Coulomb excitation 1997Ib01,1993Ib01,1991Ib01

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	N. Nica	NDS 117, 1 (2014)	1-Oct-2013

1997Ib01,1993Ib01,1991Ib01: Coulomb excitation with ^{58}Ni, ^{92}Mo, and a beam of ^{148}Nd ions on a ^{208}Pb target. Measured Eγ, Iγ, $T_{1/2}$ by recoil-distance method (RDM), extracted E1, E2, and E3 matrix elements from the observed γ yields and level lifetimes including experimental corrections.

The level scheme is from 1997Ib01.

E(α)=6-9 MeV (1970Ge08), see 1986Sc30, 1980FaZW, E(^{16}O)=50-60 MeV (1967BuZX), 35 MeV (1972Ku10), 54-67 MeV (2003Na39), E(^{80}Se)=310 MeV (1988BuZX). Others: 1966Ec02, 1971Cr01, 1978FaZP, 1978Ka36.

Measured: γ, γγ, (K x ray)γ (1967BuZW,1967BuZX,1988BuZX), γ (1966Ec02,1978FaZP), σ(E) in ^{148}Nd(x,x′) (1971Cr01,1978FaZP), B(E4)↑, β_4 (2003Na39), g-factor (2001Ho02,2000Ho25,1990St18,1987Be08,1978Ka36,

^{148}Nd Levels

E(level)	J^{π} [†]	$T_{1/2}$ [‡]	Comments
0.0[#]	0+		β_4=0.07 *2* (2003Na39)
301.7[#]	2+	80 ps *3*	g=+0.357 *8* (2001Ho02) B(E2)=1.37 *2*, unweighted average of: 1.30 *6* (1997Ib01), 1.36 *3* (1971Cr01), 1.39 *2* (1988Ah01), 1.42 *5* (1980FaZW), 1.39 *2* (1986Sc30). Others: 0.96 *3* (1966Ec02), 0.95 *15* (1967BuZW). $T_{1/2}$: 2003Na39 give 78.00 ps with No uncertainty. g: others: +0.363 *16* (2005Ho25, superseded by 2001Ho02), +0.35 *2* (1990St18), +0.41 *4* (1987Be08), +0.32 *4* (1978Ka36), +0.43 *7* (1972Ku10), +0.48 *4* (1970Be36), +0.50 *4* (1968Be42), +0.56 *12* (1967Be08). Q=−0.67 *11* (1978FaZP). Others: −1.36 *30* (1971Cr01), −1.46 *13* (1970Ge08).
752.2[#]	4+	6.9 ps *3*	g=+0.360 *25* (2001Ho02) B(E4)↑=0.16 *5* (2003Na39) B(E2)(2+$_1$ → 4+$_1$)=0.80 *3* (1997Ib01), 0.768 *24* (1980FaZW). Other: 0.81 (1967BuZX). J^{π}: from Ag(θ) (1963Ha20). $T_{1/2}$: 2003Na39 give 7.03 ps with No uncertainty.
916.8[&]	0+	4.4 ps *3*	B(E2)(2+$_1$ → 0+$_2$)=0.025 *1* (1997Ib01), 0.039 *7* (1980FaZW) B(E2)(2+ to 0+)=0.039 *7* (1980FaZW).
999.2[@]	3−		J^{π}: from Ag(θ) (1963Ha20). B(E3)↑=0.32 *2* (1997Ib01), 0.40 *8* (1988Ah01), 0.13 *4* (1967BuZX).
1023.1[@]	1−		B(E1)↑=0.010 *+2−1* (1997Ib01), 0.014 *6* (1990Pi04, as quoted by 1997Ib01). B(E1)(2+$_1$ → 1−)=0.0036 *+5−13* (1997IB01), 0.006 *5* (1990Pi04, as quoted by 1997Ib01).
1170.9[&]	2+	1.4 ps *1*	B(E2)(2+$_1$ → 2+$_2$)=0.085 *5* (1997Ib01), 0.12 *2* (1980FaZW). B(E2)(0+$_1$ → 2+$_2$)=0.015 *1* (1997Ib01), 0.020 *3* (1980FaZW).
1242[@]	5−	1.0 ps *1*	
1248.8[a]	2+	1.4 ps *2*	B(E2)↑=0.073 *3* (1997Ib01), 0.084 *12* (1980FaZW). B(E2)(2+$_1$ → 2+$_3$)=0.026 *1* (1997Ib01), 0.026 *6* (1980FaZW).
1279.7[#]	6+	2.9 ps *2*	g=+0.27 *5* (2001Ho02)
1514[a]	3+		
1604[&]	4+		
1645[@]	7−	1.0 ps *2*	
1687[a]	4+		
1857[#]	8+	1.4 ps *2*	
2099[a]	6+		
2132[@]	9−		
2149[&]	6+		
2472[#]	(10+)		
2677[@]	(11−)		

