^{148}Nd(^{9}Be,5nγ) 2005Wa23

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	M. J. Martin	NDS 114, 1497 (2013)	31-Aug-2013

E=54 MeV. Measured Eγ, Iγ, $\gamma\gamma$ coin, $\gamma\gamma(\theta)$ (DCO).

^{152}Gd Levels

The configuration of the 6$^-$, negative-parity even-spin band is discussed by 2007Ca25 in ^{124}Sn(^{36}S,α4nγ). 2005Wa23 propose a possible aligned two-quasineutron band with α positive ΔJ=2 spin sequence beginning with J$^\pi$=9$^+$ for E(level)=2536.9. The authors do not report the 552γ seen in (^{36}S,α4nγ) and (α,4nγ) connecting the 14$^-$ and 12$^-$ members of this band. This introduces a 14$^-$ level at 3898, and thus changes the level energies for the higher members of this band. The configuration of the 12$^+$, positive-parity even-spin band is taken from 2007Ca25 where its configuration is discussed. 2005Wa23 assigned the 3248.7, 3699.8, and 4195.7 levels as higher members of the β band. The first band crossing At 18$^+$ In the g.s. band is due to the alignment of a pair of $i_{13/2}$ neutrons.

E(level)[†]	J$^\pi$[‡]	E(level)[†]	J$^\pi$[‡]	E(level)[†]	J$^\pi$[‡]	E(level)[†]	J$^\pi$[‡]
0.0[#]	0$^+$	1746.8[#]	8$^+$	3248.7[b]	12$^+$	4609.3[&]	17$^-$
344.3[#]	2$^+$	1880.3[&]	7$^-$	3338.2[&]	13$^-$	4747.5[b]	18$^+$
615.4[@]	0$^+$	2138.8[@]	8$^+$	3346.4[a]	12$^-$	4836.2[#]	18$^+$
755.4[#]	4$^+$	2300.4[#]	10$^+$	3499.2[#]	14$^+$	5215[a]	18$^-$
930.5[@]	2$^+$	2331.4[&]	9$^-$	3699.8[b]	14$^+$	5334.3[&]	19$^-$
1123.2[&]	3$^-$	2536.9[a]	8$^-$	3898[a]	14$^-$	5387.2[b]	20$^+$
1227.4[#]	6$^+$	2691.2[@]	10$^+$	3938.7[&]	15$^-$	5550.5[#]	20$^+$
1282.3[@]	4$^+$	2814.6[&]	11$^-$	4142.7[#]	16$^+$	6081.8[&]	21$^-$
1470.5[&]	5$^-$	2883.8[#]	12$^+$	4195.7[b]	16$^+$		
1668.1[@]	6$^+$	2890.4[a]	10$^-$	4527[a]	16$^-$		

[†] From a least-squares fit to Eγ's with the assumption that the uncertainty in Eγ, unstated by the authors, is the same for each transition.
[‡] From the authors, based on DCO ratios and band assignments. some of these assignments have been modified, as noted, by the evaluator based on assignments of 2007Ca25 in ^{124}Sn(^{36}S,α4nγ).
[#] Band(A): g.s. band.
[@] Band(B): β band.
[&] Band(C): Octupole band.
[a] Band(D): 6$^-$, negative-parity even-spin band.
[b] Band(E): 12$^+$, positive-parity even-spin band.

$\gamma(^{152}$Gd)

E$_\gamma$	I$_\gamma$	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Comments
271.1		615.4	0$^+$	344.3	2$^+$	
315.1		930.5	2$^+$	615.4	0$^+$	
344.3	100	344.3	2$^+$	0.0	0$^+$	DCO=1.69 *10*
351.8	3.7 *2*	1282.3	4$^+$	930.5	2$^+$	DCO=1.7 *3*
353.5		2890.4	10$^-$	2536.9	8$^-$	
385.8	5.7 *2*	1668.1	6$^+$	1282.3	4$^+$	DCO=1.7 *3*
411.1	84 *3*	755.4	4$^+$	344.3	2$^+$	DCO=1.50 *9*
439.5		3938.7	15$^-$	3499.2	14$^+$	

