$^{12}C(^{63}Zn,^{62}Zn\gamma)$ 2007St16

History

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

Single-neutron knockout reaction. Beam=^{65}Ge, target=^{12}C, degrader=^{93}Nb.

2007St16: ^{63}Zn produced as part of cocktail beam of ^{64}Ga, ^{63}Zn and ^{62}Cu through fragmentation of ^{78}Kr beam with an energy of 150 MeV/nucleon on ^{9}Be target at K1200 cyclotron facility of NSCL-MSU. Level lifetimes measured by Recoil Distance Method (RDM) using Cologne/NSCL plunger device, and ^{12}C-^{93}Nb target-degrader combination. Fragments were separated using A1900 separator followed by identification and detection using the S800 spectrograph. The γ rays were detected using Segmented Germanium Array (SeGA) consisting of one ring of seven Ge detectors at 30°, and a ring of eight detectors at 140°. Comparisons of B(E2) values for the first and the second 2^+ states in ^{62}Zn with large-scale shell-model calculations.

^{62}Zn Levels

E(level)	J^π[†]	$T_{1/2}$	Comments
0.0	0^+		
953.8 *1*	2^+	2.91 ps *49*	$T_{1/2}$: measured mean lifetime τ=4.2 ps *7* by 2007St16 using RDM method, and analyzed by taking into account the 10% feeding from the 1805, 2^+ state with its mean lifetime τ=3.8 ps *6* taken from the ENSDF database (2000 update).
1804.6 *1*	2^+	2.63 ps *42*	$T_{1/2}$: from the Adopted Levels.

[†] From the Adopted Levels.

$\gamma(^{62}Zn)$

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.	Comments
953.8	2^+	953.75 *10*	100	0.0	0^+	E2	B(E2)↓=0.0250 *18* (2007St16)
1804.6	2^+	850.75 *10*	100.0 *30*	953.8	2^+		
		1804.68 *10*	83.6 *34*	0.0	0^+		

[†] From the Adopted Levels, Gammas; energies are rounded values.

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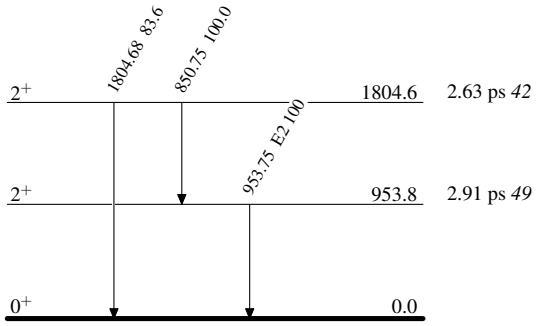
Level Scheme

Intensities: Relative photon branching from each level



$^{62}_{30}Zn_{32}$