

$^{67}\text{Zn}(n,\gamma)$ E=thermal 1971Ot01

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	E. A. Mccutchan	NDS 113, 1735 (2012)	1-Mar-2012

Target J^π $5/2^-$.

Measured E_γ , I_γ , $\gamma\gamma$ coincidences, $\gamma\gamma(\theta)$ using Ge(Li) and NaI(Tl) detectors.

Others: 2002Re13, 1972Bo75, 1970Ba21, 1967By01, 1966Gr12.

γ circular polarization measurements: 1971Kn06, 1968Sc02.

Radiative widths and γ radiation following eV-keV n capture: 1978An01, 1971Bi15, 1969Ju01, 1965Sa16.

 ^{68}Zn Levels

<u>$E(\text{level})^\dagger$</u>	<u>$J^\pi^\ddagger$</u>	<u>$E(\text{level})^\dagger$</u>	<u>$J^\pi^\ddagger$</u>	<u>$E(\text{level})^\dagger$</u>	<u>$J^\pi^\ddagger$</u>	<u>$E(\text{level})^\dagger$</u>	<u>$J^\pi^\ddagger$</u>
0	0^+	3424.93 18		3935.10 15	3^+	4951.7 3	$1^-, 2^-, 3^-$
1077.38 5	2^+	3429.44 12	$1, 2^+$	4027.5 3	$(1^-, 2^+)$	4963.3 5	
1655.94 11	0^+	3458.65? 17	5^-	4139.7 4	$1, 2^+$	4991.6 5	$1, 2^+$
1883.16 5	2^+	3495.78 24	$3^+, 4^+$	4215.3 4	$1, 2^+$	5187.1 4	
2338.40 7	2^+	3587.14 19	4^+	4283.9 3	$(2, 3)^+$	5283.6 3	
2417.38 7	4^+	3599.1? 14		4325.6? 6		5298.1 3	$1^-, 2^+$
2750.73 8	3^-	3630.27 11	(2^+)	4408.6 3		5306.8 5	
2821.70 10	2^+	3664.65 24	$(1, 2)^+$	4512.2 3	(2^+)	5400.3 4	
2959.40 15	(4^+)	3704.8? 9		4520.3 3	$1, 2^+$	5403.1 4	$1, 2^+$
3009.24 7	3^+	3709.3? 10		4535.6 3	$1, 2^+$	5415.1 5	$1, 2^+$
3102.54? 19	0^+	3725.83 16		4642.4? 6	$1, 2^+$	5565.2 4	
3184.18 13	$1, 2^+$	3776.29 22	$1, 2^+$	4723.8 4	$1^+, 2^+$	5693.4 5	
3281.47 13	4^+	3815.5 3	$1, 2^+$	4733.0 4	$1, 2^+$	(10198.08 [#] 12)	$2^-, 3^-$ @
3287.04 11	2^+	3849.28 21	4^+	4851.4 3	$2^-, 3^-$		
3334.7? 3		3895.81 16	4^+	4857.9 5	$1, 2^+$		
3380.7? 7		3910.89 19	$(2, 3, 4)^-$	4910.5 3	$1, 2^+$		

[†] From a least-squares fit to levels connected by gammas.

[‡] From the Adopted Levels.

[#] From 2011AuZZ. Held fixed in least-squares adjustment.

@ A pure 3^- capture state can be excluded by γ CP measurements of 1968Sc02.

 $\gamma(^{68}\text{Zn})$

I_γ normalization: From the absolute intensity of the 1077 γ determined by 1971Ot01 to be $75 \pm 3 - 8$ photons/100 neutron captures.

The authors present data for energies up to 2418 with an anti-Compton Ge(Li) system normalized to $I_\gamma(1077)=1000$ and data for $E_\gamma > 2200$ measured with a pair spectrometer and separately normalized to $I_\gamma(6910)=1000$. The low-energy data given here are normalized to $I_\gamma(1077)=100$. The conversion factor to get I_γ per 100 neutron captures is 0.75 6. The data above 2418 γ (including the 2303.4 γ not given in the authors' low-energy table) are renormalized to the low-energy data by choosing $I_\gamma(6910)=6.0$ 17.

When multiplied by the above conversion factor, this procedure gives $I_\gamma(6910)=4.5$ 13 per 100 neutron captures as determined by the authors. If the overlap between low and high energy spectra is used, one would get $I_\gamma(6910)=4.5$ 8 relative to $I_\gamma(1077)=100$, a value somewhat smaller than, but consistent with 6.0 17.