Continued on next page (footnotes at end of table)

^{148}Nd(^{9}Be,5nγ) 2005Wa23 (continued)

γ(^{152}Gd) (continued)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Comments
440.7		1668.1	6^+	1227.4	6^+	
451.1‡	1.3‡† *1*	2331.4	9^-	1880.3	7^-	
451.1‡	1.3‡† *1*	3699.8	14^+	3248.7	12^+	
454.4		3338.2	13^-	2883.8	12^+	
456.0	6.4 *5*	3346.4	12^-	2890.4	10^-	DCO=1.92 *18*
470.7	4.9 *4*	2138.8	8^+	1668.1	6^+	DCO=2.0 *5*
472.0	65 *5*	1227.4	6^+	755.4	4^+	DCO=1.50 *8*
483.2	3.8 *3*	2814.6	11^-	2331.4	9^-	DCO=1.33 *19*
495.9	1.5 *1*	4195.7	16^+	3699.8	14^+	DCO=1.3 *5*
514.2	9.1 *6*	2814.6	11^-	2300.4	10^+	DCO=1.07 *9*
519.4	49 *3*	1746.8	8^+	1227.4	6^+	DCO=1.31 *15*
523.6	10.1 *7*	3338.2	13^-	2814.6	11^-	DCO=1.48 *24*
526.9	2.2 *2*	1282.3	4^+	755.4	4^+	DCO=0.6 *3*
552		3898	14^-	3346.4	12^-	E_γ: From (^{36}S,α4nγ) and (α,xnγ).
552.4	3.3 *2*	2691.2	10^+	2138.8	8^+	DCO>1
553.6	37.2 *22*	2300.4	10^+	1746.8	8^+	DCO=1.57 *19*
557.5	1.7 *1*	3248.7	12^+	2691.2	10^+	DCO>1
583.4	16.8 *8*	2883.8	12^+	2300.4	10^+	DCO=1.7 *7*
584.6	6.8 *3*	2331.4	9^-	1746.8	8^+	DCO=0.7 *4*
586.2	1.7 *1*	930.5	2^+	344.3	2^+	
590.0	2.2 *1*	2890.4	10^-	2300.4	10^+	DCO=1.51 *24*
600.5	8.7 *13*	3938.7	15^-	3338.2	13^-	DCO=1.54 *18*
604.8	1.3 *1*	4747.5	18^+	4142.7	16^+	DCO=1.7 *4*
615.4	6.9 *10*	3499.2	14^+	2883.8	12^+	DCO=1.55 *25*
628.9	3.2 *1*	4527	16^-	3898	14^-	DCO>1
639.7	1.0 *1*	5387.2	20^+	4747.5	18^+	DCO=1.5 *4*
643.5	3.1 *1*	4142.7	16^+	3499.2	14^+	DCO=1.6 *9*
652.9	3.8 *1*	1880.3	7^-	1227.4	6^+	DCO=0.94 *23*
670.6	7.9 *2*	4609.3	17^-	3938.7	15^-	DCO=1.6 *3*
687.5	1.3 *1*	5215	18^-	4527	16^-	DCO>1
693.5	1.3 *1*	4836.2	18^+	4142.7	16^+	DCO=1.6 *4*
714.3	0.7 *1*	5550.5	20^+	4836.2	18^+	DCO>1
715.1		1470.5	5^-	755.4	4^+	
725.0	1.8 *1*	5334.3	19^-	4609.3	17^-	DCO=1.23 *20*
747.5	0.5 *1*	6081.8	21^-	5334.3	19^-	DCO=1.3 *6*
778.9		1123.2	3^-	344.3	2^+	
790.1	2.1 *1*	2536.9	8^-	1746.8	8^+	

† Given in the author's table as the intensity for placement from the 3699.8 level, but assigned by the evaluator as the value for the doublet.
‡ Multiply placed with undivided intensity.

