^{145}Nd(n,γ) E=thermal 1983Sn01,1976Bu14,1989Bo55

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Yu. Khazov, A. Rodionov and G. Shulyak	NDS 136, 163 (2016)	14-Jul-2016

1976Bu14: ^{145}Nd(n,γ), E=th; measured Eγ, Iγ. ^{146}Nd; deduced levels, J^π, γ branching.
1983Sn01: ^{145}Nd(n,γ), E=th; measured Eγ, Iγ, $\gamma\gamma(\theta)$, oriented nuclei. ^{146}Nd; deduced levels, J^π, δ, γ branching. Interacting boson model.
1989Bo55,1989BoYS: ^{145}Nd(n,γ), E=th; measured $\gamma\gamma$ coin spectra. ^{146}Nd; deduced levels, double-γ cascade intensities. Pulsed reactor; method of summation of amplitudes of coinciding pulses.
Others: 1968Gr29, 1968Re01, 1970Be34, 1967Po06, 1995Ho20.

^{146}Nd Levels

E(level)[†]	J$^\pi$[‡]	Comments
0.0	0^+	
453.72#@& 9	2^+[b]	
1043.14#@& 13	4^+	
1189.53#@& 13	3^-[b]	
1376.92@ 17	1^-	
1470.96#@& 15	2^+	
1517.51@ 21	5^-	
1745.58#@ 15	4^+	
1769.7@ 8		
1777.52#@& 19	3^+	
1787.40#@& 16	2^+	
1811.9#a 4	$(2,3)^-$	
1906.2@ 3	2^+	
1911.1#& 6		
1919.06#@&a 16	4^+	
1978.18#@& 21	2^+	
1980.2& 15	4^+	
1989.29#@& 18	4^+	
2045.84@ 23	4^-,5	
2072.75#@ 22	3^-	
2096.20#@& 17	4^+	
2119.5 2	2^+	
2121.7& 9	2^+	
2168.17@ 22	3^-	
2197.71#@ 23	2^+	
2220.27#@ 19	3^+	
2226.50#@ 22	3^+,4^+	J$^\pi$: J^π from 'Adopted Levels'.
2231.0 4	3^-	
2286.6#@ 3	2^+	
2292.2& 9		
2302.6@ 11	(2^+ to 5^+)	
2311.0@ 8		
2324.8@ 3		
2356.84#@& 16	4^+	
2433.7#@& 5	(3^-,4^-)	

Continued on next page (footnotes at end of table)

^{145}Nd(n,γ) E=thermal 1983Sn01,1976Bu14,1989Bo55 (continued)

^{146}Nd Levels (continued)

E(level)[†]	Jπ[‡]	E(level)[†]	Jπ[‡]	E(level)[†]	Jπ[‡]
2435.29[#@&] *24*	4^+	2750.22 *23*	5^-[d]	3329.6[@] *4*	$(3^-,4,5^+)$
2438.6[#] *3*	2^+	2783.9 *4*	$(3^+,4^+)$	3384.9[&] *7*	(2,3,4)
2469.91[#] *22*	$2^+,5^+,(3^+,4^+)$	2804.3[@] *8*	$2^+,(3^+)$	3472.5[&] *8*	4^+
2484.0[#] *4*	2^+	2844.7 *4*	3^-	3713.5[&] *10*	(2,3,4)
2491.56[#@&] *21*	$2^+,3^+$	2870.7 *4*	2^+	3738.8[&] *9*	3^-
2516.71[#@&] *21*	2^-	2885.4[#] *4*	(4^+)	3794.8[&] *7*	
2521.56[#@&] *22*	2^+ to 4^+	2923.3[#&] *5*	5^-	3812.6[&] *7*	3^-
2528.5[#] *3*	2^+	2930.66[#@&] *23*	4^+	3827.6[&] *9*	$1^{(-)}$
2552.51[#@] *17*	2^+	2969.53[#] *24*	2^+	3962.8[&] *9*	
2562.09[#] *19*	3^+	2996.78[&] *23*	$3^+,4^+$	4454.2[&] *9*	(3^-)
2573.88[#@] *22*	2^+	3013.3[#] *6*	4^+	4485.5[&] *9*	(3^-)
2589.73[#@] *19*	4^+	3043.4[&] *9*	2^+	4948.4[&] *10*	
2602.8[@&] *3*	$2^-,3^-$	3091.3[#] *4*	$(2^+,4^+)$	4997.3[&] *9*	
2660.83[#] *23*	$3^+,4^+$	3145.3[#&] *3*	2^+	5115.7[&] *9*	
2663.7[@] *13*	$(1^-),2^+$	3179.0[#&] *5*	$3^+,5^+$	5298.0[&] *3*	
2707.4[#] *4*	$(3^+,4^+)$	3210.3[&] *10*	4^+	5389.7[&] *8*	
2710.9[@] *5*		3246.8[#&] *4*	2^+ to 4^+	7564.80[#&c] *11*	$3^-,4^-$[b]

[†] From a least-squares fit to Eγ's; normalized χ^2=1.3.
[‡] From 'Adopted Levels'.
[#] Determined by 1976Bu14.
[@] Determined by 1983Sn01.
[&] Determined by 1989Bo55.
[a] Supported by primary 5645.7 *2* and 5642.7 *19* γ's in 1976Bu14 and in 1989Bo55, correspondingly. Probably, these are single transition.
[b] Consistent with $\gamma(\theta,T)$ from aligned target (1967Po06).
[c] Thermal neutron capture state.
[d] From (p,p'), (p,t), (d,d'); π conflicts with primary γ, E1.

^{145}Nd(n,γ) E=thermal 1983Sn01,1976Bu14,1989Bo55 (continued)

$\gamma(^{146}Nd)$

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[e]	α[f]	Comments
[x]78.5[a] 2								
[x]81.7[a] 2								
[x]97.2[a] 3								
[x]174.9[a] 4								
218.6	2.8 6	1989.29	4^+	1769.7				
[x]371.9[a] 3								
380.9	2.2 3	2168.17	3^-	1787.40	2^+			
448.4 6	1.1 2	1919.06	4^+	1470.96	2^+			
453.7 1	100.0 2	453.72	2^+	0.0	0^+	E2	0.01536	α(K)=0.01264 18; α(L)=0.00214 3; α(M)=0.000463 7 α(N)=0.0001025 15; α(O)=1.486×10^{-5} 21; α(P)=7.34×10^{-7} 11 Mult.: from 1967Po06.
[x]467.4 7	0.16 13							
[x]471.4 6	0.70 21							
474.0[#]	0.5[#]	1989.29	4^+	1517.51	5^-			I_γ: from $\gamma\gamma$ coin. Iγ(474.0γ+474.5γ)=6.6 1, 474.5 keV γ from 1517.45 keV level (1983Sn01).
474.5 2	6.1	1517.51	5^-	1043.14	4^+			I_γ: from $\gamma\gamma$ coin. Iγ(474.0γ+474.5γ)=6.6 1, 474.0 keV γ from 1989.3 keV level (1983Sn01).
[x]476.7 5	0.62 16							
[x]479.2 5	0.83 17							
[x]482.0 5	0.74 15							
[x]495.9[a] 3								
[x]504.1[a] 5								
[x]510.7[a] 5								
[x]519.9[a] 5								
[x]522.9 6	0.30 8							
525.1[#]	0.40[#] 4	2302.6	(2^+ to 5^+)	1777.52	3^+			
528.3 4	0.56 6	2045.84	4^-,5	1517.51	5^-	D+Q		−0.8≥δ≥−1.8 (1983Sn01).
[x]534.9 6	0.25 8							
[x]540.5[a] 6								
[x]545.4 6	0.20 7							
555.9 2	2.1 1	1745.58	4^+	1189.53	3^-	E1+(M2)	0.0032 8	α(K)=0.0028 7; α(L)=0.00036 10; α(M)=7.5×10^{-5} 22 α(N)=1.7×10^{-5} 5; α(O)=2.5×10^{-6} 8; α(P)=1.6×10^{-7} 5 δ=+0.05 10 (1983Sn01).
565.4[#]	0.40[#] 3	2311.0		1745.58	4^+			
[x]578.0 5	0.29 6							
584.6 6	0.12 6	2573.88	2^+	1989.29	4^+			
589.4 2	32.2	1043.14	4^+	453.72	2^+	E2	0.00765	α(K)=0.00639 9; α(L)=0.000991 14; α(M)=0.000212 3 α(N)=4.72×10^{-5} 7; α(O)=6.95×10^{-6} 10; α(P)=3.80×10^{-7} 6 I_γ: from $\gamma\gamma$ coin. Iγ(589.4γ+590.0γ)=35.0 2, 590.0 keV γ from 1777.60 keV level (1983Sn01). Mult.: Q from $\gamma\gamma(\theta)$ (1983Sn01), syst exclude M2.

