^{27}Al(^{24}Mg,3pγ) 1976Fo22

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 179, 1 (2022)	30-Nov-2021

1976Fo22: E=72 MeV ^{24}Mg beam was produced from the MP-Tandem Van der Graaff generator of the Munich Universities. Target was 700 μg/cm^2 ^{27}Al on a 0.1-mm Au backing. γ rays were detected with Ge(Li) detectors. Measured Eγ, Iγ, $\gamma\gamma$-coin, $\gamma(\theta)$. Deduced levels, J, π. Comparisons with theoretical calculations. 1976Fo22 also report data in ^{44}Ca(^{7}Li,p2nγ) and ^{48}K(^{3}He,3nγ).

Level scheme including placements of γ transitions is from that of 1976Fo22.

^{48}Ti Levels

E(level)[†]	J$^\pi$[‡]
0.0	0$^+$
984.0 *10*	2$^+$
2296.0 *15*	4$^+$
3334.0 *18*	6$^+$
3510.8 *20*	6$^+$
4566.3 *20*	(8$^+$)
5199.6[#] *20*	8$^+$[#]
6105.3 *22*	(10$^+$)

[†] From a least-squares fit to γ-ray energies, assuming $\Delta E\gamma$=1 keV.
[‡] From 1976Fo22, based on $\gamma(\theta)$ and reaction mechanism dependent arguments which are in common use in other mass regions but not yet well established for f-p shell residues. Arguments hinge basically on the assumption that the dominant decay follows the yrast states, so that strong transitions satisfy $J_i > J_f$.
[#] From (α,pγ) data of 1979Gl07. Existence of state and spin and parity assignment confirmed by selective nature of ^{35}S+^{14}C reaction (1986Wa19).

γ(^{48}Ti)

E$_\gamma$[†]	I$_\gamma$[†]	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$
177	13.4 *14*	3510.8	6$^+$	3334.0	6$^+$
633[#@]		5199.6	8$^+$	4566.3	(8$^+$)
984	100[&]	984.0	2$^+$	0.0	0$^+$
1038	46 *3*	3334.0	6$^+$	2296.0	4$^+$
1056[@b]		4566.3	(8$^+$)	3510.8	6$^+$
1212[b]	2.7 *4*	3510.8	6$^+$	2296.0	4$^+$
1232	41[a] *8*	4566.3	(8$^+$)	3334.0	6$^+$
1312	57 *4*	2296.0	4$^+$	984.0	2$^+$
1539	11.6 *18*	6105.3	(10$^+$)	4566.3	(8$^+$)
(1689[‡])		5199.6	8$^+$	3510.8	6$^+$

[†] From 1976Fo22.
[‡] From (α,pγ) data of 1979Gl07 and placement confirmed by 1986Wa19 in ^{36}S(^{14}C,2nγ). Not seen in 1976Fo22.
[#] Originally placed as deexciting a 6737, (11$^+$,12$^+$), state by 1976Fo22. 1986Wa19 confirm placement from 5197 suggested by 1979Gl07 in (α,pγ).
[@] Weak.
[&] Overestimated because of the presence of 974γ and 980γ lines that belong to ^{48}V and ^{45}Ti contaminants (1976Fo22).
[a] Large uncertainty due to unidentified contribution from 1229γ of ^{42}Ca (1976Fo22).
[b] Placement of transition in the level scheme is uncertain.

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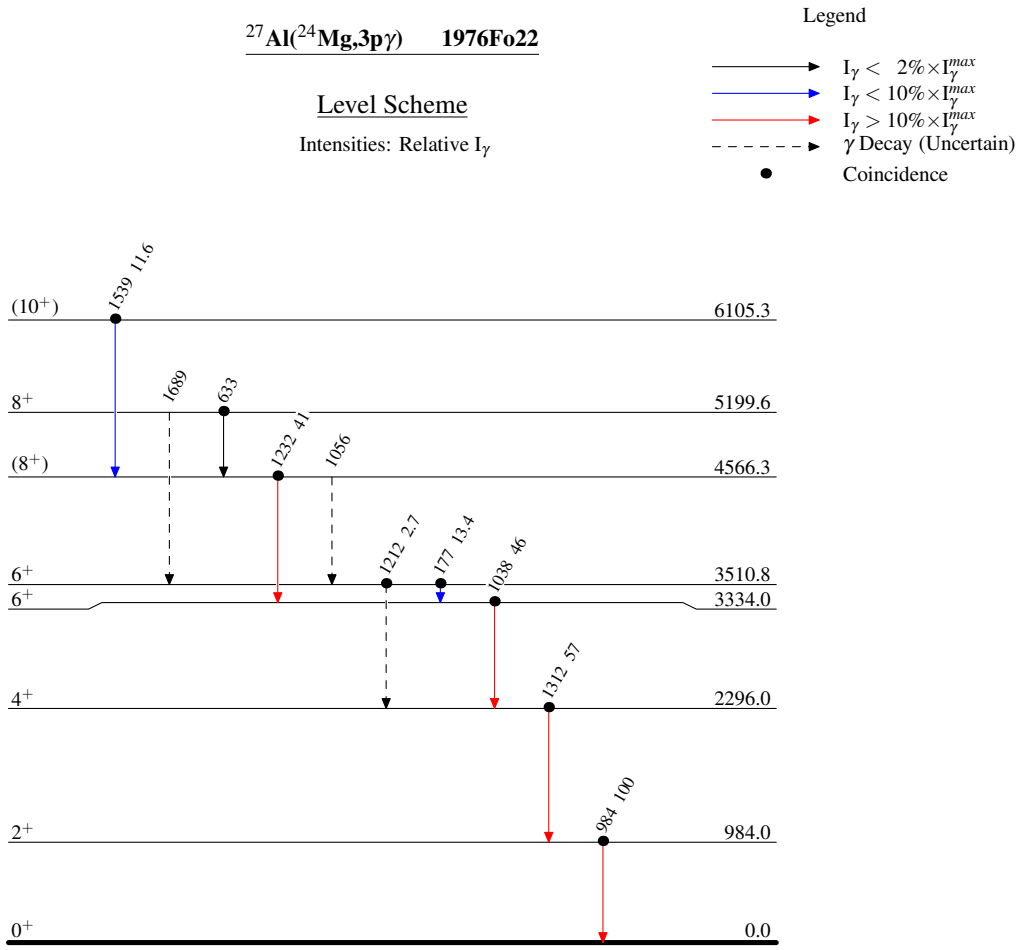
Level Scheme

Intensities: Relative I_γ



$^{48}_{22}Ti_{26}$