^{150}Nd(n,γ) E=th 1975SmZT,1976Pi13,1985BuZU

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	NDS 110, 1 (2009)	20-Nov-2008

1975SmZT and 1976Pi13 both use targets of neodymium oxide enriched in ^{150}Nd to 96%. Despite this enrichment, most of the strong peaks in the spectra are from ^{142}Nd, ^{143}Nd, ^{146}Nd, ^{148}Nd and ^{149}Sm contaminants. 1975SmZT carried out chemical purification on their target material to eliminate the ^{149}Sm contribution. 1976Pi13 seem not to have taken such a precaution. The curved crystal energy measurements of 1976Pi13 are better than theGe(Li) values of 1975SmZT. Due to contamination problems, there is serious lack of agreement as to γ intensities and as to which gammas are to be attributed to ^{151}Nd. 1976Pi13 show γ spectra above 4400 keV while 1975SmZT show spectra from 22 to 485 keV and above 4300 keV. These have been used by evaluator to exclude a number of γ′s and question the inclusion of others. The evaluator has also classified a number of transitions. The level scheme is based entirely on energy sums. Relatively few of the observed transitions have been placed in the level scheme.

The γ-ray energies and cross section data have been measured at Budapest reactor facility with low background conditions during 1999-2003. Detailed reports of this work are available on the following (IAEA and LBNL) websites: www-nds.iaea.org/pgaa/pgaa7/index.html and ie.lbl.gov/pgaadatabase/pgaa.htm. See also IAEA publication 2007ChZX. In this work only 3 secondary and 3 primary γ rays are measured, thus a direct comparison is not possible.

^{151}Nd Levels

The following γ′s listed by 1975SmZT as primary γ′s have been identified with the ^{143}Nd(n,γ) reaction by 1985BuZU. These, and the levels associated with them, are 4515.5(818), 4323.7(1010), 4268.6(1066), 4215.5(1119), 4077.8(1257), 4010.8(1324) and 3777.3(1557). Unless supported by other γ′s, these levels have been excluded.

By assuming that all γ′s of energy above 3200 keV directly deexcite the 1/2$^+$ capture state, the evaluator has identified a number of possible levels. These are labelled as uncertain, except when supported by several other γ′s or by ^{150}Nd(d,p) data.

E(level)†	Jπ@	E(level)†	Jπ@	E(level)†	Jπ@
0.00	3/2$^+$	599.26 *8*	(5/2)$^+$	1212.17# *7*	
22.4505 *10*	(5/2)$^+$	622.61 *2*	5/2$^-$,7/2$^-$	1220.31# *11*	
57.6741 *4*	(3/2)$^-$	673.87?# *2*		1256.61 *5*	
75.857 *4*	(7/2)$^+$	736.28 *2*	(5/2,7/2$^-$)	1409.5# *15*	
105.7523 *8*	5/2$^-$	846.64 *2*	1/2$^-$,3/2$^-$	1436.81# *5*	
177.714‡ *2*	(7/2$^-$)	880.09 *2*	(1/2,3/2)$^+$	1575.55# *5*	
189.0535 *9*	(3/2)$^-$	892.96 *3*	1/2$^-$,3/2$^-$	1638.04?# *12*	
249.568 *2*	(5/2)$^-$	949.31 *5*	(1/2$^-$,3/2,5/2$^+$)	1745.82# *5*	
335.796 *10*	(7/2)$^-$	964.09# *6*	1/2,3/2,5/2$^+$	1792.14?# *9*	
495.305 *4*	(1/2)$^-$	986.0?# *15*	1/2,3/2,5/2$^+$	1836.28# *6*	
506.953 *5*	(3/2)$^-$	1065.70 *2*		1951.96# *6*	
531.93 *2*	(5/2$^-$,7/2$^-$)	1130.73# *6*	1/2,3/2,5/2$^+$	2094.31# *7*	
542.80 *2*	(1/2 to 7/2)$^+$	1150.71# *5*	1/2,3/2,5/2$^+$	(5334.57& *3*)	1/2$^+$&
581.02 *2*		1183.80?# *7*			

† From least-squares fit to Eγ′s. Normalized χ^2=2.4.

‡ Proposed by 1976Pi13 and rejected by 1985BuZU. Included (evaluator) on coincidence evidence from ^{150}Nd(d,pγ).

Based mainly on γ from capture state.

@ From ‘Adopted Levels’.

& S(n)=5334.55 *10* (2003Au03); J$^\pi$=1/2$^+$ from s-wave capture in ^{150}Nd g.s.