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Coulomb excitation 1997Ib01,1993Ib01,1991Ib01 (continued)

^{148}Nd Levels (continued)

E(level)	J^{π}[†]
2726[&]	8^+
3107[#]	(12^+)
3265[@]	(13^-)

[†] Adopted values.
[‡] From RDM (1991Ib01).
[#] Band(A): g.s. band.
[@] Band(B): negative-parity band.
[&] Band(C): β-vibrational band.
[a] Band(D): γ-vibrational band.

γ(^{148}Nd)

E_{γ}[†]	E_i(level)	J^{π}_i	E_f	J^{π}_f	Mult.	α[‡]	Comments
205	2677	(11^-)	2472	(10^+)			
247.0	999.2	3^-	752.2	4^+			
275	2132	9^-	1857	8^+			
301.7	301.7	2^+	0.0	0^+			
365.3	1645	7^-	1279.7	6^+			
403	1645	7^-	1242	5^-			
450.5	752.2	4^+	301.7	2^+	E2	0.0158	α(K)=0.01297; α(L)=0.00220; α(M)=0.00047; α(N+..)=0.00013
487	2132	9^-	1645	7^-			
489.8	1242	5^-	752.2	4^+			
496.6	1248.8	2^+	752.2	4^+			
504	2149	6^+	1645	7^-			
528	1279.7	6^+	752.2	4^+			
545	2677	(11^-)	2132	9^-			
576	1857	8^+	1279.7	6^+			
588	3265	(13^-)	2677	(11^-)			
604.8	1604	4^+	999.2	3^-			
615	2472	(10^+)	1857	8^+			
615.1	916.8	0^+	301.7	2^+			
635	3107	(12^+)	2472	(10^+)			
697.5	999.2	3^-	301.7	2^+			
721.4	1023.1	1^-	301.7	2^+			
761.8	1514	3^+	752.2	4^+			
819.3	2099	6^+	1279.7	6^+			
851.8	1604	4^+	752.2	4^+			
869.2	1170.9	2^+	301.7	2^+			
869.3	2149	6^+	1279.7	6^+			
907	2149	6^+	1242	5^-			
934.8	1687	4^+	752.2	4^+			
947.1	1248.8	2^+	301.7	2^+			
1023.1	1023.1	1^-	0.0	0^+			
1170.9	1170.9	2^+	0.0	0^+			
1212.3	1514	3^+	301.7	2^+			
1248.8	1248.8	2^+	0.0	0^+			
1302.3	1604	4^+	301.7	2^+			
1346.8	2099	6^+	752.2	4^+			
1385.3	1687	4^+	301.7	2^+			

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Coulomb excitation 1997Ib01,1993Ib01,1991Ib01 (continued)

γ(^{148}Nd) (continued)

