^{64}**Zn(d,n)** **1970Co17**

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

Target J^{π}(^{64}Zn g.s.)=0^{+}.

1970Co17: E(d)=10 MeV from the Oak Ridge Laboratory EN Tandem Van de Graaff. Neutrons were detected with a cluster of three cylindrical liquid scintillators using time-of-flight method (FWHM≈80 keV). Measured σ(E(n),θ), θ_{cm}=18°−70°. Deduced levels, J, π, L-transfers, spectroscopic factors from DWBA analysis.

1968Ok07 (also 1968Le20,1966Ok01,1966Ok02,1965Ok01): E=11.7 MeV deuteron beam was produced from the ITEF cyclotron. Scattered neutrons were measured by a multichannel time-of-flight spectrometer. Measured σ(E$_n$,θ), θ_{cm}=2°−35°. Deduced levels, J, π, L-transfers, spectroscopic factors from DWBA analysis.

All data are from 1970Co17. Data from 1966Ok02, 1968Ok07 are included in comments. See 1968Le20 for n polarization measurements.

<p style="text-align:center">^{65}Ga Levels</p>

Spectroscopic factor C^{2}S is obtained using the following relation: dσ/dΩ(exp)=N×(2J+1)/(2J0+1)×dσ/dW(DWBA), where N is the normalization factor, J0 and J the spins of initial and final levels in ^{64}Zn and ^{65}Ga, repsectively. 1970Co17 use N=1.65 and 1968Ok07 use N=1.0.

The g.s. and 62 level were unresolved. (2J+1)C^{2}S is based on the ratio of transition strengths in ^{64}Zn(^{3}He,d) (1967Be18), and the (summed) transition strength observed by 1970Co17.

E(level)	L[†]	(2J+1)C^{2}S[†]	Comments
0	1	1.15	(2J+1)C^{2}S: other: 1.96 (1968Ok07).
62 *15*	1	0.90	(2J+1)C^{2}S: other: 0.81 for a level at 72 *50* (1968Ok07).
192 *15*	3	4.20	
654 *15*	1	0.51	
812 *15*	1	0.23	
1075 *15*	4+(1)	0.31+0.015	E(level): probably two unresolved levels.
1364 *15*	3	0.91	
1664 *15*	1	0.19	(2J+1)C^{2}S: other: 0.09 for a level at 1620 *50* (1968Ok07).
1851 *15*	1+(3)	0.10+0.18	E(level): probably two unresolved levels.
2040 *15*	4	4.37	An unresolved level at 2000 *50* is reported in 1968Ok07 with L=1+(3), C^{2}S′=0.27+2.7.
2213 *15*	(4),(3)	0.78,0.73	
2822 *15*	2	0.30	
2927 *15*	2	0.45	
3006? *15*	(2)	0.13	

[†] From DWBA analysis of σ(θ). Quoted values of (2J+1)C^{2}S are re-deduced by the evaluator using a recommended normalization factor N=1.53 (1977En02). N=1.65 is used in 1970Co17 and N=1.0 is used in 1968Ok07.