γ(^{151}Nd)

Iγ normalization: absolute γ yields deduced from Iγ(340γ) in ^{151}Pm β^- (1976Pi13). From Budapest measured cross sections reported in LBNL and IAEA websites, It is difficult to make a direct comparison in view of the large uncertainties quoted in this work.

The following γ′s listed by 1976Pi13 have been attributed to impurities by 1985BuZU and the evaluator and have been omitted. For each the listed Iγ is given in parentheses. 71.957(0.92), 78.961(0.24), 129.353(0.20), 157.382(0.43), 161.897(0.38), 180.436(0.42), 193.292(0.86).

Eγ[†]	Iγ[‡j]	E$_i$(level)	J$^\pi_i$	E$_f$	J$^\pi_f$	Mult.[#]	α[k]	Comments
22.51[@] *10*	0.41 *6*	22.4505	(5/2)$^+$	0.00	3/2$^+$			
29.97[@] *10*	0.13 *2*	105.7523	5/2$^-$	75.857	(7/2)$^+$			
^{x}30.70[@b] *10*	3.4 *5*							
35.227 *2*	0.71 *7*	57.6741	(3/2)$^-$	22.4505	(5/2)$^+$			
53.408 *4*	0.45 *4*	75.857	(7/2)$^+$	22.4505	(5/2)$^+$			
^{x}54.442[&b] *6*	0.30 *3*							
57.6740 *4*	4.58 *40*	57.6741	(3/2)$^-$	0.00	3/2$^+$	(E1)	1.144	α(K)=0.955 *14*; α(L)=0.1495 *21*; α(M)=0.0316 *5*; α(N+..)=0.00791 *11* α(N)=0.00690 *10*; α(O)=0.000964 *14*; α(P)=4.41×10^{-5} *7*
^{x}57.924[&b] *10*								
^{x}59.160[&b] *5*	0.40 *4*							
^{x}60.118[b] *7*	<0.33							
60.519 *3*	0.41 *4*	249.568	(5/2)$^-$	189.0535	(3/2)$^-$			
^{x}69.875[&] *22*	0.29 *3*							
≈72[n]	<0.09[h]	177.714	(7/2$^-$)	105.7523	5/2$^-$			
76.01[@] *10*	0.17 *2*	75.857	(7/2)$^+$	0.00	3/2$^+$			
^{x}77.15[@] *10*	<1.1							
83.300[m] *1*	1.43[mi] *14*	105.7523	5/2$^-$	22.4505	(5/2)$^+$	(E1)	0.427	α(K)=0.360 *5*; α(L)=0.0527 *8*; α(M)=0.01114 *16*; α(N+..)=0.00281 *4* α(N)=0.00245 *4*; α(O)=0.000349 *5*; α(P)=1.748×10^{-5} *25*
83.300[mn] *1*	0.30[mi] *16*	189.0535	(3/2)$^-$	105.7523	5/2$^-$			
^{x}83.351[&b] *4*	0.27 *3*							
^{x}83.927[&b] *8*	0.19 *3*							
86.28[@] *10*	0.24 *4*	335.796	(7/2)$^-$	249.568	(5/2)$^-$			
^{x}86.88[@] *10*	0.28 *4*							
^{x}88.740[b] *13*	<0.19							
90.685[bg] *5*	0.14 *2*	622.61	5/2$^-$,7/2$^-$	531.93	(5/2$^-$,7/2$^-$)			
^{x}91.347[&b] *4*	0.18 *2*							
^{x}94.857[&b] *14*	0.15 *2*							

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γ(^{151}Nd) (continued)

