^{25}Mg(^{16}O,npγ) 1975Uh01,1982VaZH

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 149, 1 (2018)	1-Jan-2018

1975Uh01: E=25-40 MeV ^{16}O beam was produced from the HVEC tandem accelerator of the University of Cologne. Target was a 250 μg/cm^2 metallic ^{25}Mg evaporated onto a Ta backing. γ rays were detected with two Ge(Li) detectors (FWHM=2.0-2.2 keV at E=1.33 MeV). Measured Eγ, Iγ, $\gamma\gamma$-coin. Deduced levels. Data reported in 1975Uh01 are mostly from the measurement of ^{28}Si(^{16}O,αpγ).

1982VaZH: E=40 MeV. Measured Eγ, $\gamma\gamma$-coin with a Compton suppressed spectrometer. Comparisons with shell-model calculations. 1982VaZH also report data on ^{28}Si(^{16}O,αpγ).

All data are from 1975Uh01, unless stated otherwise.

^{39}K Levels

E(level)†	J$^\pi$‡	Comments
0	3/2$^+$	
2813.7 *5*	7/2$^-$	
3597.2 *6*	9/2$^-$	
3943.7 *7*	11/2$^-$	
5353.3 *10*	11/2$^-$	
5717.5 *9*	13/2$^-$	J$^\pi$: 9/2$^-$ from 1982VaZH.
6433.8 *10*	13/2$^+$	E(level): from 1982VaZH.
6474.7 *10*	15/2$^+$	J$^\pi$: 11/2$^+$ from 1982VaZH.
7141.0 *9*	15/2$^-$	
7776.1 *10*	17/2$^+$	E(level): doublet near this energy proposed by 1981No05 in (α,pγ) is not supported by detailed γ-ray studies of 1982VaZH. J$^\pi$: 13/2$^+$ from 1982VaZH.
8027.7 *10*	19/2$^-$	J$^\pi$: 15/2$^-$ from 1982VaZH.
9909.1 *12*	(21/2$^+$)	E(level),J$^\pi$: from 1982VaZH.

† From a least-squares fit to γ-ray energies.
‡ From Adopted Levels. Assignments by 1982VaZH based on detailed γ and $\gamma\gamma$ studies are given under comments, if different.

γ(^{39}K)

E$_\gamma$†	I$_\gamma$†	E$_i$(level)	J$^\pi_i$	E$_f$	J$^\pi_f$	Comments
251.9 *6*		8027.7	19/2$^-$	7776.1	17/2$^+$	
346.6 *5*	35.4 *17*	3943.7	11/2$^-$	3597.2	9/2$^-$	
364#		5717.5	13/2$^-$	5353.3	11/2$^-$	Iγ(364)/Iγ(1773)=2/98 (1982VaZH).
757.2 *8*	24 *2*	6474.7	15/2$^+$	5717.5	13/2$^-$	
783.5 *8*		3597.2	9/2$^-$	2813.7	7/2$^-$	
886.8‡ *8*	17 *2*	8027.7	19/2$^-$	7141.0	15/2$^-$	
1129.9 *9*	60 *4*	3943.7	11/2$^-$	2813.7	7/2$^-$	
1301.3 *6*		7776.1	17/2$^+$	6474.7	15/2$^+$	
1342.2# *2*		7776.1	17/2$^+$	6433.8	13/2$^+$	
1409.6 *9*		5353.3	11/2$^-$	3943.7	11/2$^-$	
1423.4# *3*		7141.0	15/2$^-$	5717.5	13/2$^-$	Iγ(1423):Iγ(1788):Iγ(3197)=6.0 *15*:34:60 (1982VaZH).
1773.4 *10*	37 *3*	5717.5	13/2$^-$	3943.7	11/2$^-$	I$_\gamma$: 15 *4* in ^{28}Si(^{16}O,p$\alpha\gamma$).
1788#		7141.0	15/2$^-$	5353.3	11/2$^-$	
1881.6# *7*		9909.1	(21/2$^+$)	8027.7	19/2$^-$	
2131.6# *14*		9909.1	(21/2$^+$)	7776.1	17/2$^+$	Iγ(2132)/Iγ(1882)=40 *10*/60 *10* (1982VaZH).
2490#		6433.8	13/2$^+$	3943.7	11/2$^-$	

Continued on next page (footnotes at end of table)

^{25}Mg(^{16}O,npγ) 1975Uh01,1982VaZH (continued)

γ(^{39}K) (continued)

E_γ †	I_γ †	E_i(level)	J^π_i	E_f	J^π_f
2813.6 *5*	100	2813.7	7/2$^-$	0	3/2$^+$
3198‡ *2*	10 *1*	7141.0	15/2$^-$	3943.7	11/2$^-$
3597.0 *7*	26.5 *15*	3597.2	9/2$^-$	0	3/2$^+$

† From 1975Uh01, unless otherwise noted. Quoted energy values are from the combination of results from the ^{25}Mg(^{16}O,npγ) and ^{28}Si(^{16}O,αpγ) reactions in 1975Uh01 and those values are only considered here but not in the dataset of ^{28}Si(^{16}O,αpγ) to avoid duplication; quoted intensity values are from ^{28}Si(^{16}O,αpγ) reaction in 1975Uh01.

‡ Ordering of 887-3198 cascade is from Adopted Gammas; it was reversed in 1975Uh01.

From 1982VaZH only.

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Level Scheme

Intensities: Relative I_γ