^{144}Nd(α,3nγ) 1977Ha04,1975Kl01

History

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

E=37 MeV (1977Ha04); E=40 MeV (1975Kl01).
Measured: γ, $\gamma\gamma$, $\gamma(\theta)$, yield, γ(t) (1977Ha04,1975Kl01).
Decay scheme is mostly from 1977Ha04 and 1991Pi06 (α,4nγ).

^{145}Sm Levels

E(level)	J$^\pi$[†]	$T_{1/2}$	Comments
0.0	7/2$^-$		
893.6 *3*	3/2$^-$		
1105.01 *18*	13/2$^+$	13.5 ns *15*	$T_{1/2}$: wt av: 15 ns *2* (1977Ha04), 12 ns *2* (1975Cl01).
1422.97 *24*	9/2$^-$		
1538.01 *16*	11/2$^-$		
1706.03 *20*	9/2$^-$		
1774.0 *4*	(15/2$^+$)		
1774.1 *3*	(9/2)$^-$		J$^\pi$: From Adopted Levels, Gammas.
2049.95 *25*	15/2$^-$	≈3 ns	
2230.0 *3*	17/2$^-$		
2437.98 *25*	17/2$^+$		
2710.4 *3*	19/2$^-$		
2931.3 *3*	21/2$^+$		
2965.0 *4*	19/2$^{(+)}$		
2978.6 *3*	21/2$^+$		
3119.3 *4*	23/2$^+$		
3369.4 *4*	25/2$^+$		not confirmed In (HI,xnγ). 438γ placed elsewhere.
3483.3 *4*	25/2$^+$		

[†] Adopted values.

γ(^{145}Sm)

E$_\gamma$	I$_\gamma$	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.[‡]	α[†]	Comments
140.2 *2*	9.7 *8*	3119.3	23/2$^+$	2978.6	21/2$^+$	D		Mult.: A_2=−0.18 *1*, A_4=+0.01 *1*.
168.0 *3*	1.4 *3*	1706.03	9/2$^-$	1538.01	11/2$^-$	M1+E2	0.383 *9*	α(K)=0.29 *4*; α(L)=0.070 *24*; α(M)=0.016 *6*; α(N+..)=0.0040 *14* α(N)=0.0035 *12*; α(O)=0.00048 *14*; α(P)=1.7×10^{-5} *5* Mult.: A_2=+0.38 *18*.
180.0 *2*	33 *3*	2230.0	17/2$^-$	2049.95	15/2$^-$	D+Q		Mult.: A_2=+0.09 *8*, A_4=+0.10 *10*.
188.5 *2*	13 *1*	3119.3	23/2$^+$	2931.3	21/2$^+$	D		Mult.: A_2=−0.18 *8*, A_4=+0.14 *10*.
[x]208.1 *2*	2.5 *5*					D+Q,Q		Mult.: A_2=+0.31 *2*, A_4=−0.07 *7*.
221.0 *2*	6.0 *5*	2931.3	21/2$^+$	2710.4	19/2$^-$	D		Mult.: A_2=−0.21 *5*, A_4=−0.02 *3*.
268.0 *2*	15.0 *12*	2978.6	21/2$^+$	2710.4	19/2$^-$	D		Mult.: A_2=−0.21 *17*, A_2=+0.17 *11*.
283.1 *3*	0.7 *1*	1706.03	9/2$^-$	1422.97	9/2$^-$			Mult.: A_2=−0.03 *2*, A_4=+0.08 *2*.
364.0 *2*	11.0 *10*	3483.3	25/2$^+$	3119.3	23/2$^+$	D		Mult.: A_2=+0.03 *7*, A_4=+0.06 *10*.
433.0 *3*	1.0 *4*	1538.01	11/2$^-$	1105.01	13/2$^+$			
438.1 *2*	10.8 *8*	3369.4	25/2$^+$	2931.3	21/2$^+$	E2	0.0184	α(K)=0.01494 *21*; α(L)=0.00270 *4*; α(M)=0.000594 *9*; α(N+..)=0.0001526 *22* α(N)=0.0001329 *19*; α(O)=1.89×10^{-5} *3*; α(P)=8.48×10^{-7} *12* Mult.: A_2=+0.37 *6*, A_4=−0.16 *11*.
480.4 *2*	31.0 *25*	2710.4	19/2$^-$	2230.0	17/2$^-$	D		Mult.: A_2=−0.03 *6*, A_4=+0.16 *8*.