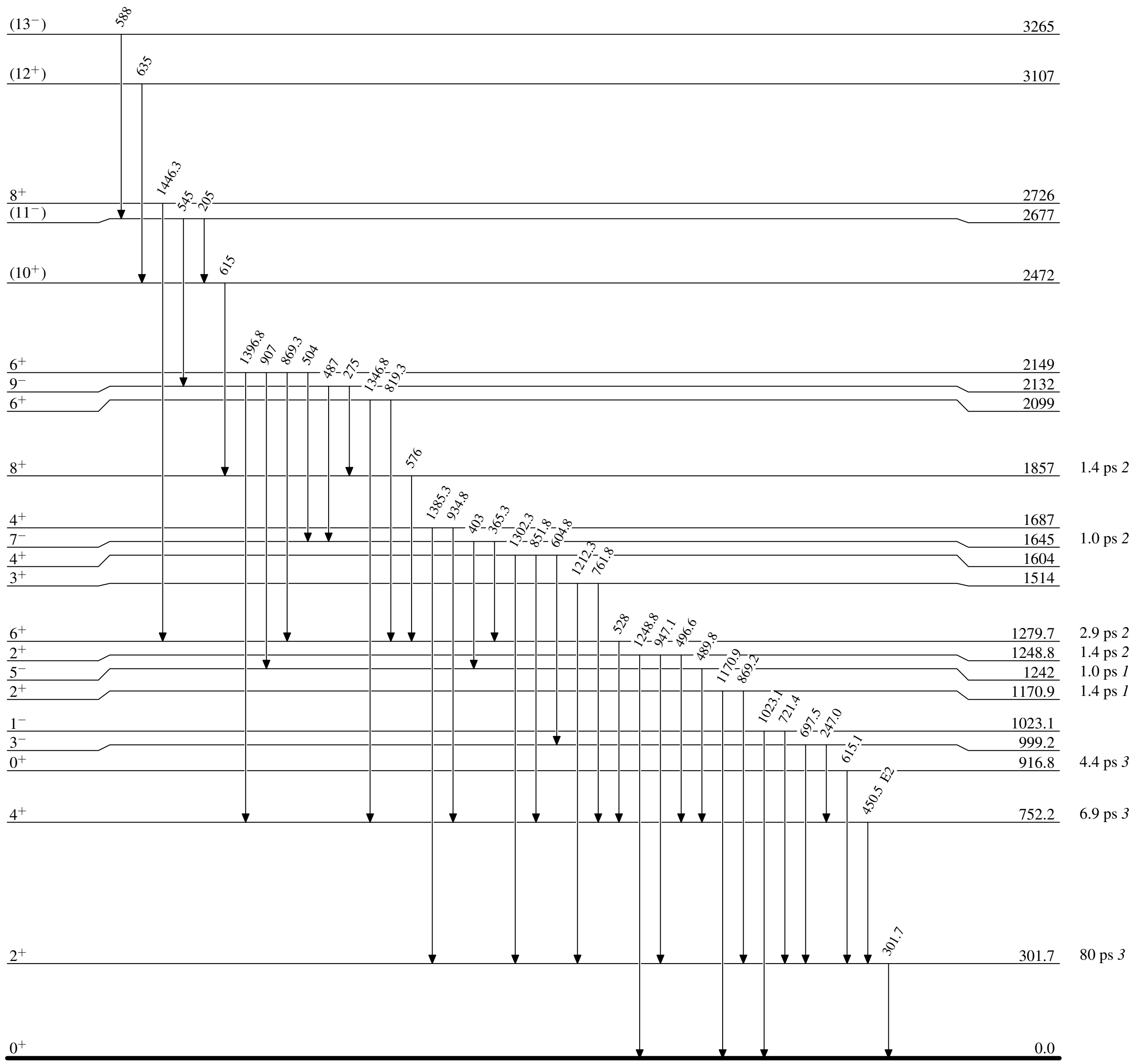
E_γ †	E_i(level)	J_i^π	E_f	J_f^π
1396.8	2149	6^+	752.2	4^+
1446.3	2726	8^+	1279.7	6^+

† As read from the energy level diagram in 1997Ib01.

‡ 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.

