^{66}Zn(n,n'γ)　　**1976SmZU,1975Di11**

History

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

1976SmZU: E(n)=reactor fast neutrons; Eγ, Iγ.
1975Di11: E(n)=4.9, 5.4, and 5.9 MeV; Eγ and σ(n,n').
1980KaZD: E(n)=reactor fast neutrons; Eγ, $\gamma(\theta)$.
1985Ko27: E(n)=reactor fast neutrons; measured T$_{1/2}$ by DSAM.
Others: 1974SlZX, 1985Ko42, and 1985KoZL.

^{66}Zn Levels

E(level)[†]	J$^{\pi}$[‡]	T$_{1/2}$[#]	E(level)[†]	J$^{\pi}$[‡]	T$_{1/2}$[#]
0.0	0$^+$		3433.19 *19*	1$^{(-)}$	
1039.36 *5*	2$^+$		3507.01 *21*	2$^+$	
1872.94 *7*	2$^+$		3576.61 *22*	4$^+$	
2372.68 *11*	0$^+$	>0.21 ps	3670.12 *13*	2$^+$	
2451.12 *7*	4$^+$	0.17 ps +5−3	3741 *5*	1	
2703.8 *4*	(3)		3747.94 *12*	5$^-$	0.21 ps +14−7
2765.70 *9*	4$^+$		3754.02 *13*	4$^+$	
2780.65 *9*	2$^+$	0.28 ps +14−7	3791 *4*	1$^+$	
2827.12 *11*	3$^-$	0.17 ps +4−3	3924.73 *21*		
2938.39 *11*	2$^+$	0.028 ps *3*	4088 *3*	1	
3077.96 *21*	4$^+$	0.09 ps +5−3	4321.95 *21*		
3105.24 *21*	0$^+$		4424 *6*	1	
3212.70 *11*	2$^+$	0.083 ps +21−14	4433 *6*	1$^-$	
3229.56 *11*	1$^+$	0.12 ps *3*	4462 *6*	1$^+$	
3331.66 *12*	2$^+$	0.083 ps +21−14	4497.8 *5*		
3381.2 *4*	1$^{(-)}$	0.042 ps +21−14	4622 *6*		
3425? *5*	1,2$^-$		4807 *6*	1$^+$	

[†] From least-squares fit to Eγ data.
[‡] From Adopted Levels.
[#] By DSAM from 1985Ko27.

γ(^{66}Zn)

E$_{\gamma}$[†]	I$_{\gamma}$[@]	E$_i$(level)	J$^{\pi}_i$	E$_f$	J$^{\pi}_f$	Mult.[&]	δ[a]
314.6 *1*	0.40 *2*	2765.70	4$^+$	2451.12	4$^+$		
328.8 *5*	0.20 *5*	2780.65	2$^+$	2451.12	4$^+$		
[x]337.0 *4*	0.10 *2*						
440.5 *1*	0.44 *4*	3670.12	2$^+$	3229.56	1$^+$		
[x]586.5 *3*	0.10 *2*						
[x]627.7 *1*	1.30 *4*						
[x]669.0 *3*	0.14 *3*						
[x]757.7 *2*	0.18 *3*						
795.6 *3*	0.10 *4*	3576.61	4$^+$	2780.65	2$^+$		
833.56 *5*	32.0 *4*	1872.94	2$^+$	1039.36	2$^+$	D+Q	2.6 *2*
892.7 *1*	1.12 *3*	2765.70	4$^+$	1872.94	2$^+$	Q	
907.4 *2*	0.32 *4*	2780.65	2$^+$	1872.94	2$^+$		
[x]944.3 *2*	0.31 *4*						
954.5 *3*	0.46 *4*	2827.12	3$^-$	1872.94	2$^+$		
[x]966.7 *4*	0.38 *5*						
1039.35 *5*	100	1039.36	2$^+$	0.0	0$^+$	Q	

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^{66}Zn(n,n′γ)   **1976SmZU,1975Di11 (continued)**

γ(^{66}Zn) (continued)

