$^{16}O(^{24}Mg,\alpha n\gamma)$ 2004Ek01,2005Ek01

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jun Chen, John Cameron and Balraj Singh	NDS 112,2715 (2011)	20-Oct-2011

2004Ek01,2005Ek01: E=60 MeV ^{24}Mg beam produced at the Legnaro National Laboratory. Target: a 0.5 mg/cm^2 enriched ^{40}Ca target with a 7 mg/cm^2 tantalum backing and with oxygen inside. Detectors: the GASP array of Ge detectors, the ISIS charged-particle array of 40 ΔE-E Si telescopes and a neutron detector in place of six of 80 BGO detectors. Measured Eγ, Iγ, γγ, γ(particle)(n) coin. Deduced levels, J^π from measured asymmetry ratios R(γ(θ)).

Level schemes and decay pattern of mirror nuclides: ^{35}Ar and ^{35}Cl are discussed.

^{35}Ar Levels

E(level)†	Jπ‡
0.0	$3/2^+$
1750.7 *4*	$5/2^+$
2603.2 *5*	$(7/2^+)$
3197.0 *4*	$7/2^{(-)}$
4359.1 *8*	$(9/2^-)$
5384.4 *6*	$11/2^{(-)}$
5766.0 *6*	$13/2^{(-)}$

† From least-squares fit to Eγ′s.

‡ From measured asymmetry ratios R(γ(θ)) in 2004Ek01.

γ(^{35}Ar)

R(γ(θ))=Asymmetry ratio measured at 35° and 81° with respect to the beam axis. Value of ≈1.2 for stretched quadrupole and ≈0.7 for stretched dipole (ΔJ=1).

Eγ	Iγ	Ei(level)	J_i^π	Ef	J_f^π	Mult.	Comments
381.6 *1*	26 *3*	5766.0	$13/2^{(-)}$	5384.4	$11/2^{(-)}$		R(γ(θ))=0.69 *18*.
593 *1*	12 *6*	3197.0	$7/2^{(-)}$	2603.2	$(7/2^+)$		
852† *1*	4 *2*	2603.2	$(7/2^+)$	1750.7	$5/2^+$		
1025† *1*	5 *2*	5384.4	$11/2^{(-)}$	4359.1	$(9/2^-)$		
1162 *1*	11 *3*	4359.1	$(9/2^-)$	3197.0	$7/2^{(-)}$		
1446.2 *2*	76 *7*	3197.0	$7/2^{(-)}$	1750.7	$5/2^+$	E1	R(γ(θ))=0.71 *9*. B(E1)(W.u.)=3×10^{-5} (2005Ek01).
1750.7 *4*	100 *7*	1750.7	$5/2^+$	0.0	$3/2^+$		R(γ(θ))=1.41 *14*.
1756† *1*	27 *4*	4359.1	$(9/2^-)$	2603.2	$(7/2^+)$		
2187.4 *4*	24 *3*	5384.4	$11/2^{(-)}$	3197.0	$7/2^{(-)}$		R(γ(θ))=1.6 *4*.
2603.0 *5*	41 *9*	2603.2	$(7/2^+)$	0.0	$3/2^+$		R(γ(θ))=1.01 *17*.
3197.0 *7*	14 *4*	3197.0	$7/2^{(-)}$	0.0	$3/2^+$	M2	R(γ(θ))=1.5 *5*. B(M2)(W.u.)=0.25 (2005Ek01).

† Placement of transition in the level scheme is uncertain.

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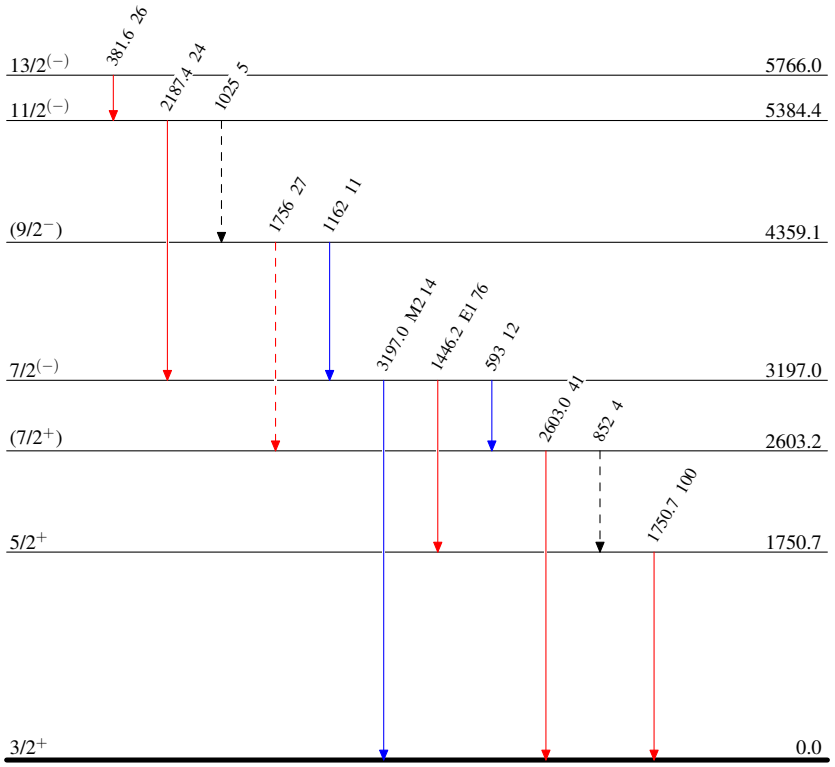
Level Scheme

Intensities: Relative I_γ

Legend

- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$
- γ Decay (Uncertain)



$^{35}_{18}Ar_{17}$