Coulomb excitation 2016Ko13,2001Ho02,1988Ah01

History

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

2016Ko13: measured γ(particle) coin; 182 MeV ^{58}Ni and 104 MeV ^{32}S beams used. Institute of Nuclear Physics of Orsay (IPNO) ALTO facility, MINORCA spectrometer: 8 Miniball triple cluster detectors and 15 Compton suppressed Eurogam Phase-I HPGe detectors, DSSSD particle detector. No numerical data given.

2001Ho02,2000Ho25: Si,Ni(^{146}Nd,^{146}Nd′), E=285, 584-608 MeV; measured Eγ, Iγ(θ,H,t), γ(particle) coin following projectile Coulomb excitation. ^{146}Nd; deduced levels, g factors. Transient field technique.

1990St18: ^{146}Nd(^{58}Ni,^{58}Ni′), E=160 MeV; measured Eγ, Iγ(θ,H,t) following Coulomb excitation. ^{146}Nd; deduced levels, g factors. Thin foil transient field technique.

1987Be08: ^{146}Nd(^{32}S,^{32}S′), E=235 MeV; measured Eγ, Iγ(θ,H,t), (^{32}S)γ coin. ^{146}Nd; deduced levels, g factors.

1988Ah01: ^{146}Nd(α,α′), E=10.5, 11 MeV; measured σ(Eα) following Coulomb excitation. ^{146}Nd; levels, deduced B(E2). Enge split-pole magnetic spectrometer.

1978FaZP,1980FaZW: ^{146}Nd(α,α′),(^{16}O,^{16}O′), Eα=11-13 MeV, E(^{16}O)=42-48 MeV; measured Eα, Iα, Eγ, Iγ, $\gamma\gamma$, γ(^{16}O′) coin. ^{146}Nd; deduced levels, B(E2), quadrupole moment. Ge(Li) anti-Compton and Si(Li) detectors, reorientation precession technique.

1971Cr01: ^{146}Nd(^{16}O,^{16}O′), E=42 MeV; measured σ(E(^{16}O),θ). ^{146}Nd; deduced levels, B(E2), quadrupole moment. Enge split-pole magnetic spectrometer.

1970Ch14: ^{146}Nd(α,α′), E=12, 14 MeV; measured B(E2), B(E3).

Others: 1966Ec02, 1978Ka36, 1972Ku10, 1986Sc30, 2003Ma19, 2003Na39.

The level scheme based on fig. 1 of 2001Ho02 and fig.3 of 2016Ko13.

^{146}Nd Levels

E(level)†	J$^\pi$†	T$_{1/2}$	Comments
0.0	0$^+$		
453.77	2$^+$	19.9 ps *2*	Q=−0.72 *20* (1971Cr01) g=+0.291 *7* (2001Ho02). Others: +0.31 *5* (1978Ka36), +0.22 *3* (1972Ku10), +0.29 *5* (1967Be08), +0.32 *5* (1987Be08), +0.29 *1* (1990St18). Q=−0.78 9 (1970Ge08). T$_{1/2}$: from B(E2)=0.770 *7*: weighted average of 0.78 *1* (1988Ah01), 0.760 *22* (1971Cr01), 0.68 *10* (1967BuZX), 0.71 *6* (1970Ch14), 0.705 *34* (1971Ma27), 0.77 *1* (1986Sc30). Others: 0.66 *1* (1966Ec02), 0.81 *7* (1980FaZW), 0.616 *28* (1974MaYP).
915	0$^+$		
1043.22	4$^+$	3.8 ps *10*	T$_{1/2}$: from B(E2)=0.58 *15* (1967BuZX). g: +0.193 *27* (2001Ho02).
1189.62	3$^-$		B(E3)=0.26 *3* (1970Ch14). Others: 0.21 *4* (1967BuZX), 0.41 *18* (1963Ha20).
1377	1$^-$		
1471	2$^+$		
1517	5$^-$		
1745 *4*	$^+$		
1780	6$^+$		

† From 'Adopted Levels'.

