

Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	C. W. Reich	NDS 113, 2537 (2012)	1-Mar-2012

$Q(\beta^-)=3.69\times 10^3$ 20; $S(n)=6.26\times 10^3$ 20; $S(p)=1.235\times 10^4$ 20; $Q(\alpha)=-3918$ (syst) 283 2017Wa10
 $S(2n)=1.079\times 10^4$ 20; $S(2p)=22832$ 20 2017Wa10

[Additional information 1.](#)

[Additional information 2.](#)

All the data on the excited states are from the SF decay studies.

 ^{156}Nd Levels

2000Ma42 give theoretical values for the g-factor ratios [$g(J)/g(2^+)$] for the $J^\pi=4^+$ through 10^+ members of the g.s. band. This author also gives experimental values for these ratios but gives no reference to the source of them. Some seem questionable; and the evaluator has chosen not to list them here.

Cross Reference (XREF) Flags

A $^{248}\text{Cm}, ^{252}\text{Cf}$ SF decay

E(level) [†]	J^π [‡]	$T_{1/2}$ [#]	XREF	Comments
0 [@]	0 ⁺	5.26 s 20	A	$\% \beta^- = 100$ $T_{1/2}$: average of 5.47 s 11 (1987Gr12), $\gamma(t)$, and 5.06 s 13 (2007Sh05), $\gamma(t)$, with the uncertainty chosen large enough to include both values. Other: 5.51 s 10, from an unpublished laboratory progress report (1989OkZX).
67.2 [@]	2 ⁺		A	
222.2 [@]	4 ⁺		A	
460.7 [@]	6 ⁺		A	
778.2 [@]	8 ⁺		A	
1169.0 [@]	10 ⁺		A	
1431.3 ^{&}	4 ⁽⁵⁻⁾	0.36 μ s 15	A	J^π : γ 's to 4 ⁺ and 6 ⁺ members of the g.s. band. J^π value and conf assignment are inferred by 1998Ga12 and 2009Si21 (SF decay) from nuclear-model calculations. The small reduced transition probabilities observed for the deexciting γ 's suggest K-forbidden transitions, consistent with a relatively large initial-state K value. $T_{1/2}$: From 2009Si21, SF decay.
1531.9 ^a	4 ⁽⁶⁻⁾		A	
1628.4 [@]	5 ¹²⁺	2.4 ps	A	
1649.4 ^{&}	4 ⁽⁷⁻⁾		A	
1783.7 ^a	4 ⁽⁸⁻⁾		A	
1934.5 ^{&}	4 ⁽⁹⁻⁾		A	
2101.9 ^a	4 ⁽¹⁰⁻⁾		A	
2151.6 [@]	6 ¹⁴⁺	1.2 ps	A	
2286.2 ^{&}	4 ⁽¹¹⁻⁾		A	
2485.1 ^a	5 ⁽¹²⁻⁾		A	
2713.0 ^{&}	5 ⁽¹³⁻⁾		A	
2737.0 [@]	16 ⁺	0.76 ps	A	

[†] From a least-squares fit by the evaluator to the listed E_γ values.

Adopted Levels, Gammas (continued) ^{156}Nd Levels (continued)

‡ Values are deduced from the considerations given in the SF-Decay data set.

From [1994Sm07](#), SF decay, unless noted otherwise.

@ Band(A): $K^\pi=0^+$, g.s. band. $\alpha=11.24$ keV, $\beta=-6.7$ eV.

& Band(B): $K^\pi=(5^-)$ band, $\alpha=1$ branch. Probable conf= $\nu 5/2[642]+\nu 5/2[523]$. $\alpha=8.38$ keV, $\beta=+0.36$ eV, from the 5^- , 6^- , and 7^- level energies.

^a Band(b): $K^\pi=(5^-)$ band, $\alpha=0$ branch. Probable conf= $\nu 5/2[642]+\nu 5/2[523]$. See the comment on the $\alpha=1$ branch.

