^{136}Xe(^{13}C,3nγ) 1996Ia01

History

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

1996Ia01: ^{136}Xe(^{13}C,3nγ), E=54 MeV; measured Eγ, Iγ, $\gamma\gamma$(t), $\gamma(\theta)$, DCO value. ^{146}Nd; deduced levels, J^π, B(λ) ratios, band structure. NORDBALL detector array, BaF_2 filter. See also 1991Ur01 for earlier study.

^{146}Nd Levels

See 1991Ur01, 1996Ia01 for description of quasi-rotational bands.

E(level)	J$^\pi$†	E(level)	J$^\pi$†	E(level)	J$^\pi$†	E(level)	J$^\pi$†
0.0‡	0$^+$	2593.53‡ *16*	8$^+$	3993.73‡ *17*	12$^+$	5460.53‡ *19*	16$^+$
453.71‡ *10*	2$^+$	2706.22# *16*	9$^-$	4028.13@ *17*	13$^-$	5559.03@ *21*	17$^-$
1043.22‡ *14*	4$^+$	3109.03 *16*	9$^-$	4295.03# *17*	13$^-$	5612.43*b* *23*	16$^-$
1189.62# *14*	3$^-$	3123.83*a* *16*	10$^+$	4694.23‡ *18*	14$^+$	5899.73& *22*	18$^+$
1517.52# *14*	5$^-$	3245.53*b* *17*	10$^-$	4695.53*a* *18*	14$^+$	6202.53@ *23*	19$^-$
1780.02‡ *15*	6$^+$	3319.73‡ *16*	10$^+$	4761.33@ *20*	15$^-$	6513.73& *23*	20$^+$
2029.42# *15*	7$^-$	3404.73@ *16*	11$^-$	4786.73*b* *22*	14$^-$	6807.04@ *25*	(21$^-$)
2083.52 *16*	(6$^+$)	3500.73# *17*	11$^-$	5057.94# *18*	15$^-$	7364.24& *25*	(22$^+$)
2335.52 *16*	7$^-$	3902.23*a* *17*	12$^+$	5160.93 *23*	15$^+$		
2474.52*a* *15*	8$^+$	3958.13*b* *19*	12$^-$	5362.83& *21*	16$^+$		

† From mult. and DCO analysis 1996Ia01.
‡ Band(A): g.s. band.
# Band(B): octupole band.
@ Band(C): ΔJ=2, π=− cascade-1.
& Band(D): ΔJ=2, π=+ cascade-1.
a Band(E): ΔJ=2, π=+ cascade-2.
b Band(F): ΔJ=2, π=− cascade-2.

γ(^{146}Nd)

E$_\gamma$†	I$_\gamma$†	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.‡	R(DCO)	α#
112.7 *1*	0.8	2706.22	9$^-$	2593.53	8$^+$	E1		0.187
125.9 *1*	0.8	4028.13	13$^-$	3902.23	12$^+$	E1	0.69 *16*	0.1380
136.5 *1*	6.5	3245.53	10$^-$	3109.03	9$^-$	M1+E2	0.66 *6*	0.629 *11*
159.2 *1*	0.8 *2*	3404.73	11$^-$	3245.53	10$^-$	M1+E2		0.404 *24*
181.0 *1*	1.0 *2*	3500.73	11$^-$	3319.73	10$^+$	E1		0.0513
196.2 *1*	1.2	5559.03	17$^-$	5362.83	16$^+$	E1		0.0413
249.4 *1*	32.8	2029.42	7$^-$	1780.02	6$^+$	E1	0.61 *2*	0.0218
262.5 *1*	6.2	1780.02	6$^+$	1517.52	5$^-$	E1	0.67 *7*	0.0191
280.9 *1*	16.6 *8*	3404.73	11$^-$	3123.83	10$^+$	E1	0.59 *2*	0.01604
293.3 *1*	1.6	6807.04	(21$^-$)	6513.73	20$^+$	(E1)	0.52 *9*	0.01436
301.3 *1*	2.2	4295.03	13$^-$	3993.73	12$^+$	E1		0.01341
306.1 *1*	2.9	2335.52	7$^-$	2029.42	7$^-$	M1+E2	0.85 *9*	0.0582 *12*
311.2 *1*	2.1	6513.73	20$^+$	6202.53	19$^-$	E1		0.01235
327.9 *1*	0.2	1517.52	5$^-$	1189.62	3$^-$	E2		0.0398
340.7 *1*	3.5	5899.73	18$^+$	5559.03	17$^-$	E1	0.78 *7*	0.00984
363.7 *1*	1.5	5057.94	15$^-$	4694.23	14$^+$	E1		0.00837

Continued on next page (footnotes at end of table)

^{136}Xe(^{13}C,3nγ) 1996Ia01 (continued)