E_γ[†]	I_γ[‡j]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	α[k]	Comments
[x]95.924[&b] *13*	0.24 *3*							
[x]100.962[&a] *5*	0.11 *1*							
[x]102.48[@] *10*	<0.35							
[x]103.562[&] *24*	0.10 *1*							
[x]103.926[&] *7*	0.10 *1*							
[x]104.323[&] *14*	0.14 *1*							
[x]104.783[&] *21*	0.21 *2*							
105.753 *1*	2.55 *20*	105.7523	5/2⁻	0.00	3/2⁺	(E1)	0.222	α(K)=0.189 *3*; α(L)=0.0268 *4*; α(M)=0.00566 *8*; α(N+..)=0.001437 *21* α(N)=0.001248 *18*; α(O)=0.000180 *3*; α(P)=9.47×10^{-6} *14*
105.899[&a] *12*	0.17 *2*	1256.61		1150.71	1/2,3/2,5/2⁺			
[x]108.780[&] *12*	0.20 *2*							
[x]109.009[&] *7*	0.21 *2*							
[x]109.570[&] *8*	0.19 *2*							
110.353[&ab] *8*	0.12 *1*	846.64	1/2⁻,3/2⁻	736.28	(5/2,7/2⁻)			
[x]111.174[&b] *17*	0.21 *2*							
[x]111.907[&b] *16*	0.14 *2*							
[x]127.94[@] *10*	0.11 *2*							
[x]130.174[&b] *17*	0.15 *2*							
131.036[&ab] *26*		673.87?		542.80	(1/2 to 7/2)⁺			
131.381 *2*	1.11 *10*	189.0535	(3/2)⁻	57.6741	(3/2)⁻			
[x]135.07[@] *10*	0.06 *1*							
138.570[&a] *40*	0.13 *1*	1575.55		1436.81				
143.806[&an] *18*	0.20[f] *2*	249.568	(5/2)⁻	105.7523	5/2⁻			
146.54[@] *10*	<0.037	335.796	(7/2)⁻	189.0535	(3/2)⁻			
[x]151.255[&b] *9*								
155.263[l] *2*	0.94[l] *10*	177.714	(7/2⁻)	22.4505	(5/2)⁺			
155.263[l] *10*	0.94[l] *10*	736.28	(5/2,7/2⁻)	581.02				
[x]158.78[@] *10*	<0.09							
[x]161.007[&b] *22*	0.17 *2*							
[x]162.358[&] *21*	0.12 *1*							
[x]163.223[&] *37*	0.14 *1*							
166.603 *1*	3.51 *35*	189.0535	(3/2)⁻	22.4505	(5/2)⁺			
170.247[&a] *16*	0.41 *4*	1745.82		1575.55				
172.749[l&] *19*	0.11[l] *1*	846.64	1/2⁻,3/2⁻	673.87?				
172.749[l&] *19*	0.11[l] *1*	1065.70		892.96	1/2⁻,3/2⁻			
173.714 *5*	0.54 *5*	249.568	(5/2)⁻	75.857	(7/2)⁺			

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γ(^{151}Nd) (continued)

E_γ[†]	I_γ[‡j]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	α[k]	Comments
[x]176.067[&b] 11	<0.50							
189.057 2	11.1 12	189.0535	(3/2)⁻	0.00	3/2⁺	(E1)	0.0456	α(K)=0.0389 6; α(L)=0.00530 8; α(M)=0.001117 16; α(N+..)=0.000286 4 α(N)=0.000248 4; α(O)=3.66×10^{-5} 6; α(P)=2.10×10^{-6} 3
191.889 10	0.33 3	249.568	(5/2)⁻	57.6741	(3/2)⁻			
[x]193.101[&b] 24	0.16 2							
[x]193.515[&] 10	0.28 3							
196.125 11	<0.45	531.93	(5/2⁻,7/2⁻)	335.796	(7/2)⁻			
[x]201.961[&b] 4	1.54 15							
[x]212.539[&] 6	0.52 5							
227.135 5	<0.7	249.568	(5/2)⁻	22.4505	(5/2)⁺			
249.563 2	<1.7	249.568	(5/2)⁻	0.00	3/2⁺			
[x]251.680[&a] 21	0.35 4							
257.38 5	0.28 3	506.953	(3/2)⁻	249.568	(5/2)⁻			
259.77[@] 10	0.092 16	335.796	(7/2)⁻	75.857	(7/2)⁺			
[x]276.849[&] 45	0.60 6							
[x]280.163[&] 5	<0.90							
[x]296.68[&] 9	0.45 5							
[x]298.07[&] 6	0.64 6							
306.243 7	<0.35	495.305	(1/2)⁻	189.0535	(3/2)⁻			
309.036[&a] 14	0.81 8	1745.82		1436.81				
313.346[a] 10	0.54 5	335.796	(7/2)⁻	22.4505	(5/2)⁺			
317.912[&] 15	0.44 4	506.953	(3/2)⁻	189.0535	(3/2)⁻			
[x]321.117[&] 17	<0.52							
[x]325.868[&] 56								
329.417[&] 8	<0.60	1065.70		736.28	(5/2,7/2⁻)			
332.21[@a] 10	0.20 2	1212.17		880.09	(1/2,3/2)⁺			
373.17[m] 10	0.14[me] 7	622.61	5/2⁻,7/2⁻	249.568	(5/2)⁻			
373.17[ma] 10	0.18[m] 2	880.09	(1/2,3/2)⁺	506.953	(3/2)⁻			
[x]382.061[&] 16	0.56 6							
[x]391.21[@] 20	<0.46							
401.17[@] 10	0.46 8	506.953	(3/2)⁻	105.7523	5/2⁻			
[x]415.59[@] 20	0.61 6							
421.67[&a] 10	0.50 10	599.26	(5/2)⁺	177.714	(7/2⁻)			
437.631 8	1.49 13	495.305	(1/2)⁻	57.6741	(3/2)⁻			
[x]446.707[&] 21								
[x]473.64[&] 7	0.49 5							

