^{65}Cu(d,p) 1969Da09

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. Browne, J. K. Tuli	NDS 111, 1093 (2010)	3-Mar-2009

Target $J^{\pi}=3/2^{-}$.
1969Da09: E(d)=12 MeV, FWHM=8 keV; measured $\sigma(\theta)$, $\theta\approx0°-50°$; magnetic spectrograph, DWBA analysis.
1967Hj02: E(d)=15 MeV, FWHM=15-50 keV; measured $\sigma(\theta)$, θ=9°−50°; magnetic spectrograph, DWBA analysis.
1958De32: E(d)=6.00-6.55 MeV, FWHM≈25 keV; measured p spectrum at θ=20°, 30°, 45° and 90°; magnetic spectrograph.
Data are mostly from 1969Da09, also from 1967Hj02 and 1958De32.
Other: 1962Ne15.

^{66}Cu Levels

E(level)[†]	L[‡]	(2J+1)C^2S[#]	Comments
0	1+3	0.16+0.32	
185 *1*	1+3	0.09+1.50	
274 *1*	3	2.92	(2J+1)C^2S: 0.04+2.0 for L=1+3 (1967Hj02).
383 *2*	1	1.17	
462 *2*	1	1.72	
588 *2*	3	2.01	(2J+1)C^2S: 0.009+1.5 for L=1+3 (1967Hj02).
727 *3*	1	0.06	
819 *3*	1	0.80	
1013 *4*	1+(3)	0.57+(0.40)	E(level): the level mainly populated in this reaction probably corresponds to the level observed at 1017.1 *2* in thermal ^{65}Cu(n,γ) (1969Da09).
1048 *4*	1	0.18	
1151 *5*	4	9.63	J=(6) favored because of large L=4 strength (1969Da09).
1208 *5*	1	0.35	
1247 *5*	2+4	0.55+1.84	(2J+1)C^2S: 0.50+4.0 for L=1+(4) (1967Hj02).
1339 *5*	1	0.85	
1434 *6*	1	0.39	
1543 *6*	1	0.04	
1555 *6*	1	0.05	
1573 *6*	1	0.11	
1630?[@] *25*	0[&]	0.002[a]	
1679 *7*	1	0.04	
1697 *7*	1	0.03	
1713 *7*	(1)	(0.08)	
1730 *7*	4	3.10	
1815 *7*	1+3	0.05+0.19	
1894 *8*	0	0.005	
1922 *8*	1	0.07	
1977 *8*	0+2	0.029+0.10	
2017 *8*	1+3	0.08+0.18	
2120 *8*	0+4	0.022+1.63	E(level): strong L=0 and L=4 components suggest this level is a negative-parity doublet (1969Da09).
2158 *9*	2	0.39	
2173? *9*			
2195 *9*	2+(3,4)	0.04	(2J+1)C^2S: 0.06 for L=3 or 0.11 for L=4 (1969Da09).
2266 *9*	2	0.35	
2329 *9*	2	0.46	
2361 *9*	2	0.28	
2391 *10*	(1)+(3)	(0.08+0.55)	
2449 *10*	2	0.41	
2501 *10*	(1)	(0.04)	
2525 *10*	2	0.12	
2557 *10*	0	0.008	
2581 *10*	0	0.057	

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^{65}Cu(d,p) 1969Da09 (continued)

^{66}Cu Levels (continued)

E(level)[†]	L[‡]	(2J+1)C^{2}S[#]	Comments
2604 *10*	0	0.028	
2630 *11*			
2644 *11*	(0)+2	(0.013)+0.08	
2660 *11*	0	0.057	
2682 *11*	(1)	(0.04)	
2743 *11*	2	0.34	
2793 *11*	0+(2)	0.006+(0.01)	
2812 *11*	0	0.008	
2837 *11*	0	0.008	
2863 *11*	(0)[&]	(0.004)[a]	
2903 *12*	(1)	(0.03)	
2944 *12*	0+2	0.018+0.05	(2J+1)C^{2}S: 0.04+0.05+0.32 for L=0+2+4 (1967Hj02).
2964 *12*	2+(0)	0.05	
2986 *12*	(2)	(0.03)	
3007 *12*	(3)	(0.77)	
3037 *12*	0+2	0.053+0.19	
3080 *12*	0+2	0.068+0.16	
3106 *8*			
3150[@] *25*	(2)[&]	(0.495)[a]	
3238 *8*			
3282 *8*			
3328 *8*	(1)[&]	(0.32)[a]	
3393 *8*			
3429 *8*			
3497 *8*			
3533 *8*			
3559 *8*	2[&]	0.38[a]	
3581 *8*			
3636 *8*	0+2[&]	0.02+0.11[a]	
3701 *8*	2[&]	0.28[a]	
3741 *12*			
3774 *12*			
3820 *25*	0+2[&]	0.015+0.11[a]	
3900 *25*	(0)[&]	(0.044)[a]	
3958 *25*	(0)+(2)[&]	(0.02+0.24)[a]	
4010 *25*			
4050 *25*	2+(0)[&]	0.2[a]	
4150 *25*			E(level): multiplet (1967Hj02).
4250 *25*	2+(0)[&]	0.304[a]	
4300 *25*			
4460 *25*	2+(0)[&]	0.385[a]	
4520 *25*	2+(0)[&]	0.366[a]	

† Except as noted, from 1969Da09 for E(level)<3100, from 1958De32 for E(level) between 3100 and 3800; and from 1967Hj02 E(level)>3800. 1969Da09 quote a single set of values from ^{65}Cu(d,p) and ^{68}Zn(d,α) data without specific uncertainties. The quoted E(level) values are a weighted mean of ^{65}Cu(d,p) and ^{68}Zn(d,α) data whenever the two measurements are within 5 keV. Uncertainties in E(level) have been taken to be 0.4%, quoted by 1969Da09 as an upper limit for the ^{65}Cu(d,p) data.

‡ From DWBA analysis of $\sigma(\theta)$ (1969Da09), except as noted.

From 1969Da09, except as noted. Authors take average value of $p_{1/2}$ and $p_{3/2}$ shells for L=1 transfer and assume $d_{5/2}$, $f_{5/2}$, and $g_{9/2}$ for L=2, 3, and 4 transfers, respectively.

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^{65}Cu(d,p) 1969Da09 (continued)

^{66}Cu Levels (continued)

[@] From 1967Hj02.
[&] From DWBA analysis of $\sigma(\theta)$ (1967Hj02).
[a] From 1967Hj02. Stripping to $p_{3/2}$ and $d_{5/2}$ shells has been assumed for L=1 and L=2 transfers, respectively.