

⁶³Cu(d,γ) 1972BI16

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

E=6.5 MeV. Measured γ, γγ, γ(t), γ(θ,H,t).

Other: 1968Na15.

The level scheme is based on other experiments.

⁶⁴Cu Levels

E(level) [†]	J ^π [‡]	T _{1/2}	Comments
0.0	1 ⁺		
159.25 10	2 ⁺		
278.29 10	2 ⁺		
343.91 10	1 ⁺		
362.14 10	3 ⁺		
574.50 10	(4) ⁺		
608.86 10	2 ⁺		
663.0 5	1 ⁺		
739.0 5	2 ⁺		
746.25 10	(3) ⁺		
877.8 5	(0) ⁺		
895.8 5	(3) ⁺		
926.8 5	1 ⁺		
1240.5 5	1 ⁽⁺⁾ ,2 ⁽⁺⁾		E(level): doublet of levels (1240.5 and 1242.6) proposed on the basis of energy sums (1972BI16). See also (n,γ) data.
1242.6 5	(0,1,2,3 ⁺)		
1290.6 5	(2 ⁺)		
1354.5 5	(3) ⁺		
1440 1	(1) ⁺		
1593.7 2	6 ⁻	20.4 ns 7	g=+0.176 5 g factor based on g=+1.442 3 for 5/2 ⁺ level of ¹⁹ F. T _{1/2} : from γ(t) (1972BI16). J ^π : from γ(θ), g factor and T _{1/2} (level). Level based on results from (n,γ) E=th.
1593.9 5	(1 ⁺ ,2)		

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

[‡] From the Adopted Levels.

γ(⁶⁴Cu)

E _i (level)	J _i ^π	E _γ [†]	I _γ [‡]	E _f	J _f ^π	E _i (level)	J _i ^π	E _γ [†]	I _γ [‡]	E _f	J _f ^π
159.25	2 ⁺	159.25 10		0.0	1 ⁺	663.0	1 ⁺	503.9 5		159.25	2 ⁺
278.29	2 ⁺	278.29 10		0.0	1 ⁺			663.0 5		0.0	1 ⁺
343.91	1 ⁺	343.91 10		0.0	1 ⁺	739.0	2 ⁺	376.8 5	14	362.14	3 ⁺
362.14	3 ⁺	202.89 10		159.25	2 ⁺			395	<1	343.91	1 ⁺
574.50	(4) ⁺	212.36 10	94	362.14	3 ⁺			460.7 5	14	278.29	2 ⁺
		415.26 10	6	159.25	2 ⁺			579.9 5	72	159.25	2 ⁺
608.86	2 ⁺	264.97 10		343.91	1 ⁺	746.25	(3) ⁺	137.38 10		608.86	2 ⁺
		330.5 5		278.29	2 ⁺			384.5 ^d 5		362.14	3 ⁺
		449.61 10		159.25	2 ⁺			467.96 10		278.29	2 ⁺
		608.85 ^d 10		0.0	1 ⁺			588 1		159.25	2 ⁺
663.0	1 ⁺	319 1		343.91	1 ⁺	877.8	(0) ⁺	533.8 ^d 5		343.91	1 ⁺
		384.5 ^d 5		278.29	2 ⁺			600 ^e		278.29	2 ⁺

Continued on next page (footnotes at end of table)

$^{63}\text{Cu}(\text{d},\text{p}\gamma)$ **1972BI16 (continued)** $\gamma(^{64}\text{Cu})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ^\dagger	E_f	J_f^π	$E_i(\text{level})$	J_i^π	E_γ^\dagger	E_f	J_f^π
877.8	(0) ⁺	718.7 5	159.25	2 ⁺	1290.6	(2) ⁺	627.6 5	663.0	1 ⁺
		878 ^d	0.0	1 ⁺			946.7 5	343.91	1 ⁺
895.8	(3) ⁺	149.3 5	746.25	(3) ⁺			1131.2 5	159.25	2 ⁺
		157.4 5	739.0	2 ⁺	1354.5	(3) ⁺	608.85 ^{dae} 10	746.25	(3) ⁺
		321 <i>l</i>	574.50	(4) ⁺			992 <i>l</i>	362.14	3 ⁺
		533.8 ^{d&e} 5	362.14	3 ⁺			1076.3 ^c 5	278.29	2 ⁺
		617.5 5	278.29	2 ⁺			1195.1 5	159.25	2 ⁺
926.8	1 ⁺	648.7 5	278.29	2 ⁺	1440	(1) ⁺	700.1 5	739.0	2 ⁺
		926.6 5	0.0	1 ⁺			831 <i>l</i>	608.86	2 ⁺
1240.5	1 ⁽⁺⁾ ,2 ⁽⁺⁾	362.9 ^{@e} 5	877.8	(0) ⁺			1161.7 5	278.29	2 ⁺
		494.8 5	746.25	(3) ⁺			1440 <i>l</i>	0.0	1 ⁺
		878 ^{dbe} <i>l</i>	362.14	3 ⁺	1593.7	6 ⁻	1019.21 <i>l</i> 0	574.50	(4) ⁺
		961.4 5	278.29	2 ⁺	1593.9	(1 ⁺ ,2)	1232.1 [#] 5	362.14	3 ⁺
		1080 <i>l</i>	159.25	2 ⁺			1315.3 [#] 5	278.29	2 ⁺
1242.6	(0,1,2,3) ⁺	1242.6 5	0.0	1 ⁺					

[†] Uncertainties are estimated (evaluators) based on authors' quoted uncertainty of 0.1 to 1 keV.

