Coulomb excitation **2005Le12,1988Sa32,1975Th01**

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen	NDS 178, 41 (2021).	12-Nov-2021

2005Le12, 2005Le38, 2002Ke02: C(^{64}Zn,^{64}Zn′γ) E=160 MeV. Measured g factors and lifetimes of first 2^+, 4^+ and 3^- state, (particle)γ coin, transient-field method.
1988Sa32: (^{18}O,^{18}O′γ) E=30.5-32.5 MeV; (^{16}O,^{16}O′γ) E=33.9-35.4 MeV; (α,α') E=7.7-8.2 MeV. Measured Q.
1975Th01: (α,$\alpha'\gamma$) E=3-5 MeV.
1962St02 (also 1965Ro09): (α,$\alpha'\gamma$) E=3-10 MeV.
Others:
2010Mo14: reanalyzed g factors using data from 2005Le12, where g factors and lifetimes were measured.
2003KoZQ: Pb(^{64}Zn,^{64}Zn′γ) E=270 MeV. Measured Eγ, (particle)γ coin, deduced E2 matrix elements and Q for first 2^+ state. The details of this work are not available.
1998Si25: (p,p′γ) E=2.0-4.5 MeV. Natural target. Deduced B(E2) for first excited state.
1998KaZS: (^{19}F,^{19}F′γ) E=42 MeV and (^{37}Cl,^{37}Cl′γ) E=73 MeV. Measured transient-magnetic field in Fe, $\gamma(\theta$,H) and (particle)γ coin.
1982Ke01: (^{84}Kr,^{84}Kr′) E=115, 118 MeV.
1979Fa06: (^{16}O,^{16}O′γ) E=36 MeV. Measured g factor by IMPAC and transient field technique.
1978BeZJ (and 1979BrZP): (^{32}S,^{32}S′γ) E=72 MeV. Measured μ.
1973Fi15: (^{35}Cl,^{35}Cl′γ) E=56-68 MeV. Measured $T_{1/2}$ from line shape analysis.
1960An07, 1959Al95: (^{14}N,^{14}N′) E=36 MeV and (α,α') E=8-15 MeV.
1956Te26: (α,α') E=6 MeV.
Level scheme above the first 2^+ is from 2005Le12.

^{64}Zn Levels

E(level)	J^π[†]	$T_{1/2}$[‡]	Comments
0	0^+		
991.7	2^+	1.92 ps *6*	B(E2)↑=0.168 *4* (1988Sa32). Others: 0.112 *6* (1998Si25), 0.161 *12* (1975Th01), 0.170 *15* (1962St02), 0.083 *17* (1960An07), 0.12 (1959Al95), 0.11 *2* (1956Te26). $T_{1/2}$: weighted average of 1.97 ps *6* (2005Le12) and 1.87 ps *6* (2002Ke02). Other: 1.71 ps *21* (1973Fi15). For $T_{1/2}$ from B(E2), consult the detailed comments for level half-life for 991.7 level in the Adopted Levels, Gammas dataset. Q=−0.32 *6* (constructive interference), −0.26 *6* (destructive interference) (1988Sa32); −0.01 *+9−5* (2003KoZQ). g factor=+0.447 *29* (2005Le12); +0.45 *3* (2010Mo14, reanalyzed using data from 2005Le12). Others: +0.445 *46* (2002Ke02), +0.46 *10* (1979Fa06), +0.42 *9* (1978BeZJ), +0.52 *12* (1979BrZP).
1799	2^+		
2307	4^+	0.776 ps *28*	g factor=+0.53 *16* (2005Le12); +0.49 *15* (2010Mo14, reanalyzed using data from 2005Le12).
2736	4^+		
2996	3^-	0.152 ps *4*	g factor=+0.5 *3* (2005Le12).
3079	4^+	0.55 ps *6*	

[†] From the Adopted Levels.
[‡] From DSA analysis of Doppler-broadened shapes of γ-ray peaks (2005Le12, also 2005Le38 and 2002Ke02).

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$\gamma(^{64}Zn)$

E_γ	E_i(level)	J_i^π	E_f	J_f^π	Comments
771	3079	4^+	2307	4^+	
807	1799	2^+	991.7	2^+	
937	2736	4^+	1799	2^+	
991.7	991.7	2^+	0	0^+	E_γ: from 1965Ro09. B(E2)(W.u.)=19.5 *6* (2005Le12) from level lifetime.
1197	2996	3^-	1799	2^+	
1315	2307	4^+	991.7	2^+	B(E2)(W.u.)=12.2 *4* (2005Le12) from level lifetime.
1799	1799	2^+	0	0^+	
2007	2996	3^-	991.7	2^+	
2087	3079	4^+	991.7	2^+	

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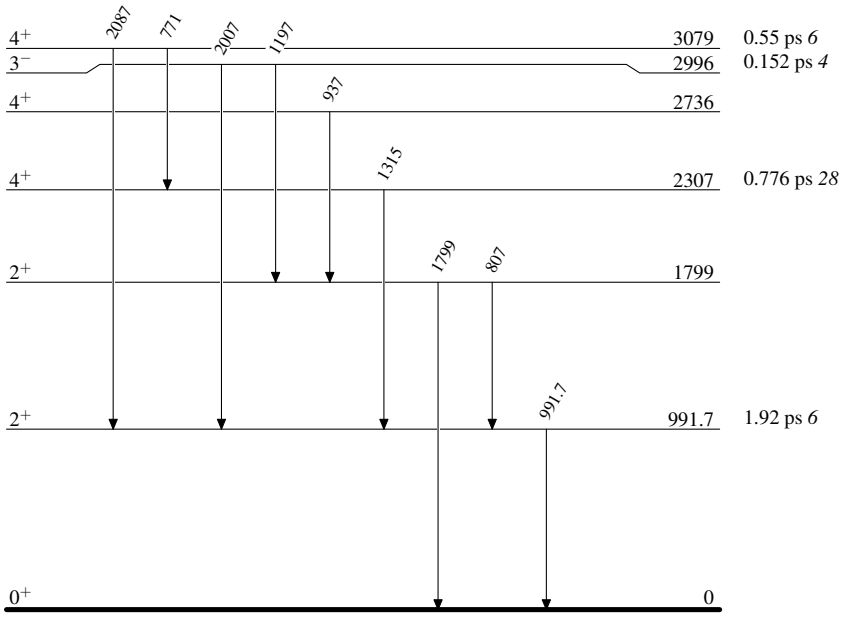
Level Scheme



$^{64}_{30}Zn_{34}$