γ(^{146}Nd) (continued)

E_γ[†]	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	R(DCO)	α[#]
374.2 *1*	3.9	5160.93	15^+	4786.73	14^-	E1	0.55 *6*	0.00781
391.0 *1*	2.8	2474.52	8^+	2083.52	(6^+)	(E2)		0.0235
399.2 *1*	2.7	4694.23	14^+	4295.03	13^-	E1	0.78 *10*	0.00668
402.6 *1*	1.6	5460.53	16^+	5057.94	15^-	E1	0.68 *14*	0.00654
417.6 *1*	3.7	3123.83	10^+	2706.22	9^-	E1	0.53 *7*	0.00599
445.1 *1*	16.6	2474.52	8^+	2029.42	7^-	E1	0.56 *2*	0.00515
451.5 *1*	0.6	5612.43	16^-	5160.93	15^+	E1		0.00498
453.7 *1*	100.0	453.71	2^+	0.0	0^+	E2	1.00 *1*	0.01536
474.3 *1*	47.8	1517.52	5^-	1043.22	4^+	E1	0.59 *1*	0.00445
493.0 *1*	3.3	3993.73	12^+	3500.73	11^-	E1	0.56 *6*	0.00407
497.5 *1*	1.1	3902.23	12^+	3404.73	11^-	E1		0.00398
511.9 *1*	41.1	2029.42	7^-	1517.52	5^-	E2	1.08 *3*	0.01105
527.4 *1*	1.6	4028.13	13^-	3500.73	11^-	E2		0.01021
536.9 *1*	3.8	5899.73	18^+	5362.83	16^+	(E2)		0.00974
539.3 *1*	7.6	3245.53	10^-	2706.22	9^-	M1+E2		0.012 *3*
555.5 *1*	8.5	2335.52	7^-	1780.02	6^+	E1		0.00311
557.2 *1*	1.1	7364.24	(22^+)	6807.04	(21^-)	(E1)		0.00309
564.1 *1*	4.7	2593.53	8^+	2029.42	7^-	E1		0.00300
589.5 *1*	99.8	1043.22	4^+	453.71	2^+	E2		0.00765
601.5 *1*	11.6	5362.83	16^+	4761.33	15^-	(E1)		0.00261
613.5 *1*	3.2	3319.73	10^+	2706.22	9^-	E1		0.00250
614.0 *1*	4.1	6513.73	20^+	5899.73	18^+	E2	1.07 *31*	0.00690
623.4 *1*	24.4	4028.13	13^-	3404.73	11^-	E2	1.06 *5*	0.00664
634.5 *1*	0.8	3109.03	9^-	2474.52	8^+	E1		0.00233
643.5 *1*	2.7	6202.53	19^-	5559.03	17^-	E2		0.00614
649.3 *1*	7.2	3123.83	10^+	2474.52	8^+	E2	1.08 *7*	0.00601
667.4 *1*	2.7	4695.53	14^+	4028.13	13^-	E1		0.00209
674.0 *1*	2.3	3993.73	12^+	3319.73	10^+	E2		0.00548
676.8 *1*	39.8	2706.22	9^-	2029.42	7^-	E2	1.02 *3*	0.00543
694.5 *1*	7.2	2474.52	8^+	1780.02	6^+	E2	1.11 *6*	0.00510
698.5 *1*	17.2 *9*	3404.73	11^-	2706.22	9^-	E2	1.02 *5*	0.00503
700.5 *1*	1.3	4694.23	14^+	3993.73	12^+	E2		0.00500
712.6 *1*	10.8	3958.13	12^-	3245.53	10^-	E2		0.00480
726.2 *1*	0.1	3319.73	10^+	2593.53	8^+	E2		0.00459
733.2 *1*	13.0	4761.33	15^-	4028.13	13^-	E2		0.00449
735.9 *1*	0.2	1189.62	3^-	453.71	2^+	E1		1.71×10^{-3}
736.8 *1*	55.0	1780.02	6^+	1043.22	4^+	E2	1.05 *2*	0.00443
762.9 *1*	1.5	5057.94	15^-	4295.03	13^-	E2		0.00409
766.3 *1*	0.9	5460.53	16^+	4694.23	14^+	E2		0.00405
773.5 *1*	5.8	3109.03	9^-	2335.52	7^-	E2	1.41 *13*	0.00396
778.4 *1*	3.0	3902.23	12^+	3123.83	10^+	E2	1.22 *12*	0.00390
793.3 *1*	2.8	4695.53	14^+	3902.23	12^+	E2		0.00374
794.3 *1*	3.0	4295.03	13^-	3500.73	11^-	E2	1.11 *6*	0.00373
794.5 *1*	11.2 *5*	3500.73	11^-	2706.22	9^-	E2		0.00372
797.7 *1*	6.0	5559.03	17^-	4761.33	15^-	E2	0.91 *5*	0.00369
813.5 *1*	2.4	2593.53	8^+	1780.02	6^+	E2		0.00353
825.7 *1*	2.0	5612.43	16^-	4786.73	14^-	E2		0.00341
828.6 *1*	5.0	4786.73	14^-	3958.13	12^-	E2	0.81 *7*	0.00338
850.5 *1*	4.6	7364.24	(22^+)	6513.73	20^+	(E2)		0.00319
890.3 *1*	0.8	4295.03	13^-	3404.73	11^-	E2		0.00288
1040.3 *1*	1.8	2083.52	(6^+)	1043.22	4^+	(E2)		0.00206