[‡] Branching ratio.

Placement based on results from (n, γ) E=th; consistent with nonobservation in delayed $\gamma\gamma$.

@ Placement with 362 level in (n, γ).

& Placement with 878 level only in (n, γ).

^a Placement with 609 level only in (n, γ).

^b Placement with 878 level only in (n, γ).

^c Placement with 1440 level in (n, γ).

^d Multiply placed.

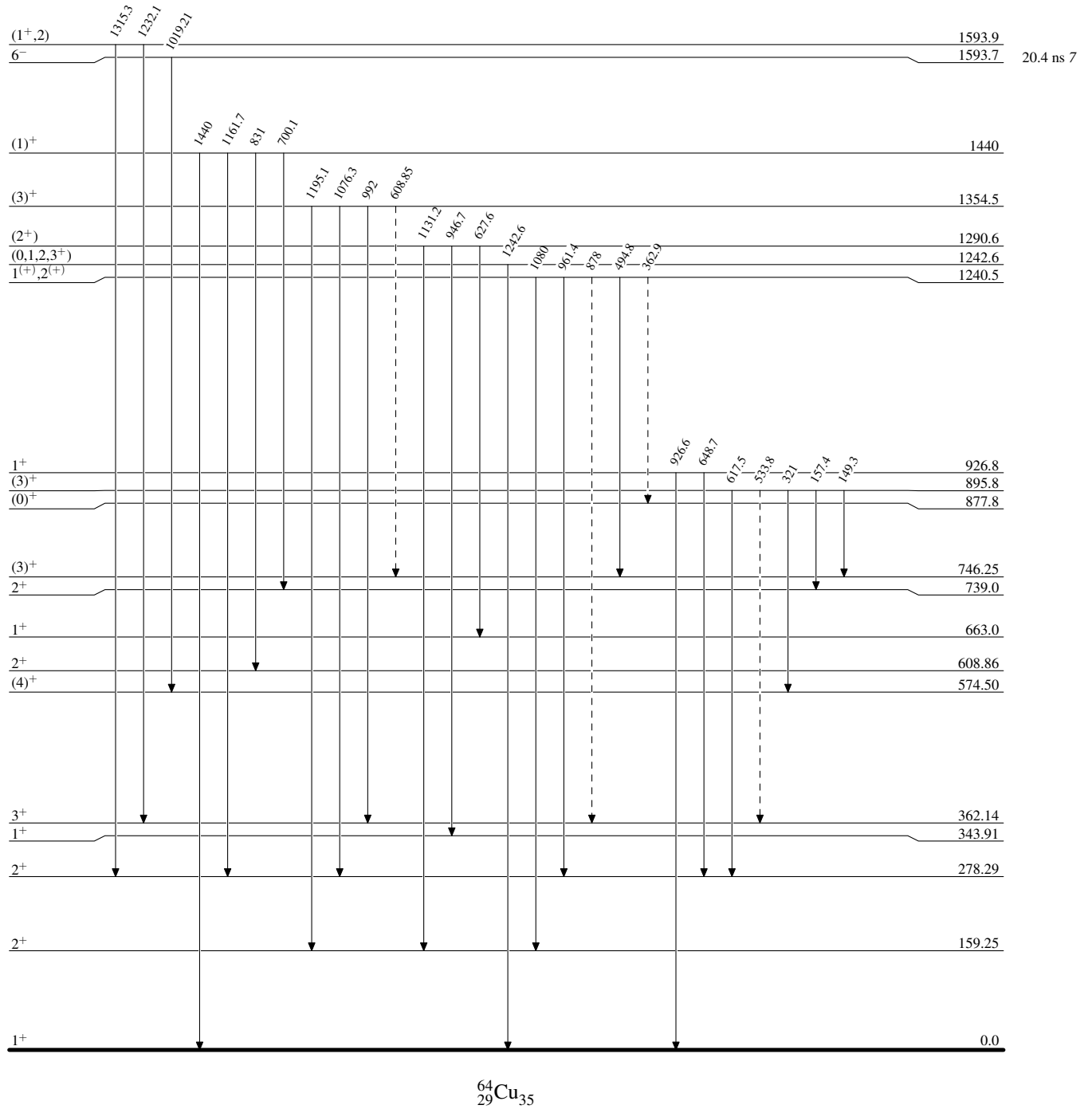
^e Placement of transition in the level scheme is uncertain.

$^{63}\text{Cu}(\text{d,p}\gamma)$ 1972B116

Legend

Level Scheme

Intensities: % photon branching from each level

-----► γ Decay (Uncertain)

$^{63}\text{Cu}(\text{d,p}\gamma)$ 1972B116

Legend

Level Scheme (continued)

Intensities: % photon branching from each level

-----► γ Decay (Uncertain)