<u>$E_\gamma^\dagger$</u>	<u>$I_\gamma^\dagger$</u>	<u>$E_i(\text{level})$</u>
^x 128.50 15	0.010	
^x 133.69 20	0.013	
^x 139.89 10	0.11	
^x 149.6 3	0.006	
^x 151.57 15	0.069	

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$^{67}\text{Zn}(\text{n},\gamma)$ E=thermal 1971Ot01 (continued) $\gamma(^{68}\text{Zn})$ (continued)

E_γ †	I_γ †c	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. ‡	$\delta^\ddagger$	Comments
$^{x}160.1$ 4	0.007							
$^{x}164.0$ 4	0.008							
$^{x}171.1$ 3	0.012							
$^{x}176.1$ 4	0.006							
$^{x}181.9$ 3	0.008							
227.3 3	0.008 3	1883.16	2 ⁺	1655.94	0 ⁺			
$^{x}245.4$ 3	0.017 3							
$^{x}279.74$ 20	0.14 2							
$^{x}283.7$ 4	0.015 3							
$^{x}296.75$ 19	0.014 8							
$^{x}305.9$ 5	0.025 6							
$^{x}307.4$ 4	0.017 6							
$^{x}312.2$ 3	0.023 5							
$^{x}322.48$ 20	0.040 8							
$^{x}325.3$ 5	0.015 4							
348.7 ^d 3	0.033 7	3630.27	(2 ⁺)	3281.47	4 ⁺			
$^{x}397.0$ 4	0.018 6							
412.41 12	0.56 4	2750.73	3 ⁻	2338.40	2 ⁺			
$^{x}426.0$ 6	0.027 9							
465.20 ^d 18	0.077 15	3287.04	2 ⁺	2821.70	2 ⁺			
483.42 20	0.11 3	2821.70	2 ⁺	2338.40	2 ⁺			
$^{x}516.9$ 4	0.027 9							
534.22 20	0.07 2	2417.38	4 ⁺	1883.16	2 ⁺			
$^{x}538.3$ 3	0.05 1							
542.05 16	0.18 3	2959.40	(4 ⁺)	2417.38	4 ⁺			
$^{x}564.3$ 7	0.011 5							
$^{x}568.6$ 3	0.084 20							
578.54 12	3.0 2	1655.94	0 ⁺	1077.38	2 ⁺	E2		A ₂ =+0.40 7, A ₄ =+1.07 1.
591.71 16	0.37 4	3009.24	3 ⁺	2417.38	4 ⁺			
$^{x}602.4$ 5	0.10 2							
$^{x}604.8$ 7	0.11 3							
$^{x}609.3$ 7	0.09 3							
621.06 14	0.40 4	3630.27	(2 ⁺)	3009.24	3 ⁺			
629.3 ^d 3	0.12 3	3910.89	(2,3,4) ⁻	3281.47	4 ⁺			
$^{x}654.6$ 8	0.05 2							
670.89 17	0.31 4	3009.24	3 ⁺	2338.40	2 ⁺			
$^{x}700.3$ 5	0.05 2							
$^{x}720.2$ 7	0.04 2							
$^{x}733.7$ 3	0.12 4							
744.8 6	0.08 4	3495.78	3 ⁺ ,4 ⁺	2750.73	3 ⁻			
$^{x}761.8$ 8	0.04 2							
$^{x}787.7$ 5	0.09 4							
805.75 6	12.1 6	1883.16	2 ⁺	1077.38	2 ⁺	(M1+E2)	-1.45 15	$\alpha(\text{K})=0.00042$ A ₂ =+0.360 19, A ₄ =+0.20 3.
$^{x}810.8$ 8	0.11 4							
$^{x}832.7$ 2	0.34 4							
836.42 18	0.62 6	3587.14	4 ⁺	2750.73	3 ⁻			
845.2 6	0.13 3	3184.18	1,2 ⁺	2338.40	2 ⁺			
864.17 14	2.0 2	3281.47	4 ⁺	2417.38	4 ⁺			
$^{x}873.6$ 3	0.29 8							
879.59 15	0.95 12	3630.27	(2 ⁺)	2750.73	3 ⁻			
$^{x}893.4$ 6	0.05 2							
$^{x}900.6$ 4	0.13 4							
904.6 4	0.11 3	3725.83		2821.70	2 ⁺			
916.1 ^d 4	0.07 3	4851.4	2 ⁻ ,3 ⁻	3935.10	3 ⁺			

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$^{67}\text{Zn}(\text{n},\gamma)$ E=thermal 1971Ot01 (continued) $\gamma(^{68}\text{Zn})$ (continued)

