^{40}Ca(^{24}Mg,αnγ) 2002An34

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	M. Shamsuzzoha Basunia	NDS 151, 1 (2018)	1-Apr-2018

E(^{24}Mg)= 60 MeV, reduced to 55 MeV by target; 99.98% ^{40}Ca target; GASP array (40 HPGe detectors, 74 BGO elements), ISIS 4π charged-particle detector (40 E-ΔE Si telescopes), neutron-ring array; measured Eγ, Iγ, (charged-particle)-γ coin, $\gamma\gamma$ coin.

^{59}Zn Levels

E(level)†	J$^\pi$‡	Comments
0.0#	3/2$^-$#	J$^\pi$: from Adopted Levels.
894.2@ *10*	(5/2$^-$)@	
1397.0?# *20*	(7/2$^-$)#	
1814.4& *12*	(7/2$^-$)&	
2333.2@ *22*	(9/2$^-$)@	
2609.4& *16*	(9/2$^-$)&	
3386.2@ *25*	(13/2$^-$)@	

† From least-squares adjustment of Eγ.
‡ Authors′ values based on analogy with known structure in mirror nucleus, ^{59}Cu, except as noted.
# Energy is close to that of a possible (π p$_{3/2}$)$\otimes$(ν (fp)$^2_{0,2,4}$) state in the mirror nucleus, ^{59}Cu (2002An34). However, configuration in mirror nucleus is believed to be strongly mixed (2002An20).
@ Energy is close to that of a possible (π f$_{5/2}$)$\otimes$(ν (fp)$^2_{0,2,4}$) state in the mirror nucleus, ^{59}Cu (2002An34). However, configuration in mirror nucleus is believed to be strongly mixed (2002An20).
& Energy is very close to that of a possible (π f$_{7/2}$)$^{-1}\otimes$(ν (fp)$^2_{0,2,4}$) state in the mirror nucleus, ^{59}Cu (2002An34).

γ(^{59}Zn)

E$_\gamma$	I$_\gamma$	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$
419† *1*	45 *30*	1814.4	(7/2$^-$)	1397.0?	(7/2$^-$)
795 *1*	62 *19*	2609.4	(9/2$^-$)	1814.4	(7/2$^-$)
894 *1*	100 *15*	894.2	(5/2$^-$)	0.0	3/2$^-$
920 *1*	27 *11*	1814.4	(7/2$^-$)	894.2	(5/2$^-$)
1053 *1*	33 *16*	3386.2	(13/2$^-$)	2333.2	(9/2$^-$)
1397† *2*	41 *20*	1397.0?	(7/2$^-$)	0.0	3/2$^-$
1439 *2*	46 *19*	2333.2	(9/2$^-$)	894.2	(5/2$^-$)
1815 *2*	58 *26*	1814.4	(7/2$^-$)	0.0	3/2$^-$

† Placement of transition in the level scheme is uncertain.

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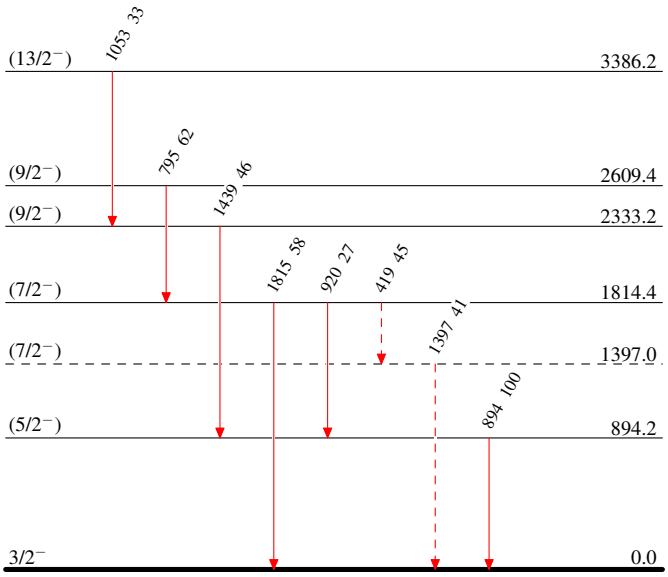
Level Scheme

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)



$^{59}_{30}Zn_{29}$