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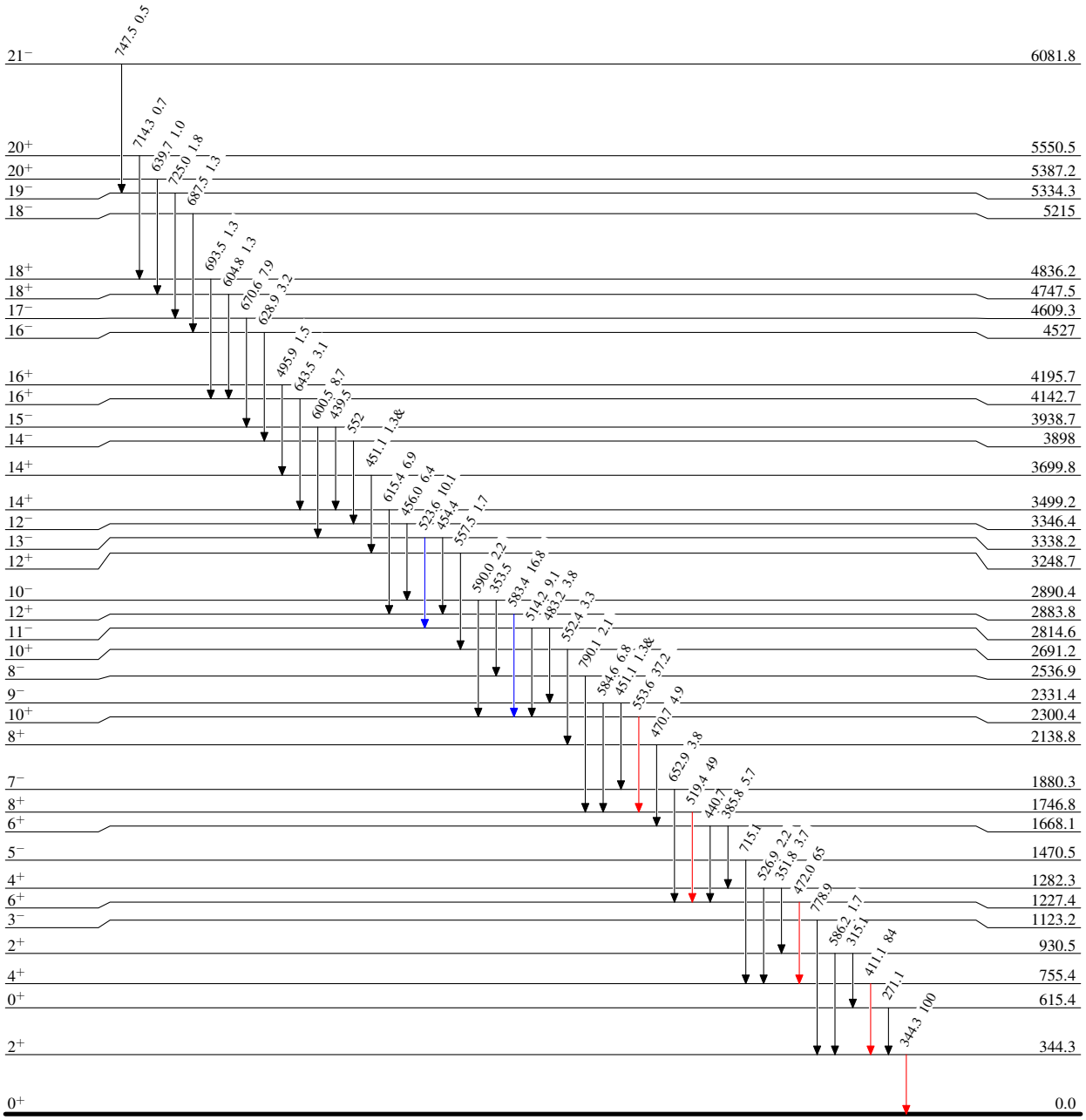
Level Scheme