E_γ †	I_γ †c	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. ‡	$\delta^\ddagger$	Comments
936.7 3	0.17 4	3895.81	4 ⁺	2959.40 (4 ⁺)				
975.4 ^d 4	0.13 3	3725.83		2750.73 3 ⁻				
^x 980.2 6	0.09 3							
996.2 ^d 5	0.11 3	3334.7?		2338.40 2 ⁺				
1018.3 4	0.09 3	4027.5	(1 ⁻ , 2 ⁺)	3009.24 3 ⁺				
^x 1025.55 18	0.39 4							
1041.26 ^d 16	0.69 5	3458.65?	5 ⁻	2417.38 4 ⁺				
^x 1046.2 4	0.13 3							
1077.35 6	100	1077.38	2 ⁺	0 0 ⁺		E2		
1091.04 ^d 18	0.56 4	3429.44	1,2 ⁺	2338.40 2 ⁺				
^x 1103.5 3	0.24 3							
1113.34 20	0.24 3	3935.10	3 ⁺	2821.70 2 ⁺				
1126.07 6	6.5 3	3009.24	3 ⁺	1883.16 2 ⁺		(M1+E2)	-0.36 +20-27	A ₂ =-0.33 13, A ₄ =+0.10 10.
^x 1147.5 5	0.10 2							
^x 1159.2 3	0.16 5							
^x 1164.3 4	0.12 4							
^x 1171.32 18	0.73 7							
^x 1180.3 6	0.09 3							
1184.5 ^d 3	0.30 8	3935.10	3 ⁺	2750.73 3 ⁻				
1186.9 ^d 6	0.12 4	4851.4	2 ⁻ , 3 ⁻	3664.65 (1,2) ⁺				
^x 1198.1 4	0.19 4							
^x 1208.9 7	0.06 3							
1212.7 3	0.22 3	3630.27	(2 ⁺)	2417.38 4 ⁺				
1219.37 ^{#d} 18	0.51 5	3102.54?	0 ⁺	1883.16 2 ⁺				
^x 1230.3 4	0.14 3							
^x 1234.3 5	0.12 3							
1261.00 6	11.3 5	2338.40	2 ⁺	1077.38 2 ⁺		M1+E2	-0.23 +4-6	A ₂ =+0.383 22, A ₄ =+0.02 3.
1274.8 8	0.10 4	4283.9	(2,3) ⁺	3009.24 3 ⁺				
1276.9 6	0.15 6	4027.5	(1 ⁻ , 2 ⁺)	2750.73 3 ⁻				
^x 1285.7 6	0.12 4							
1300.87 20	0.51 4	3184.18	1,2 ⁺	1883.16 2 ⁺				
^x 1313.1 4	0.14 4							
^x 1327.5 7	0.15 7							
1339.96 6	12.6 4	2417.38	4 ⁺	1077.38 2 ⁺		E2(+M3)	-0.05 6	A ₂ =+0.07 4, A ₄ =-0.03 7.
^x 1353.6 6	0.10 3							
^x 1372.3 4	0.16 4							
1387.21 19	0.63 5	3725.83		2338.40 2 ⁺				
1397.7 [#] 3	0.32 8	3281.47	4 ⁺	1883.16 2 ⁺				
1403.7 3	0.21 7	3287.04	2 ⁺	1883.16 2 ⁺				
1431.86 22	0.71 6	3849.28	4 ⁺	2417.38 4 ⁺				
1437.76 24	0.51 4	3776.29	1,2 ⁺	2338.40 2 ⁺				
1448.8 5	0.16 4	4408.6		2959.40 (4 ⁺)				
1451.8 ^d 6	0.13 3	3334.7?		1883.16 2 ⁺				
^x 1463.3 4	0.22 3							
1478.31 18	0.77 6	3895.81	4 ⁺	2417.38 4 ⁺				
^x 1483.9 8	0.08 4							
^x 1490.6 9	0.08 4							
1493.5 3	0.39 5	3910.89	(2,3,4) ⁻	2417.38 4 ⁺				
1511.1 7	0.09 4	3849.28	4 ⁺	2338.40 2 ⁺				
^x 1518.3 4	0.19 5							
1533.2 4	0.19 4	4283.9	(2,3) ⁺	2750.73 3 ⁻				
1541.73 22	0.69 7	3424.93		1883.16 2 ⁺				
1546.13 16	2.00 15	3429.44	1,2 ⁺	1883.16 2 ⁺				
1557.1 6	0.06 3	3895.81	4 ⁺	2338.40 2 ⁺				

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$^{67}\text{Zn}(n,\gamma)$ E=thermal 1971Ot01 (continued) $\gamma(^{68}\text{Zn})$ (continued)

