^{146}Nd(γ,γ') 1990Pi04,1993Ma08

History

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

1990Pi04,1993Ma08: ^{146}Nd(γ,γ'), Eγ(max)=4.1 MeV bremsstrahlung; measured Eγ, Iγ, $\gamma(\theta)$, γ linear polarization. ^{146}Nd; deduced levels, B(λ), J^π, Γ_0. Enriched target, Compton polarimeter.

1977Be05: ^{146}Nd(γ,γ'), γ rays from ^{51}V(n,γ), En=th; measured Eγ, I$\gamma(\theta)$, polarization. ^{146}Nd; deduced levels, J^π, Γ_0. Natural Nd target, Compton polarimeter.

^{146}Nd Levels

$R_{exp}=(\Gamma_{2+}/\Gamma_0)\times(E\gamma_0/E\gamma_2)^3$ and Γ_0 from 1990Pi04 and 1993Ma08, except as noted.

E(level)[†‡]	J^π[#]	Γ_0 [meV]	R_{exp}	Comments
0.0	0^+			
453.8[@]	2^+			
1376.9 *11*	1^-	4.6 *14*	2.29 *56*	
1471	2^+	0.7 *4*		
1689[@] *4*	0,1,2			
1781[@] *4*	2^+			
2356.0 *11*	1^+	17.2 *22*	0.71 *9*	B(M1)↑=0.341 *43* (1993Ma08).
2463[@] *4*				
2581[@] *4*				
2597.9 *11*		2.5 *5*	0.61 *27*	B(M1)↑=0.037 *8* (1993Ma08).
2680.9 *11*	$(1,2^+)$	2.7 *10*	0.75 *70*	
2756.9 *11*	1	26.8 *37*	2.09 *17*	
2829.9 *11*	1^-	5.8 *9*	0.30 *13*	
3000 *1*	1	25.6 *37*		
3275.6 *11*	1^+	16.3 *24*	0.39 *6*	B(M1)↑=0.120 *17* (1993Ma08).
3292 *1*	1	10.8 *26*		
3410.9 *11*	1^+	41.7 *61*	0.45 *6*	B(M1)↑=0.273 *40* (1993Ma08).
3428.9 *11*	1	8.7 *20*	1.04 *32*	
3451	$(2^+,1)$	2.1 *9*		
3576.9 *11*	$1^{(+)}$	45.2 *72*	0.70 *10*	B(M1)↑=0.256 *41* (1993Ma08).
3633.9 *11*	1	12.4 *23*	0.69 *15*	B(M1)↑=0.067 *12* (1993Ma08).
3710	$(1,2^+)$	7.4 *21*		
3750.9 *11*	1^-	20.5 *36*	0.48 *9*	
3770 *1*	$(2^+,1)$	1.8 *12*		
3779.9 *11*	1	17.5 *31*	0.19 *6*	B(M1)↑=0.084 *15* (1993Ma08).
3795.9 *11*	1	15.2 *30*	0.64 *14*	B(M1)↑=0.072 *15* (1993Ma08).
3833 *1*	1	9.3 *27*		
3892.9 *11*	1	25.9 *52*	0.23 *12*	B(M1)↑=0.114 *23* (1993Ma08).
3974.9 *11*	1	21.8 *47*	0.34 *9*	B(M1)↑=0.090 *20* (1993Ma08).
4014 *1*	(1)	12.6 *50*		
4042 *1*	(1)	8.9 *39*		
7164.0[@] *16*	1^-	41 *13*		$\Gamma_{\gamma 0}$: Γ_0/Γ=0.77 (1977Be05).

[†] If $\Delta E\gamma$ not given, ±1.50 keV assumed for least-squares fitting.
[‡] From a least-squares fit to Eγ's.
[#] From $\gamma(\theta)$ (1990Pi04,1993Ma08), π from polarization (1977Be05, 1993Ma08).
[@] From 1977Be05.

^{146}Nd(γ,γ') 1990Pi04,1993Ma08 (continued)

$\gamma(^{146}Nd)$

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.	Comments
453.8	2^+	454		0.0	0^+		
1376.9	1^-	923		453.8	2^+		
		1377		0.0	0^+		
2356.0	1^+	1902		453.8	2^+		
		2356		0.0	0^+		
2597.9		2144		453.8	2^+		
		2598		0.0	0^+		
2680.9	$(1,2^+)$	2227		453.8	2^+		
		2681		0.0	0^+		
2756.9	1	2303		453.8	2^+		
		2757		0.0	0^+		
2829.9	1^-	2376		453.8	2^+		
		2830		0.0	0^+		
3275.6	1^+	2822	25 *4*	453.8	2^+		
		3276	100	0.0	0^+		
3410.9	1^+	2957	29 *4*	453.8	2^+		
		3411	100	0.0	0^+		
3428.9	1	2975	68 *19*	453.8	2^+		
		3429	100	0.0	0^+		
3576.9	$1^{(+)}$	3123		453.8	2^+		
		3577		0.0	0^+		
3633.9	1	3180		453.8	2^+		
		3634		0.0	0^+		
3750.9	1^-	3297		453.8	2^+		
		3751		0.0	0^+		
3779.9	1	3326	13 *4*	453.8	2^+		
		3780	100	0.0	0^+		
3795.9	1	3344		453.8	2^+		
		3794		0.0	0^+		
3892.9	1	3439	16 *8*	453.8	2^+		
		3893	100	0.0	0^+		
3974.9	1	3521	24 *6*	453.8	2^+		
		3975	100	0.0	0^+		
7164.0	1^-	3891 *3*	1[#] *1*	3275.6	1^+		
		4583 *3*	2[#] *1*	2581			
		4701 *3*	3[#] *1*	2463			
		4807 *3*	3[#] *1*	2356.0	1^+		
		5383 *3*	5 *1*	1781	2^+		Populates J=2 state: A_2=+0.03 *13*, at that A_2(theor)=0.05 for transition J=1→J=2 (1977Be05).
		5475 *3*	3 *1*	1689	0,1,2		
		6709 *3*	13 *1*	453.8	2^+		Populates J=2 state: A_2=+0.03 *4*, at that A_2(theor)=0.05 for transition J=1→J=2 (1977Be05).
		7163 *3*	100	0.0	0^+	E1	α(IPF)=0.00257 *4* Mult.: from A_2=+0.46 *9*, and linear polarization measurement (1977Be05).

