^{24}Mg(^{20}Ne,2$\alpha\gamma$) 2001Sv02,2001Sv01,2000Sv02

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Ninel Nica, John Cameron and Balraj Singh	NDS 113, 1 (2012)	31-Dec-2011

2001Sv02 (also 2001Sv01), 2000Sv02: E=80 MeV. Measured Eγ, Iγ, $\gamma\gamma\gamma$ and higher-fold coincidences, particle-γ coin using GAMMASPHERE array with 101 HPGe detectors and MICROBALL of 95 CsI(Tl) detectors. Lifetime measurements by DSA method are reported by 2001Sv02 (also 2001Sv01).

Data given here are from 2001Sv02, unless otherwise stated.

Others: 2001Sv03.

^{36}Ar Levels

E(level)	J$^\pi$[†]	T$_{1/2}$[‡]	Comments
0.0[@]	0$^+$		
1970.39[#@] *5*	2$^+$		
4178.33[#] *11*	3$^-$		
4329.1?[#&] *10*	(0$^+$)		E(level): this level, identified earlier in (p,γ) studies, is presumed to be the bandhead of SD band.
4414.36[#@] *17*	4$^+$		
4440.5[#] *3*	2$^+$		
4951.1[&] *4*	2$^+$	33 fs *17*	
5171.14[#] *16*	5$^-$		
6137.1[&] *3*	4$^+$	132 fs *21*	
7353.9[#] *3*	6$^-$		
7767.0[&] *4*	6$^+$	76 fs *11*	
9182.7[@] *10*	(6$^+$)		
9927.0[&] *5*	8$^+$	27.4 fs *43*	
11902.1 *9*	10$^+$	0.43 ps *7*	
12748.5[&] *7*	10$^+$	10.1 fs *23*	
15350.8[&] *8*	12$^+$	14.1 fs *28*	
18298.6[&] *9*	14$^+$	11.0 fs *25*	
22365.3[&] *15*	16$^+$	<6.0 fs	

[†] From 2000Sv02, based on $\gamma(\theta)$ data which establish stretched E2 for all the in-band and interband linking transitions.

[‡] From DSA method (2001Sv02).

[#] Precise level energy from Adopted Levels.

[@] Band(A): g.s. band.

[&] Band(B): SD band (2001Sv02,2000Sv02). β_2=0.46 *3* (2001Sv02). Experimental B(E2)′s are in good agreement with those from shell model calculations of 2001Lo01 for configuration=$(s_{1/2}d_{3/2})^4(pf)^4$.

$\gamma(^{36}Ar)$

E$_i$(level)	J$_i^\pi$	E$_\gamma$	I$_\gamma$	E$_f$	J$_f^\pi$
1970.39	2$^+$	1970		0.0	0$^+$
4178.33	3$^-$	2208		1970.39	2$^+$
4414.36	4$^+$	2444		1970.39	2$^+$
4440.5	2$^+$	2470		1970.39	2$^+$
		4440		0.0	0$^+$
4951.1	2$^+$	622	<0.8	4329.1?	(0$^+$)

Continued on next page (footnotes at end of table)

^{24}Mg(^{20}Ne,2$\alpha\gamma$) 2001Sv02,2001Sv01,2000Sv02 (continued)

$\gamma(^{36}Ar)$ (continued)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.[†]	Comments
4951.1	2^+	2981	20	1970.39	2^+		I_γ: 100−(79.3+0.8) (evaluators).
		4949.8 *16*	79.3 *14*	0.0	0^+		
5171.14	5^-	757		4414.36	4^+		
		993		4178.33	3^-		
6137.1	4^+	1186.0 *3*	20.3 *8*	4951.1	2^+		
		1696.7 *4*	6.3 *4*	4440.5	2^+		
		4165.6 *10*	73.4 *9*	1970.39	2^+	E2	A_2=+0.31 *2*, A_4=−0.08 *2*.
7353.9	6^-	2183		5171.14	5^-		
7767.0	6^+	1629.8 *3*	70.0 *12*	6137.1	4^+		
		3352.5 *8*	30.0 *12*	4414.36	4^+	E2	A_2=+0.31 *2*, A_4=−0.09 *3*.
9182.7	(6^+)	4768		4414.36	4^+		
9927.0	8^+	2160.0 *3*	100	7767.0	6^+		
11902.1	10^+	1974.8 *10*	100	9927.0	8^+		
12748.5	10^+	2821.4 *4*	100	9927.0	8^+		
15350.8	12^+	2602.2 *4*	81.7 *12*	12748.5	10^+		
		3448.4 *10*	18.3 *12*	11902.1	10^+		
18298.6	14^+	2947.7 *5*	100	15350.8	12^+		
22365.3	16^+	4066.4 *12*	100	18298.6	14^+		