E_γ [†]	I_γ ^{†c}	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. [‡]	δ [‡]	Comments
1572.5 9	0.09 3	3910.89	(2,3,4) ⁻	2338.40	2 ⁺			
1596.3 5	0.19 5	3935.10	3 ⁺	2338.40	2 ⁺			
1612.2 6	0.14 4	3495.78	3 ⁺ ,4 ⁺	1883.16	2 ⁺			
^x 1624.2 4	0.55 8							
^x 1627.7 7	0.22 7							
1630.9 3	0.71 7	3287.04	2 ⁺	1655.94	0 ⁺			
^x 1645.0 5	0.20 5							
^x 1654.1 5	0.18 5							
1673.29 10	7.3 5	2750.73	3 ⁻	1077.38	2 ⁺			
^x 1690.0 6	0.15 4							
1698.0 [#] 8	0.19 5	4520.3	1,2 ⁺	2821.70	2 ⁺			
^x 1705.7 5	0.24 5							
1723.5 ^d 5	0.19 4	4733.0	1,2 ⁺	3009.24	3 ⁺			
1744.16 15	4.1 3	2821.70	2 ⁺	1077.38	2 ⁺	M1+E2	+0.24 13	A ₂ =+0.07 10, A ₄ =-0.02 14.
^x 1758.3 9	0.13 4							
1767.2 4	0.28 5	4951.7	1 ⁻ ,2 ⁻ ,3 ⁻	3184.18	1,2 ⁺			
^x 1777.6 4	0.45 6							
1781.5 3	0.88 9	3664.65	(1,2) ⁺	1883.16	2 ⁺			
^x 1791.3 8	0.16 4							
1882 [@] 1	1.5 4	2959.40	(4 ⁺)	1077.38	2 ⁺			
1883.09 7	18.7 8	1883.16	2 ⁺	0	0 ⁺			
1902.2 5	0.30 8	4723.8	1 ⁺ ,2 ⁺	2821.70	2 ⁺			
^x 1925.9 7	0.18 5							
1932.1 3	0.76 8	3009.24	3 ⁺	1077.38	2 ⁺			
2027.9 4	0.41 6	3910.89	(2,3,4) ⁻	1883.16	2 ⁺			
2094.6 3	0.51 6	4512.2	(2 ⁺)	2417.38	4 ⁺			
2106.83 18	2.0 3	3184.18	1,2 ⁺	1077.38	2 ⁺			
^x 2144.7 5	0.30 8							
2181.7 5	0.35 6	4520.3	1,2 ⁺	2338.40	2 ⁺			
2209.75 16	4.9 6	3287.04	2 ⁺	1077.38	2 ⁺	(M1+E2)		A ₂ =-0.17 11, A ₄ =+0.05 12. δ: -0.07 10 for J ^π (3287)=1 ⁺ and +0.63 +22-37 for J ^π =2 ⁺ .
2257.2 ^d 7	0.21 4	3334.7?		1077.38	2 ⁺			
2303.4 ^d 9	0.21 6	3380.7?		1077.38	2 ⁺			
2347.6 3	1.3 2	3424.93		1077.38	2 ⁺			
2352.4 3	1.0 2	3429.44	1,2 ⁺	1077.38	2 ⁺			
2391.2 6	0.33 7	5400.3		3009.24	3 ⁺			
2418.5 3	2.6 3	3495.78	3 ⁺ ,4 ⁺	1077.38	2 ⁺			
^x 2438.9 15	0.14 4							
^x 2506.3 5	1.1 3							
2512.7 6	0.75 22	4851.4	2 ⁻ ,3 ⁻	2338.40	2 ⁺			
2547.0 4	0.70 21	5298.1	1 ⁻ ,2 ⁺	2750.73	3 ⁻			
2587.2 7	0.57 17	3664.65	(1,2) ⁺	1077.38	2 ⁺			
^x 2591.3 6	0.66 20							
^x 2610.3 11	0.28 8							
^x 2614.8 9	0.31 9							
2627.4 ^d 9	0.41 21	3704.8?		1077.38	2 ⁺			
2631.9 ^d 10	0.28 8	3709.3?		1077.38	2 ⁺			
^x 2637.0 9	0.35 10							
2648.1 6	1.0 3	3725.83		1077.38	2 ⁺			
^x 2652.1 7	0.78 23							
^x 2695.8 9	0.31 9							
2699.5 10	0.29 9	3776.29	1,2 ⁺	1077.38	2 ⁺			
^x 2707.7 17	0.10 3							

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$^{67}\text{Zn}(\text{n},\gamma)$ E=thermal 1971Ot01 (continued) $\gamma(^{68}\text{Zn})$ (continued)