$^{146}_{60}Nd_{86}$-3

^{145}Nd(n,γ) E=thermal 1983Sn01,1976Bu14,1989Bo55 (continued)

$\gamma(^{146}Nd)$ (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[e]	α[f]	Comments
590.0[#]	2.8[#]	1777.52	3^+	1189.53	3^-	E1+(M2)	0.014 *12*	α(K)=0.012 *10*; α(L)=0.0017 *14*; α(M)=0.0004 *3* α(N)=8.E−5 *7*; α(O)=1.2×10^{-5} *11*; α(P)=8.E−7 *7* δ=−0.7 *7* (1983Sn01). I_γ: from $\gamma\gamma$ coin. Iγ(589.4γ+590.0γ)=35.0 *2*, 589.4 keV γ from 1043.16 keV level (1983Sn01).
[x]595.3 *6*								
598.3 *5*	0.34 *5*	1787.40	2^+	1189.53	3^-			
[x]600.0 *8*	0.12 *6*							
602.8 *8*		1978.18	2^+	1376.92	1^-			
[x]630.1 *5*	0.17 *5*							
650.6 *5*	0.48 *6*	2168.17	3^-	1517.51	5^-			
[x]668.4[a] *8*								
[x]674.3 *4*	0.10 *5*							
[x]677.1 *5*	0.10 *5*							
[x]683.3[a] *8*								
702.1 *2*	2.1 *1*	1745.58	4^+	1043.14	4^+	M1+E2	0.0073 *10*	α(K)=0.0063 *9*; α(L)=0.00084 *10*; α(M)=0.000177 *19* α(N)=4.0×10^{-5} *5*; α(O)=6.0×10^{-6} *7*; α(P)=3.9×10^{-7} *6* δ=−0.5 *56* (1983Sn01).
716.8 *5*	0.17 *6*	2528.5	2^+	1811.9	$(2,3)^-$			
721.6[&] *5*	0.07[&] *4*	1911.1		1189.53	3^-			
724.6 *4*	0.22 *5*	2469.91	$2^+,5^+,(3^+,4^+)$	1745.58	4^+			
725.6[#]	1.0[#] *1*	1769.7		1043.14	4^+			
730.0[#d]	0.5[#]	1919.06	4^+	1189.53	3^-			I_γ: from $\gamma\gamma$ coin. Iγ(730.0γ+735.9γ+736.0γ)=20.0 *1*, 735.8 keV and 736.0 keV γ's from 1189.58 keV and 1777.60 keV levels, correspondingly (1983Sn01).
735.9[d] *2*	15.8	1189.53	3^-	453.72	2^+	E1+(M2)	0.00175 *5*	α(K)=0.00151 *5*; α(L)=0.000193 *6*; α(M)=4.07×10^{-5} *13* α(N)=9.1×10^{-6} *3*; α(O)=1.38×10^{-6} *5*; α(P)=8.9×10^{-8} *3* I_γ: from $\gamma\gamma$ coin. Iγ(730.0γ+735.9γ+736.0γ)=20.0 *1*, 730.0 keV and 736.0 keV γ' from 1919.10 keV and 1777.60 keV levels, correspondingly (1983Sn01). δ=+0.05 *+2−5* (1983Sn01).
736.0[#d]	3.7[#]	1777.52	3^+	1043.14	4^+	M1+E2	0.0045 *3*	α(K)=0.00376 *23*; α(L)=0.00055 *3*; α(M)=0.000117 *6* α(N)=2.60×10^{-5} *12*; α(O)=3.87×10^{-6} *20*; α(P)=2.26×10^{-7} *16* δ=−22 *19* (1983Sn01). This γ was observed in ^{145}Nd(n,γ), E=thermal only (see 1983Sn01) and wasn't found in ^{146}Pr β- decay but should be. Thus evaluators treat this transition as questionable. I_γ: from $\gamma\gamma$ coin. Iγ(730.0γ+735.9γ+736.0γ)=20.0 *1*, 730.0 keV and 735.8 keV γ's from 1919.10 keV and 1189.58 keV levels, correspondingly (1983Sn01).
[x]745.2 *4*	0.16 *5*							
[x]757.7 *5*	0.15 *5*							

$^{146}_{60}Nd_{86}$-4

^{145}Nd(n,γ) E=thermal 1983Sn01,1976Bu14,1989Bo55 (continued)

γ(^{146}Nd) (continued)

E_γ [†]	I_γ [‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[e]	α[f]	Comments
[x]765.1 *5*	0.12 *4*							
[x]772.5 *2*	0.39 *5*							
775.6 *5*	0.37 *4*	2521.56	2^+ to 4^+	1745.58	4^+			
788.8 *3*	0.51 *6*	1978.18	2^+	1189.53	3^-			
800.0	2.8 *6*	1989.29	4^+	1189.53	3^-			E_γ: 796.2 *15* in 1989Bo55.
807.3 *2*	0.68 *5*	2324.8		1517.51	5^-			
[x]868.5 *4*	0.26 *5*							
[x]871.5 *4*	0.34 *5*							
875.9 *2*	1.9 *1*	1919.06	4^+	1043.14	4^+	E2	0.00299	α(K)=0.00254 *4*; α(L)=0.000357 *5*; α(M)=7.58×10^{-5} *11* α(N)=1.690×10^{-5} *24*; α(O)=2.53×10^{-6} *4*; α(P)=1.532×10^{-7} *22*
883.3 *2*	1.4 *1*	2072.75	3^-	1189.53	3^-	M1+E2	0.0034 *8*	α(K)=0.0029 *7*; α(L)=0.00040 *8*; α(M)=8.5×10^{-5} *17* α(N)=1.9×10^{-5} *4*; α(O)=2.9×10^{-6} *6*; α(P)=1.8×10^{-7} *5* δ=−1.5 *10* (1983Sn01).
894.0[#]	0.40[#] *2*	2663.7	$(1^-),2^+$	1769.7				
906.7 *2*	0.74 *6*	2096.20	4^+	1189.53	3^-			
923.2 *2*	1.5 *1*	1376.92	1^-	453.72	2^+	E1+(M2)	0.0012 *12*	α(K)=0.0011 *10*; α(L)=0.00013 *14*; α(M)=3.E−5 *3* α(N)=6.E−6 *7*; α(O)=1.0×10^{-6} *10*; α(P)=6.E−8 *7* δ=−0.12 *28* (1983Sn01).
937.1[@] *15*		1980.2	4^+	1043.14	4^+			
946.3 *2*	1.9 *1*	1989.29	4^+	1043.14	4^+		0.00103 *2*	
976.8	1.8 *2*	2168.17	3^-	1189.53	3^-			
[x]999.0[a] *15*								
1002.7 *2*	1.07 *4*	2045.84	4^-,5	1043.14	4^+	D+Q		−1.9≤δ≤10.0 (1983Sn01).
[x]1012.3 *4*	0.22 *4*							
1016.9 *2*	6.4 *1*	1470.96	2^+	453.72	2^+	E2+M1	0.00223 *9*	α(K)=0.00190 *8*; α(L)=0.000259 *9*; α(M)=5.49×10^{-5} *18* α(N)=1.23×10^{-5} *4*; α(O)=1.85×10^{-6} *7*; α(P)=1.15×10^{-7} *5* δ=+4.0 *+17−14* (1983Sn01).
[x]1029.6 *3*	0.17 *5*							
1036.8 *3*	0.25 *5*	2226.50	$3^+,4^+$	1189.53	3^-			
[x]1039.5 *3*	0.16 *5*							
1053.1 *2*	1.2 *1*	2096.20	4^+	1043.14	4^+			
1059.4[#]	0.51[#] *3*	2804.3	$2^+,(3^+)$	1745.58	4^+			
1073.2	0.40 *3*	2589.73	4^+	1517.51	5^-			
1081.1[&] *2*	0.34[&] *4*	2552.51	2^+	1470.96	2^+			
[x]1093.5 *3*	0.14 *4*							
1102.7[#a]	0.11[#] *7*	3329.6	$(3^-,4,5^+)$	2226.50	$3^+,4^+$			
1103.6[@] *15*		2292.2		1189.53	3^-			
1125.1 *2*	1.2 *1*	2168.17	3^-	1043.14	4^+			
1139.9[a] *2*	0.73 *6*	2516.71	2^-	1376.92	1^-			
[x]1149.8 *4*	0.21 *4*							
[x]1165.2 *5*	0.12 *5*							
1167.2 *2*	1.20 *7*	2356.84	4^+	1189.53	3^-	E1+(M2)	0.00072 *13*	α(K)=0.00061 *11*; α(L)=7.6×10^{-5} *15*; α(M)=1.6×10^{-5} *3*