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^{144}Nd(α,3nγ) 1977Ha04,1975Kl01 (continued)

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

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.‡	α†	Comments
493.6 *2*	30 *2*	2931.3	21/2$^+$	2437.98	17/2$^+$	E2	0.01327	α(K)=0.01089 *16*; α(L)=0.00187 *3*; α(M)=0.000409 *6*; α(N+..)=0.0001056 *15* α(N)=9.18×10^{-5} *13*; α(O)=1.314×10^{-5} *19*; α(P)=6.26×10^{-7} *9* Mult.: A_2=+0.39 *4*, A_4=−0.03 *5*.
540.0 *3*	1.0 *4*	2978.6	21/2$^+$	2437.98	17/2$^+$			
^{x}580.9 *2*	1.0 *4*							
669.0 *3*	1.8 *3*	1774.0	(15/2$^+$)	1105.01	13/2$^+$	M1+E2	0.0083 *22*	α=0.0083 *22*; α(K)=0.0070 *19*; α(L)=0.00100 *21*; α(M)=0.00021 *5*; α(N+..)=5.6×10^{-5} *12* α(N)=4.8×10^{-5} *10*; α(O)=7.2×10^{-6} *16*; α(P)=4.3×10^{-7} *13* Mult.: A_2=+0.05 *6*, A_4=+0.19 *8*.
735.0 *2*	9.7 *15*	2965.0	19/2$^{(+)}$	2230.0	17/2$^-$	D		Mult.: A_2=−0.21 *11*, A_4=+0.10 *10*.
893.6 *3*	2.7 *5*	893.6	3/2$^-$	0.0	7/2$^-$	E2	0.00316 *5*	α=0.00316 *5*; α(K)=0.00267 *4*; α(L)=0.000385 *6*; α(M)=8.29×10^{-5} *12*; α(N+..)=2.16×10^{-5} *3* α(N)=1.87×10^{-5} *3*; α(O)=2.76×10^{-6} *4*; α(P)=1.586×10^{-7} *23* Mult.: A_2=+0.30 *1*, A_4=+0.19 *2*.
944.9 *2*	43.2 *30*	2049.95	15/2$^-$	1105.01	13/2$^+$	D		Mult.: A_2=−0.22 *3*, A_4=+0.10 *8*.
1105.0 *2*	100 *5*	1105.01	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* B(E3)(W.u.)=36 *4* Mult.: A_2=+0.42 *2*, A_4=+0.05 *3*.
1333.0 *2*	33 *3*	2437.98	17/2$^+$	1105.01	13/2$^+$	E2	0.001412 *20*	α=0.001412 *20*; α(K)=0.001182 *17*; α(L)=0.0001598 *23*; α(M)=3.42×10^{-5} *5*; α(N+..)=3.61×10^{-5} α(N)=7.73×10^{-6} *11*; α(O)=1.153×10^{-6} *17*; α(P)=7.04×10^{-8} *10*; α(IPF)=2.72×10^{-5} *4* Mult.: A_2=+0.30 *1*, A_4=−0.01 *3*.
1423.0 *3*	2.5 *5*	1422.97	9/2$^-$	0.0	7/2$^-$			
1538.0 *2*	4.5 *6*	1538.01	11/2$^-$	0.0	7/2$^-$	Q		Mult.: A_2=+0.25 *10*.
1706.0 *3*	2.6 *6*	1706.03	9/2$^-$	0.0	7/2$^-$	M1+E2	0.00117 *15*	α=0.00117 *15*; α(K)=0.00086 *13*; α(L)=0.000113 *16*; α(M)=2.4×10^{-5} *4*; α(N+..)=0.000169 *10* α(N)=5.5×10^{-6} *8*; α(O)=8.2×10^{-7} *12*; α(P)=5.2×10^{-8} *8*; α(IPF)=0.000163 *9* Mult.: A_2=+0.49 *10*, A_4=+0.35 *17*.
1774.1 *3*	1.0 *5*	1774.1	(9/2)$^-$	0.0	7/2$^-$			

† Additional information 1.
‡ Usually M2 cannot compete with E1; therefore, it is assumed that D+Q is M1+E2, not E1+M2.
^{x} γ ray not placed in level scheme.