$E_i(\text{level})$	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.	$\gamma(^{156}\text{Nd})$		Comments
							α^\dagger		
67.2	2^+	67.2 2	100	0	0^+				
222.2	4^+	155.0 2	100	67.2	2^+				
460.7	6^+	238.6 2	100	222.2	4^+				
778.2	8^+	317.5 2	100	460.7	6^+				
1169.0	10^+	390.8 2	100	778.2	8^+				
1431.3	(5^-)	970.6 2	100 10	460.7	6^+	[E1]		B(E1)(W.u.)= 4.2×10^{-10} 19	
		1209.0 2	70 15	222.2	4^+	[E1]		B(E1)(W.u.)= 1.5×10^{-10} 8	
1531.9	(6^-)	100.4 2	100	1431.3	(5^-)				
1628.4	12^+	459.4 2	100	1169.0	10^+	[E2]	0.0149	B(E2)(W.u.)=227.6	
1649.4	(7^-)	117.5 2	100 18	1531.9	(6^-)				
		218.4 2	91	1431.3	(5^-)				
1783.7	(8^-)	134.3 2	100 17	1649.4	(7^-)				
		251.5 2	83	1531.9	(6^-)				
1934.5	(9^-)	151.0 2	100 18	1783.7	(8^-)				
		285.3 2	62	1649.4	(7^-)				
2101.9	(10^-)	167.5 2	100 22	1934.5	(9^-)				
		317.8 2	100	1783.7	(8^-)				
2151.6	14^+	523.2 2	100	1628.4	12^+	[E2]	0.0105	B(E2)(W.u.)=238.6	
2286.2	(11^-)	184.1 2	80 26	2101.9	(10^-)				
		351.9 2	100	1934.5	(9^-)				
2485.1	(12^-)	199.0 2	70 29	2286.2	(11^-)				
		383.2 2	100	2101.9	(10^-)				
2713.0	(13^-)	227.7 [‡] 2	30 18	2485.1	(12^-)				
		426.8 2	100	2286.2	(11^-)				
2737.0	16^+	585.4	100	2151.6	14^+	[E2]	0.0079	B(E2)(W.u.)=215.4	

† Total theoretical internal conversion coefficients, calculated using the BrIcc code ([2008Ki07](#)) with Frozen orbital approximation based on γ -ray energies, assigned multiplicities, and mixing ratios, unless otherwise specified.

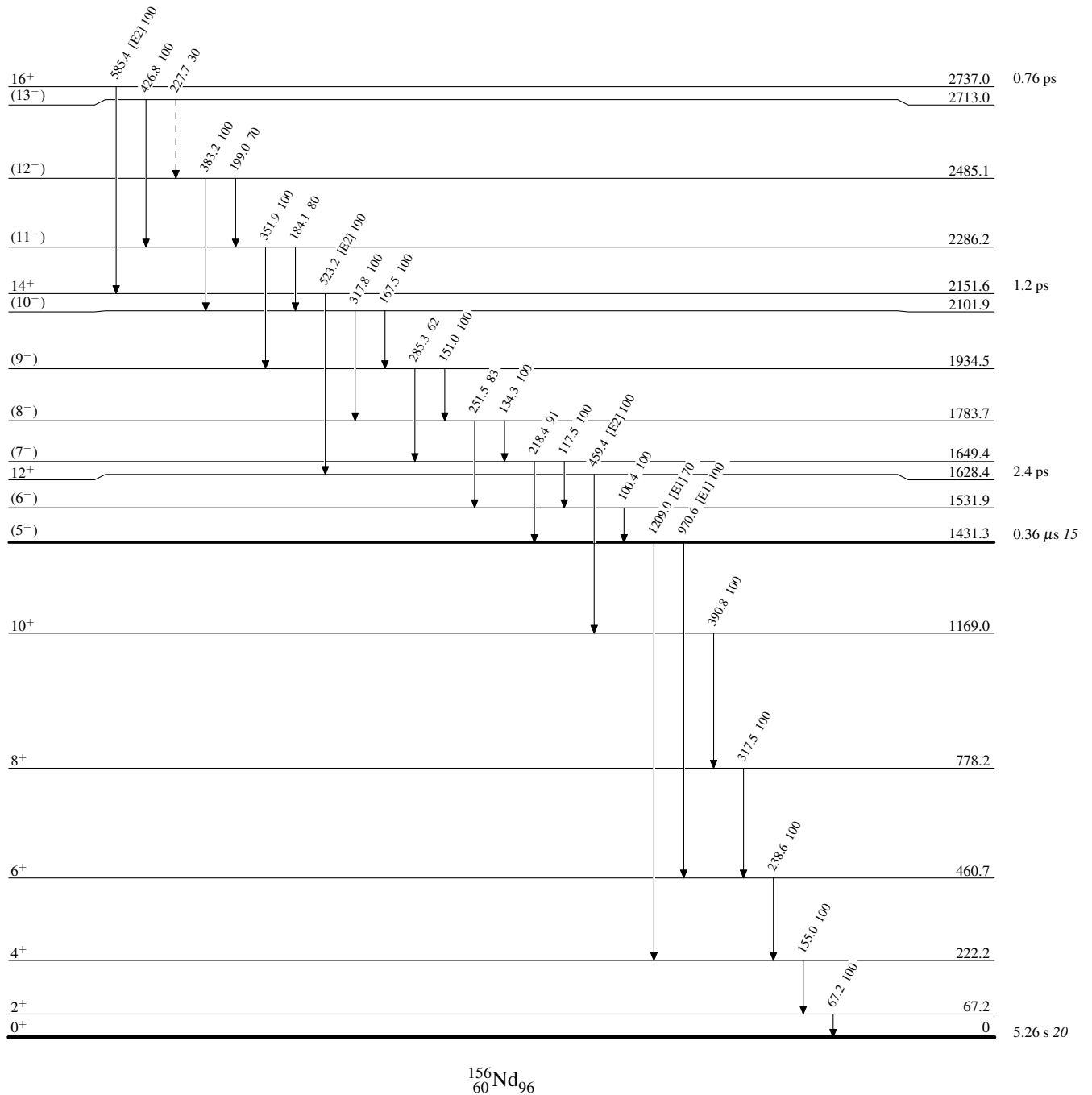
‡ Placement of transition in the level scheme is uncertain.