$^{146}_{60}Nd_{86}$-5

^{145}Nd(n,γ) E=thermal 1983Sn01,1976Bu14,1989Bo55 (continued)

$\gamma(^{146}Nd)$ (continued)

E_γ †	I_γ ‡	E_i(level)	J_i^π	E_f	J_f^π	Mult. e	α f	Comments
								α(N)=3.6×10^{-6} *7*; α(O)=5.4×10^{-7} *11*; α(P)=3.6×10^{-8} *7*; α(IPF)=1.48×10^{-5} *5* δ=0.00 *16* (1983Sn01).
x1169.5 *4*	0.30 *5*							
x1181.7 *4*	0.15 *5*							
1183.6 *4*	0.24 *5*	2226.50	3$^+$,4$^+$	1043.14	4$^+$			
x1193.4 *4*	0.31 *6*							
1193.4& *4*	0.31& *6*	2710.9		1517.51	5$^-$			
x1219.9 *4*	0.22 *5*							
1242.5#	0.65# *3*	2286.6	2$^+$	1043.14	4$^+$			
1243.9#	0.25# *6*	2433.7	(3$^-$,4$^-$)	1189.53	3$^-$			E_γ: determined by 1989Bo55 also.
1248.4@ *15*		2292.2		1043.14	4$^+$			
1267.9#	0.33# *6*	2311.0		1043.14	4$^+$			
1292.2 *3*	0.81 *6*	1745.58	4$^+$	453.72	2$^+$	E2	1.34×10^{-3}	α(K)=0.001133 *16*; α(L)=0.0001504 *21*; α(M)=3.17×10^{-5} *5* α(N)=7.09×10^{-6} *10*; α(O)=1.074×10^{-6} *15*; α(P)=6.87×10^{-8} *10*; α(IPF)=1.95×10^{-5} *3*
1301.5@ *15*		2491.56	2$^+$,3$^+$	1189.53	3$^-$			
1313.3 *3*	0.97 *5*	2356.84	4$^+$	1043.14	4$^+$			
1324.0 *3*	6.4 *1*	1777.52	3$^+$	453.72	2$^+$	D+Q		−20.7≥δ≥11.6 (1983Sn01).
1332.3 *4*	0.59 *3*	2521.56	2$^+$ to 4$^+$	1189.53	3$^-$			
1333.9 *3*	2.5 *1*	1787.40	2$^+$	453.72	2$^+$	M1+E2	0.00170 *9*	α(K)=0.00143 *8*; α(L)=0.000186 *9*; α(M)=3.91×10^{-5} *19* α(N)=8.8×10^{-6} *5*; α(O)=1.34×10^{-6} *7*; α(P)=8.9×10^{-8} *5*; α(IPF)=2.88×10^{-5} *5* δ=0.40 *+26−18* or −4.8≥δ≥6.0 (1983Sn01).
1363.5 *3*	1.3 *1*	2552.51	2$^+$	1189.53	3$^-$	E1+M2	0.0012 *3*	α(K)=0.0009 *3*; α(L)=0.00012 *4*; α(M)=2.6×10^{-5} *8* α(N)=5.8×10^{-6} *18*; α(O)=9.E−7 *3*; α(P)=5.8×10^{-8} *18*; α(IPF)=9.8×10^{-5} *11* δ=0.45 *15* (1983Sn01).
1377.3 *3*	2.7 *1*	1376.92	1$^-$	0.0	0$^+$			
x1382.0 *5*	0.10 *5*							
1392.3 *3*	0.27 *5*	2435.29	4$^+$	1043.14	4$^+$			
1412.7@ *15*		2602.8	2$^-$,3$^-$	1189.53	3$^-$			
1426.5 *3*	0.41 *4*	2469.91	2$^+$,5$^+$,(3$^+$,4$^+$)	1043.14	4$^+$			E_γ: 1426.7 keV γ, Iγ=0.46 *8* determined by 1983Sn01 also, placed from 2803 keV level.
1426.7#	0.46# *8*	2804.3	2$^+$,(3$^+$)	1376.92	1$^-$			E_γ: 1426.5 keV γ, Iγ=0.41 *4* determined by 1976Bu14 also, placed from 2469.97 keV level.
x1434.3 *3*	0.79 *5*							
1448.6 *4*	0.24 *5*	2491.56	2$^+$,3$^+$	1043.14	4$^+$			
1452.2 *3*	1.9 *1*	1906.2	2$^+$	453.72	2$^+$			δ=−0.7 *1* or −0.2≥δ≥1.5 (1983Sn01).
1465.4# *3*	1.7# *1*	1919.06	4$^+$	453.72	2$^+$			−0.3≥δ≥0.8 (1983Sn01).
x1468.8 *3*	0.30 *5*							

$^{146}_{60}Nd_{86}$-6

^{145}Nd(n,γ) E=thermal 1983Sn01,1976Bu14,1989Bo55 (continued)

$\gamma(^{146}Nd)$ (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[e]	α[f]	Comments
1471.0 *3*	6.0 *1*	1470.96	2^+	0.0	0^+			
1478.6 *3*	1.0 *1*	2521.56	2^+ to 4^+	1043.14	4^+			
[x]1496.5 *4*	0.11 *4*							
[x]1502.9 *4*	0.22 *6*							
[x]1521.9 *3*	1.30 *5*							
1525.5 *5*	3.1 *7*	1978.18	2^+	453.72	2^+	M1+E2	0.00136 *3*	α(K)=0.001094 *21*; α(L)=0.000141 *3*; α(M)=2.97×10^{-5} *6* α(N)=6.65×10^{-6} *13*; α(O)=1.017×10^{-6} *19*; α(P)=6.83×10^{-8} *14*; α(IPF)=8.98×10^{-5} *13* δ=0.17 *12* (1983Sn01). E_γ: poor fit, energy level difference between corresponding levels equals 1524.46 *20*.
1535.0 *3*	0.89 *6*	1989.29	4^+	453.72	2^+	E2	1.03×10^{-3}	α(K)=0.000812 *12*; α(L)=0.0001059 *15*; α(M)=2.23×10^{-5} *4* α(N)=4.99×10^{-6} *7*; α(O)=7.58×10^{-7} *11*; α(P)=4.93×10^{-8} *7*; α(IPF)=8.86×10^{-5} *13* $\delta\leq$0.9 (1983Sn01).
[x]1560.1 *3*	0.29 *5*							
[x]1579.5 *4*	0.34 *4*							
[x]1613.9 *3*	0.49 *5*							
[x]1637.8 *6*	0.23 *5*							
1665.3 *2*	0.24 *4*	2119.5	2^+	453.72	2^+			
[x]1665.6 *3*	0.33 *4*							
1669.2[@] *15*		2121.7	2^+	453.72	2^+			
[x]1671.8 *4*	0.19 *5*							
[x]1680.9 *4*	0.31 *4*							
[x]1689.8 *4*	0.31 *4*							
[x]1728.4 *5*	0.20 *4*							
1732.1[@] *15*		2923.3	5^-	1189.53	3^-			
1739.6[#]	0.91[#] *3*	2930.66	4^+	1189.53	3^-			
[x]1741.4 *3*	0.48 *5*							
1744.3 *3*	1.5 *1*	2197.71	2^+	453.72	2^+			
[x]1750.7 *3*	0.32 *5*							
1766.7[&] *2*	1.00[&] *5*	2220.27	3^+	453.72	2^+			
[x]1771.1 *3*	0.16 *4*							
1777.3 *3*	0.12 *4*	2231.0	3^-	453.72	2^+			
1779.8[&] *3*	0.12[&] *4*	2969.53	2^+	1189.53	3^-			
1787.3 *3*	0.17 *4*	1787.40	2^+	0.0	0^+			
1805.0[a@] *15*		2996.78	3^+,4^+	1189.53	3^-			
1812.1 *3*	0.91 *6*	3329.6	(3^-,4,5^+)	1517.51	5^-			
[x]1817.6[a] *10*								
1832.9 *3*	0.25 *17*	2286.6	2^+	453.72	2^+			
[x]1853.3 *3*	0.25 *4*							
[x]1862.7 *3*	0.34 *4*							

