^{26}Mg(^{14}N,p2nγ),^{24}Mg(^{18}O,αnγ) 1976Wa11

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	John Cameron, Jun Chen and Balraj Singh, Ninel Nica	NDS 113, 365 (2012)	15-Jan-2012

1976Wa11, also 1975Ol01: ^{26}Mg(^{14}N,p2nγ), ^{24}Mg(^{18}O,αnγ) E=40 MeV. Measured E(γ), γ-γ coincidences, γ(θ,pol), $T_{1/2}$ from RDM.
1976Po03 (same group As 1976Wa11): ^{27}Al(^{19}F,2αnγ) E=40 MeV, measured 1611γ.
1976Me03: ^{27}Al(^{12}C,pnγ) E=31 MeV, measured $T_{1/2}$ from RDM.
1991Ja11: ^{27}Al(^{16}O,αpnγ) E=60 MeV, measured $T_{1/2}$ from RDM.
All the data are from 1976Wa11, unless noted otherwise.

^{37}Ar Levels

E(level)†	J$^\pi$‡	$T_{1/2}$	Comments
0.0	3/2$^+$		
1611.29 *9*	7/2$^-$		J$^\pi$: ΔJ=2, M2+E3 γ to 3/2$^+$, g.s..
2216.83 *18*	7/2$^+$		
3185.12 *18*	9/2$^-$		
3706.29 *20*	11/2$^-$		
4022.10 *24*	9/2$^-$		
4887.2 *4*			J$^\pi$: ≥9/2.
5213.45 *20*	11/2$^+$	4.2 ps *14*	$T_{1/2}$: mean lifetime τ In ps: 6 *2*.
5793.6 *3*	13/2$^-$		
6151.06 *25*	13/2$^+$	2.8 ps *7*	$T_{1/2}$: 2.1 *10* ps (1991Ja11); 3.1 *7* ps (1976Wa11, from τ 4.5 *10*).
6473.88 *25*	15/2$^+$	5.8 ps *5*	$T_{1/2}$: weighted average of: 6.1 *6* ps (1991Ja11); 6.2 *14* ps (1976Me03, from τ 9 *2*); 5.2 *8* (1976Wa11, from τ 7.5 *12*).
7071.8 *3*	17/2$^+$	0.3 ps *3*	$T_{1/2}$: from τ<0.8 ps (1976Me03).

† From least-squares fit to Eγ's.
‡ According to 1976Wa11, their J$^\pi$ values given In the table are from ^{34}S(α,nγ) dataset (1974Ga12 and 1975No01), which agrees with the J$^\pi$ one can get from the γ(θ) and linear polarization of 1976Wa11.

γ(^{37}Ar)

For polarization from 1976Wa11 and 1975Ol01 positive (negative) values mean electric (magnetic) character respectively.

E_i(level)	J_i^π	E_γ	I_γ†	E_f	J_f^π	Mult.	δ	Comments
1611.29	7/2$^-$	1611.24 *9*	100	0.0	3/2$^+$	M2+E3	−0.14 *5*	not resolved from 1612 γ In ^{25}Mg. Iγ(relative)=131. Mult.,δ: ΔJ=2, M2+E3 G. A_2=+0.14 *2*, A_4=−0.03 *2*, POL=−0.14 *5*.
2216.83	7/2$^+$	2216.80 *20*	100	0.0	3/2$^+$	Q(+O)	−0.03 *5*	Iγ(relative)=53.3. Mult.,δ: ΔJ=2, Q(+O) G. A_2=+0.26 *3*, A_4=−0.02 *14*, POL=−0.7 *7*.
3185.12	9/2$^-$	1573.68 *20*	100	1611.29	7/2$^-$	M1+E2	+0.49 *8*	Iγ(relative)=55.2. Mult.,δ: ΔJ=1, M1+E2 G. A_2=+0.32 *4*, A_4=+0.07 *5*, POL=−0.54 *20*.
3706.29	11/2$^-$	521.12 *25*	18 *2*	3185.12	9/2$^-$	D(+Q)	+0.03 *10*	Iγ(relative)=13.6. Mult.,δ: ΔJ=1, D(+Q) G. A_2=−0.25 *10*, A_4=0.
		2094.9 *3*	82 *2*	1611.29	7/2$^-$	E2		Iγ(relative)=52.6. Mult.,δ: ΔJ=2, E2 γ (δ=−0.02 *3* for E2(+M3)