E_γ [†]	I_γ ^{†c}	$E_i(\text{level})$	J_i^π	E_f	J_f^π
$^{x}2730.0$ 11	0.19 6				
2737.7 [#] 4	1.5 4	3815.5	1,2 ⁺	1077.38	2 ⁺
$^{x}2756.0$ 9	0.26 8				
2770.4 7	0.51 15	5187.1		2417.38	4 ⁺
2814.4 11	0.29 9	5565.2		2750.73	3 ⁻
2821.4 12	0.41 12	2821.70	2 ⁺	0	0 ⁺
$^{x}2824.7$ 14	0.25 8				
$^{x}2851.0$ 7	0.49 15				
2857.6 4	2.5 8	3935.10	3 ⁺	1077.38	2 ⁺
2866.1 7	0.60 18	5283.6		2417.38	4 ⁺
$^{x}2878.0$ 10	0.28 8				
$^{x}2883.7$ 8	0.34 10				
$^{x}2893.4$ 9	0.28 8				
2944.5 ^d 9	0.31 9	5283.6		2338.40	2 ⁺
2959.7 ^d 8	0.30 9	5298.1	1 ⁻ , 2 ⁺	2338.40	2 ⁺
$^{x}2965.5$ 8	0.31 9				
$^{x}2972.3$ 7	0.37 11				
2982.9 6	0.66 20	5400.3		2417.38	4 ⁺
$^{x}2987.7$ 13	0.16 5				
$^{x}2995.8$ 11	0.15 5				
3027.7 ^d 14	0.14 7	4910.5	1,2 ⁺	1883.16	2 ⁺
$^{x}3044.0$ 9	0.31 7				
$^{x}3053.6$ 15	0.19 9				
$^{x}3057.6$ 15	0.16 10				
3062.4 ^d 5	0.90 9	4139.7	1,2 ⁺	1077.38	2 ⁺
3068.8 8	0.34 8	4951.7	1 ⁻ , 2 ⁻ , 3 ⁻	1883.16	2 ⁺
3077.2 ^d 8	0.45 9	4733.0	1,2 ⁺	1655.94	0 ⁺
$^{x}3081.9$ 7	0.54 11				
3107.5 ^d 15	0.29 14	4991.6	1,2 ⁺	1883.16	2 ⁺
$^{x}3110.9$ 13	0.35 13				
$^{x}3120.0$ 9	0.34 10				
3137.8 6	0.77 12	4215.3	1,2 ⁺	1077.38	2 ⁺
3147.3 11	0.26 8	5565.2		2417.38	4 ⁺
$^{x}3151.9$ 10	0.32 13				
$^{x}3154.6$ 8	0.50 11				
3184.3 6	0.65 7	3184.18	1,2 ⁺	0	0 ⁺
3201.1 9	0.30 7	4857.9	1,2 ⁺	1655.94	0 ⁺
3206.4 9	0.49 7	4283.9	(2,3) ⁺	1077.38	2 ⁺
$^{x}3214.9$ 7	0.30 7				
3226.4 ^d 7	0.50 7	5565.2		2338.40	2 ⁺
$^{x}3243.9$ 8	0.26 6				
3254.4 10	0.17 7	4910.5	1,2 ⁺	1655.94	0 ⁺
$^{x}3263.7$ 7	0.43 9				
$^{x}3268.4$ 10	0.24 8				
3276.3 6	0.55 8	5693.4		2417.38	4 ⁺
3287.2 3	2.37 24	3287.04	2 ⁺	0	0 ⁺
$^{x}3293.9$ 8	0.31 4				
3331.0 4	1.25 12	4408.6		1077.38	2 ⁺
$^{x}3338.7$ 7	0.44 7				
$^{x}3345.9$ 4	1.15 12				
$^{x}3358.2$ 6	0.62 7				
$^{x}3376.2$ 16	0.24 12				
3380.2 ^d 13	0.28 13	3380.7?		0	0 ⁺
$^{x}3394.1$ 9	0.41 8				

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$^{67}\text{Zn}(\text{n},\gamma)$ E=thermal 1971Ot01 (continued) $\gamma(^{68}\text{Zn})$ (continued)

E_γ [†]	I_γ ^{†c}	$E_i(\text{level})$	J_i^π	E_f	J_f^π
3399.8 11	0.31 10	5283.6		1883.16	2 ⁺
^x 3412.4 15	0.34 16				
3415.6 9	0.64 18	5298.1	1 ⁻ ,2 ⁺	1883.16	2 ⁺
3430.2 11	0.24 8	3429.44	1,2 ⁺	0	0 ⁺
3434.9 8	0.40 8	4512.2	(2 ⁺)	1077.38	2 ⁺
^x 3452.6 11	0.20 7				
3458.1 4	1.25 15	4535.6	1,2 ⁺	1077.38	2 ⁺
^x 3491.8 10	0.26 9				
^x 3509.9 7	0.45 9				
3519.4 6	0.41 9	5403.1	1,2 ⁺	1883.16	2 ⁺
^x 3538.3 7	0.34 7				
^x 3549.1 9	0.28 7				
^x 3563.2 5	0.80 10				
3569.0 ^{#d} 11	0.19 8	4642.4?	1,2 ⁺	1077.38	2 ⁺
^x 3580.5 9	0.25 7				
^x 3595.2 18	0.11 4				
3599.0 ^d 14	0.25 11	3599.1?		0	0 ⁺
^x 3613.0 11	0.21 9				
3630.2 6	0.65 8	3630.27	(2 ⁺)	0	0 ⁺
^x 3644.3 6	0.71 8				
3651.5 10	0.44 10	5306.8		1655.94	0 ⁺
3655.2 16	0.20 10	4733.0	1,2 ⁺	1077.38	2 ⁺
3664.8 10	0.32 9	3664.65	(1,2) ⁺	0	0 ⁺
^x 3669.2 12	0.26 8				
^x 3684.2 7	0.52 10				
^x 3695.2 10	0.31 10				
^x 3703.5 10	0.31 10				
^x 3716.5 8	0.45 9				
^x 3731.1 6	0.73 11				
^x 3772.3 8	0.74 13				
3777.0 ^d 9	0.82 15	3776.29	1,2 ⁺	0	0 ⁺
^x 3800.7 9	0.24 7				
^x 3806.1 14	0.14 7				
3816.3 [#] 6	0.56 9	3815.5	1,2 ⁺	0	0 ⁺
^x 3823.6 9	0.28 9				
3833.1 4	1.31 15	4910.5	1,2 ⁺	1077.38	2 ⁺
^x 3838.5 10	0.22 7				
^x 3866.8 9	0.28 2				
3874.1 8	0.92 21	4951.7	1 ⁻ ,2 ⁻ ,3 ⁻	1077.38	2 ⁺
^x 3876.6 14	0.59 24				
3885.5 7	0.37 9	4963.3		1077.38	2 ⁺
^x 3900.8 6	0.52 9				
3913.9 18	0.34 10	4991.6	1,2 ⁺	1077.38	2 ⁺
3935.1 13	0.15 7	3935.10	3 ⁺	0	0 ⁺
^x 3946.7 17	0.14 6				
^x 3951.8 9	0.34 9				
^x 3958.6 8	0.40 7				
^x 3966.5 11	0.29 7				
^x 3970.9 9	0.49 8				
^x 4024.0 12	0.28 9				
4028.3 8	0.56 8	4027.5	(1 ⁻ ,2 ⁺)	0	0 ⁺
^x 4053.4 13	0.17 8				
^x 4062.7 19	0.08 4				
^x 4069.4 6	0.74 7				
^x 4077.1 11	0.28 8				