$^{146}_{60}Nd_{86}$-7

^{145}Nd(n,γ) E=thermal 1983Sn01,1976Bu14,1989Bo55 (continued)

$\gamma(^{146}Nd)$ (continued)

E_γ †	I_γ ‡	E_i(level)	J_i^π	E_f	J_f^π	Mult. [e]	α [f]	Comments
1880.5 & *5*	0.21 & *3*	2923.3	5^-	1043.14	4^+			
1903.2 *4*	0.38 *6*	2356.84	4^+	453.72	2^+			
1906.8 *6*	0.09 *5*	1906.2	2^+	0.0	0^+			E_γ: introduced by the evaluators from unplaced γ's in 1976Bu14 as the transition is observed in ^{146}Pr β^- decay.
x1910.8 *6*	0.09 *5*							
x1914.1 *6*	0.10 *5*							
x1917.4 *10*	0.06 *5*							
x1918.9 *10*	0.51 *5*							
x1944.2 *3*	0.15 *5*							
1958.9 @ *15*		3145.3	2^+	1189.53	3^-			
x1969.0 *5*	0.16 *7*							
x1975.1 *5*	0.11 *7*							
1977.7 *5*	0.23 *12*	1978.18	2^+	0.0	0^+			
x1979.9 @ *15*								
1981.4 *3*	0.42 *8*	2435.29	4^+	453.72	2^+			
1984.2 *4*	0.43 *8*	2438.6	2^+	453.72	2^+			
1989.2 & *5*	0.18 & *11*	3179.0	$3^+,5^+$	1189.53	3^-			
x2003.0 *3*	0.16 *5*							
2019.1 @ *15*		3210.3	4^+	1189.53	3^-			
2030.3 *3*	0.18 *5*	2484.0	2^+	453.72	2^+			
2037.8 *3*	0.46 *5*	2491.56	$2^+,3^+$	453.72	2^+			
x2045.6 *3*	0.17 *4*							
x2057.8 *3*	0.18 *5*							
2066.0 *15*		2521.56	2^+ to 4^+	453.72	2^+			
x2083.2 *3*	0.20 *4*							
2096.3 *10*	0.10 *5*	2552.51	2^+	453.72	2^+			
2108.3 & *2*	0.46 & *5*	2562.09	3^+	453.72	2^+			
2119.8 *2*	0.26 *3*	2119.5	2^+	0.0	0^+	E2	8.66×10^{-4}	α(K)=0.000446 *7*; α(L)=5.69×10^{-5} *8*; α(M)=1.195×10^{-5} *17* α(N)=2.67×10^{-6} *4*; α(O)=4.08×10^{-7} *6*; α(P)=2.71×10^{-8} *4*; α(IPF)=0.000348 *5* Mult.: from A_2=+0.305 *87*, A_4=−0.067 *83* (1983Al12).
2120.2 *3*	0.38 *4*	2573.88	2^+	453.72	2^+			
2120.9 @ *15*		2121.7	2^+	0.0	0^+			
2136.0 *2*	0.71 *4*	2589.73	4^+	453.72	2^+			
2137.3 @ *15*		3179.0	$3^+,5^+$	1043.14	4^+			
x2142.5 *5*	0.10 *4*							
2149.1 *3*	0.53 *5*	2602.8	$2^-,3^-$	453.72	2^+			
x2157.6 *10*	0.07 *4*							
x2168.5 *3*	0.13 *4*							
2175.4 @ *16*		7564.80	$3^-,4^-$	5389.7				
2193.8 @ *15*		3384.9	(2,3,4)	1189.53	3^-			

^{145}Nd(n,γ) E=thermal 1983Sn01,1976Bu14,1989Bo55 (continued)

$\gamma(^{146}Nd)$ (continued)

E_γ †	I_γ ‡	E_i(level)	J_i^π	E_f	J_f^π
2204.3@ *15*		3246.8	2^+ to 4^+	1043.14	4^+
2207.0 *3*	0.23 *4*	2660.83	$3^+,4^+$	453.72	2^+
x2209.4 *3*	0.23 *4*				
x2223.5 *2*	1.30 *5*				
x2234.5 *3*	0.21 *4*				
2266.8& *3*	&	7564.80	$3^-,4^-$	5298.0	
x2278.1 *3*	0.10 *4*				
2280.9@ *15*		3472.5	4^+	1189.53	3^-
x2291.2 *3*	0.13 *4*				
2342.8@ *15*		3384.9	(2,3,4)	1043.14	4^+
x2369.5 *3*	0.12 *4*				
2428.5@ *15*		3472.5	4^+	1043.14	4^+
2449.4@ *15*		7564.80	$3^-,4^-$	5115.7	
x2459.8 *3*	0.14 *5*				
2476.6@ *15*		2930.66	4^+	453.72	2^+
2517.8@ *15*		2516.71	2^-	0.0	0^+
2526.3@ *15*		3713.5	(2,3,4)	1189.53	3^-
2542.4@ *15*		2996.78	$3^+,4^+$	453.72	2^+
2549.7@ *15*		3738.8	3^-	1189.53	3^-
2567.8@ *15*		7564.80	$3^-,4^-$	4997.3	
2589.4@ *15*		3043.4	2^+	453.72	2^+
2604.8@ *15*		3794.8		1189.53	3^-
2616.7@ *18*		7564.80	$3^-,4^-$	4948.4	
x2658.9 *4*	0.20 *4*				
x2685.6 *3*	0.15 *5*				
2691.3& *3*	0.13& *4*	3145.3	2^+	453.72	2^+
2695.4@ *15*		3738.8	3^-	1043.14	4^+
2725.9@ *15*		3179.0	$3^+,5^+$	453.72	2^+
2758.3@ *15*		3210.3	4^+	453.72	2^+
2773.8@ *15*		3962.8		1189.53	3^-
2793.0& *4*	0.14& *4*	3246.8	2^+ to 4^+	453.72	2^+
x2830.3 *5*	0.24 *4*				
x2852.8 *4*	0.12 *4*				
x2856.5 *4*	0.23 *5*				
2919.3@ *15*		3962.8		1043.14	4^+
2931.7@ *15*		3384.9	(2,3,4)	453.72	2^+
3021.9@ *15*		3472.5	4^+	453.72	2^+
3043.5@ *15*		3043.4	2^+	0.0	0^+
3079.7@ *17*		7564.80	$3^-,4^-$	4485.5	(3^-)
3110.9@ *15*		7564.80	$3^-,4^-$	4454.2	(3^-)
3146.0@ *15*		3145.3	2^+	0.0	0^+
3257.6@ *15*		3713.5	(2,3,4)	453.72	2^+
3265.9@ *15*		4454.2	(3^-)	1189.53	3^-
3294.8@ *15*		4485.5	(3^-)	1189.53	3^-
3343.0@ *15*		3794.8		453.72	2^+
3359.8@		3812.6	3^-	453.72	2^+
3373.1@ *15*		3827.6	$1^{(-)}$	453.72	2^+
3602.2@ *15*		7564.80	$3^-,4^-$	3962.8	
3737.2@ *15*		7564.80	$3^-,4^-$	3827.6	$1^{(-)}$
3752.3@ *15*		7564.80	$3^-,4^-$	3812.6	3^-
3761.0@ *15*		4948.4		1189.53	3^-
3770.2@ *10*		7564.80	$3^-,4^-$	3794.8	
3793.7@ *15*		3794.8		0.0	0^+
3808.9@ *15*		4997.3		1189.53	3^-
3811.6@		3812.6	3^-	0.0	0^+
3826.2@ *15*		7564.80	$3^-,4^-$	3738.8	3^-
3828.4@ *15*		3827.6	$1^{(-)}$	0.0	0^+
3851.7@ *20*		7564.80	$3^-,4^-$	3713.5	(2,3,4)
3928.1@ *15*		5115.7		1189.53	3^-
3999.6@ *15*		4454.2	(3^-)	453.72	2^+
4033.1@ *15*		4485.5	(3^-)	453.72	2^+
4070.7@ *15*		5115.7		1043.14	4^+
4092.5@ *17*		7564.80	$3^-,4^-$	3472.5	4^+
4180.0@ *11*		7564.80	$3^-,4^-$	3384.9	(2,3,4)
4200.6@ *15*		5389.7		1189.53	3^-
4255.1@ *15*		5298.0		1043.14	4^+
4317.8@ *15*		7564.80	$3^-,4^-$	3246.8	2^+ to 4^+
4343.4@ *15*		5389.7		1043.14	4^+
4354.8@ *20*		7564.80	$3^-,4^-$	3210.3	4^+
4385.8@ *13*		7564.80	$3^-,4^-$	3179.0	$3^+,5^+$
4418.7@ *7*		7564.80	$3^-,4^-$	3145.3	2^+
4473.4 *3*	5.7 *8*	7564.80	$3^-,4^-$	3091.3	$(2^+,4^+)$
4521.3@ *15*		7564.80	$3^-,4^-$	3043.4	2^+
4551.4 *5*	5.6 *17*	7564.80	$3^-,4^-$	3013.3	4^+