[†] From 1996Ia01; $\Delta I\gamma$=5% for the most intense transitions and reach 25% for weak ones (1996Ia01).

Continued on next page (footnotes at end of table)

^{136}Xe(^{13}C,3nγ) 1996Ia01 (continued)

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

‡ From 1996Ia01; deduced from DCO ratios and analysis of common sequence of levels connected by ΔJ=2 transitions, also on previous spin-parity assignment for the low part level scheme. Stretched quadrupoles are assumed to be E2 as no lifetimes longer than 8 ns were observed.
# Additional information 1.

^{136}Xe(^{13}C,3nγ) 1996Ia01

Level Scheme

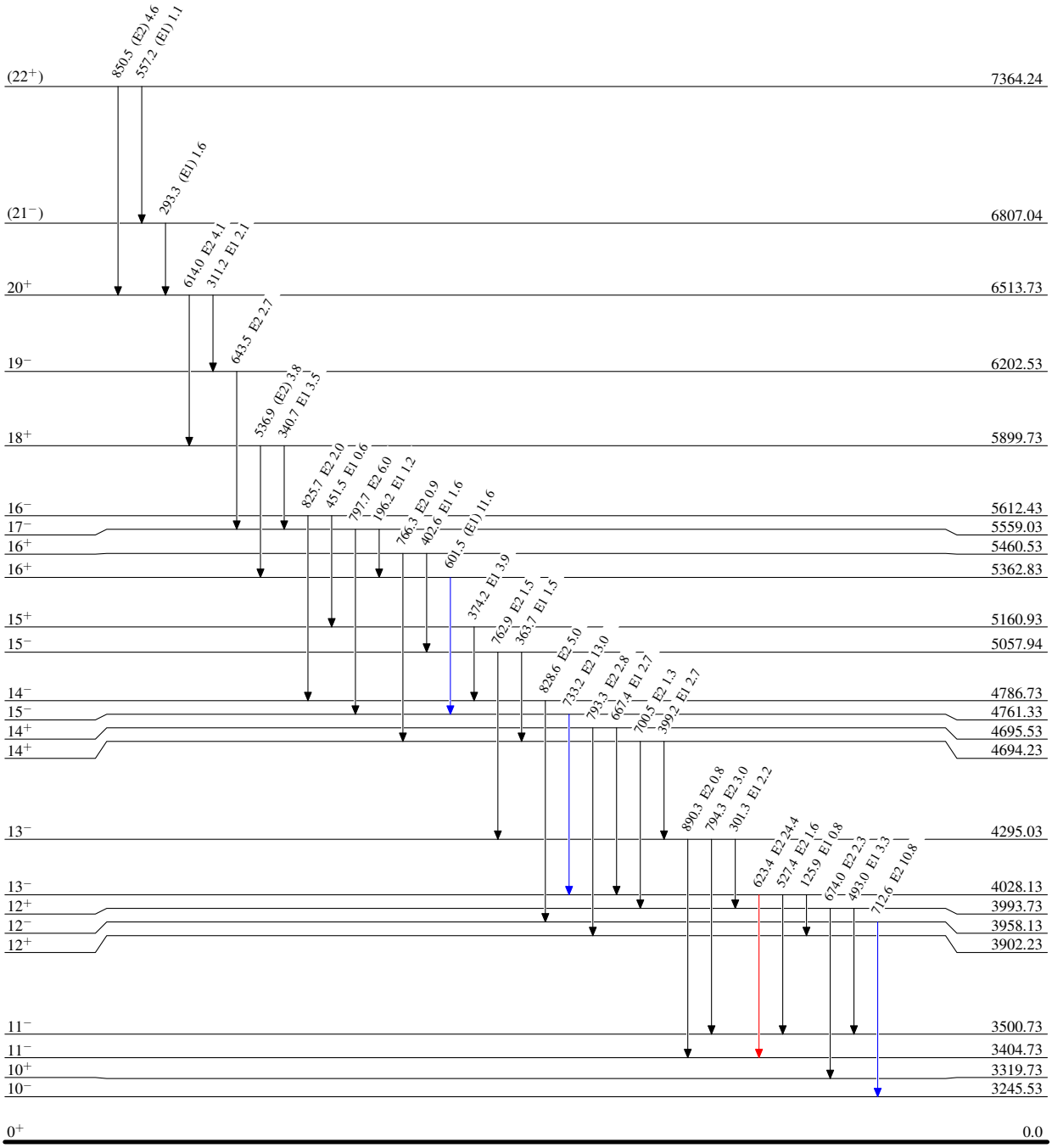
Intensities: Relative I_γ

Legend

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

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

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

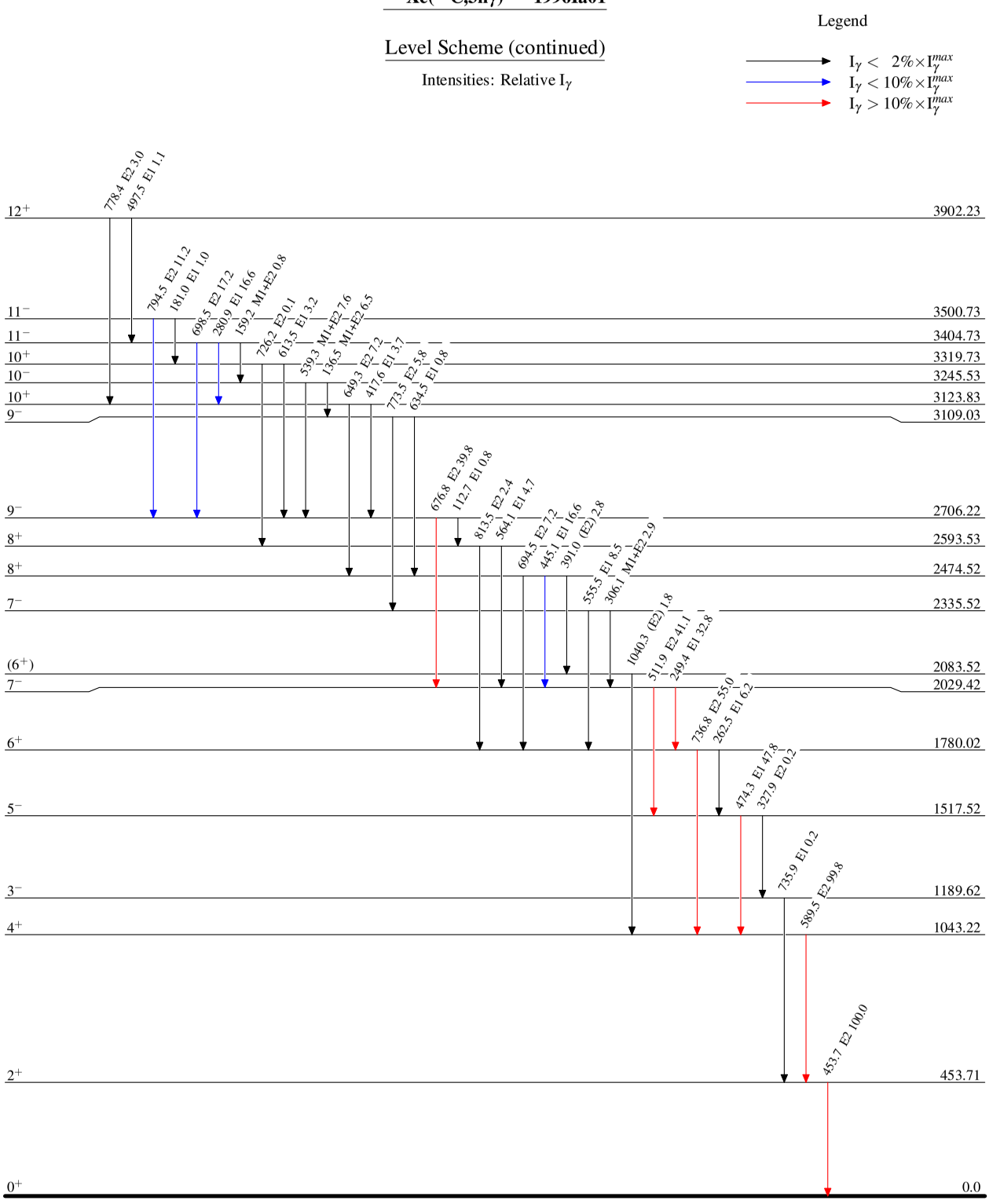


$^{146}_{60}Nd_{86}$

^{136}Xe(^{13}C,3nγ) 1996Ia01

Level Scheme (continued)

Intensities: Relative I_γ



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

$^{136}Xe(^{13}C,3n\gamma)$ 1996Ia01