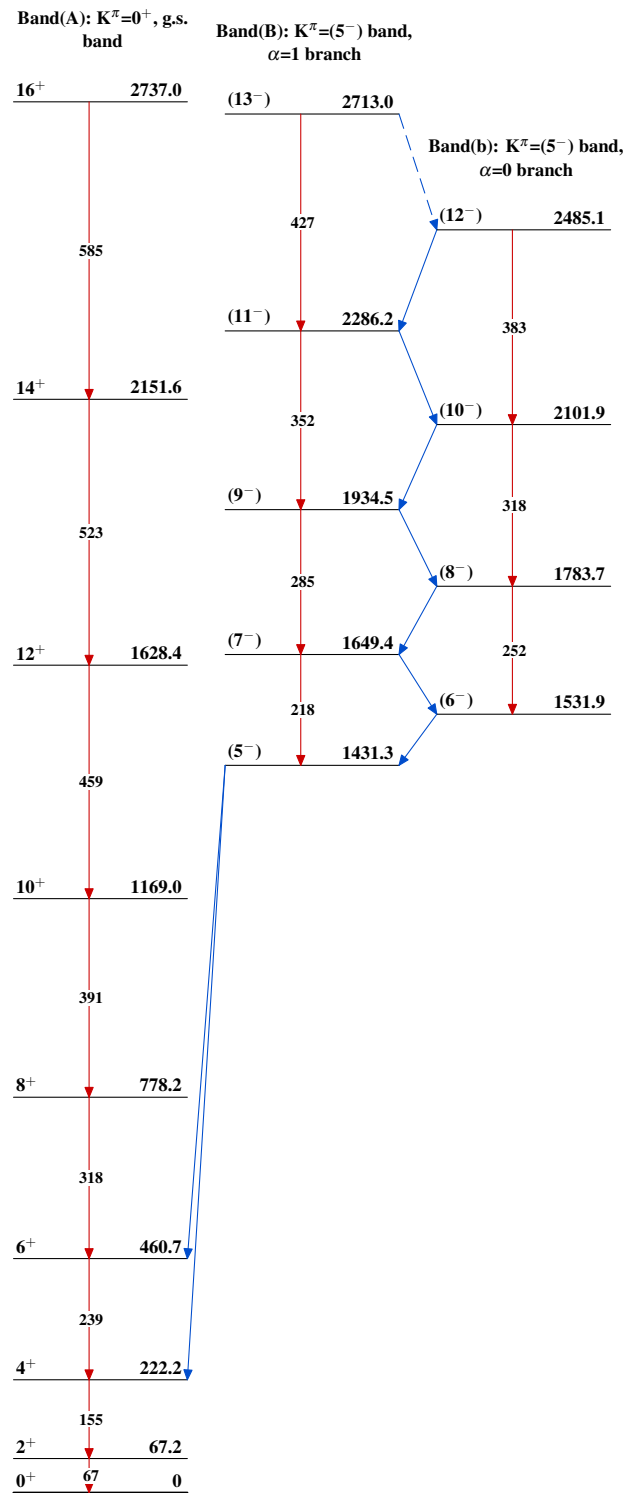
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

-----> γ Decay (Uncertain)

Adopted Levels, Gammas $^{156}_{60}\text{Nd}_{96}$