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^{26}Mg(^{14}N,p2nγ),^{24}Mg(^{18}O,αnγ) 1976Wa11 (continued)

γ(^{37}Ar) (continued)

E_i(level)	J_i^π	E_γ	I_γ[†]	E_f	J_f^π	Mult.	δ	Comments
								γ).
								A_2=+0.24 *13*, A_4=−0.04 *3*, POL=+0.47 *28*.
4022.10	9/2−	836.9 *4*	36 *4*	3185.12	9/2−			Iγ(relative)=2.6.
		1805.4 *4*	58 *6*	2216.83	7/2+			Iγ(relative)=4.3.
		2411.2 *6*	6 *2*	1611.29	7/2−			Iγ(relative)=0.44.
4887.2		1180.9 *7*	100	3706.29	11/2−			Iγ(relative)=3.5.
5213.45	11/2+	1191.5 *3*	12 *3*	4022.10	9/2−	D+Q	+0.11 *5*	Iγ(relative)=4.3.
								Mult.,δ: ΔJ=1, D+Q G.
								A_2=−0.05 *3*, A_4=0.
		1506.98 *20*	41 *4*	3706.29	11/2−	(D+Q)	−0.09 *6*	Iγ(relative)=14.7.
								Mult.,δ: ΔJ=(1), (D+Q) G.
								A_2+0.32 *4*, A_4=+0.09 *4*.
		2028.3 *4*	16 *4*	3185.12	9/2−			Iγ(relative)=7.3.
		2996.5 *5*	25 *4*	2216.83	7/2+	(Q)		Iγ(relative)=8.2.
								Mult.,δ: ΔJ=(2), (Q(+O)) γ with possibly δ=+0.08 *8*.
								A_2=+0.35 *6*, A_4=+0.06 *6*.
		3602.2 *5*	6 *3*	1611.29	7/2−			Iγ(relative)=2.1.
5793.6	13/2−	2087.80 *50*	60 *10*	3706.29	11/2−			Iγ(relative)=4.0.
		2608.15 *35*	40 *10*	3185.12	9/2−			Iγ(relative)=6.2, according to 1976Wa11 May Be low by a factor of two.
								δ: −0.05 *5* (1976Wa11 do not give any multipoles and based on γ(θ) No assignment can Be adopted by evaluators either; E2 from level scheme).
								A_2=+0.06 *16*, A_4=0.
6151.06	13/2+	937.55 *20*	75 *5*	5213.45	11/2+	M1+E2	+0.14 *3*	Iγ(relative)=(19.6), not resolved from 937.21γ In ^{18}F (1976Wa11).
								Mult.,δ: ΔJ=1, M1+E2 G.
								A_2=−0.17 *5*, A_4=+0.11 *5*, POL=−0.43 *15*.
		1263.8 *3*	25 *5*	4887.2				Iγ(relative)=9.1.
6473.88	15/2+	322.80 *12*	67 *5*	6151.06	13/2+	M1+E2	−0.10 *3*	Iγ(relative)=22.3.
								Mult.,δ: ΔJ=1, M1+E2 G.
								A_2=−0.36 *3*, A_4=+0.01 *4*, POL=−0.20 *10*.
		680.34 *20*	28 *5*	5793.6	13/2−			Iγ(relative)=(9.5), not resolved from 680.22 *15* γ In ^{35}Cl (1976Wa11).
		1260.45 *30*	5 *2*	5213.45	11/2+			δ: −0.04 *3* (1976Wa11 do not give any multipoles and based on γ(θ) No assignment can tepmted by evaluators either; E2 from level scheme).
								A_2=+0.36 *12*, A_4=0.
7071.8	17/2+	597.92 *15*	100	6473.88	15/2+	M1(+E2)	−0.03 *3*	Iγ(relative)=12.0.
								Mult.,δ: ΔJ=1, M1(+E2) γ (with δ=−0.03 *3*).
								A_2=−0.29 *8*, A_4=+0.10 *10*, POL=−0.22 *14*.