Continued on next page (footnotes at end of table)

$^{67}\text{Zn}(\text{n},\gamma)$ E=thermal **1971Ot01** (continued) $\gamma(^{68}\text{Zn})$ (continued)

E_γ [†]	I_γ ^{†c}	$E_i(\text{level})$	J_i^π	E_f	J_f^π
^x 4082.9 7	0.65 9				
4109.8 13	0.16 7	5187.1		1077.38	2 ⁺
^x 4120.4 7	0.51 ^b 8				
^x 4132.4 11	0.30 7				
4139.1 17	0.17 9	4139.7	1,2 ⁺	0	0 ⁺
^x 4146.2 9	0.29 7				
^x 4157.9 8	0.34 9				
^x 4166.7 ^a 14	0.15 6				
^x 4185.3 8	0.47 9				
^x 4196.8 12	0.25 8				
4215.9 15	0.21 9	4215.3	1,2 ⁺	0	0 ⁺
4221.7 17	0.20 10	5298.1	1 ⁻ ,2 ⁺	1077.38	2 ⁺
^x 4229.5 ^a 17	0.14 8				
^x 4241.9 13	0.21 9				
^x 4256.5 12	0.22 7				
^x 4261.2 ^a 11	0.24 7				
^x 4281.7 7	0.36 6				
^x 4290.5 ^a 7	0.43 7				
^x 4296.2 13	0.16 6				
^x 4312.1 7	0.65 6				
4325.5 ^d 6	0.71 7	4325.6?		0	0 ⁺
^x 4334.0 ^a 9	0.80 21				
4337.3 15	0.49 18	5415.1	1,2 ⁺	1077.38	2 ⁺
^x 4342.8 ^a 11	0.47 9				
^x 4347.4 7	0.73 7				
^x 4355.7 11	0.29 7				
^x 4362.3 ^a 11	0.29 7				
^x 4370.5 9	0.35 9				
^x 4381.9 8	0.34 6				
^x 4399.9 ^{&} 9	0.35 6				
^x 4411.2 9	0.31 6				
^x 4437.5 8	0.35 6				
^x 4448.7 7	0.52 7				
^x 4466.2 8	0.53 10				
^x 4471.0 9	0.51 9				
^x 4478.3 13	0.31 10				
^x 4482.9 12	0.32 9				
^x 4493.9 12	0.25 7				
^x 4500.0 8	0.82 9				
4505.3 9	1.11 11	(10198.08)	2 ⁻ ,3 ⁻	5693.4	
4513.3 8	0.41 7	4512.2	(2 ⁺)	0	0 ⁺
4521.0 6	0.76 7	4520.3	1,2 ⁺	0	0 ⁺
^x 4528.2 10	0.28 6				
4535.5 9	0.37 7	4535.6	1,2 ⁺	0	0 ⁺
^x 4541.2 7	0.47 7				
^x 4557.5 13	0.28 9				
^x 4563.2 9	0.41 8				
^x 4579.8 13	0.19 6				
^x 4596.9 11	0.21 5				
^x 4609.1 10	0.26 6				
^x 4619.2 ^a 9	0.31 6				
^x 4626.7 8	0.32 5				
4632.3 6	0.92 10	(10198.08)	2 ⁻ ,3 ⁻	5565.2	
4639.4 ^{#d} 11	0.28 7	4642.4?	1,2 ⁺	0	0 ⁺
^x 4650.5 8	0.44 7				

Continued on next page (footnotes at end of table)

$^{67}\text{Zn}(\text{n},\gamma)$ E=thermal 1971Ot01 (continued) $\gamma(^{68}\text{Zn})$ (continued)

