Adopted Levels, Gammas

History

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

Q(β^-)=−13455 *SY*; S(n)=12988 *50*; S(p)=2836.8 *7*; Q(α)=−4304.6 *10* 2017Wa10
ΔQ(β^-)=170 (syst) (2017Wa10).

No significant change from the ENSDF update by c.m. Baglin (8-Feb-2002) except g.s. half-life.

Additional information 1.

^{59}Zn Levels

Cross Reference (XREF) Flags

A ^{58}Ni(p,π^-)
B ^{40}Ca(^{24}Mg,αnγ)

E(level)†	J$^\pi$‡	$T_{1/2}$	XREF	Comments
0.0#	3/2$^-$#	178.6 ms *18*	AB	%ε+%β^+=100; %εp=0.10 *3* %εp is weighted average of 0.09% *2* (1984Ar12) and 0.23% *8* (1981Ho19). μ: predicted value is −0.57 *10* (2001Bu08), based on linear correlation between g.s. g-factors and superallowed β-decay strengths of mirror nuclei. J$^\pi$: from super-allowed ε decay with log *ft*=3.71 *2* to 3/2$^-$ ^{59}Cu(g.s.). $T_{1/2}$: Weighted ave. of 182.2 ms *18* (1984Ar12 − from β(t) with mass-separated source), 210 ms *20* (1981Ho19), 173 ms *14* (2002Lo13,2002Bl17), 213 ms *34* (2014Ro14), 174 ms *2* (2017RuZX − same group reports 173.3 ms *33* in 2014Ru08) at 99% level. Uncertainty is the lowest input value.
540?[a] *50*			A	
894.2@ *10*	(5/2$^-$)@		AB	
1320[a] *50*			A	
1397.0?# *20*	(7/2$^-$)#		B	
1814.4& *12*	(7/2$^-$)&		AB	XREF: A(1740).
2333.2@ *22*	(9/2$^-$)@		B	
2609.4& *16*	(9/2$^-$)&		AB	XREF: A(2680).
3386.2@ *25*	(13/2$^-$)@		B	

† From least-squares adjustment of Eγ, except as noted.
‡ From (^{24}Mg,αnγ); based on analogy with known structure in mirror nucleus, ^{59}Cu, except as noted.
# Energy is close to that of a possible (π $p_{3/2}$)⊗(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 $f_{5/2}$)⊗(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 $f_{7/2})^{-1}$⊗(ν $(fp)^2_{0,2,4}$) state in the mirror nucleus, ^{59}Cu (2002An34).
[a] From (p,π^-).

Adopted Levels, Gammas (continued)

$\gamma(^{59}Zn)$

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π
894.2	(5/2$^-$)	894 *1*	100	0.0	3/2$^-$
1397.0?	(7/2$^-$)	1397[‡] *2*	100	0.0	3/2$^-$
1814.4	(7/2$^-$)	419[‡] *1*	78 *52*	1397.0?	(7/2$^-$)
		920 *1*	47 *19*	894.2	(5/2$^-$)
		1815 *2*	100 *45*	0.0	3/2$^-$
2333.2	(9/2$^-$)	1439 *2*	100	894.2	(5/2$^-$)
2609.4	(9/2$^-$)	795 *1*	100	1814.4	(7/2$^-$)
3386.2	(13/2$^-$)	1053 *1*	100	2333.2	(9/2$^-$)

[†] From ^{40}Ca(^{24}Mg,αnγ).
[‡] Placement of transition in the level scheme is uncertain.

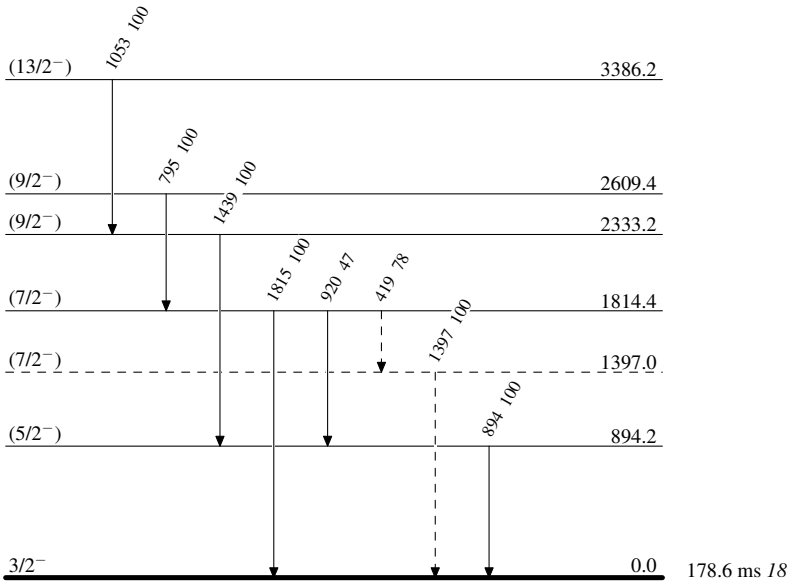
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



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