E_γ[†]	I_γ[@]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[&]	δ^a	Comments
[x]1071.6 5	0.20 5							
[x]1106.8 4	0.05 2							
[x]1143.6 3	0.20 6							
1205.0 2	0.5 1	3077.96	4+	1872.94	2+	Q		E_γ: this placement from 1985Ko27 agrees with ^{64}Ni(α,2nγ) data. 1976SmZU show this γ deexciting 3577 level.
1219.1 2	0.17 3	3670.12	2+	2451.12	4+			
1232.3 2	0.4 1	3105.24	0+	1872.94	2+			
[x]1275.4 3	0.16 2							
1296.8 1	0.55 5	3747.94	5−	2451.12	4+			E_γ: this placement from 1985Ko27 agrees with ^{64}Ni(α,2nγ) data. 1976SmZU place this γ deexciting the 3670 level.
[x]1312.3 4	0.08 2							
1333.3 1	2.34 10	2372.68	0+	1039.36	2+			
[x]1354.3 5	0.06 3							
1411.75 5	5.4 1	2451.12	4+	1039.36	2+	Q		
1458.7 1	0.64 4	3331.66	2+	1872.94	2+			
[x]1475.2 2	0.35 5							
[x]1504.0 5	0.06 2							
1507.9 5	0.08 3	3381.2	1(−)	1872.94	2+			
[x]1517.1 2	0.17 3							
[x]1555.1 2	0.30 6							
[x]1635.3 3	0.17 4							
1664.4 4	0.07 3	2703.8	(3)	1039.36	2+	D+Q	8.5 15	
1704.0 3	0.05 1	3576.61	4+	1872.94	2+			
[x]1712.7 5	0.06 1							
1726.4 2	0.97 3	2765.70	4+	1039.36	2+	Q		
1741.5 2	0.39 3	2780.65	2+	1039.36	2+			
1787.7 1	4.3 4	2827.12	3−	1039.36	2+	D+Q	0.08 1	
[x]1815.4 3	0.06 2							
1899.0 1	1.8 1	2938.39	2+	1039.36	2+	D+Q	0.03 1	
[x]1909.4 4	0.03 1							
[x]2009.8 3	0.21 5							
2062[‡#] 3		3105.24	0+	1039.36	2+			
[x]2143.7 3	0.11 3							
2173.3 1	0.97 6	3212.70	2+	1039.36	2+			E_γ: placed by 1975Di11 as deexciting the 4047 level.
2190.1 1	0.49 4	3229.56	1+	1039.36	2+			
2215[‡#] 3		4088	1	1872.94	2+			
[x]2242.6 2	0.5 1							
[x]2276.1 1	0.11 2							
2393.8 2	0.3 1	3433.19	1(−)	1039.36	2+			
[x]2397[‡b] 3								
2467.6 2	0.6 1	3507.01	2+	1039.36	2+			
2631.4 5	0.12 5	3670.12	2+	1039.36	2+			
2714.6 2	0.40 7	3754.02	4+	1039.36	2+			
2752[‡#] 4		3791	1+	1039.36	2+			
2780.6 1	1.75 7	2780.65	2+	0.0	0+	Q		
2885.3 2	0.23 4	3924.73		1039.36	2+			
[x]3048[‡] 4								
[x]3227[‡b] 4								
3282.5 2	0.30 8	4321.95		1039.36	2+			
3381.4 5	0.2 1	3381.2	1(−)	0.0	0+			
3425[‡#b] 5		3425?	1,2−	0.0	0+			

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^{66}Zn(n,n'γ)   **1976SmZU,1975Di11 (continued)**

$\gamma(^{66}$Zn) (continued)

$E_\gamma{}^\dagger$	$I_\gamma{}^@$	E_i(level)	J_i^π	E_f	J_f^π	$E_\gamma{}^\dagger$	E_i(level)	J_i^π	E_f	J_f^π
3433.0 4	0.20 4	3433.19	1$^{(-)}$	0.0	0$^+$	4424‡ 6	4424	1	0.0	0$^+$
3458.3 5	0.05 2	4497.8		1039.36	2$^+$	4433$^{\ddagger b}$ 6	4433	1$^-$	0.0	0$^+$
3741‡ 5		3741	1	0.0	0$^+$	4462‡ 6	4462	1$^+$	0.0	0$^+$
3787$^{\ddagger b}$ 5		3791	1$^+$	0.0	0$^+$	4622‡ 6	4622		0.0	0$^+$
4088‡ 5		4088	1	0.0	0$^+$	4807‡ 6	4807	1$^+$	0.0	0$^+$

† From 1976SmZU, unless indicated otherwise.
‡ From 1975Di11.
$^\#$ Not seen by 1976SmZU.
$^@$ Relative intensity at 90° (1976SmZU).
$^\&$ From $\gamma(\theta)$ (1980KaZD).
^{a} From $\gamma(\theta)$ (1980KaZD); sign convention not specified.
^{b} Placement of transition in the level scheme is uncertain.
^{x} γ ray not placed in level scheme.