E_γ [†]	I_γ ^{†c}	$E_i(\text{level})$	J_i^π	E_f	J_f^π
$^{x}4656.2$ 12	0.31 6				
$^{x}4670.7$ 11	0.24 6				
$^{x}4681.6^a$ 8	0.44 7				
$^{x}4711.8$ 13	0.30 9				
$^{x}4716.5^a$ 13	0.32 10				
4724.3 8	0.49 7	4723.8	1 ⁺ ,2 ⁺	0	0 ⁺
4732.8 14	0.17 5	4733.0	1,2 ⁺	0	0 ⁺
$^{x}4752.3$ 9	0.49 9				
$^{x}4757.7$ 7	0.65 9				
$^{x}4767.9^a$ 11	0.26 6				
4783.0 6	1.20 11	(10198.08)	2 ⁻ ,3 ⁻	5415.1	1,2 ⁺
$^{x}4789.8$ 13	0.34 9				
4795.0 11	0.99 21	(10198.08)	2 ⁻ ,3 ⁻	5403.1	1,2 ⁺
4798.3 12	0.62 21	(10198.08)	2 ⁻ ,3 ⁻	5400.3	
$^{x}4810.7^{\&}$ 8	0.43 5				
$^{x}4826.9$ 7	0.40 6				
$^{x}4835.1$ 9	0.22 5				
4858.4 8	0.34 6	4857.9	1,2 ⁺	0	0 ⁺
$^{x}4886.2$ 11	0.26 6				
4891.3 6	0.81 10	(10198.08)	2 ⁻ ,3 ⁻	5306.8	
4899.4 5	1.43 13	(10198.08)	2 ⁻ ,3 ⁻	5298.1	1 ⁻ ,2 ⁺
$^{x}4905.2$ 9	0.30 6				
4914.0 4	1.19 9	(10198.08)	2 ⁻ ,3 ⁻	5283.6	
$^{x}4923.1$ 9	0.24 5				
$^{x}4935.2$ 9	0.28 9				
$^{x}4977.8^a$ 8	0.30 7				
4992.0 11	0.26 6	4991.6	1,2 ⁺	0	0 ⁺
$^{x}5003.4^a$ 8	0.31 5				
5011.4 6	0.74 7	(10198.08)	2 ⁻ ,3 ⁻	5187.1	
$^{x}5018.3^a$ 9	0.54 5				
$^{x}5036.5$ 5	0.92 9				
$^{x}5049.9$ 9	0.30 6				
$^{x}5073.8$ 11	0.17 6				
$^{x}5084.5^d$ 19	0.10				
$^{x}5090.8$ 7	0.69 7				
$^{x}5103.7$ 12	0.20 5				
$^{x}5110.4$ 10	0.25 5				
$^{x}5162.6$ 7	0.61 6				
$^{x}5169.1$ 9	0.30 6				
$^{x}5181.0^a$ 11	0.22 5				
$^{x}5194.3^a$ 10	0.24 5				
5206.3 6	0.58 6	(10198.08)	2 ⁻ ,3 ⁻	4991.6	1,2 ⁺
$^{x}5219.6^a$ 14	0.15 4				
5234.3 6	0.60 6	(10198.08)	2 ⁻ ,3 ⁻	4963.3	
5245.9 4	1.49 11	(10198.08)	2 ⁻ ,3 ⁻	4951.7	1 ⁻ ,2 ⁻ ,3 ⁻
5287.6 5	1.28 9	(10198.08)	2 ⁻ ,3 ⁻	4910.5	1,2 ⁺
5297.3 11	0.21 5	5298.1	1 ⁻ ,2 ⁺	0	0 ⁺
5340.0 9	0.45 7	(10198.08)	2 ⁻ ,3 ⁻	4857.9	1,2 ⁺
5345.9 6	1.03 11	(10198.08)	2 ⁻ ,3 ⁻	4851.4	2 ⁻ ,3 ⁻
$^{x}5380.8$ 9	0.32 5				
$^{x}5389.2$ 9	0.35 5				
5403.9 8	0.31 4	5403.1	1,2 ⁺	0	0 ⁺
5415.3 9	0.28 6	5415.1	1,2 ⁺	0	0 ⁺
$^{x}5432.8^a$ 11	0.25 6				
$^{x}5442.0$ 13	0.19 6				

Continued on next page (footnotes at end of table)

$^{67}\text{Zn}(n,\gamma)$ E=thermal 1971Ot01 (continued) $\gamma(^{68}\text{Zn})$ (continued)