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γ(^{151}Nd) (continued)

E_γ[†]	I_γ[‡j]	E_i(level)	J_i^π	E_f	J_f^π
474.21[d] 10	1.7[d] 2	531.93	(5/2⁻,7/2⁻)	57.6741	(3/2)⁻
484.501 5	2.46 24	506.953	(3/2)⁻	22.4505	(5/2)⁺
495.309 6	1.91 19	495.305	(1/2)⁻	0.00	3/2⁺
523.22[l@] 20	<1.0[l]	581.02		57.6741	(3/2)⁻
523.22[l@] 20	<1.0[l]	599.26	(5/2)⁺	75.857	(7/2)⁺
[x]539.237 30	0.59 6				
[x]539.954 16	0.90 10				
542.776 17	<2.24	542.80	(1/2 to 7/2)⁺	0.00	3/2⁺
547.42[@] 20	<0.78	736.28	(5/2,7/2⁻)	189.0535	(3/2)⁻
[x]548.374[&] 45	0.36 4				
[x]555.72[&] 7	0.29 3				
[x]563.025[&] 24	1.01 10				
[x]574.99[&] 6	0.22 2				
579.77[l&a] 37	0.17[l] 2	1792.14?		1212.17	
579.77[l&a] 37	0.17[l] 2	1836.28		1256.61	
[x]588.20[&] 5	0.60 6				
[x]595.83[@] 20	<1.09				
[x]604.01[&] 18	<0.38				
626.233[&a] 11	1.94 20	1575.55		949.31	(1/2⁻,3/2,5/2⁺)
[x]628.70[&] 11					
[x]635.89[@] 10	<0.90				
641.00[&a] 6	0.59 6	1183.80?		542.80	(1/2 to 7/2)⁺
[x]642.28[@] 10	1.53 20				
643.33[&] 5	0.84 7	892.96	1/2⁻,3/2⁻	249.568	(5/2)⁻
657.615 21	3.5 3	846.64	1/2⁻,3/2⁻	189.0535	(3/2)⁻
[x]663.032 23	<1.38				
668.56[@ac] 10	<1.90	846.64	1/2⁻,3/2⁻	177.714	(7/2⁻)
678.30[@] 20	<3.7	736.28	(5/2,7/2⁻)	57.6741	(3/2)⁻
685.49[&a] 5	0.63 7	1836.28		1150.71	1/2,3/2,5/2⁺
[x]708.14[@] 20	0.13 2				
713.62[@] 20	0.61 10	736.28	(5/2,7/2⁻)	22.4505	(5/2)⁺
714.49[&a] 9	0.49 5	964.09	1/2,3/2,5/2⁺	249.568	(5/2)⁻
724.49[&a] 11	0.43 4	1256.61		531.93	(5/2⁻,7/2⁻)
760.29 14	0.38 3	949.31	(1/2⁻,3/2,5/2⁺)	189.0535	(3/2)⁻
761.36[&a] 17	0.48 5	1256.61		495.305	(1/2)⁻
787.42[&] 11	0.77 6	892.96	1/2⁻,3/2⁻	105.7523	5/2⁻
794.95[&a] 7	0.49 5	1130.73	1/2,3/2,5/2⁺	335.796	(7/2)⁻
852.56[@a] 20	<1.0	1745.82		892.96	1/2⁻,3/2⁻

γ(^{151}Nd) (continued)

