^{63}Cu(α,α') 1965Ha27

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 196,17 (2024)	30-Sep-2023

Target J^π(^{63}Cu g.s.)=3/2$^-$.

1965Ha27: E=50 MeV α beam was produced from the cyclotron at Lawrence Radiation Laboratory. Scattered α particles were detected with a lithium-drifted silicon surface-barrier detector (FWHM=40 keV at 25 MeV, and 90 keV at 50 MeV). Measured σ(E$_\alpha$,θ). Deduced levels, L-transfers, from analysis of measured $\sigma(\theta)$ using the Blair phase rule and the shape of levels with known J^π.

1990Ba23: E=25 MeV α beam was produced from the A.V.F. Radial Ridge cyclotron of the University of Birmingham. Scattered particles were detected with a charged-particle detector (150≤FWHM≤250). Measured σ(E$_\alpha$,θ). Deduced levels, deformation lengths.

1970Iv02: E=19.5 MeV α beam from the U-120 cyclotron of the Institute for Atomic Physics, Romania. Measured $\sigma(\theta)$. Deduced deformation distances for 961 and 1327 level using adiabatic Austern-Blair (AB) model and modified AB model (MAB).

1963Br29: E=44 MeV α beam was produced at C.E.N. Saclay, France. Measured σ(E$_\alpha$). Deduced levels.

1961Sa03: E=1.4, 2.9, 3.9, 4.6 MeV. Measured σ(E$_\alpha$,θ). Deduced levels, J^π.

^{63}Cu Levels

E(level)[†]	J$^\pi$[#]	L[‡]	Comments
0	3/2$^-$		J$^\pi$: $\sigma(\theta)$, coupled channel analysis, see 1990Ba23.
668	1/2$^-$	2	Fitted β_2=0.04 (1990Ba23).
961		2	Fitted β_2=0.08 (1990Ba23).
1327		2	
1412		(2)	E(level): weakly excited.
1547		(2)	E(level): weakly excited.
1820?			E(level): tentative level from 1963Br29.
2030?			E(level): tentative level from 1963Br29.
2510	9/2$^+$	3	
3320		3	
3430	5/2$^+$,7/2$^+$		E(level): from 1961Sa03.
3510		3	
3740		3	
3830	5/2$^+$,7/2$^+$	3	
4470	3/2$^+$		E(level): from 1961Sa03.

[†] From 1965Ha27, unless otherwise noted.
[‡] From comparison of $\sigma(\theta)$ with shapes for levels with known L in ^{62}Ni (1965Ha27), unless otherwise noted.
[#] From 1961Sa03, except as noted.