^{63}Cu(d,t) 1973Da28

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Alan L. Nichols, Balraj Singh, Jagdish K. Tuli	NDS 113, 973 (2012)	15-Apr-2012

$J^{\pi}(^{63}Cu)=3/2^{-}$.
E=12, 16 MeV, spectrograph, FWHM=7 keV, $\sigma(\theta)$.
Levels without L or C^2S entries are weakly populated. When two L values are given but only one C^2S value, C^2S applies to the sum.
E(level): 1973Da28 quote single set of excitation energies for their (d,α), (^{3}He,α) and (d,t) studies.
Others: 1967Hj02, 1960Ze02 (summarized in 1974Ve13).

^{62}Cu Levels

L(C),S(C) L=3,S=0.06 for 1746 and 1753 levels together.

E(level)	L[@]	C^2S[&]	Comments
0	1+3	0.09,0.44	dσ/dΩ(max)=45 μb/sr for L=1 and 64 μb/sr for L=3.
41.0 *15*	1	0.60	dσ/dΩ(max)=300 μb/sr.
243.0 *15*	1+3	0.07,0.31	dσ/dΩ(max)=30 μb/sr for L=1 and 40 μb/sr for L=3.
286.0 *15*	1+(3)	0.17	dσ/dΩ(max)=70 μb/sr for L=1.
390.0 *15*	3+(1)	0.77	dσ/dΩ(max)=90 μb/sr for L=3.
426.0 *15*	1+(3)	0.06	dσ/dΩ(max)=24 μb/sr for L=1.
548.0 *16*	1+(3)	0.09,0.22	dσ/dΩ(max)=30 μb/sr for L=1 and 23 μb/sr for L=3.
638.0 *19*	1	0.25	dσ/dΩ(max)=75 μb/sr.
674.0 *20*	1+3	0.14,0.32	dσ/dΩ(max)=40 μb/sr for L=1 and 30 μb/sr for L=3.
699.0 *21*	1+(3)	0.071,0.11	dσ/dΩ(max)=20 μb/sr for L=1 and 10 μb/sr for L=3.
728.0 *22*	1+(3)	0.22,0.16	dσ/dΩ(max)=58 μb/sr for L=1 and 14 μb/sr for L=3.
916 *3*	3	0.06	dσ/dΩ(max)=15 μb/sr.
984 *3*	3	0.03	dσ/dΩ(max)=9 μb/sr.
1023[#] *3*			dσ/dΩ(max)=5 μb/sr.
1077 *3*	1	0.11	dσ/dΩ(max)=82 μb/sr.
1145 *3*	1	0.03	dσ/dΩ(max)=23 μb/sr.
1247 *4*	3	0.13	dσ/dΩ(max)=30 μb/sr.
1285 *4*	1	0.03	dσ/dΩ(max)=16 μb/sr.
1344 *4*	1	0.05	dσ/dΩ(max)=31 μb/sr.
1367[#] *4*			dσ/dΩ(max)≈6 μb/sr.
1395 *8*	(3)	0.03	dσ/dΩ(max)≈6 μb/sr.
1409 *8*	1	0.04	dσ/dΩ(max)=23 μb/sr.
1433 *4*	1	0.04	dσ/dΩ(max)=25 μb/sr.
1491 *5*	3	0.07	dσ/dΩ(max)=13 μb/sr.
1510 *6*	1	0.15	dσ/dΩ(max)=85 μb/sr.
1530 *8*	1	0.03	dσ/dΩ(max)=18 μb/sr.
1572 *6*	4	0.23	dσ/dΩ(max)=21 μb/sr.
1587 *6*	1	0.06	dσ/dΩ(max)=32 μb/sr.
1680 *6*	1+(3)	0.05,0.07	dσ/dΩ(max)=25 μb/sr for L=1 and 13 μb/sr for L=3.
1712 *6*	3	0.06	dσ/dΩ(max)=10 μb/sr.
1746 *6*			dσ/dΩ(max)=10 μb/sr for 1746+1753 group.
1753 *6*			
1775 *6*	3+(1)	0.02	dσ/dΩ(max)=3 μb/sr.
1823 *6*	3+(1)	0.02	dσ/dΩ(max)=4 μb/sr.
1846[#] *6*			
1918 *6*	4	0.23	dσ/dΩ(max)=19 μb/sr.
1985 *6*	1	0.019	dσ/dΩ(max)=7 μb/sr.
1996 *6*	1+(3)	0.008,0.016	dσ/dΩ(max)=3.2 μb/sr for L=1 and 2.5 μb/sr for L=3.
2022 *6*	1	0.018	dσ/dΩ(max)=6.7 μb/sr.