E_γ[†]	I_γ[‡j]	E_i(level)	J_i^π	E_f	J_f^π
876.26[@] *20*	0.80 *12*	1065.70		189.0535	(3/2)⁻
876.26[@a] *20*	0.80 *12*	1212.17		335.796	(7/2)⁻
880.19[a] *5*	1.04 *10*	880.09	(1/2,3/2)⁺	0.00	3/2⁺
891.82[&] *14*	0.53 *4*	949.31	(1/2⁻,3/2,5/2⁺)	57.6741	(3/2)⁻
893.40[&] *30*	0.24 *2*	892.96	1/2⁻,3/2⁻	0.00	3/2⁺
941.89[l&a] *17*	1.64[l] *20*	964.09	1/2,3/2,5/2⁺	22.4505	(5/2)⁺
941.89[la&] *17*	1.64[l] *20*	1130.73	1/2,3/2,5/2⁺	189.0535	(3/2)⁻
[x]968.74[&] *11*	0.94 *10*				
970.75[&a] *23*	0.95 *10*	1220.31		249.568	(5/2)⁻
[x]1022.47[&] *32*	<0.43				
1028.52[@a] *10*	<0.24	2094.31		1065.70	
1032.61[@a] *10*	<1.03	1575.55		542.80	(1/2 to 7/2)⁺
[x]1056.64[@] *20*	0.46 *6*				
1072.86[&an] *14*	0.58 *6*	1130.73	1/2,3/2,5/2⁺	57.6741	(3/2)⁻
1074.80[&an] *14*	0.75 *8*	1150.71	1/2,3/2,5/2⁺	75.857	(7/2)⁺
[x]1110.53[@] *10*	<0.59				
[x]1137.62[&] *14*	1.58 *16*				
1150.46[&a] *10*	0.26 *3*	1150.71	1/2,3/2,5/2⁺	0.00	3/2⁺
1154.45[@a] *32*	<1.08	1212.17		57.6741	(3/2)⁻
1164.60[&a] *30*	<1.29	1745.82		581.02	
[x]1172.2[&] *6*	<0.62				
[x]1185.89[&] *35*	1.68 *20*				
1192.99[&a] *12*	2.31 *30*	1792.14?		599.26	(5/2)⁺
1256.49[&a] *20*	2.8 *8*	1256.61		0.00	3/2⁺
[x]1267.56[&] *17*	3.7 *10*				
[x]1316.47[&] *20*	2.8 *8*				
[x]1323.34[@] *20*	<1.01				
1341.22[&a] *18*	3.0 *3*	1836.28		495.305	(1/2)⁻
[x]1365.80[@] *20*	<0.91				
[x]1376.48[&] *25*	2.1 *6*				
[x]1383.97[@] *10*	0.48 *6*				
[x]1389.51[@] *10*	<1.31				
1420.02[a] *10*	2.2 *7*	1951.96		531.93	(5/2⁻,7/2⁻)
1436.87[@a] *20*	0.24	1436.81		0.00	3/2⁺
[x]1450.00[@] *20*	<0.96				
[x]1464.10[@] *10*	<0.63				
[x]1523.65[@] *10*	<1.0				

$^{151}_{60}$Nd$_{91}$-6

γ(^{151}Nd) (continued)

