^{63}Ge $\varepsilon+\beta^+$ decay (153.3 ms) 2019Ru07

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 196,17 (2024)	30-Sep-2023

Parent: ^{63}Ge: E=0; J^π=(3/2$^-$); $T_{1/2}$=153.3 ms *6*; Q(ε)=9630 *40*; %ε+%β^+ decay=?

^{63}Ge-J^π,$T_{1/2}$: From Adopted Levels of ^{63}Ge. Adopted $T_{1/2}$ is the same as $T_{1/2}$ from implant-proton correlation in 2019Ru07.

^{63}Ge-Q(ε): From 2021Wa16.

2019Ru07: ^{63}Ge source was produced by fragmentation of E=350 MeV/nucleon ^{78}Kr beam on a ^{9}Be target at RIKEN. Fragments were separated and selected with the BigRIPS separator and implanted into the WAS3ABi device consisting of 3 DSSSDs, surrounded by the EURICA array. Measured Eγ, E(p), implant-p and implant-β correlations. Deduced parent levels, decay $T_{1/2}$.

All data are from the level scheme in Figure 6 of 2019Ru07, unless otherwise noted.

The decay scheme is preliminary as stated in 2019Ru07.

^{63}Ga Levels

Due to the preliminary nature of the level scheme in 2019Ru07 and no detailed and further information about how the level scheme is obtained, those new levels above 443 level as claimed by the authors and their deexciting γ transitions are considered questionable and thus not adopted in the Adopted Levels, Gammas by the evaluator.

E(level)[†]	J^π[‡]	Comments
0.0	3/2$^-$	T_z=−1/2
75.0 *1*	5/2$^-$	
442.8 *1*	(3/2$^-$)	
627.0? *1*	(1/2)[#]	
722.2? *1*		
925.1? *1*		
954.2? *1*		
1000.1? *1*		
1363.5? *1*		
2072.6? *2*		
2485.4? *3*		
3208.0? *2*		

[†] From a least-squares fit to γ-ray energies.

[‡] From Adopted Levels, unless otherwise noted.

[#] As shown in the level scheme in Figure 6 of 2019Ru07.

$\gamma(^{63}Ga)$

Eγ[†]	E$_i$(level)	J^π_i	E$_f$	J^π_f	Eγ[†]	E$_i$(level)	E$_f$	J^π_f
75.0 *1*	75.0	5/2$^-$	0.0	3/2$^-$	709.1[‡] *2*	2072.6?	1363.5?	
367.5 *1*	442.8	(3/2$^-$)	75.0	5/2$^-$	722.2[‡] *1*	722.2?	0.0	3/2$^-$
373.1[‡] *1*	1000.1?		627.0?	(1/2)	925.0[‡] *1*	925.1?	0.0	3/2$^-$
442.8 *1*	442.8	(3/2$^-$)	0.0	3/2$^-$	954.2[‡] *1*	954.2?	0.0	3/2$^-$
482.4[‡] *1*	925.1?		442.8	(3/2$^-$)	1363.6[‡] *1*	1363.5?	0.0	3/2$^-$
627.0[‡] *1*	627.0?	(1/2)	0.0	3/2$^-$	2485.4[‡] *3*	2485.4?	0.0	3/2$^-$
641.2[‡] *1*	1363.5?		722.2?		2765.2[‡] *2*	3208.0?	442.8	(3/2$^-$)
647.4[‡] *1*	722.2?		75.0	5/2$^-$				

[†] From 2019Ru07. Quoted values are taken from the decay scheme in Figure 6 of 2019Ru07. But values from the γ spectrum of

Continued on next page (footnotes at end of table)

^{63}Ge ε+β^+ decay (153.3 ms) 2019Ru07 (continued)

$\gamma(^{63}Ga)$ (continued)

[64]As decay in Figure 3 are different. The original uncertainties of 0.1-0.2 keV are most likely statistical only and underestimated due to poor statistics of all γ peaks in the spectrum in Figure 3.

‡ Placement of transition in the level scheme is uncertain.

^{63}Ge ε decay (153.3 ms) 2019Ru07

Legend

Decay Scheme