[†] From $\gamma(\theta)$ and RUL. 2000Sv02 state that $\gamma(\theta)$ data establish stretched E2 for all the in-band and interband linking transitions. $\gamma(\theta)$ data results are quoted by 2000Sv02 for only two transitions.

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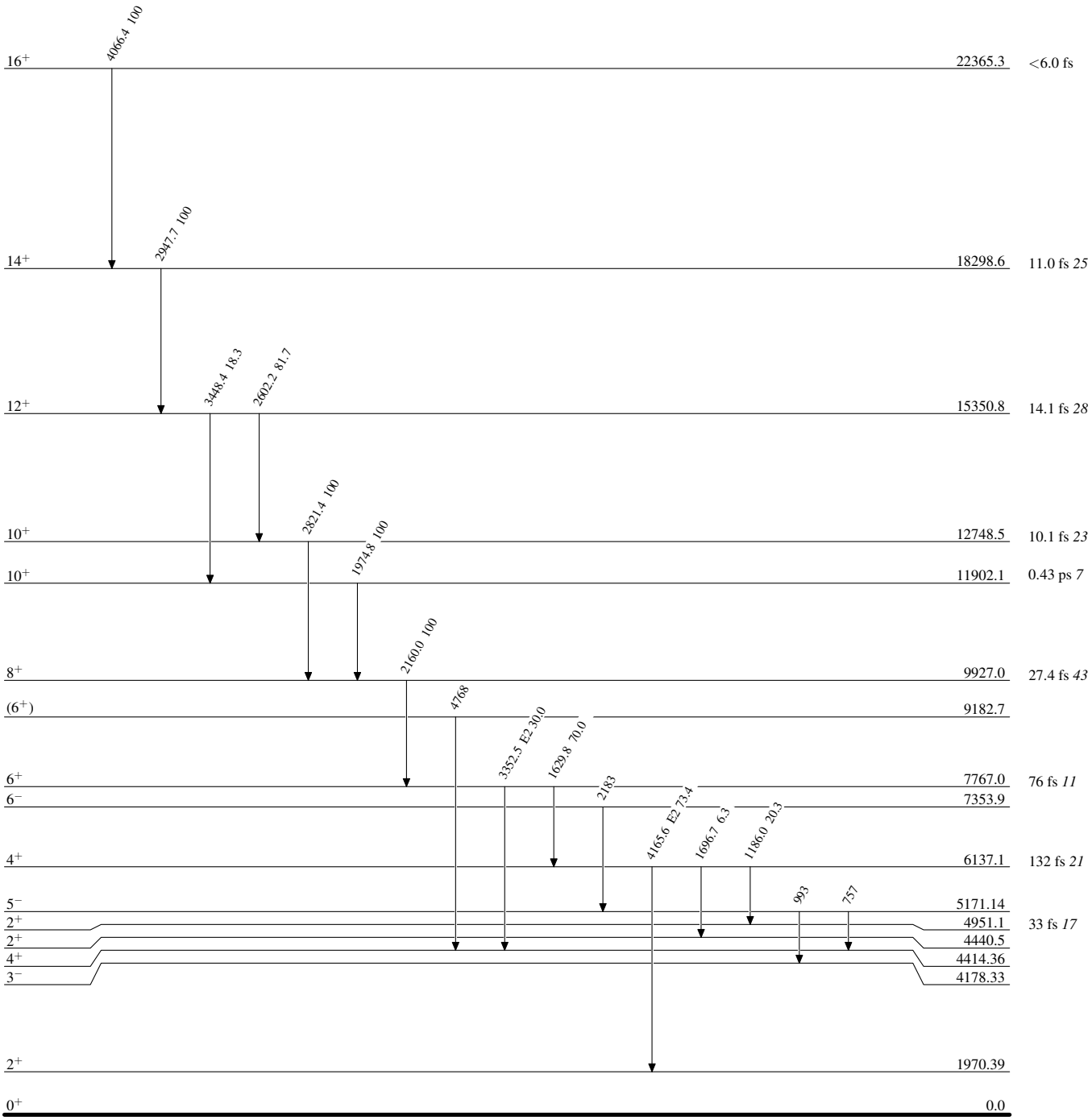
Level Scheme

