## $^{66}$Zn(d,$\alpha$) 1969Pa07

History

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

1969Pa07: E(d)=12 MeV, magnetic spectrograph, FWHM=12 keV, $\sigma(\theta)$ (15° to 90°). DWBA calculations. Cross section uncertainty 13%.

### $^{64}$Cu Levels

| E(level)[†] | L | d$\sigma$/d$\Omega$ (max) ($\mu$b/sr) | Comments |
|---|---|---|---|
| 0 | 0(+2) | 40 | 67% L=0, 33% L=2. |
| 158 *3* | 2(+0) | 14[&] | 25% L=0, 75% L=2. Poor fit with DWBA. |
| 276 *3* | 2 | 4.5 | |
| 342? *3* | [@] | | |
| 361 *3* | 4 | 44 | |
| 573 *4* | 4 | 17 | |
| 606 *4* | 2[@] | 2 | |
| 661 *4* | 4 | 8 | |
| 742[‡] *4* | 2(+4) | 70[&] | 53% L=2, 47% L=4. Poor fit with calculated distribution. |
| 876? *5* | [@] | | |
| 893 *5* | 4 | 18 | |
| 923 *5* | 0(+2) | 38 | 67% L=0, 33% L=2. |
| 1236 *6* | (2,0+2) | 2 | For L=0+2, 67% L=0, 33% L=2. |
| 1294 *6* | 0+2 | 17 | 40% L=0, 60% L=2. |
| 1349 *6* | 4 | 10 | L: given as 4(+2) in table but L=4 in figure (1969Pa07). |
| 1360? *10* | [@] | | |
| 1435 *6* | 0(+2) | 2.2 | 67% L=0, 33% L=2. |
| 1458[‡] *10* | (3)[@] | 3 | |
| 1495 *6* | (1+3)[@] | 4[&] | 46% L=1, 54% L=3. |
| 1517 *7* | 2(+4) | 10[&] | 74% L=2, 26% L=4. |
| 1546[‡] *7* | (2,1+3)[@] | 6[&] | Fit with L=1+3 (46% L=1, 54% L=3) not as good as with L=2. |
| 1589[‡] *7* | 4 | 14 | |
| 1607 *7* | 0(+2) | 3 | 67% L=0, 33% L=2. |
| 1678[‡] *7* | (0+2,1) | 3.5 | 29% L=0, 71% L=2. Fit with L=1 not as good as with L=0+2. |
| 1701 *7* | (3) | 7[&] | |
| 1737 *10* | 4 | 20 | |
| 1775 *7* | 4 | 35 | |
| 1848 *8* | 4 | 5.5 | |
| 1884 *10* | (2,3)[@] | 2[&] | |
| 1900 *8* | (0+2) | 5 | 29% L=0, 71% L=2. |
| 1939 *10* | 2(+0) | 2 | 25% L=0, 75% L=2. |
| 1980 *8* | 4 | 50 | |
| 2016 *8* | 2[@] | 2 | |
| 2050 *8* | 4 | 14 | L: 4(+2) quoted in the table (1969Pa07). |
| 2069 *8* | 3 | 9[&] | For L=3+1; 30% L=1, 70% L=3. |
| 2090 *8* | 2(+0) | 4[&] | 83% L=2, 17% L=0. |
| 2141 *8* | 4(+2) | 12[&] | 78% L=4, 22% L=2. |
| 2191 *9* | (4) | 2.5 | |
| 2230 *9* | 4 | 22 | |
| 2249? *10* | | 2[&] | L: possibly 2 or 1+3. |
| 2265[‡] *9* | | 7 | L: no agreement with any calculated distribution, probably a mixed-parity doublet. |
| 2294? *10* | | 5 | L: possibly 2 or 1+3. |
| 2311 *9* | 4 | 6 | |

Continued on next page (footnotes at end of table)

## $^{66}$Zn(d,$\alpha$) 1969Pa07 (continued)

### $^{64}$Cu Levels (continued)

| E(level)[†] | L | dσ/dΩ (max) (μb/sr) | Comments |
|---|---|---|---|
| 2354? *10* | [@] | 5 | L: possibly 2 or 3. Fit is better with L=2. |
| 2375 *9* | 0(+2) | 2 | 67% L=0, 33% L=2. |
| 2389 *9* | 0(+2) | 2 | 67% L=0, 33% L=2. |
| 2415?[#] *10* | 4 | 35 | |
| 2462 *9* | (1) | 4.5[&] | |
| 2494 *9* | 3 | 3.5[&] | |
| 2520?[‡] *10* | (0+2)[@] | 3 | 67% L=0, 33% L=2. |
| 2534?[‡] *10* | (0+2) | 3 | 67% L=0, 33% L=2. |
| 2550 *10* | 4,4+2 | 6 | 78% L=4, 22% L=2. |
| 2581 *10* | 4(+2) | 12 | 78% L=4, 22% L=2. |
| 2596 *10* | (0+2) | 4 | 71% L=2, 29% L=0. |
| 2611[‡] *10* | 4 | 17 | |
| 2622 *10* | 0+2 | 2.5 | 71% L=2, 29% L=0. |
| 2634[‡] *10* | 0(+2) | 20 | 67% L=0, 33% L=2. |
| 2670? *10* | (3+1) | 3[&] | 82% L=3, 18% L=1. |
| 2692[‡] *10* | | 30 | L: 1(+3) (81% L=1, 19% L=3) and/or 4(+2) (78% L=4, 22% L=2). |
| 2720[‡] *10* | | 9[&] | L: (2) or 3(+1) (82% L=3, 18% L=1). |
| 2760[‡] *10* | (3,2+4) | 35[&] | 53% L=2, 47% L=4. |
| 2814 *10* | (0+2) | 5 | Poorly resolved. 71% L=2, 29% L=0. |
| 2823[‡] *10* | (2,3) | 7[&] | |
| 2854? *11* | (3) | 3[&] | |
| 2876 *11* | 4 | 25 | |
| 2891 *11* | 0(+2) | 5 | 67% L=0, 33% L=2. |
| 2913 *11* | (0+2) | 8[&] | 75% L=2, 25% L=0. |
| 2931 *11* | (1+3) | 2[&] | 82% L=3, 18% L=1. |
| 2970[#] *11* | 4 | 28 | |

[†] Average of (d,p) and (d,α) data (1969Pa07). Uncertainty is based on a random error of 2 keV and a systematic error of 0.3% of the excitation energy (as quoted by 1969Pa07 for (d,p) data.
[‡] Doublet or possible doublet.
[#] Triplet or possible triplet.
[@] Weak group.
[&] Value of cross section is tentative.