^{63}Cu(α,p), (α,pγ) 1981Zh07

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. Browne, J. K. Tuli	NDS 111, 1093 (2010)	3-Mar-2009

Target $J^\pi=3/2^-$.
(α,pγ): 1981Zh07: Eα=10.0-16.7 MeV; p-γ coincidences and $T_{1/2}$ by DSA.
1974Iv01: Eα=13 MeV; Eγ, p-γ coincidences, and $T_{1/2}$ by DSA.
(α,p): 1973Ma38: Eα=23 MeV; FWHM≈400 keV; p spectrum.
1975Se14: Eα=19.3 MeV; FWHM=150-200keV; p spectrum and $\sigma(\theta)$, $\theta\approx20^\circ-100^\circ$; DWBA analysis.
1970Bu13: Eα=19.4 MeV; $\sigma(\theta)$, $\theta\approx20^\circ-100^\circ$. Others: 1962La27, 1965Sa20, and 1965Sa21.

^{66}Zn Levels

E(level)[†]	J^π[‡]	$T_{1/2}$[#]	Comments
0	0^+[@]		
1039.36 *4*	2^+[@]	1.3 ps *8*	E(level): 1041, uncertainty not given (1974Iv01).
1872.91 *4*	2^+[@]	0.19 ps *7*	E(level): 1872.7 *6* from 1974Iv01. $T_{1/2}$: by DSA from 1974Iv01. $T_{1/2}$=0.7 ps *+6−2* by DSA from 1981Zh07.
2450.3 *3*	4^+	0.19 ps *6*	E(level): 2453.5 *11* from 1974Iv01. $T_{1/2}$: weighted mean of 0.28 ps *11* (1981Zh07) and 0.15 ps *8* (1974Iv01).
2765.24 *20*	4^+	>2.1 ps	
2830.45 *9*	3^-	0.23 ps *14*	E(level): 2830.3 *16* from 1974Iv01. $T_{1/2}$: by DSA from 1974Iv01. $T_{1/2}$=0.6 ps *+3−2* by DSA from 1981Zh07.
2938.55 *6*	2^+	0.06 ps *5*	E(level): 2943 *3* from 1974Iv01. $T_{1/2}$: from 1974Iv01. Other: $T_{1/2}$<0.07 ps (1981Zh07). L: (1+4) from inspection of $\sigma(\theta)$ (1970Bu13).
3077.4 *3*	4^+	0.5 ps *+3−2*	
3709.0 *4*	(5)	0.6 ps *+6−2*	E(level): 3720 *150* from 1973Ma38. L: (1+4) from inspection of $\sigma(\theta)$ for a level at 3810 (1970Bu13).
3746.8 *3*	5^-		$T_{1/2}$: 0.8 ps *+11−4* by DSA from 1981Zh07, but cannot take fully into account feeding from the 4076 ($T_{1/2}$>1.4 ps) and 4252 ($T_{1/2}$>0.5 ps) levels. $T_{1/2}$=46 ps *3* from Adopted Levels.
4075.6 *4*	(6^-)	>1.4 ps	
4182.2 *5*	(6^+)	0.08 ps *+6−4*	
4251.6 *4*	(7^-)	>0.55 ps	
4813.9 *5*	(7^-)	0.6 ps *4*	E(level): 4810 *100* from 1973Ma38.
5.74×10^3 *17*			
6.22×10^3 *19*	(10^+)		
7.17×10^3 *18*			

[†] From Adopted Levels for E<5 MeV and from 1973Ma38 for E >5 MeV.
[‡] From Adopted Levels.
[#] By DSA from 1981Zh07, except as noted.
[@] L=1 provides a good fit to $\sigma(\theta)$ data (1975Se14).