[†] Branching ratios with uncertainties from 1976Wa11, while relative γ intensities from same reference (with No uncertainties In 1976Wa11) are given In comments.

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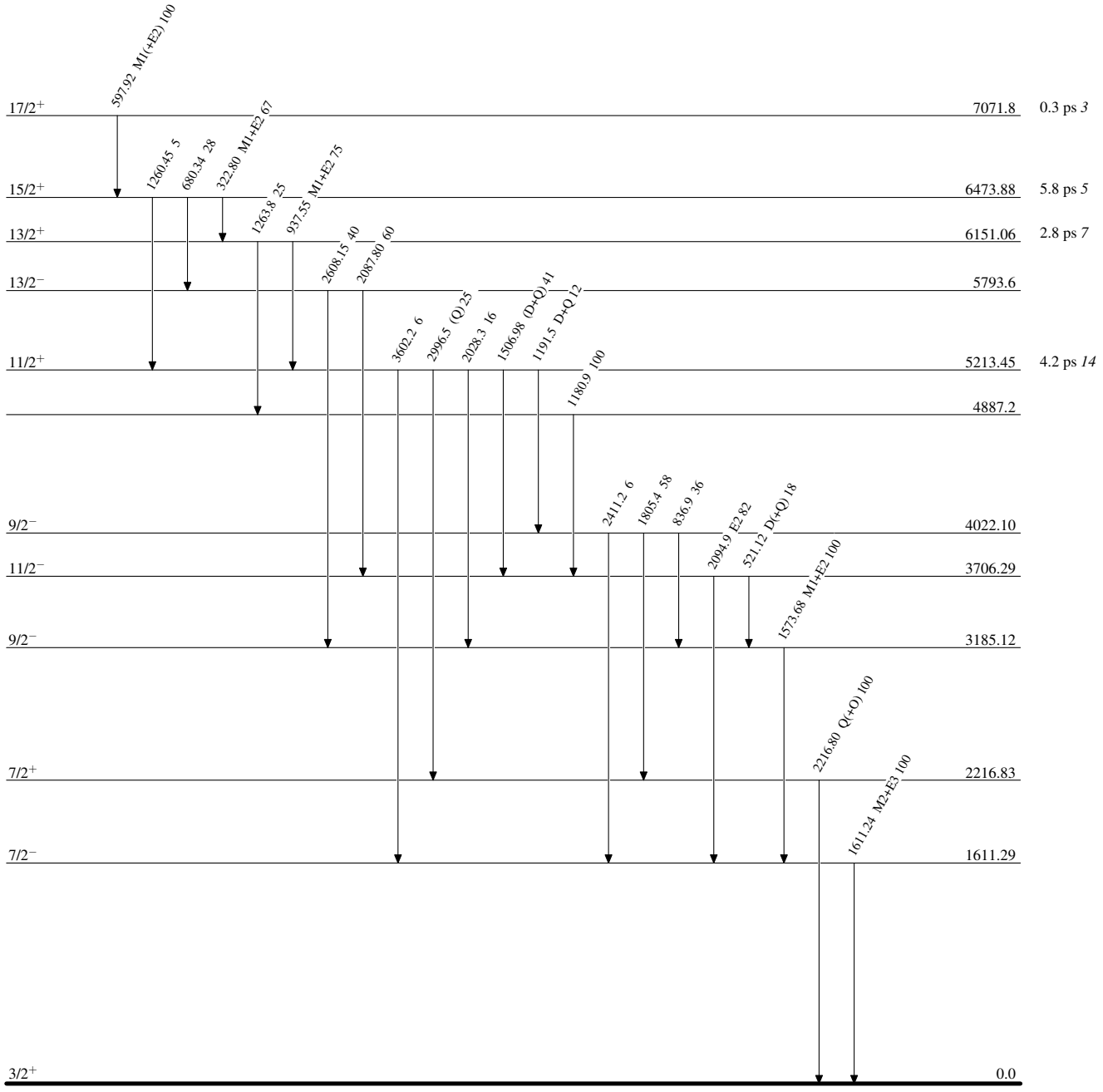
Level Scheme

Intensities: % photon branching from each level



$^{37}_{18}Ar_{19}$