

$^{65}\text{Cu}(\text{t},\alpha)$ 1972He23

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

$J^\pi(^{65}\text{Cu g.s.})=3/2^-$.

1972He23: E=12 MeV triton beam from the tandem Van de Graaff of AWRE Aldermaston. Target was $\approx 100 \mu\text{g}/\text{cm}^2$ 99.4% enriched ^{65}Cu on a carbon backing. Reaction products were momentum-analyzed with a multigap spectrograph (FWHM=10 keV). Measured $E\alpha$, $\sigma(\theta_{\text{c.m.}}=10^\circ$ to 80°). Deduced levels, L-transfers, spectroscopic factors from DWBA analysis using the DWUCK code. See also 1968He13 from the same group.

 ^{64}Ni Levels

<u>E(level)[†]</u>	<u>L[‡]</u>	<u>C²S[‡]</u>	<u>E(level)[†]</u>	<u>L[‡]</u>	<u>C²S[‡]</u>	<u>E(level)[†]</u>	<u>L[‡]</u>	<u>C²S[‡]</u>	<u>E(level)[†]</u>	<u>L[‡]</u>	<u>C²S[‡]</u>
0	1	0.95	3800 11			5278 11			6220 11		
1351 11	3	1.84	3848 11	4	0.60	5378 11	2	0.16	6444 11	3	0.16
2279 11	1	0.03	4089 11	3	0.09	5413 11	2	0.16	6512 11	0	0.04
2614 11	3	0.46	4211 11	3	0.88	5481 11	1	0.01	6622 11		
2885 11			4358 11	3	1.71	5567 11			6656 11		
2962 11			4558 11			5667 11	3	0.09	6687 11	0	0.07
3165 11			4637 11	3	0.21	5759 11	2	0.07	6754 11		
3277 11			4762 11			5843 11			6822 11		
3396 11	3	0.09	4811 11	3	0.22	5902 11	0	0.02	6838 11		
3480 11			4888 11	1	0.01	5976 11	3	0.10	6861 11		
3561 11	2	0.31	5011 11	3	1.20	6060 11	0	0.02			
3644 11	3	0.04	5090 11	3	1.06	6121 11					
3745 11			5210 11	3	0.06	6182 11					

[†] From 1972He23. Uncertainty is not explicitly given for excitation energies in 1972He23 and a $\Delta E=11$ keV is from $Q(\text{t},\alpha)=12352$ 11 determined in 1972He23 and is assumed by the evaluators for all levels.

[‡] From DWBA fit to measured $\sigma(\theta)$ in 1972He23. C^2S is normalized so that $\Sigma C^2S(\text{L}=1 \text{ transitions})=1$. L=2 and L=3 transitions were assumed to be from 1d3/2 and 1f7/2 proton shells; L=3 were assumed pure, although in $(\text{d},^3\text{He})$, L=1 is known to be present in some cases.