^{145}Nd(n,γ) E=thermal 1983Sn01,1976Bu14,1989Bo55 (continued)

$\gamma(^{146}Nd)$ (continued)

E_γ [†]	I_γ [‡]	E_i(level)	J_i^π	E_f	J_f^π	Comments
4567.9 *2*	46.9 *15*	7564.80	3$^-$,4$^-$	2996.78	3$^+$,4$^+$	
4595.0 *3*	6.4 *10*	7564.80	3$^-$,4$^-$	2969.53	2$^+$	
4634.0 *2*	22.7 *12*	7564.80	3$^-$,4$^-$	2930.66	4$^+$	
4643.4[@] *15*		7564.80	3$^-$,4$^-$	2923.3	5$^-$	
4679.3 *3*	5.2 *11*	7564.80	3$^-$,4$^-$	2885.4	(4$^+$)	
4694.0 *3*	2.2 *7*	7564.80	3$^-$,4$^-$	2870.7	2$^+$	
4720.0 *3*	4.2 *8*	7564.80	3$^-$,4$^-$	2844.7	3$^-$	
4780.8 *3*	10.1 *9*	7564.80	3$^-$,4$^-$	2783.9	(3$^+$,4$^+$)	
4814.5 *2*	26.7 *11*	7564.80	3$^-$,4$^-$	2750.22	5$^-$	
4844.4[@] *15*		5298.0		453.72	2$^+$	
4857.3 *3*	4.3[b] *8*	7564.80	3$^-$,4$^-$	2707.4	(3$^+$,4$^+$)	
4903.8 *3*	5.2 *8*	7564.80	3$^-$,4$^-$	2660.83	3$^+$,4$^+$	
4938.6[@] *15*		5389.7		453.72	2$^+$	
4946.3[@] *15*		4948.4		0.0	0$^+$	
4962.6[@] *15*		7564.80	3$^-$,4$^-$	2602.8	2$^-$,3$^-$	
4975.1 *3*	29.4 *10*	7564.80	3$^-$,4$^-$	2589.73	4$^+$	
4990.9 *3*	5.4 *7*	7564.80	3$^-$,4$^-$	2573.88	2$^+$	
4996.2[@] *15*		4997.3		0.0	0$^+$	
5002.5 *3*	14.0 *9*	7564.80	3$^-$,4$^-$	2562.09	3$^+$	
5011.9 *2*	76.4 *17*	7564.80	3$^-$,4$^-$	2552.51	2$^+$	
5036.3 *3*	6.7 *8*	7564.80	3$^-$,4$^-$	2528.5	2$^+$	
5043.4 *4*	39.6 *13*	7564.80	3$^-$,4$^-$	2521.56	2$^+$ to 4$^+$	E_γ: weighted average of 5043.3 *3* (1976Bu14) and 5045.1 *12* (1989Bo55).
5048.3 *3*	24.7 *10*	7564.80	3$^-$,4$^-$	2516.71	2$^-$	
5073.2 *3*	11.5 *8*	7564.80	3$^-$,4$^-$	2491.56	2$^+$,3$^+$	
5094.7 *3*	10.3 *8*	7564.80	3$^-$,4$^-$	2469.91	2$^+$,5$^+$,(3$^+$,4$^+$)	
5125.8 *3*	3.4 *7*	7564.80	3$^-$,4$^-$	2438.6	2$^+$	
5128.2[g] *3*	7.5 *7*	7564.80	3$^-$,4$^-$	2435.29	4$^+$	E_γ: probably this γ does not belongs to ^{146}Nd (1976Bu14).
5131.0 *5*	3.1 *8*	7564.80	3$^-$,4$^-$	2433.7	(3$^-$,4$^-$)	
5207.6 *2*	47.8 *13*	7564.80	3$^-$,4$^-$	2356.84	4$^+$	
5272.8[@] *15*		7564.80	3$^-$,4$^-$	2292.2		
5338.2 *3*	5.5 *9*	7564.80	3$^-$,4$^-$	2226.50	3$^+$,4$^+$	
5344.8 *3*	11.6 *9*	7564.80	3$^-$,4$^-$	2220.27	3$^+$	
5367.3 *3*	15.6[b] *9*	7564.80	3$^-$,4$^-$	2197.71	2$^+$	
5443.5[@] *15*		7564.80	3$^-$,4$^-$	2121.7	2$^+$	
5468.7 *3*	10.2 *8*	7564.80	3$^-$,4$^-$	2096.20	4$^+$	
5492.3 *4*	3.6 *7*	7564.80	3$^-$,4$^-$	2072.75	3$^-$	
5575.3 *3*	24.5 *9*	7564.80	3$^-$,4$^-$	1989.29	4$^+$	
5587.45 *38*	13.7 *21*	7564.80	3$^-$,4$^-$	1978.18	2$^+$	E_γ: weighted average of 5587.5 *2* (1976Bu14) and 5584.6 *15* (1989Bo55).
5645.7 *2*	45.1 *16*	7564.80	3$^-$,4$^-$	1919.06	4$^+$	
5656.2[@] *19*		7564.80	3$^-$,4$^-$	1911.1		

^{145}Nd(n,γ) E=thermal 1983Sn01,1976Bu14,1989Bo55 (continued)

$\gamma(^{146}Nd)$ (continued)

E_γ [†]	I_γ [‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[e]	Comments
5752.5 *5*	4.2 *8*	7564.80	3^-,4^-	1811.9	$(2,3)^-$		
5777.4 *2*	11.7 *11*	7564.80	3^-,4^-	1787.40	2^+		
5787.4 *2*	100.0 *22*	7564.80	3^-,4^-	1777.52	3^+		
5818.3 *3*	5.2 *9*	7564.80	3^-,4^-	1745.58	4^+		E_γ: poor fit, energy level difference between corresponding levels equals 5819.23 *13*.
6093.9 *3*	314[c] *7*	7564.80	3^-,4^-	1470.96	2^+		
6375.0 *3*	17.0 *14*	7564.80	3^-,4^-	1189.53	3^-		
6521.3 *4*	206 *4*	7564.80	3^-,4^-	1043.14	4^+		
7110.8 *3*	390 *6*	7564.80	3^-,4^-	453.72	2^+	D	Mult.: from 1967Po06.