E_γ [†]	I_γ ^{†c}	$E_i(\text{level})$	J_i^π	E_f	J_f^π
$^{x}5454.1$ 8	0.35 6				
5464.4 8	0.40 6	(10198.08)	$2^-, 3^-$	4733.0	$1, 2^+$
5474.7 6	0.71 7	(10198.08)	$2^-, 3^-$	4723.8	$1^+, 2^+$
$^{x}5483.3$ ^a 11	0.22 5				
$^{x}5515.7$ ^a 10	0.25 5				
$^{x}5522.9$ 9	0.32 5				
$^{x}5544.9$ 9	0.16 5				
5556.6 ^{#d} 11	0.21 6	(10198.08)	$2^-, 3^-$	4642.4?	$1, 2^+$
$^{x}5578.6$ ^a 9	0.43 6				
$^{x}5610.0$ 9	0.28 5				
5662.3 4	1.76 12	(10198.08)	$2^-, 3^-$	4535.6	$1, 2^+$
$^{x}5670.5$ ^d 11	0.29				
5677.9 9	1.40 12	(10198.08)	$2^-, 3^-$	4520.3	$1, 2^+$
5685.6 9	1.39 12	(10198.08)	$2^-, 3^-$	4512.2	(2^+)
$^{x}5695.0$ ^d 12	0.11				
$^{x}5722.9$ 12	0.22 7				
$^{x}5756.6$ ^d 20	0.08				
$^{x}5762.0$ 7	0.46 6				
$^{x}5784.4$ 15	0.16 5				
5788.7 5	1.21 12	(10198.08)	$2^-, 3^-$	4408.6	
$^{x}5826.6$ 16	0.10				
$^{x}5834.6$ ^a 8	0.36 6				
$^{x}5856.2$ ^a 10	0.22 7				
$^{x}5864.0$ ^a 11	0.22 7				
$^{x}5872.0$ ^a 9	0.26 6				
$^{x}5888.4$ 8	0.34 7				
$^{x}5907.5$ ^a 15	0.15 6				
5913.9 6	0.79 8	(10198.08)	$2^-, 3^-$	4283.9	$(2, 3)^+$
$^{x}5919.4$ 14	0.17 8				
$^{x}5936.1$ ^a 11	0.20 5				
$^{x}5966.3$ ^a 11	0.21 5				
5982.6 5	0.80 8	(10198.08)	$2^-, 3^-$	4215.3	$1, 2^+$
$^{x}6004.4$ 9	0.19 4				
$^{x}6030.9$ ^a 14	0.15 4				
6058.4 8	0.21 6	(10198.08)	$2^-, 3^-$	4139.7	$1, 2^+$
$^{x}6162.3$ 10	0.25 7				
6171.5 8	0.39 7	(10198.08)	$2^-, 3^-$	4027.5	$(1^-, 2^+)$
6262.6 5	2.34 18	(10198.08)	$2^-, 3^-$	3935.10	3^+
6287.0 7	0.64 6	(10198.08)	$2^-, 3^-$	3910.89	$(2, 3, 4)^-$
6301.6 7	0.49 6	(10198.08)	$2^-, 3^-$	3895.81	4^+
6348.5 7	0.45 4	(10198.08)	$2^-, 3^-$	3849.28	4^+
$^{x}6365.5$ ^d 17	0.06				
6421.4 6	0.82 7	(10198.08)	$2^-, 3^-$	3776.29	$1, 2^+$
6471.4 6	0.66 6	(10198.08)	$2^-, 3^-$	3725.83	
$^{x}6492.0$ ^{&} 10	0.25 4				
6533.3 9	0.26 5	(10198.08)	$2^-, 3^-$	3664.65	$(1, 2)^+$
6568.0 10	0.41 4	(10198.08)	$2^-, 3^-$	3630.27	(2^+)
$^{x}6597.3$ ^d 14	0.10				
6610.8 9	0.32 4	(10198.08)	$2^-, 3^-$	3587.14	4^+
6701.9 7	1.76 11	(10198.08)	$2^-, 3^-$	3495.78	$3^+, 4^+$
6768.4 7	3.10 30	(10198.08)	$2^-, 3^-$	3429.44	$1, 2^+$
6773.7 11	0.76 12	(10198.08)	$2^-, 3^-$	3424.93	
6910.6 6	6.0 17	(10198.08)	$2^-, 3^-$	3287.04	2^+

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$^{67}\text{Zn}(\text{n},\gamma)$ E=thermal 1971Ot01 (continued) $\gamma(^{68}\text{Zn})$ (continued)

$E_\gamma^\dagger$	$I_\gamma^{\dagger c}$	$E_i(\text{level})$	J_i^π	E_f	J_f^π
$^{x6984.0 d}_{20}$	0.05				
7013.3 8	0.51 5	(10198.08)	$2^-, 3^-$	3184.18	$1, 2^+$
7188.4 6	3.49 21	(10198.08)	$2^-, 3^-$	3009.24	3^+
7237.7 11	0.28 4	(10198.08)	$2^-, 3^-$	2959.40	(4^+)
7446.3 11	0.28 4	(10198.08)	$2^-, 3^-$	2750.73	3^-
$^{7779.5 d}_{17}$	<0.06	(10198.08)	$2^-, 3^-$	2417.38	4^+
7859.3 7	2.25 15	(10198.08)	$2^-, 3^-$	2338.40	2^+
8314.7 9	2.72 15	(10198.08)	$2^-, 3^-$	1883.16	2^+
9120.1 9	3.86 27	(10198.08)	$2^-, 3^-$	1077.38	2^+

[†] From 1971Ot01.[‡] From $\gamma\gamma(\theta)$ of 1971Ot01; electric or magnetic character from adopted J^π , unless indicated otherwise.

Placed by the evaluator based on the Adopted Levels and Gammas.

@ From coincidence measurements.

& Possible doublet.

^a Primary transition or transition to the ground state.^b Authors value of 0.51 *I* is most likely a misprint. Uncertainty increased by evaluator.^c For intensity per 100 neutron captures, multiply by 0.75 6.^d Placement of transition in the level scheme is uncertain.^x γ ray not placed in level scheme.