Intensities: Relative I_γ
& Multiply placed: undivided intensity given

Legend
$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$



$^{152}_{64}Gd_{88}$

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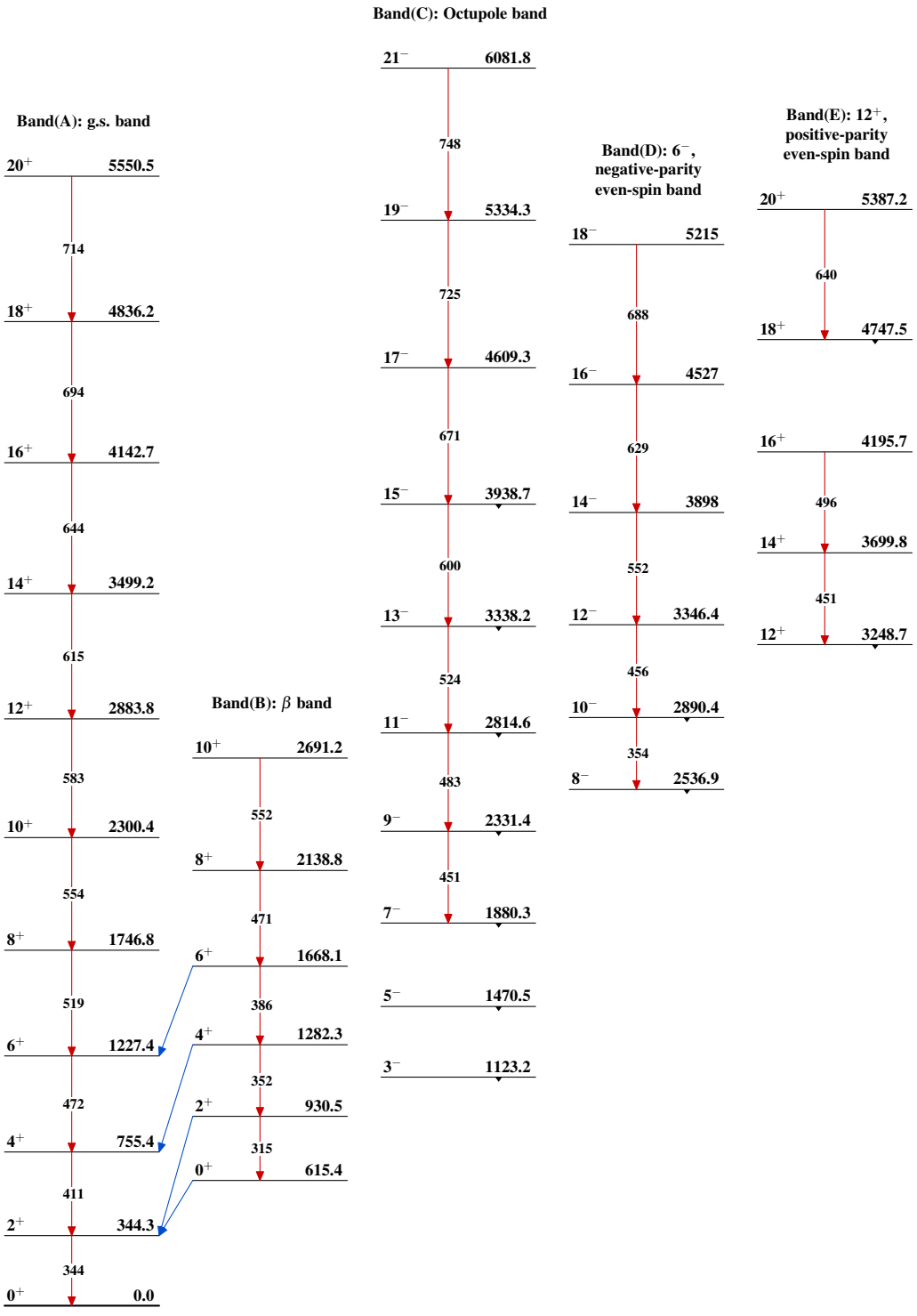

$^{152}_{64}Gd_{88}$