† From 1976Bu14, except where noted.
‡ From 1983Sn01 or 1976Bu14. The values of relative Iγ for primary (Eγ>4470) and secondary (Eγ<2860) γ's belong to two different sets. Iγ's in the primary group are relative to Iγ(5787γ)=100 and Iγ's in the secondary group are relative to Iγ(453.7γ)=100.
# From 1983Sn01; authors do not quote $\Delta E\gamma'$s. The evaluators assigned $\Delta E\gamma$=1.0 keV for all γ's.
@ Arithmetic averages of Eγ's of 1989Bo55 are deduced by the evaluators when it was available. An analysis shows that $\Delta E\gamma'$s spread from 0.2 to 2.5 keV. In questionable cases, the evaluators assigned $\Delta E\gamma$=1.5 keV.
& The transition is introduced by the evaluators from unplaced γ's in 1976Bu14. Corresponding levels and/or γ transitions are determined by 1989Bo55 and/or by 1983Sn01.
[a] Observed by 1970Be34, 1967Pr08 in ce spectra.
[b] May include contribution from ^{144}Nd (1976Bu14).
[c] May include contribution from ^{14}C (1976Bu14).
[d] Triple peak (730.0γ+735.9γ+736.0γ), deduced in 1983Sn01, is detected by 1989Bo55 as single peak with Eγ=735.2 *15*.
[e] From $\gamma\gamma(\theta)$ in 1983Sn01. Because of complexity of the decay scheme and large errors in correlation parameters the extracted values of δ are not very reliable. Also adopted J^π of some levels do not consist with assigned J^π in 1983Sn01. Values of δ from 1983Sn01 are given in the comment column and are not adopted.
[f] Additional information 1.
[g] Placement of transition in the level scheme is uncertain.
[x] γ ray not placed in level scheme.

$^{146}_{60}Nd_{86}$-11

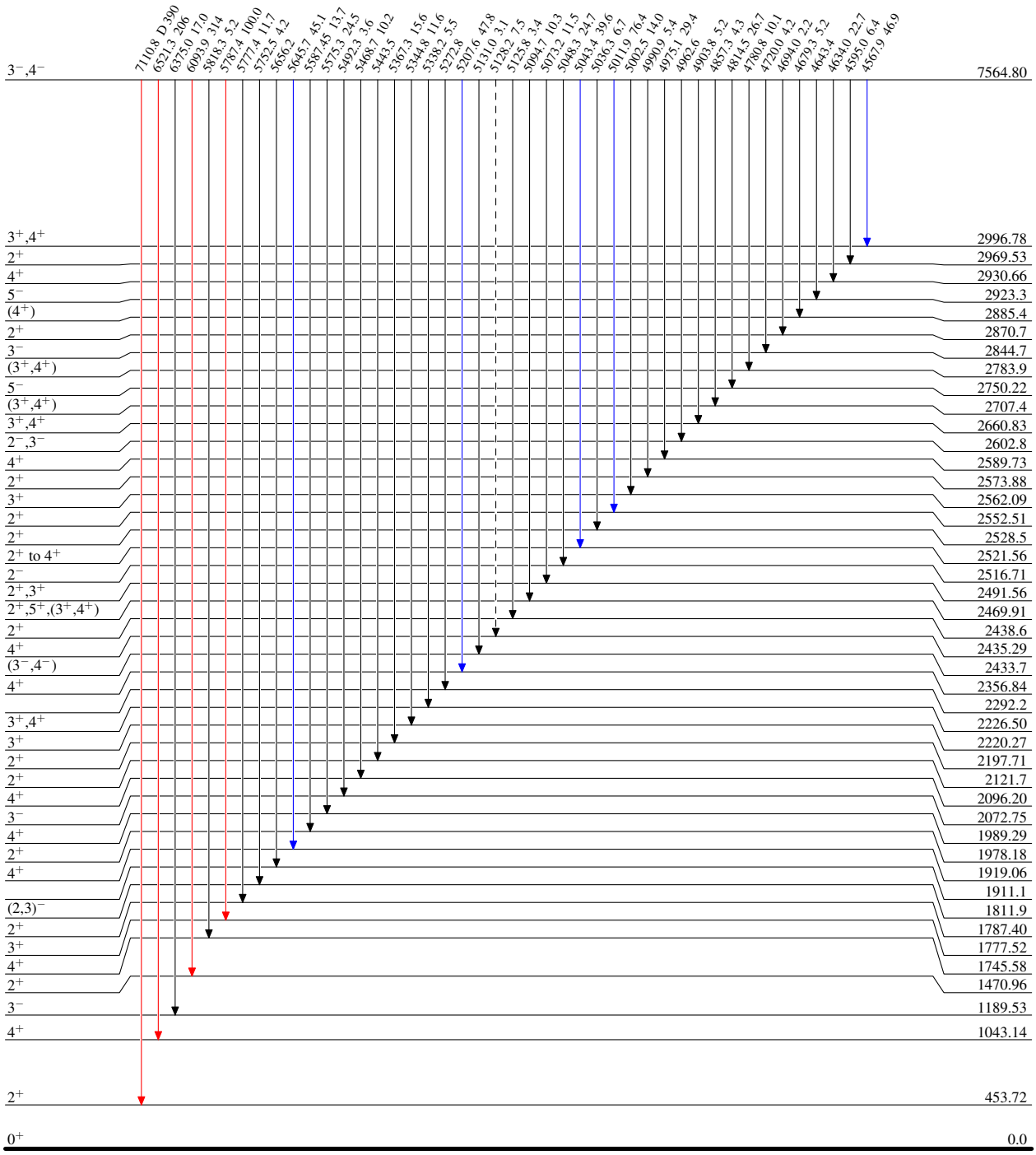
^{145}Nd(n,γ) E=thermal 1983Sn01,1976Bu14,1989Bo55

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)



$^{146}_{60}Nd_{86}$

^{145}Nd(n,γ) E=thermal 1983Sn01,1976Bu14,1989Bo55

Level Scheme (continued)