^{66}**Zn(n,n'γ)**　　**1976SmZU,1975Di11**
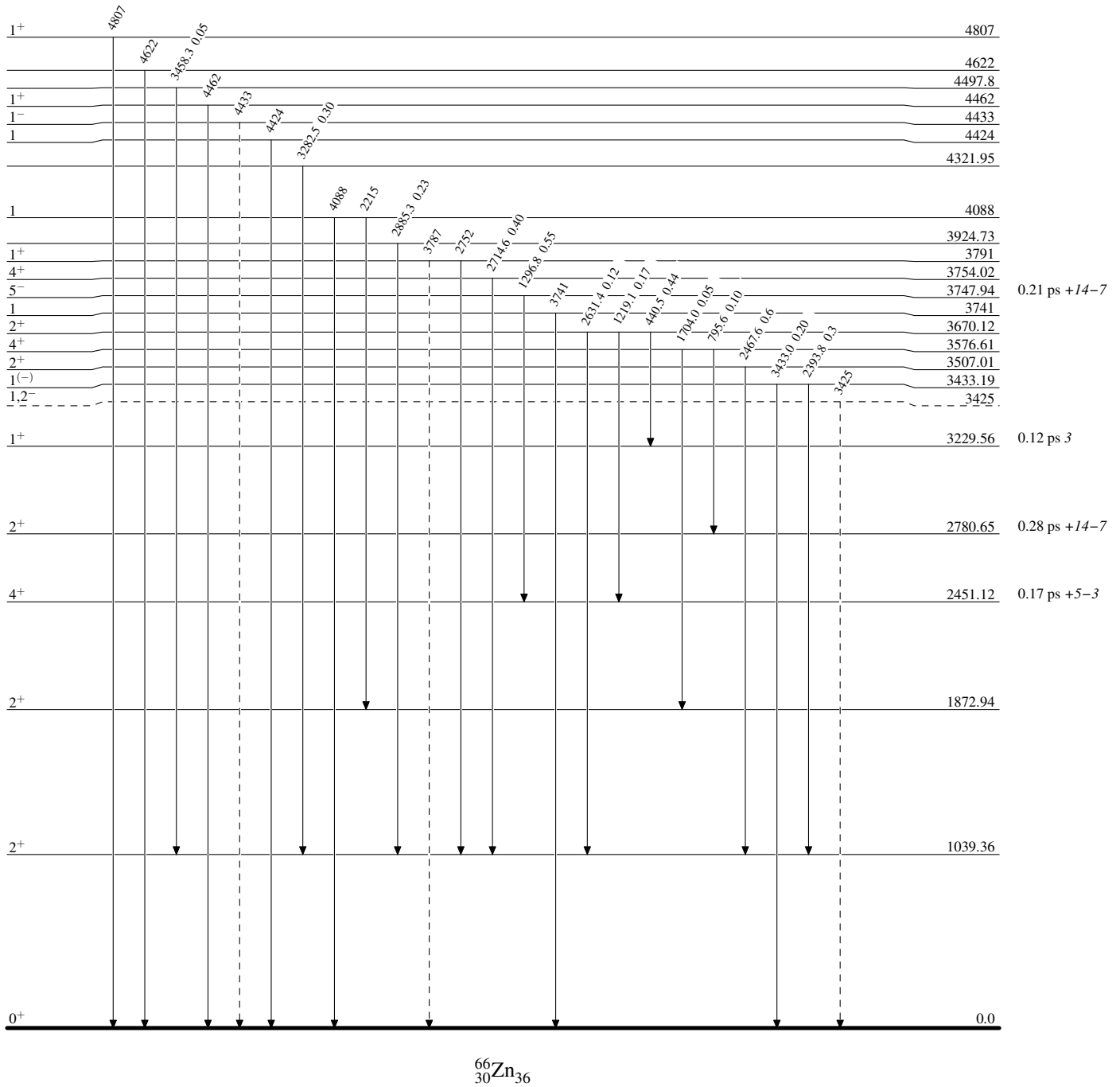
Legend

<u>Level Scheme</u>

Intensities: Relative photon intensity At 90° (1976SmZU)

$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$
γ Decay (Uncertain)

$^{66}_{30}$Zn$_{36}$

^{66}**Zn(n,n′γ)**   **1976SmZU,1975Di11**

Level Scheme (continued)

Intensities: Relative photon intensity At 90° (1976SmZU)

Legend

$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$

Transition labels (top):
3381.4 0.2
1507.9 0.08
1458.7 0.64
2190.1 0.49
2173.3 0.97
2062
1232.3 0.4
1205.0 Q 0.5
1899.0 D+Q 1.8
1787.7 D+Q 4.3
954.5 0.46
2780.6 Q 1.75
1741.5 0.39
907.4 0.32
328.8 0.20
1726.4 Q 0.97
892.7 Q 1.12
314.6 0.40
1664.4 D+Q 0.07
1411.75 Q 5.4
1333.3 2.34
833.56 D+Q 32.0
1039.35 Q 100

Levels (right side):

J^π	Energy	Half-life
$1^{(-)}$	3381.2	0.042 ps +21−14
2^+	3331.66	0.083 ps +21−14
1^+	3229.56	0.12 ps 3
2^+	3212.70	0.083 ps +21−14
0^+	3105.24	
4^+	3077.96	0.09 ps +5−3
2^+	2938.39	0.028 ps 3
3^-	2827.12	0.17 ps +4−3
2^+	2780.65	0.28 ps +14−7
4^+	2765.70	
(3)	2703.8	
4^+	2451.12	0.17 ps +5−3
0^+	2372.68	>0.21 ps
2^+	1872.94	
2^+	1039.36	
0^+	0.0	

$^{66}_{30}$Zn$_{36}$