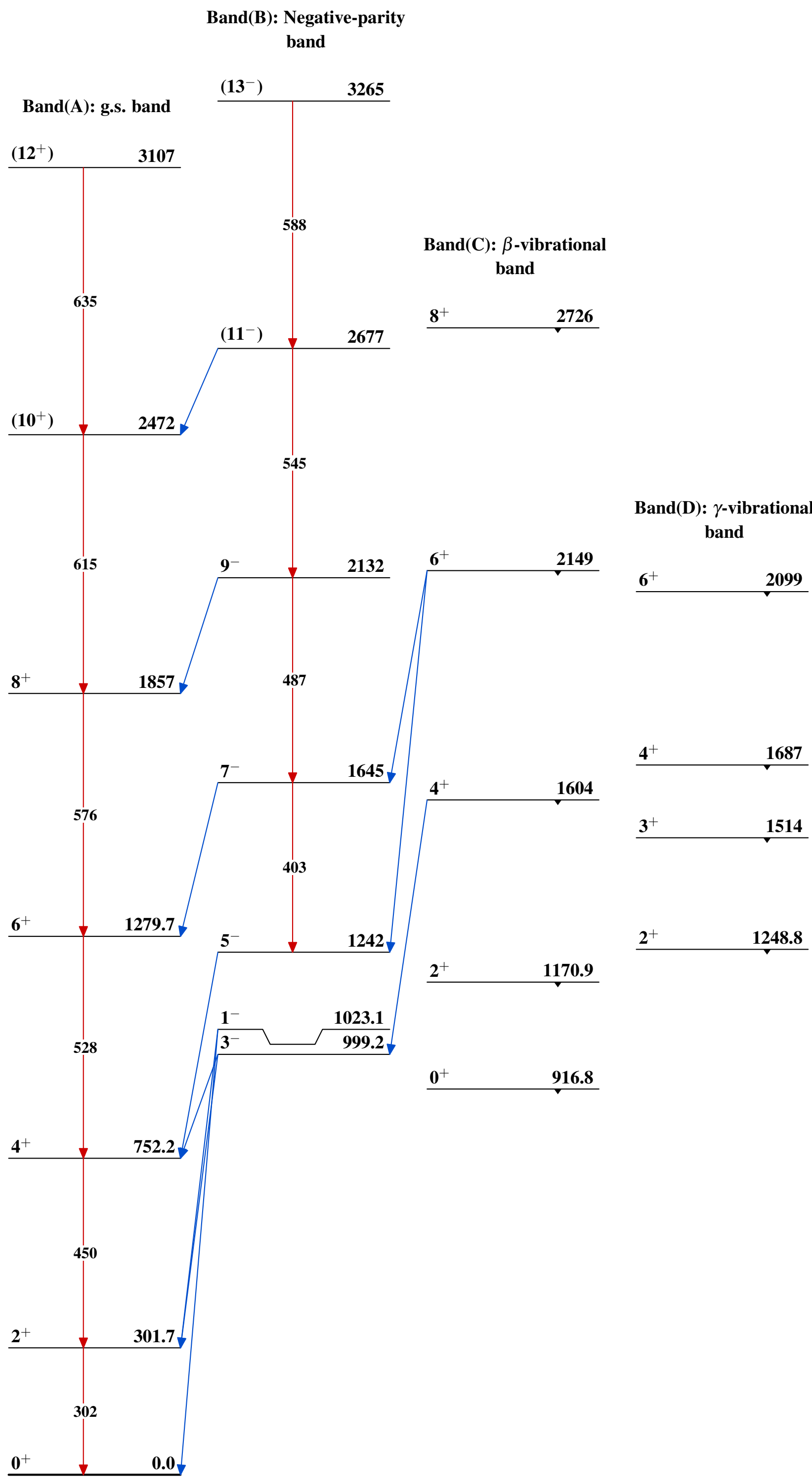
Coulomb excitation 1997Ib01,1993Ib01,1991Ib01

Level Scheme



$^{148}_{60}Nd_{88}$

Coulomb excitation 1997Ib01,1993Ib01,1991Ib01



$^{148}_{60}Nd_{88}$