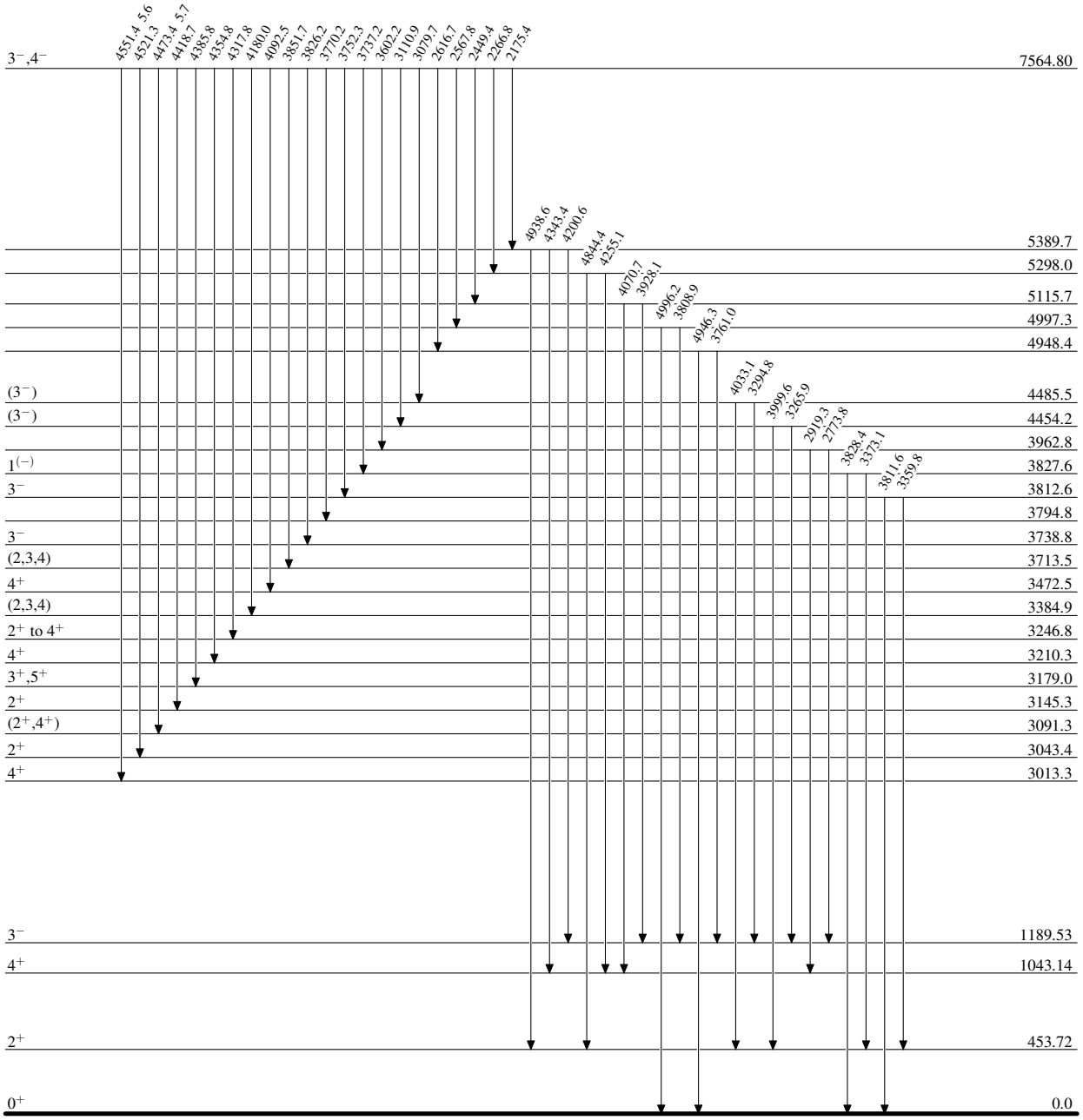
Intensities: Relative I_γ

Legend

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

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

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

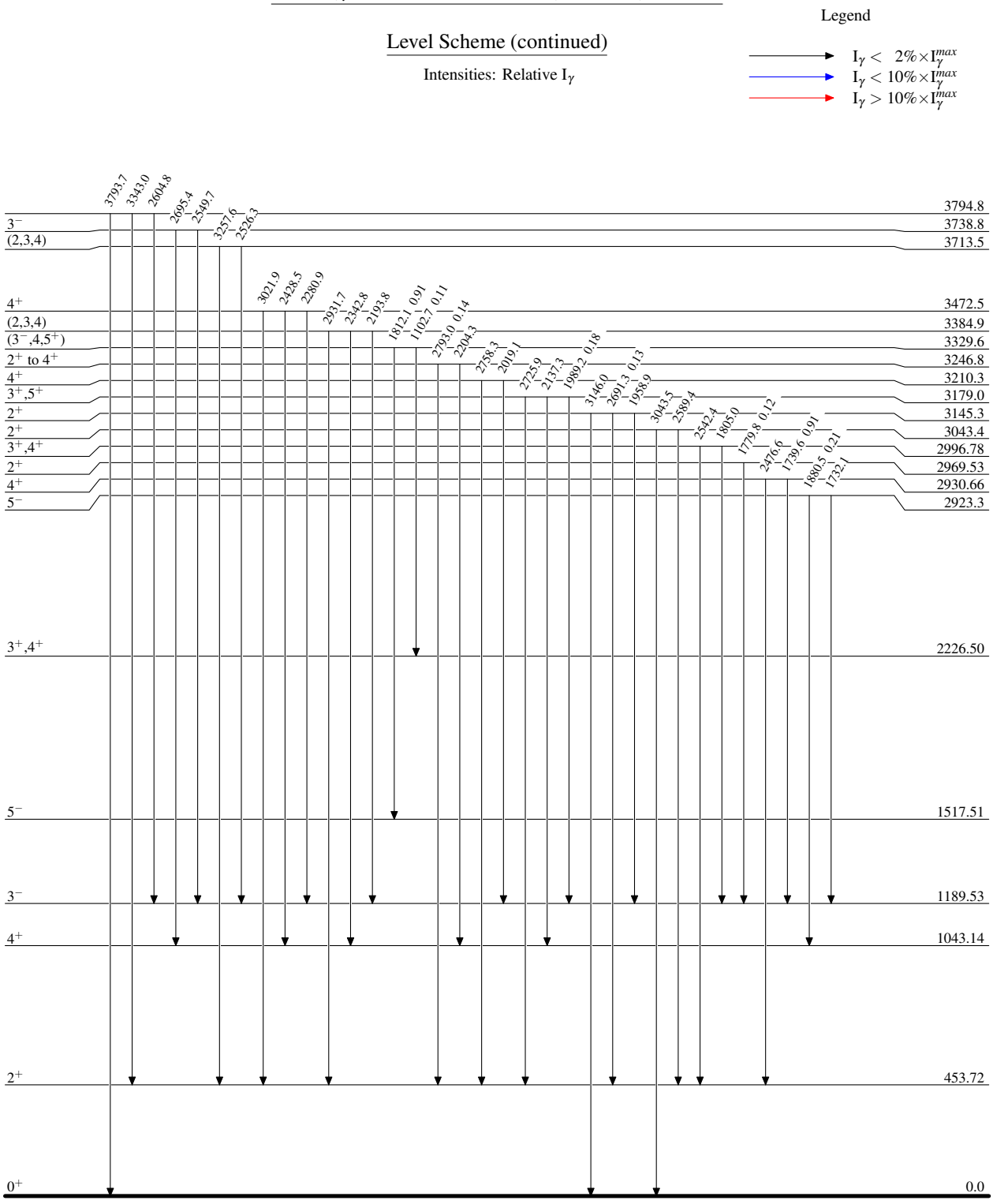


$^{146}_{60}Nd_{86}$

^{145}Nd(n,γ) E=thermal 1983Sn01,1976Bu14,1989Bo55

Level Scheme (continued)

Intensities: Relative I_γ



$^{146}_{60}Nd_{86}$

^{145}Nd(n,γ) E=thermal 1983Sn01,1976Bu14,1989Bo55

Level Scheme (continued)

