^{65}Cu(^{19}F,p2nγ)　　**1982Pa06,1975Fr04**

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	M. Shamsuzzoha Basunia	NDS 199,271 (2025)	1-Sep-2024

1982Pa06: 93-99% ^{65}Cu targets, E=50, 55, 58 MeV; measured $T_{1/2}$ using DSA and RDM, Eγ. Ge(Li), energy resolution 1.8 keV
　　to 2.5 keV at 1.33 MeV.

1975Fr04: E=50 MeV; Ge(Li) detectors (5 angles, FWHM=2.1 to 3.2 keV at 1.33 MeV); measured $T_{1/2}$ using RDM (709 level) or
　　DSA (1584, 2608 levels).

^{81}Rb Levels

E(level)[†]	J$^\pi$[‡]	T$_{1/2}$[#]	Comments
0.0	3/2$^-$		
86.3	9/2$^+$		
154.0	5/2$^-$	0.21 ns 10	T$_{1/2}$: from τ=0.300 ns 140 (1982Pa06 − RDM).
613.0	7/2$^-$	3.7 ps 3	T$_{1/2}$: from τ=5.3 ps 5 (1982Pa06 − RDM).
709.3	(13/2)$^+$	6.0 ps 3	T$_{1/2}$: from τ=8.7 ps 4 (1982Pa06 − RDM). Other: 6.0 ps 4 (from τ=8.7 ps 5 1975Fr04, RDDS, cascade feeding taken into account − level energy listed as 623 in Table I).
914.0	9/2$^-$	1.46 ps 21	T$_{1/2}$: from τ=2.1 ps 3 (1982Pa06 − RDM).
1417.0	11/2$^-$	1.04 ps 14	T$_{1/2}$: from τ=1.5 ps 2 (1982Pa06 − RDM).
1584.3	(17/2)$^+$	0.87 ps 7	T$_{1/2}$: From τ=1.25 ps 10 (1982Pa06 − RDM). Other measurement: T$_{1/2}$=0.215 ps 28 (from τ=0.31 ps 4 1975Fr04, DSA − level energy listed as 876 in Table I); source of discrepancy unclear.
1740.0	13/2$^-$	3.33 ps 35	T$_{1/2}$: from τ=4.8 ps 5 (1982Pa06 − RDM).
2578.0	17/2$^-$	1.4[@] ps 3	T$_{1/2}$: from τ=2.0 ps 4 (1982Pa06 − RDM).
2608.3	(21/2)$^+$	0.42[@] ps 14	T$_{1/2}$: from τ=0.6 ps 2 (1982Pa06 − DSA). Other: 0.111 ps 21 from τ=0.16 ps 3 table I of 1975Fr04 (DSA) level energy listed as 1024, but another uncertainty of 0.040 given in text. Reason for discrepant lifetime is unclear.

[†] From a least-squares fit to Eγ allowing equal weights for all γ rays.

[‡] From Adopted Levels.

[#] From RDM (709 level) and DSA (1585, 2608-levels) (1975Fr04) and RDM (7 levels), DSA (3608 level) and both RDM and
　　DSA for the 1584 level (1982Pa06). Authors report from one to eight RDM measurements for each level and their RDM and
　　DSA measurements for the 1584 level yield consistent values. The values recommended in 1982Pa06 are adopted here; these are
　　assumed to supersede the two discrepant DSA results from 1975Fr04 (two of the authors were involved with both measurements).