$\gamma(^{66}Zn)$

E_γ[†]	E_i(level)	J_i^π	E_f	J_f^π
328.6 *2*	4075.6	(6^-)	3746.8	5^-
504.7 *3*	4251.6	(7^-)	3746.8	5^-
627.6 *4*	3077.4	4^+	2450.3	4^+
738.4 *3*	4813.9	(7^-)	4075.6	(6^-)
833.50 *5*	1872.91	2^+	1039.36	2^+

Continued on next page (footnotes at end of table)

^{63}Cu(α,p), (α,pγ) 1981Zh07 (continued)

$\gamma(^{66}Zn)$ (continued)

E_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	E_γ[†]	E_i(level)	J_i^π	E_f	J_f^π
943.8 *3*	3709.0	(5)	2765.24	4^+	1726.4 *2*	2765.24	4^+	1039.36	2^+
1039.30 *5*	1039.36	2^+	0	0^+	1732.9 *5*	4182.2	(6^+)	2450.3	4^+
1295.6 *4*	3746.8	5^-	2450.3	4^+	1787.7[‡] *1*	2830.45	3^-	1039.36	2^+
1411.75 *5*	2450.3	4^+	1039.36	2^+	1899.0 *1*	2938.55	2^+	1039.36	2^+

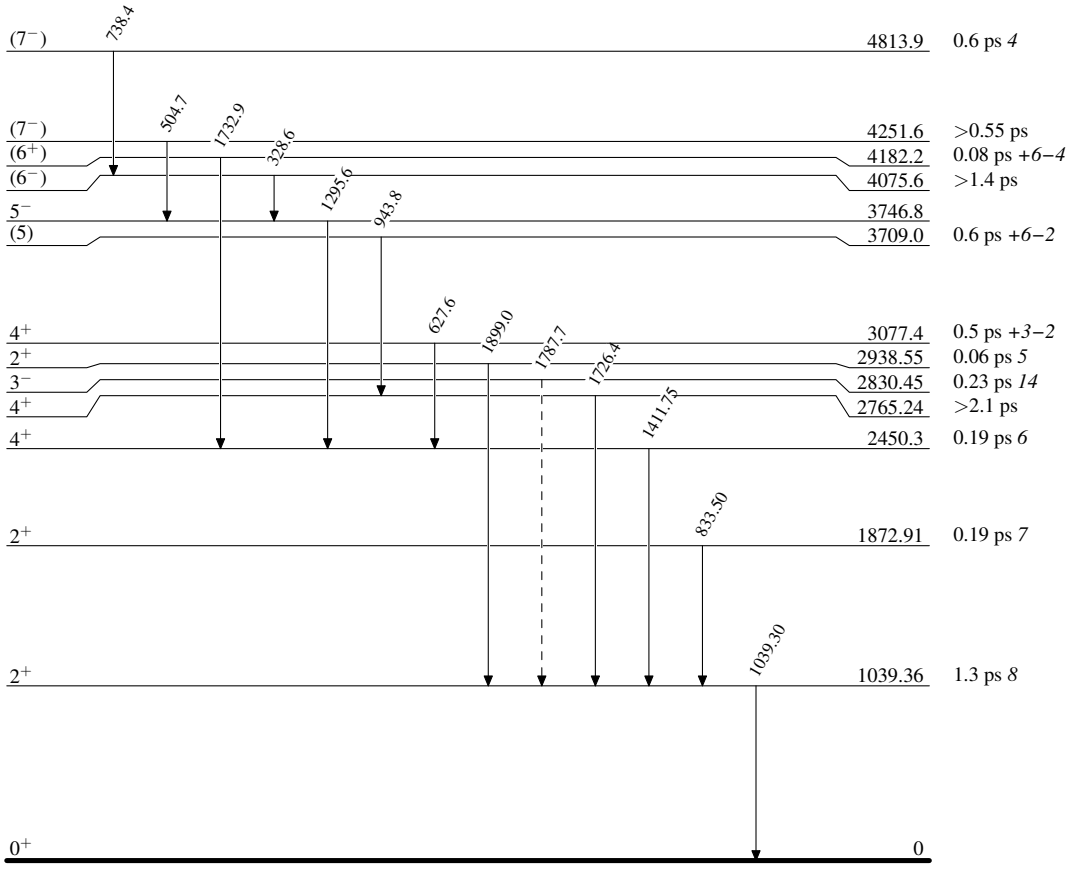
[†] From adopted gammas.
[‡] Placement of transition in the level scheme is uncertain.

Legend

^{63}Cu(α,p), (α,pγ) **1981Zh07**

Level Scheme

– – – – – – ► γ Decay (Uncertain)



$^{66}_{30}Zn_{36}$