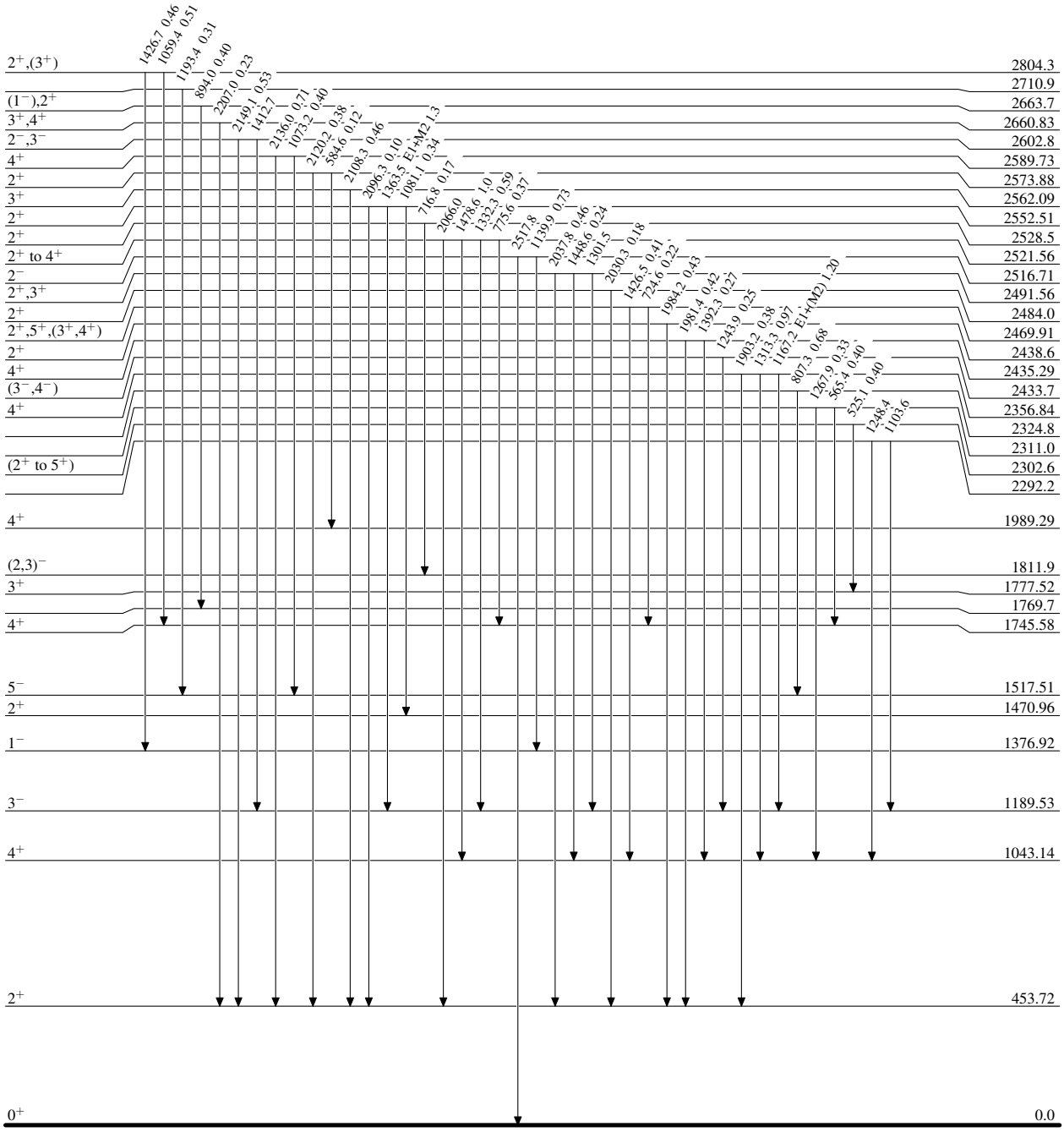
Intensities: Relative I_γ

Legend

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

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

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



$^{146}_{60}Nd_{86}$

^{145}Nd(n,γ) E=thermal 1983Sn01,1976Bu14,1989Bo55

Level Scheme (continued)

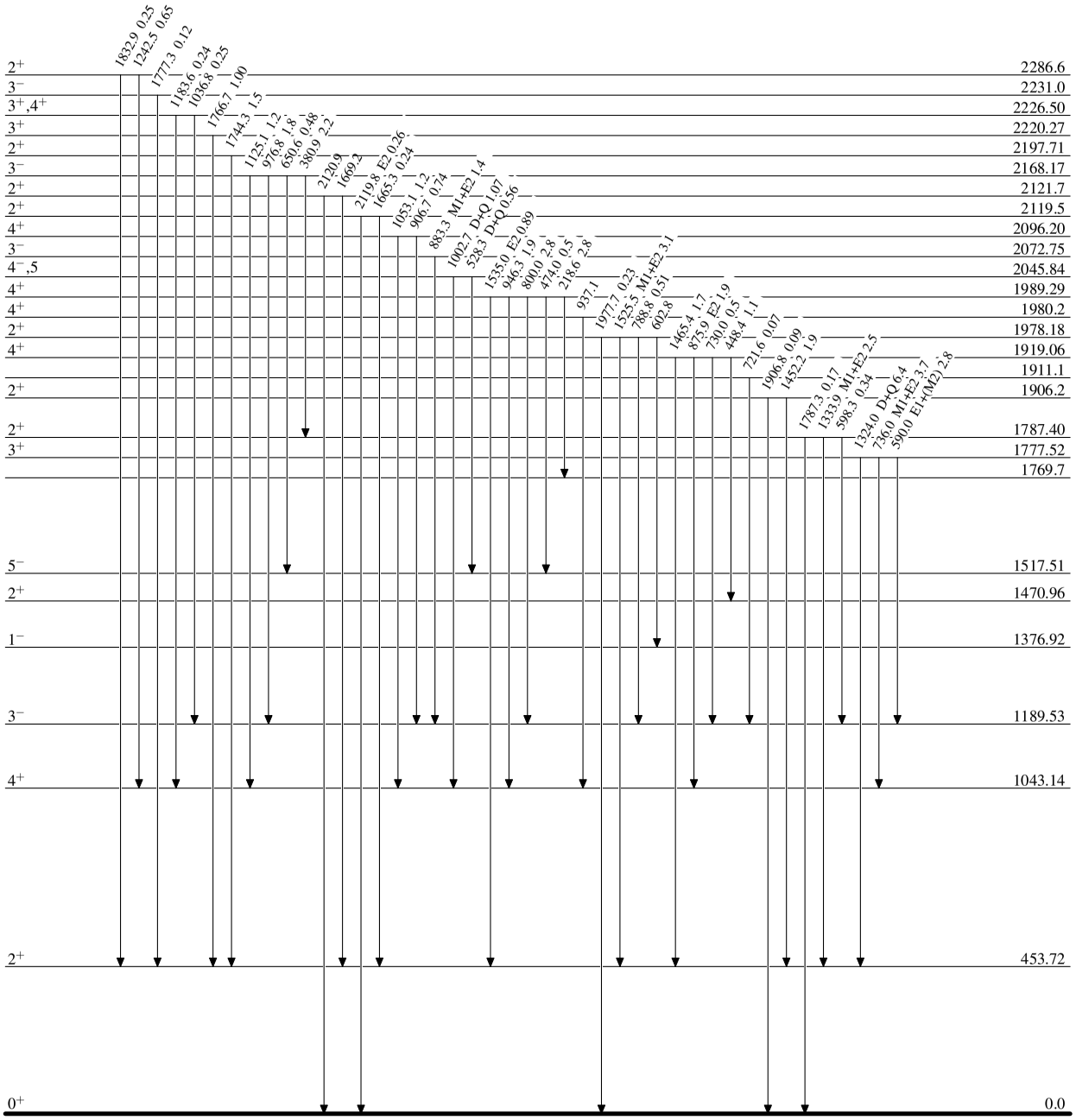
Intensities: Relative I_γ

Legend

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

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

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

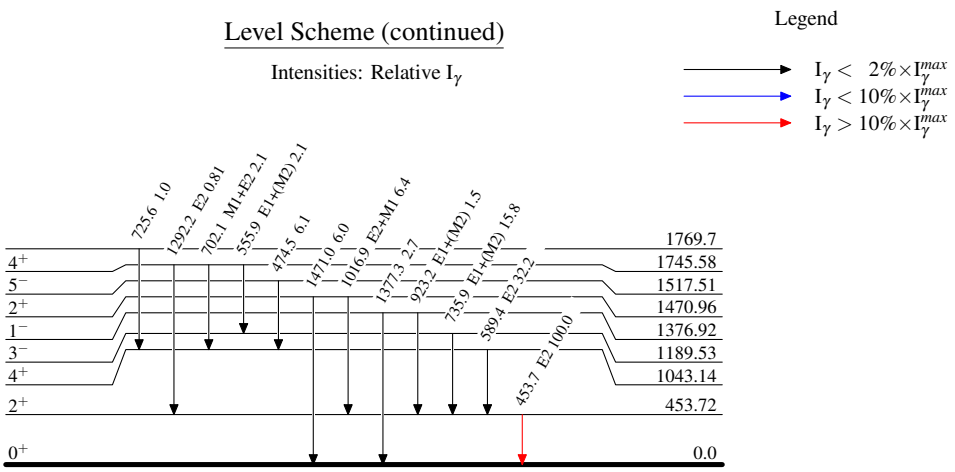


$^{146}_{60}Nd_{86}$

^{145}Nd(n,γ) E=thermal 1983Sn01,1976Bu14,1989Bo55

Level Scheme (continued)

Intensities: Relative I_γ



$^{146}_{60}Nd_{86}$