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Level Scheme

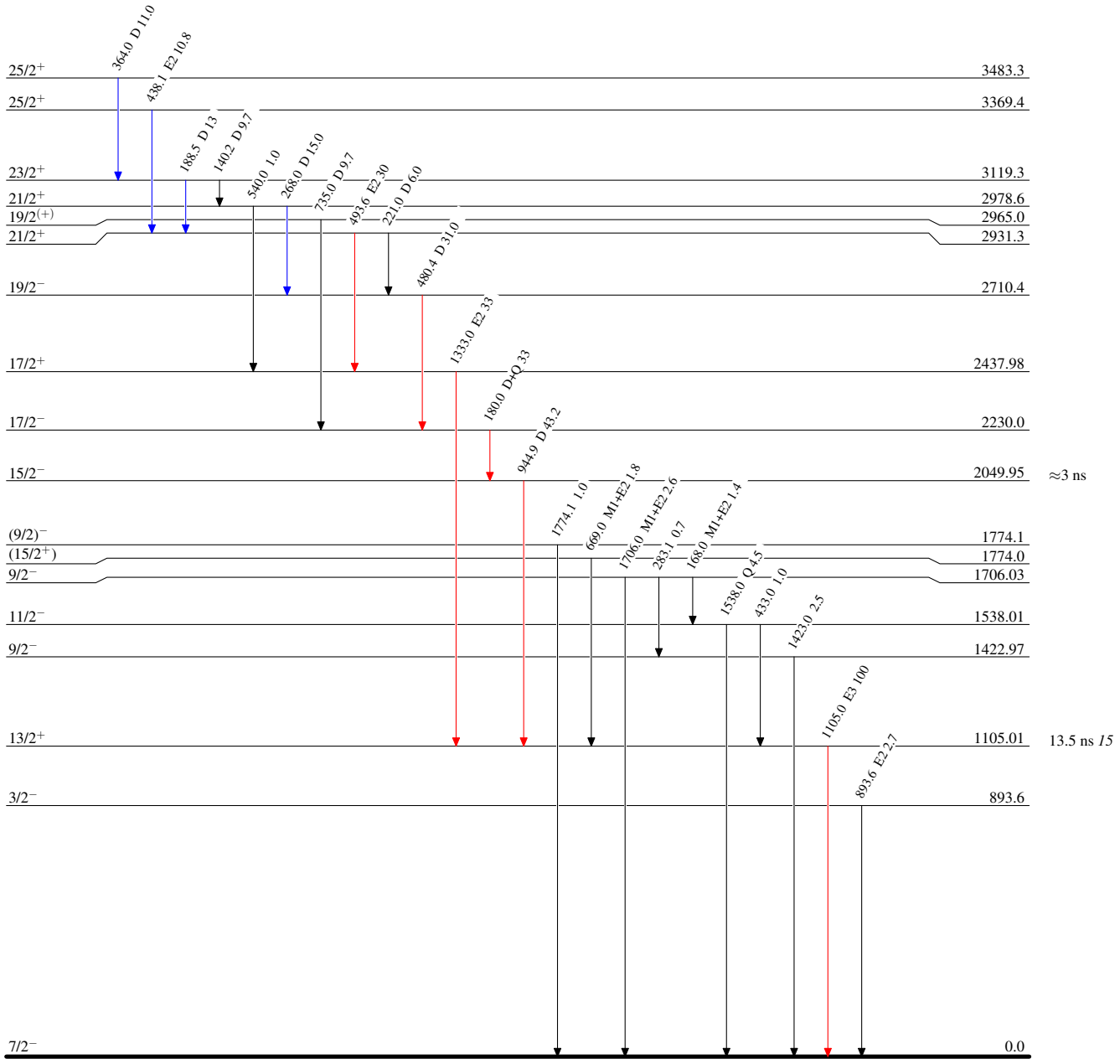
Intensities: Relative I_γ

Legend

$I_\gamma < 2\% \times I_\gamma^{max}$

$I_\gamma < 10\% \times I_\gamma^{max}$

$I_\gamma > 10\% \times I_\gamma^{max}$



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