E_γ [†]	I_γ [‡j]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [#]	α [k]	Comments
[x]1555.75[@] *10*	<0.39							
[x]2492.65[&] *11*	0.72 *20*							
[x]2898.17[&] *11*	0.41 *12*							
[x]2921.72[&] *15*	0.26 *8*							
[x]3002.19[&] *8*	1.04 *30*							
[x]3007.21[&] *11*	0.33 *10*							
[x]3022.38[&] *11*	0.44 *13*							
[x]3034.02[&] *11*	0.58 *17*							
[x]3040.02[&] *10*	0.58 *17*							
[x]3066.10[&] *13*	0.31 *10*							
3240.16[&] *9*	0.83 *25*	(5334.57)	$1/2^+$	2094.31				
3382.56[&] *7*	3.7 *11*	(5334.57)	$1/2^+$	1951.96				
3498.12[&] *8*	0.78 *23*	(5334.57)	$1/2^+$	1836.28				
3542.46[&] *11*	0.25 *8*	(5334.57)	$1/2^+$	1792.14?				
3588.61[&] *8*	0.91 *27*	(5334.57)	$1/2^+$	1745.82				
3696.48 *11*	<0.30	(5334.57)	$1/2^+$	1638.04?				
3759.15 *18*	<0.41	(5334.57)	$1/2^+$	1575.55				
3897.66[&] *10*	0.35 *10*	(5334.57)	$1/2^+$	1436.81				
3925.0[@] *15*	0.36 *6*	(5334.57)	$1/2^+$	1409.5				
4114.20[&] *11*	0.39 *10*	(5334.57)	$1/2^+$	1220.31				
4122.42[&] *9*	0.51 *15*	(5334.57)	$1/2^+$	1212.17				
4150.6[@] *15*	0.34 *6*	(5334.57)	$1/2^+$	1183.80?				
4183.67 *9*	0.53 *10*	(5334.57)	$1/2^+$	1150.71	$1/2,3/2,5/2^+$			
4204.1[@] *15*	0.19 *3*	(5334.57)	$1/2^+$	1130.73	$1/2,3/2,5/2^+$			
4348.5[@] *15*	0.83 *16*	(5334.57)	$1/2^+$	986.0?	$1/2,3/2,5/2^+$			
4370.45 *8*	0.76 *11*	(5334.57)	$1/2^+$	964.09	$1/2,3/2,5/2^+$			
4385.21[&] *11*	0.18 *3*	(5334.57)	$1/2^+$	949.31	$(1/2^-,3/2,5/2^+)$			
4441.39 *8*	0.51 *7*	(5334.57)	$1/2^+$	892.96	$1/2^-,3/2^-$			
4454.67 *8*	0.50 *7*	(5334.57)	$1/2^+$	880.09	$(1/2,3/2)^+$			
4487.82 *7*	2.79 *30*	(5334.57)	$1/2^+$	846.64	$1/2^-,3/2^-$	(E1)	0.00192	α(K)=7.51×10^{-5} *11*; α(L)=9.17×10^{-6} *13*; α(M)=1.92×10^{-6} *3*; α(N+..)=0.00183 *3* α(N)=4.29×10^{-7} *6*; α(O)=6.57×10^{-8} *10*; α(P)=4.45×10^{-9} *7*; α(IPF)=0.00183 *3*
4660.4[@] *15*	0.12 *2*	(5334.57)	$1/2^+$	673.87?				
4735.3[@] *15*	0.26 *4*	(5334.57)	$1/2^+$	599.26	$(5/2)^+$			
4827.64 *8*	0.58 *9*	(5334.57)	$1/2^+$	506.953	$(3/2)^-$			
4839.07[&] *9*	0.75 *11*	(5334.57)	$1/2^+$	495.305	$(1/2)^-$			

γ(^{151}Nd) (continued)

E_γ[†]	I_γ[‡j]	E_i(level)	J^π_i	E_f	J^π_f
5145.45 *9*	0.20 *3*	(5334.57)	1/2+	189.0535	(3/2)−
5276.79 *7*	1.11 *15*	(5334.57)	1/2+	57.6741	(3/2)−
[x]5310.61[&] *11*	<0.16				
5334.61 *9*	0.30 *4*	(5334.57)	1/2+	0.00	3/2+

[†] From bent crystal data (1976Pi13) where possible. TheGe(Li) and pair spectrometer measurements are also from 1976Pi13 where available.

[‡] To normalize the Iγ scales used by 1975SmZT to that of 1976Pi13, their low energy intensities must be multiplied by 1.85 *44* and their high energy neutron capture γ intensities by 0.065 *9*. These renormalization ratios are each based on eight strong lines. Iγ values given are weighted means of the renormalized intensities. ΔIγ′s are probably 10 to 15%. Absence of Iγ indicates a weak transition. If ΔIγ is given as a limit, part of the intensity is suspected as being due to a contaminant.

[#] Electron spectra were recorded with the reactor on and off in the hope that α′s and hence multipolarities might be assigned. No conversion electron peaks were detected, but this fact was used to assign E1 character to a few strong transitions. 1976Pi13 assign E1 multipolarity to a number of primary γ′s because their intensity exceeds the allowable M1 strength. More recent criteria (1981Mc05), however, invalidate these multipole assignments except possibly for the 4487γ.

[@] Observed only by 1975SmZT.

[&] Observed only by 1976Pi13.

[a] Placed in level scheme by evaluator.

[b] Assignment to ^{151}Nd questioned by evaluator.

[c] Complex line.

[d] From 1975SmZT. 1976Pi13 give Eγ=474.8 *1* and Iγ=0.68 *7*.

[e] Total Iγ=0.33 *6*. Double placement and intensity is based on data from ^{151}Pr β^- decay.

[f] Only a small fraction of this intensity (≈20%) may belong with this level, as suggested by ^{151}Pr β^- data. It is likely that this transition defines some other level.

[g] 1975SmZT list γ at 91.05 *10* with possible contamination while 1976Pi13 list a 90.685 + 91.347 doublet.

[h] 1985BuZU identify the 71.957 γ of Iγ=0.9 listed by 1976Pi13 as an impurity. Upper limit on Iγ set (evaluator) after examination of published spectra.

