^{58}Ni(^{6}Li,2nγ) 2022Mi15

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh, Huang Xiaolong, and Wang Xianghan	NDS 204,1 (2025)	30-Jun-2023

2022Mi15: E(^{6}Li)=22 MeV from the IFIN-HH 9-MV Tandem accelerator. Measured Eγ, Iγ, one- and two-neutron-gated γ spectra, angular anisotropy for 978.1-keV transition using ROSPHERE array with $LaBr_3$(Ce) and HPGe detectors, and an array of liquid scintillator neutron detectors. Deduced energy of the first 2^+ state, Coulomb energy differences (CED), mirror energy differences (MED), triplet energy differences (TED), and superallowed Fermi β decays of the ground states of ^{62}Ga and ^{62}Ge. Comparison with beyond-mean-field complex excited Vampir variational model calculations using an effective interaction from a G matrix based on the charge-dependent Bonn CD potential.

^{62}Ga Levels

E(level)†	J$^\pi$‡	Comments
0.0	0^+	
571.2# *1*	1^+	T=0
817.2# *2*	3^+	
978.1 *1*	2^+	T=1
1072.5 *2*		
1161.0 *2*	2^+	
1193.7# *2*	5^+	
1352.0 *2*		
1439.1 *3*	4^+	
1574.3 *2*	$(2,3)^+$	
1850.1 *4*		
2374.3 *3*	6^+	
2434.7# *3*	7^+	

† From Eγ data.
‡ As given by 2022Mi15, based on previous assignment.
# Seq.(A): $\Delta J=2$ sequence based on 1^+.

γ(^{62}Ga)

E$_\gamma$†	I$_\gamma$†	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.	Comments
246.0 *1*	61 *2*	817.2	3^+	571.2	1^+		
376.5 *1*	37 *2*	1193.7	5^+	817.2	3^+		
501.3 *1*	5‡ *2*	1072.5		571.2	1^+		
571.2 *1*	100 *3*	571.2	1^+	0.0	0^+		
589.8 *1*	20‡ *2*	1161.0	2^+	571.2	1^+		
621.9 *2*	20 *6*	1439.1	4^+	817.2	3^+		
780.8 *1*	6‡ *3*	1352.0		571.2	1^+		
978.1 *1*	27 *2*	978.1	2^+	0.0	0^+	(Q)	Mult.: Iγ(90°)/Iγ(37°+143°)=0.80 *13* agrees with expected value 0.84 *3* for $\Delta J=2$, quadrupole.
1003.1 *1*	4‡ *1*	1574.3	$(2,3)^+$	571.2	1^+		
1032.9 *3*	3‡ *1*	1850.1		817.2	3^+		
1180.6 *2*	10‡ *4*	2374.3	6^+	1193.7	5^+		
1241.0 *2*	33‡ *7*	2434.7	7^+	1193.7	5^+		

† From 2022Mi15.
‡ Intensity estimated from γ-ray coincidences (2022Mi15).

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Level Scheme

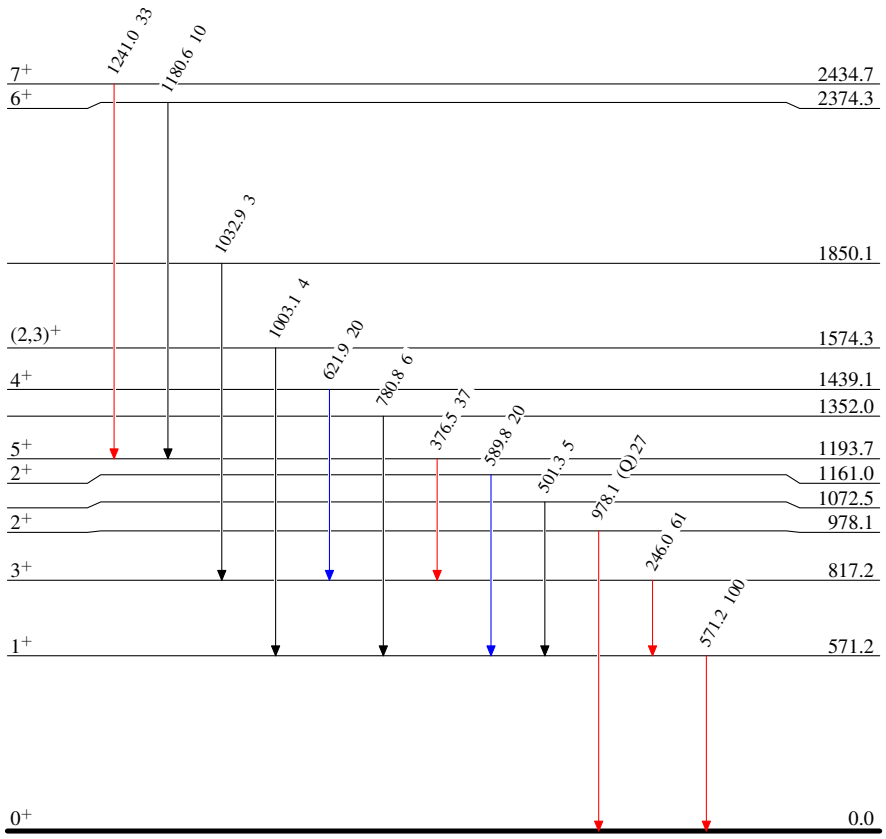
Intensities: Relative I_γ

Legend

$I_\gamma < 2\% \times I_\gamma^{max}$

$I_\gamma < 10\% \times I_\gamma^{max}$

$I_\gamma > 10\% \times I_\gamma^{max}$



$^{62}_{31}Ga_{31}$

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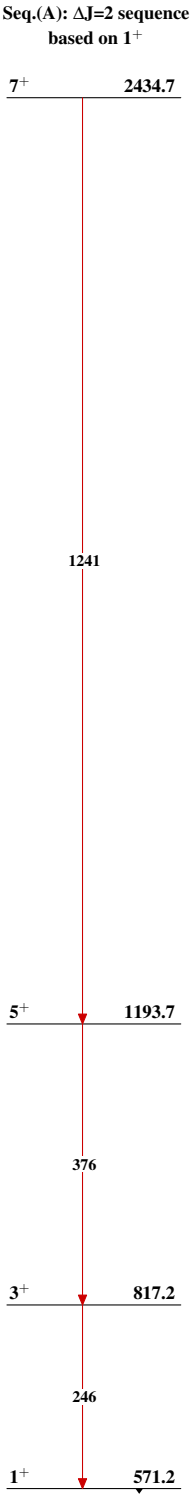

$^{62}_{31}Ga_{31}$