^{64}Ni(α,t) 1970Ro22,2013Sc06

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 202,59 (2025)	25-Feb-2025

1970Ro22: E=44 MeV α beam was produced from the Saclay cyclotron. Reaction products were detected with a solid-state analyzer (FWHM=80-120 keV). Measured $\sigma(E_t,\theta)$, $\theta\approx10°-70°$. Deduced levels, J, π, L-transfers, spectroscopic factors from DWBA analysis. Comparisons with available data and theoretical calculations.

2013Sc06,2013ScZZ: E=38 MeV α beam was produced from Yale tandem accelerator of WNSL facility. Target was 160 μg/cm^2 ^{64}Ni (91.0% enriched). Reaction products were momentum-analyzed with a split-pole Enge spectrograph (FWHM≈64 keV). Measured $\sigma(E_t,\theta)$. Deduced levels, J, π, spectroscopic factors from DWBA analysis. Comparison with shell-model calculations. Cross section are from 2013ScZZ.

Others: 1967Ar05, 1999Da24.

^{65}Cu Levels

Spectroscopic factor is obtained from $d\sigma/d\Omega(exp)=N\times(2J+1)C^2S\times d\sigma/d\Omega(DWBA)$, where J is the spin of the final level and N is the normalization factor (1970Ro22).

Additional information 1.

E(level)[†]	L[‡]	(2J+1)C^{2}S[‡]	Comments
0	1	1.18	(2J+1)C^{2}S: other: 3.16 (1967Ar05).
770	1	0.47	(2J+1)C^{2}S: other: 2.00 (1967Ar05). $d\sigma/d\Omega$=2.21 mb/sr at 5° (2013ScZZ).
1115	3	1.95	(2J+1)C^{2}S: other: 2.28 (1967Ar05). $d\sigma/d\Omega$=2.72 mb/sr at 5° (2013ScZZ).
1480	3	0.55	(2J+1)C^{2}S: other: 0.56 (1967Ar05). $d\sigma/d\Omega$=0.70 mb/sr at 5° (2013ScZZ).
1620	3	3.74	(2J+1)C^{2}S: other: 5.46 (1967Ar05). $d\sigma/d\Omega$=5.64 mb/sr at 5° (2013ScZZ).
2120	3	0.38	E(level): other: 2107 from 2013Sc06. $d\sigma/d\Omega$=0.55 mb/sr at 5° (2013ScZZ).
2210	2	0.12	$d\sigma/d\Omega$=0.23 mb/sr at 5° (2013ScZZ).
2329[#]			$d\sigma/d\Omega$=0.30 mb/sr at 5° (2013ScZZ).
2540	4	3.15	E(level): other: 2526 from 2013Sc06. (2J+1)C^{2}S: other: 3.50 (1967Ar05). $d\sigma/d\Omega$=7.46 mb/sr at 5° (2013ScZZ).
2650[#]			$d\sigma/d\Omega$=0.37 mb/sr at 5° (2013ScZZ).
2780	(3),(4)	0.49,0.21	
2874[#]			$d\sigma/d\Omega$=0.77 mb/sr at 5° (2013ScZZ).
2900	(3),(4)	1.02,0.42	
3060	1	0.36	
3170	2	0.13	
3290	2	0.14	
3400	(3),(4)	1.20,0.50	
3500	(3),(4)	1.10,0.40	
3650	(3),(4)	0.48,0.19	
3770	(3),(4)	0.96,0.40	
3890	1	0.36	
4090	(3),(4)	0.72,0.30	
4200	4	0.75	
4300	(3),(4)	0.90,0.40	

[†] From 1970Ro22, unless otherwise noted. 1970Ro22 state that the uncertainty in excitation energy ranges from 10 keV to 80 keV

Continued on next page (footnotes at end of table)

^{64}Ni(α,t) 1970Ro22,2013Sc06 (continued)

^{65}Cu Levels (continued)

depending on the level position relative to the reference and the statistics.

‡ From DWBA analysis of measured $\sigma(\theta)$ data in 1970Ro22.

From 2013ScZZ.