[i] 1.50 *15* from branching ratios in 'adopted gammas' for placement from 105.7 level and 0.30 *16* for placement from 189.1 level.

[j] Intensity per 100 neutron captures.

[k] 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.

[l] Multiply placed with undivided intensity.

[m] Multiply placed with intensity suitably divided.

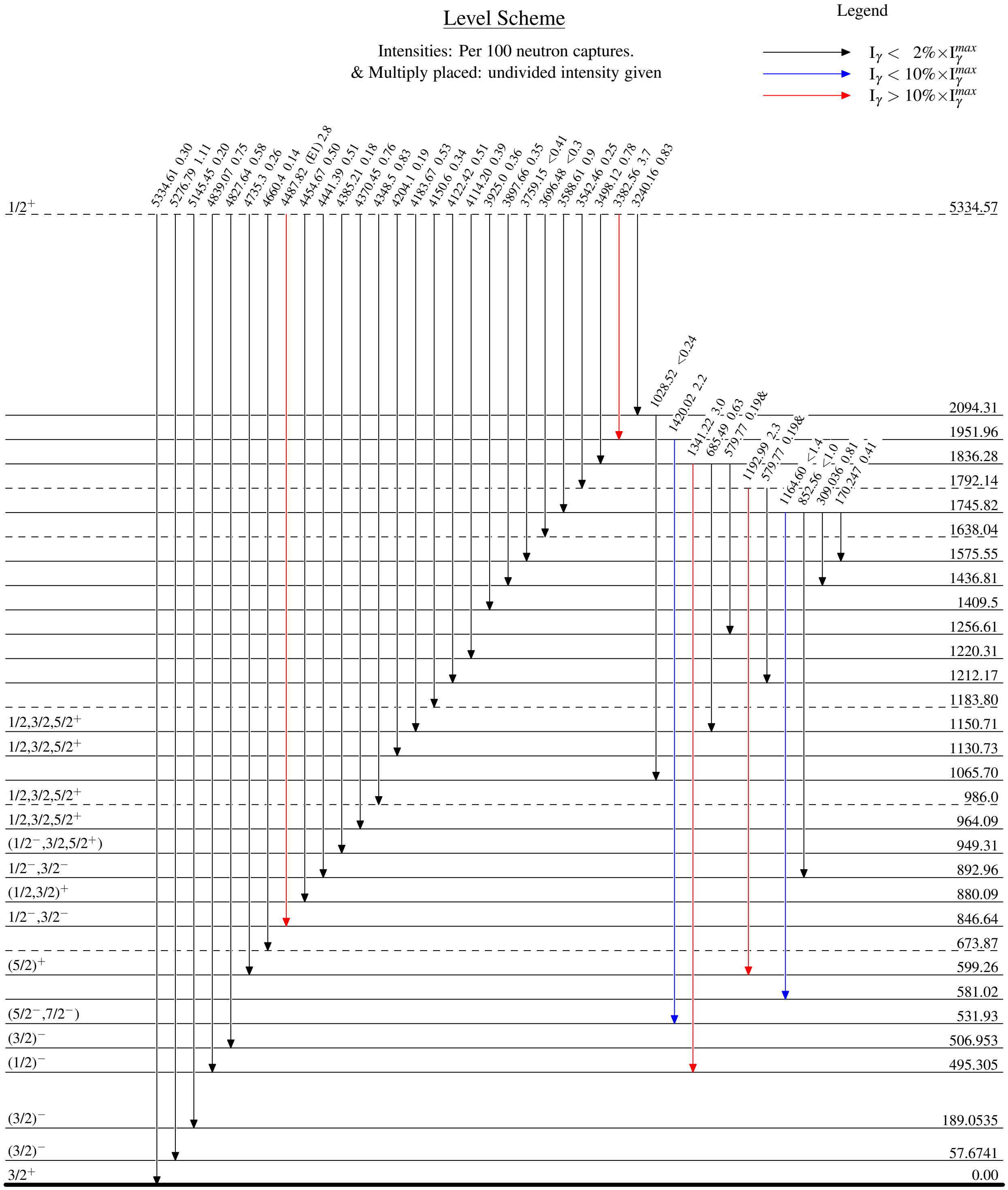
[n] Placement of transition in the level scheme is uncertain.

[x] γ ray not placed in level scheme.

