2.16×10^{-7} *3*; α(IPF)=6.84×10^{-8} *12* Mult.: A_2=+0.42 *1*, A_4=+0.05 *1*; α(K)exp=0.0031 *6*.
[x]1257.5 *4*	69					Q,Q+D		Mult.: A_2=+0.39 *6*, A_4=−0.09 *9*.
1331.4 *3*	389 *20*	2436.4	17/2$^+$	1105.0	13/2$^+$	Q		Mult.: A_2=+0.24 *2*, A_4=−0.02 *2*.
[x]1384.8 *4*	42					Q,Q+D		Mult.: A_2=+0.41 *9*, A_4=−0.02 *13*.

[†] Additional information 1.
[‡] $\Delta I\gamma \approx 5\%$ for strong peaks and larger for others.
[#] From $\gamma(\theta)$ and α(K)exp. Authors' normalization basis for α(K)exp is not stated.
[@] Contaminated by impurity.
[x] γ ray not placed in level scheme.

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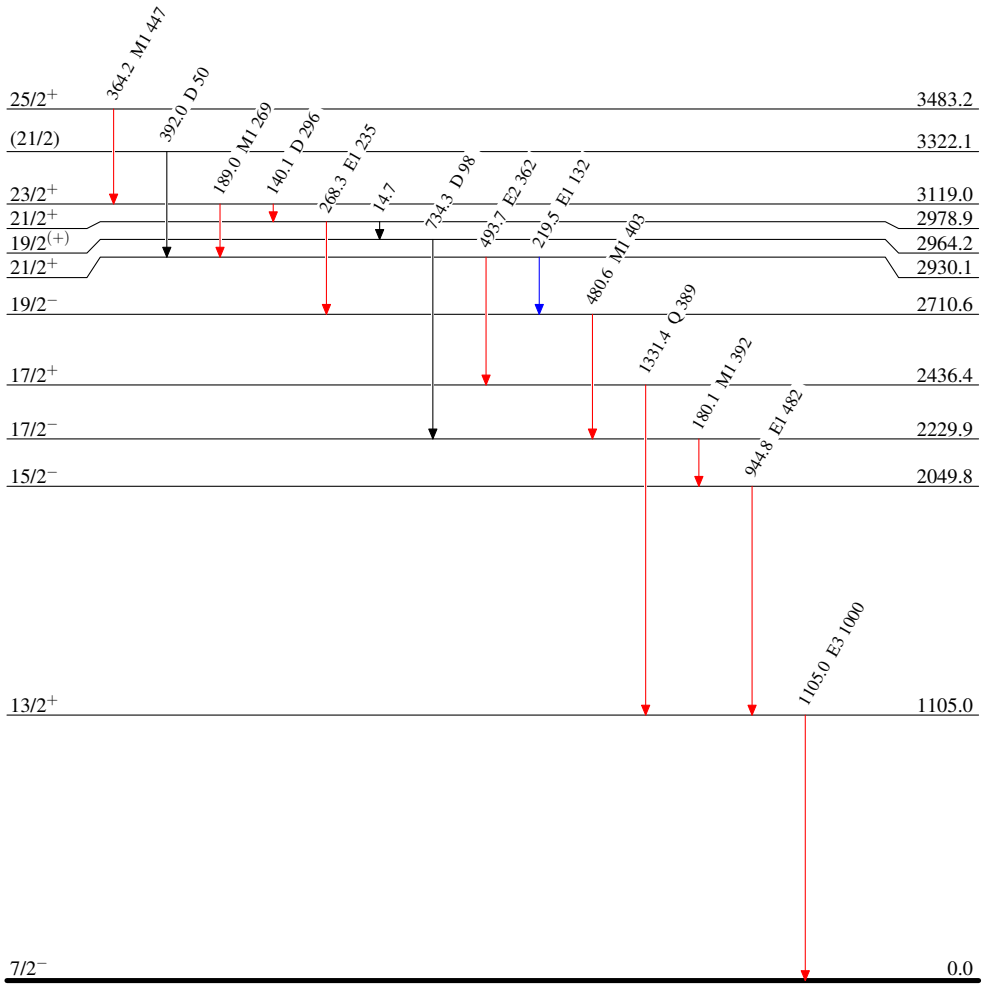
Level Scheme

Intensities: Relative I_γ

Legend

$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$
γ Decay (Uncertain)



$^{145}_{62}Sm_{83}$