[†] Taken round values from 'Adopted Gammas' as they are not listed by authors, except transitions from the 7163 keV level (1977Be05); $\Delta E\gamma$=1.5 keV assumed by the evaluators, except as noted.

[‡] branching is calculated by the evaluators from R_{exp} (1993Ma08), except as noted.

[#] branching from 1977Be05.

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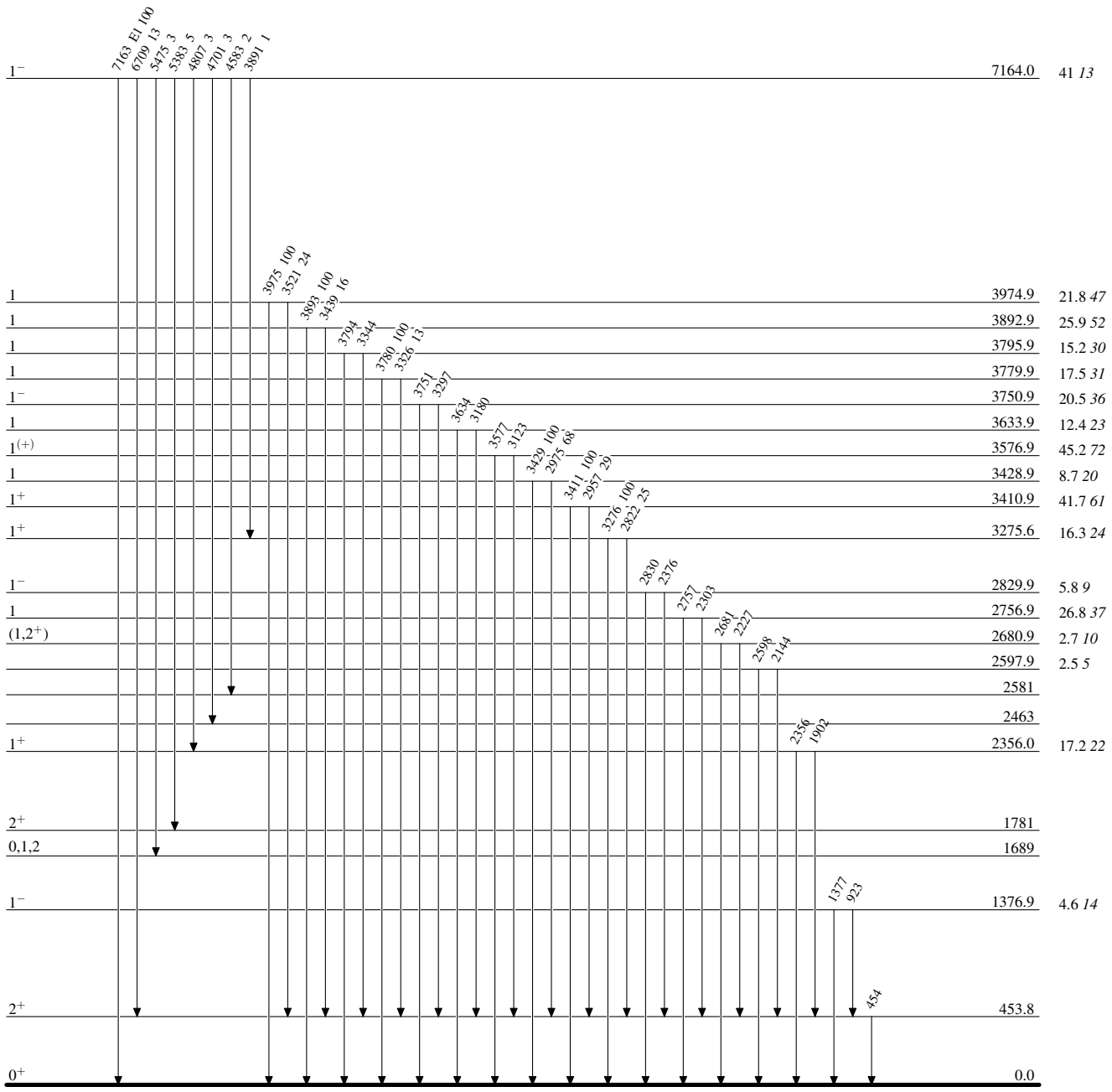
Level Scheme

Intensities: Relative photon branching from each level



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