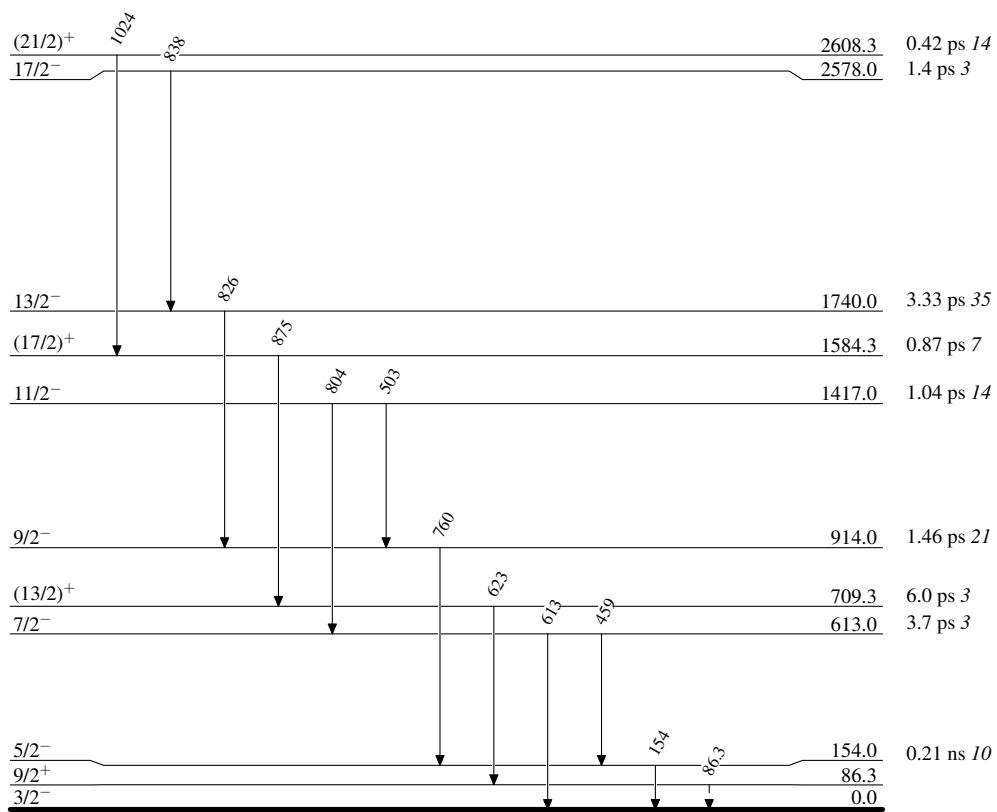[@] Effective value, not corrected for feeding (1982Pa06).

γ(^{81}Rb)

E$_\gamma$[†]	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	E$_\gamma$[†]	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$
(86.3)	86.3	9/2$^+$	0.0	3/2$^-$	760	914.0	9/2$^-$	154.0	5/2$^-$
154	154.0	5/2$^-$	0.0	3/2$^-$	804	1417.0	11/2$^-$	613.0	7/2$^-$
459	613.0	7/2$^-$	154.0	5/2$^-$	826	1740.0	13/2$^-$	914.0	9/2$^-$
503	1417.0	11/2$^-$	914.0	9/2$^-$	838	2578.0	17/2$^-$	1740.0	13/2$^-$
613	613.0	7/2$^-$	0.0	3/2$^-$	875	1584.3	(17/2)$^+$	709.3	(13/2)$^+$
623	709.3	(13/2)$^+$	86.3	9/2$^+$	1024	2608.3	(21/2)$^+$	1584.3	(17/2)$^+$

[†] From 1982Pa06; no uncertainties stated by authors.

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Legend

Level Scheme

- - - - - - ▶ γ Decay (Uncertain)

(21/2)⁺	2608.3	0.42 ps *14*

(Level scheme diagram)

Spin-parity	Energy	Lifetime
(21/2)⁺	2608.3	0.42 ps *14*
17/2⁻	2578.0	1.4 ps *3*
13/2⁻	1740.0	3.33 ps *35*
(17/2)⁺	1584.3	0.87 ps *7*
11/2⁻	1417.0	1.04 ps *14*
9/2⁻	914.0	1.46 ps *21*
(13/2)⁺	709.3	6.0 ps *3*
7/2⁻	613.0	3.7 ps *3*
5/2⁻	154.0	0.21 ns *10*
9/2⁺	86.3	
3/2⁻	0.0	

Transition energies: 1024, 838, 826, 875, 804, 503, 760, 623, 613, 459, 154, 86.3

${}^{81}_{37}$Rb$_{44}$