Intensities: % photon branching from each level

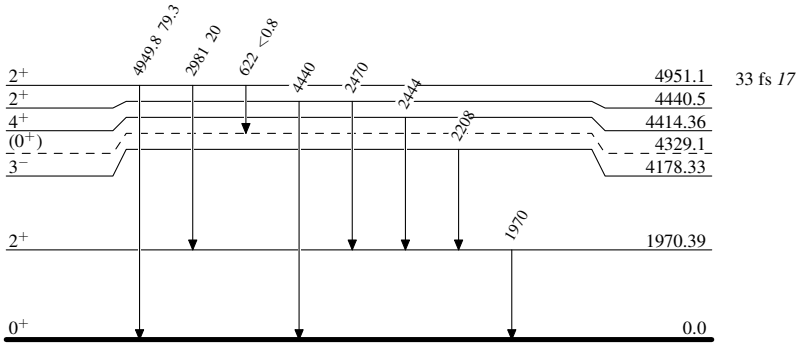


$^{36}_{18}Ar_{18}$

^{24}Mg(^{20}Ne,2$\alpha\gamma$) 2001Sv02,2001Sv01,2000Sv02

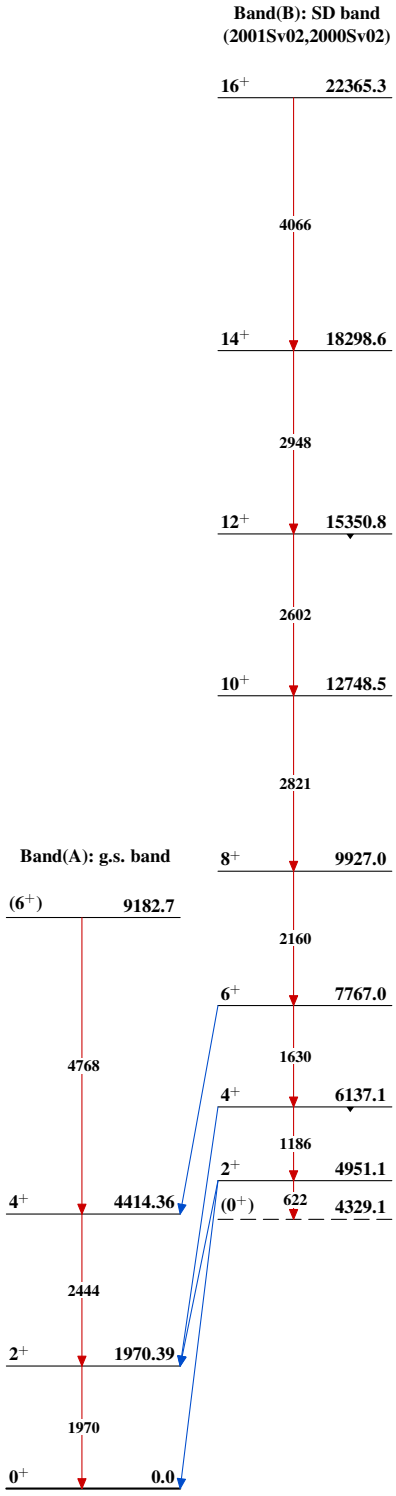
Level Scheme (continued)

Intensities: % photon branching from each level



$^{36}_{18}Ar_{18}$

^{24}Mg(^{20}Ne,2$\alpha\gamma$) 2001Sv02,2001Sv01,2000Sv02



$^{36}_{18}Ar_{18}$