Continued on next page (footnotes at end of table)

^{63}Cu(d,t) 1973Da28 (continued)

^{62}Cu Levels (continued)

E(level)	L[@]	C^2S[&]	Comments
2067 *6*	(1)+(3)	0.01	dσ/dΩ(max)=4 μb/sr.
2107[†] *6*	4+(3)	0.10	dσ/dΩ(max)=7.4 μb/sr for L=1 and 4 μb/sr for L=3.
2139[#] *6*			
2159 *7*	3	0.09	dσ/dΩ(max)=14 μb/sr.
2176 *7*	1+(3)	0.05,0.05	dσ/dΩ(max)=15 μb/sr.
2224 *7*	(1)+(3)		dσ/dΩ(max)=3 μb/sr.
2243 *7*	(3)	0.03	dσ/dΩ(max)=3 μb/sr.
2296 *7*	1+3	0.02,0.07	dσ/dΩ(max)=5 μb/sr for L=1 and 10 μb/sr for L=3.
2315 *7*	3	0.05	dσ/dΩ(max)=7 μb/sr.
2360 *7*	3	0.10	dσ/dΩ(max)=14 μb/sr.
2374 *7*	(1)	0.03	dσ/dΩ(max)=7 μb/sr.
2422 *7*	(3)[a]	0.01	dσ/dΩ(max)=2.5 μb/sr.
2446 *7*	1+3	0.01,0.06	dσ/dΩ(max)=3 μb/sr for L=1 and 8 μb/sr for L=3.
2506 *8*	(3)[a]	0.03	dσ/dΩ(max)=3.5 μb/sr.
2520 *8*			dσ/dΩ(max)=2.5 μb/sr.
2565[‡] *8*			dσ/dΩ(max)≈6 μb/sr.
2610[†] *8*			dσ/dΩ(max)≈7 μb/sr.
2640[†] *8*			dσ/dΩ(max)≈7 μb/sr.
2704[#] *8*			dσ/dΩ(max)≈6 μb/sr.
2725[#] *8*			dσ/dΩ(max)=4 μb/sr.
2835[‡] *9*	3	0.12	dσ/dΩ(max)=12 μb/sr.
2860 *9*	1+(3)	0.06,0.09	dσ/dΩ(max)=11 μb/sr for L=1 and 9 μb/sr for L=3.
2876 *9*	1+(3)	0.08,0.07	dσ/dΩ(max)=15 μb/sr for L=1 and 7 μb/sr for L=3.
2920 *9*	(1)[a]		dσ/dΩ(max)≈1 μb/sr.
2944[†] *9*	4+(3)	0.29,0.16	dσ/dΩ(max)≈15 μb/sr for L=4 and ≈15 μb/sr for L=3.
2993 *9*	3	≈0.17	dσ/dΩ(max)≈15 μb/sr.
3008[#] *9*			dσ/dΩ(max)≈4 μb/sr.

[†] Unresolved doublet.
[‡] Possible doublet.
[#] Weakly excited state.
[@] From DWBA analysis.
[&] Although given to two significant figures, C^2S values may be considerably less accurate, especially if they result from fits with admixture of two L values.
[a] Tentative assignment, σ(θ) not shown.