Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Kazimierz Zuber, Balraj Singh	NDS 125, 1 (2015)	25-Jan-2015

Q(β^-)=−13410 *SY*; S(n)=15420 *SY*; S(p)=250 *40*; Q(α)=−2250 *40* 2012Wa38
Estimated uncertainties (2012Wa38): 300 for Q(β^-), 200 for S(n).
Q(εp)=3920 *40*, S(2n)=29310 *170* (syst), S(2p)=5350 *40* (2012Wa38).
1987Ho01 (also:1979ViZY,1978ViZT thesis): first evidence of population of excited state in ^{61}Ga from ^{61}Ge decay.
1991Mo10: ^{61}Ga first identified in the bombardment of enriched ^{58}Ni target by a 65 MeV/nucleon ^{78}Kr beam followed by A-1200 mass separator at NSCL facility .
1993Wi18 (also 1993Wi03): ^{61}Ga produced in fragmentation of ^{78}Kr beam at 75 MeV/nucleon with ^{58}Ni target using A1200 fragment separator at NSCL facility. Measured half-life.
1999Oi01: ^{61}Ga produced in Si(^{36}Ar,X) reaction at E=121 MeV at GSI facility.
2002We07: ^{61}Ga produced in ZrO(p,X) using RILIS source at ISOLDE- CERN facility. Measured half-life and Q(ε) value.
2002Lo13 (also 2002Bl17): ^{9}Be(^{78}Kr,X) E=73 MeV/nucleon; LISE3 spectrometer at GANIL facility. Measured half-life from timing of correlated beta-delayed protons and implanted nuclei.
Structure calculations: 2001Pa02.
2005An03 (also 2005Ru06,2005Ek01): ^{24}Mg(^{40}Ca,p2nγ) E=104 MeV. Measured prompt γ rays in the yrast structure.
Mass measurement using storage ring CSRe in Lanzhou: 2011Tu09.

^{61}Ga Levels

Cross Reference (XREF) Flags

A ^{61}Ge ε decay (44 ms)
B ^{24}Mg(^{40}Ca,p2nγ)

E(level)†	J$^\pi$‡	T$_{1/2}$	XREF	Comments
0.0	3/2$^-$	167 ms *3*	AB	%ε+%β^+=100; %εp<0.25 (2002We07) J$^\pi$: log *ft*=5.3 to 1/2$^-$, and 5.6 to 5/2$^-$ levels in ^{61}Zn from ^{61}Ga ε decay. T$_{1/2}$: weighted average of 162 ms *10* (timing of β(implant) correlations, 2014Ro14); 168 ms *3* (timing of β or β-delayed proton events correlated with implanted ^{61}Ga nuclei,2002We07); 148 ms *19* (2002Lo13,2002Bl17) and 0.15 s *3* (1993Wi18,1993Wi03). Other: 167.3 ms *29* (2008Se10 evaluation).
220? *1*	(1/2$^-$)		B	
271# *1*	(5/2$^-$)		B	
1397# *1*	(9/2$^-$)		B	
2903?# *2*	(13/2$^-$)		B	
3420 *50*	(3/2$^-$)		A	%p=100 (1987Ho01,2007Bl09) T=3/2 J$^\pi$: isobaric analog state, T=3/2 g.s. in ^{61}Ge.

† From Eγ data, except for the 3420 level which is from ε decay.
‡ From mirror symmetry arguments with ^{61}Zn nuclide (2005An03).
# Band(A): γ-cascade based on 5/2$^-$.

Adopted Levels, Gammas (continued)

$\gamma(^{61}Ga)$

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.
220?	$(1/2^-)$	220† *1*	100	0.0	$3/2^-$	
271	$(5/2^-)$	271 *1*	100	0.0	$3/2^-$	D+Q
1397	$(9/2^-)$	1126 *1*	100	271	$(5/2^-)$	
2903?	$(13/2^-)$	1506† *1*	100	1397	$(9/2^-)$	

† Placement of transition in the level scheme is uncertain.

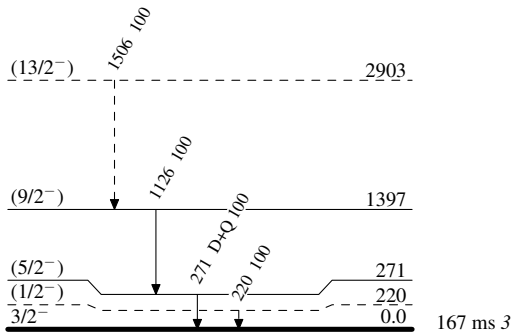
Adopted Levels, Gammas

Legend

Level Scheme

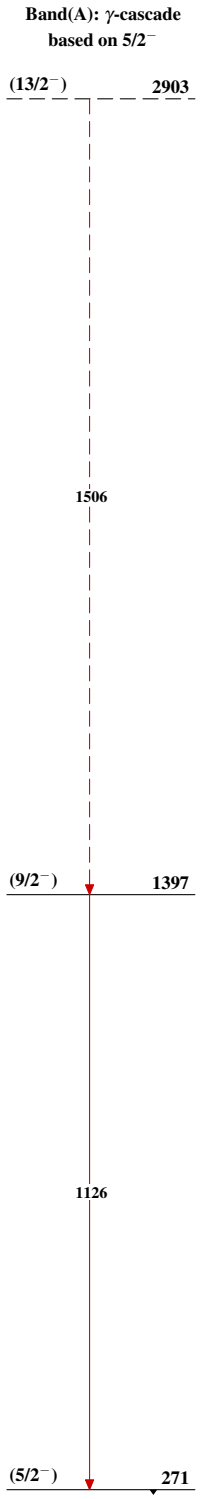
Intensities: Relative photon branching from each level

γ Decay (Uncertain)



$^{61}_{31}Ga_{30}$

Adopted Levels, Gammas



$^{61}_{31}Ga_{30}$