γ(^{146}Nd)

E$_\gamma$†	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.†	α‡	Comments
453.64 *3*	453.77	2$^+$	0.0	0$^+$	E2	0.01537	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*
461	915	0$^+$	453.77	2$^+$			
474.46 *8*	1517	5$^-$	1043.22	4$^+$	E1	0.00444	α(K)=0.00381 *6*; α(L)=0.000497 *7*; α(M)=0.0001047 *15* α(N)=2.33×10^{-5} *4*; α(O)=3.51×10^{-6} *5*; α(P)=2.21×10^{-7} *3*

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Coulomb excitation **2016Ko13,2001Ho02,1988Ah01** **(continued)**

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

E_γ [†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	α[‡]	Comments
555	1745	+	1189.62	3^-			
589.40 *6*	1043.22	4^+	453.77	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*
703	1745	+	1043.22	4^+			
735.77 *4*	1189.62	3^-	453.77	2^+	E1	1.71×10^{-3}	α(K)=0.001469 *21*; α(L)=0.000188 *3*; α(M)=3.95×10^{-5} *6* α(N)=8.83×10^{-6} *13*; α(O)=1.337×10^{-6} *19*; α(P)=8.64×10^{-8} *13*
736.8 *1*	1780	6^+	1043.22	4^+	E2	0.00443	α(K)=0.00374 *6*; α(L)=0.000546 *8*; α(M)=0.0001164 *17* α(N)=2.59×10^{-5} *4*; α(O)=3.86×10^{-6} *6*; α(P)=2.25×10^{-7} *4*
923	1377	1^-	453.77	2^+			
1016.67 *10*	1471	2^+	453.77	2^+	M1+E2	0.0027 *6*	α(K)=0.0023 *5*; α(L)=0.00031 *6*; α(M)=6.5×10^{-5} *12* α(N)=1.5×10^{-5} *3*; α(O)=2.2×10^{-6} *5*; α(P)=1.4×10^{-7} *4*
1470.60 *12*	1471	2^+	0.0	0^+	E2	1.09×10^{-3}	α(K)=0.000881 *13*; α(L)=0.0001154 *17*; α(M)=2.43×10^{-5} *4* α(N)=5.44×10^{-6} *8*; α(O)=8.25×10^{-7} *12*; α(P)=5.35×10^{-8} *8*; α(IPF)=6.65×10^{-5} *10*

[†] From 'Adopted Gammas'.
[‡] Additional information 1.

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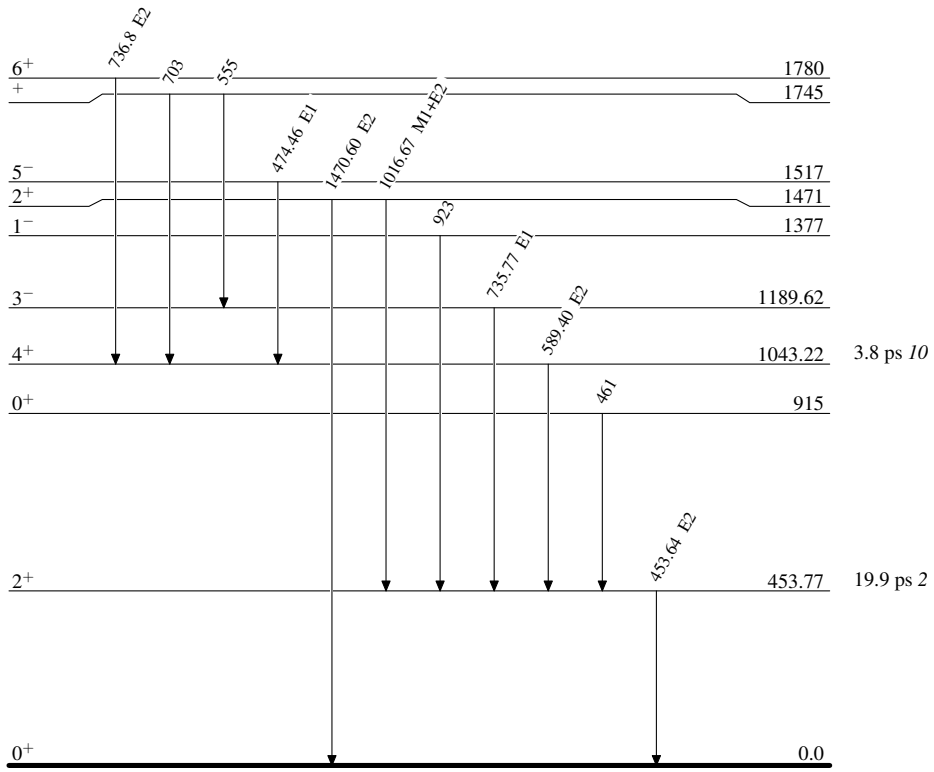
Level Scheme



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