^{150}Nd(n,γ) E=th 1975SmZT,1976Pi13,1985BuZU

Level Scheme

Intensities: Per 100 neutron captures.
& Multiply placed: undivided intensity given



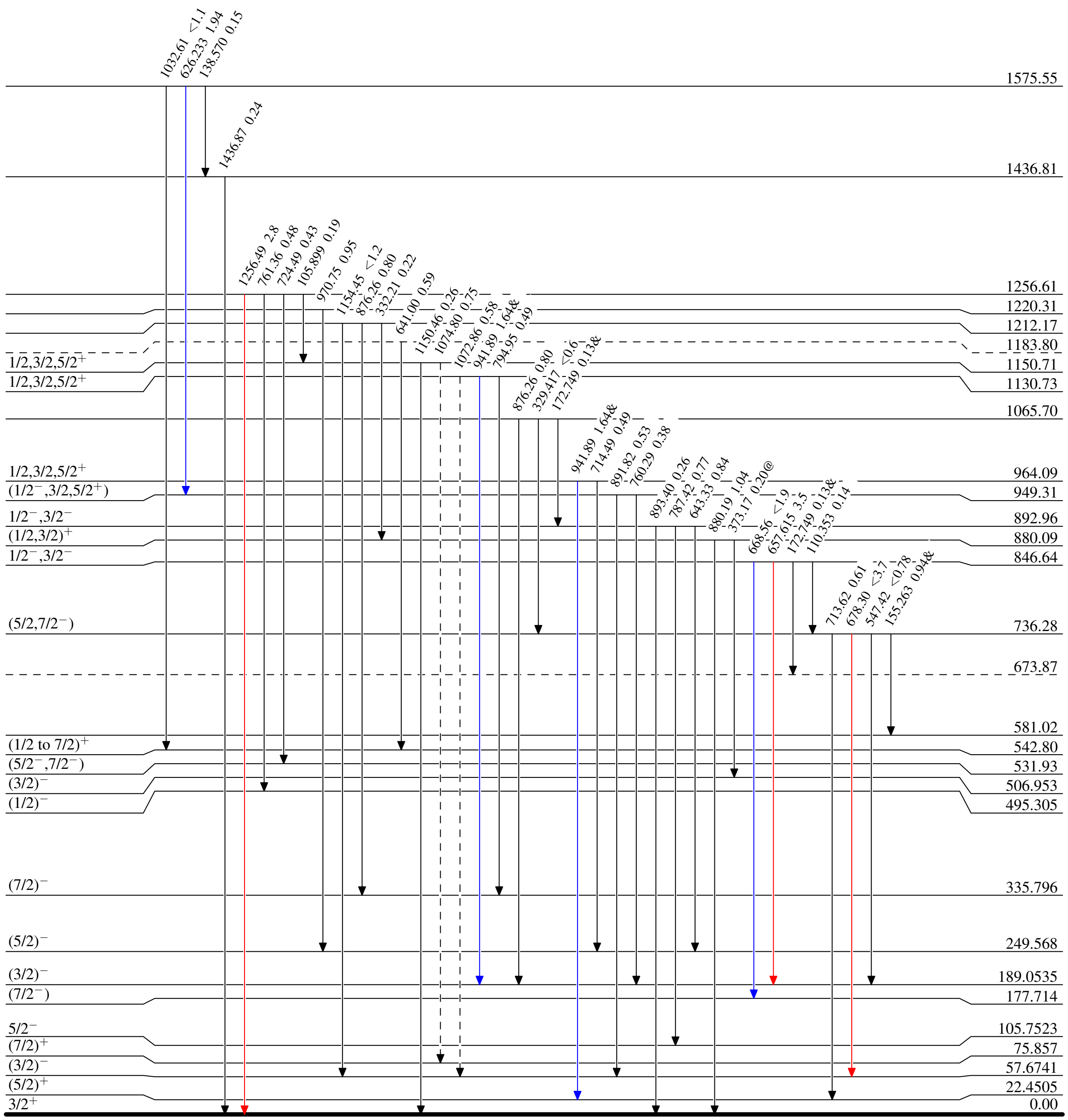
$^{151}_{60}Nd_{91}$

$^{150}Nd(n,\gamma)$ E=th 1975SmZT,1976Pi13,1985BuZU

Level Scheme (continued)

Intensities: Per 100 neutron captures.
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided

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)



$^{151}_{60}Nd_{91}$

^{150}Nd(n,γ) E=th 1975SmZT,1976Pi13,1985BuZU

Level Scheme (continued)

Intensities: Per 100 neutron captures.
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided