

Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	ENSDF	31-Mar-2017

$Q(\beta^-)=2293.4$; $S(n)=8235.3$; $S(p)=14058.3$; $Q(\alpha)=-8968.3$ [2017Wa10](#)

$S(2n)=13754.3$, $S(2p)=26109.3$ ([2017Wa10](#)).

Production and identification of ^{74}Zn isotope: [1997Hu09](#), [1989Wi14](#), [1988BaZX](#), [1983Ru06](#), [1981Gi17](#), [1974Gr29](#), [1972Er05](#).

[1997Hu09](#): yield measurement in $^{238}\text{U}(p,F)$ reaction.

[2008Ba54](#): measured mass using the ISOLTRAP mass spectrometer.

Nuclear structure calculations: [2015Ch31](#), [2013Ri08](#), [2012Sr02](#), [1990Wi12](#): levels, J^π , $B(E2)$.

[Additional information 1](#).

 ^{74}Zn LevelsCross Reference (XREF) Flags

A	$^{74}\text{Cu} \beta^-$ decay (1.63 s)	D	Coulomb excitation
B	$^{75}\text{Cu} \beta^-n$ decay (1.224 s)	E	$^{76}\text{Ge}(^{14}\text{C}, ^{16}\text{O}), (^{18}\text{O}, ^{20}\text{Ne})$
C	$^2\text{H}(^{74}\text{Zn}, ^{74}\text{Zn}'\gamma)$	F	$^{238}\text{U}(^{76}\text{Ge}, ^{74}\text{Zn}\gamma)$

E(level)	J^π	$T_{1/2}$	XREF	Comments
0.0	0^+	95.6 s <i>I2</i>	ABCDEF	$\% \beta^- = 100$ $T_{1/2}$: weighted average of 95 s <i>I1</i> (1974Gr29) and 98 s <i>I2</i> (1972Er05). Both values are from gross β spectrum from $^{74}\text{Zn} \beta^-$ decay.
605.90 <i>8</i>	2^+	17.7 ps <i>I3</i>	A CDEF	$T_{1/2}$: weighted average of 18.7 ps <i>I7</i> (2012Ni09 , RDDS in $^2\text{H}(^{74}\text{Zn}, ^{74}\text{Zn}'\gamma)$); 19.8 ps <i>I5</i> (2013Lo04 , RDDS in $^{238}\text{U}(^{76}\text{Ge}, ^{74}\text{Zn}\gamma)$); 17.0 ps <i>I3</i> (from $B(E2) \uparrow = 0.204$ <i>I5</i> in 2006Pe13 from Coul. ex.); 17.2 ps <i>I4</i> (from $B(E2) \uparrow = 0.201$ <i>I6</i> in 2007Va20 from Coul. ex.). J^π : level is Coulomb excited from 0^+ .
1418.56 <i>I2</i>	$(4)^+$	13.9 ps <i>+I2-36</i>	A D F	$T_{1/2}$: from RDDS in $^{238}\text{U}(^{76}\text{Ge}, ^{74}\text{Zn}\gamma)$ (2013Lo04). Other: 3.1 ps <i>I4</i> from $B(E2) \downarrow = 0.051$ <i>I7</i> in Coul. ex. (2009Va01). Values of $B(E2) \downarrow = 0.051$ <i>I7</i> from Coul. ex. (2009Va01) and $B(E2) \downarrow = 0.0116$ <i>+32-10</i> deduced from RDDS lifetime measurement in $(^{76}\text{Ge}, ^{74}\text{Zn}\gamma)$ reaction (2013Lo04) differ by a factor of 4.4. This disagreement is discussed in detail by 2013Lo04 , concluding that additional measurements are needed to resolve the discrepancy. The evaluator has adopted here the higher lifetime from RDDS, based on a comparable $B(E2)(W.u.)$ for the first 2^+ state in ^{74}Zn . J^π : level is Coulomb excited via 2^+ state.
1670.25 <i>8</i>	(2^+)		A	
1788.9 <i>I0</i>			A E	XREF: E(1840).
2099.23 <i>I3</i>			A	
2148.2 <i>3</i>	$(1,2^+)$		A	J^π : γ to 0^+ .
2353.6 <i>9</i>			A	
2551.88 <i>I3</i>			A	
2621 <i>4</i>	(6^+)		F	
2657.6 <i>3</i>			A	
2698.0 <i>I7</i>	$(1,2^+)$		A	J^π : γ to 0^+ .
2809.04 <i>I1</i>			A	
2904.73 <i>I1</i>			A	
2969.3 <i>3</i>			A	
2985.9 <i>I0</i>			A	
3063.9 <i>I7</i>			A	
3067 <i>3</i>			A	
3571 <i>5</i>			A	
4562.4 <i>3</i>			A	
4861.8 <i>I8</i>			A	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued) ^{74}Zn Levels (continued)

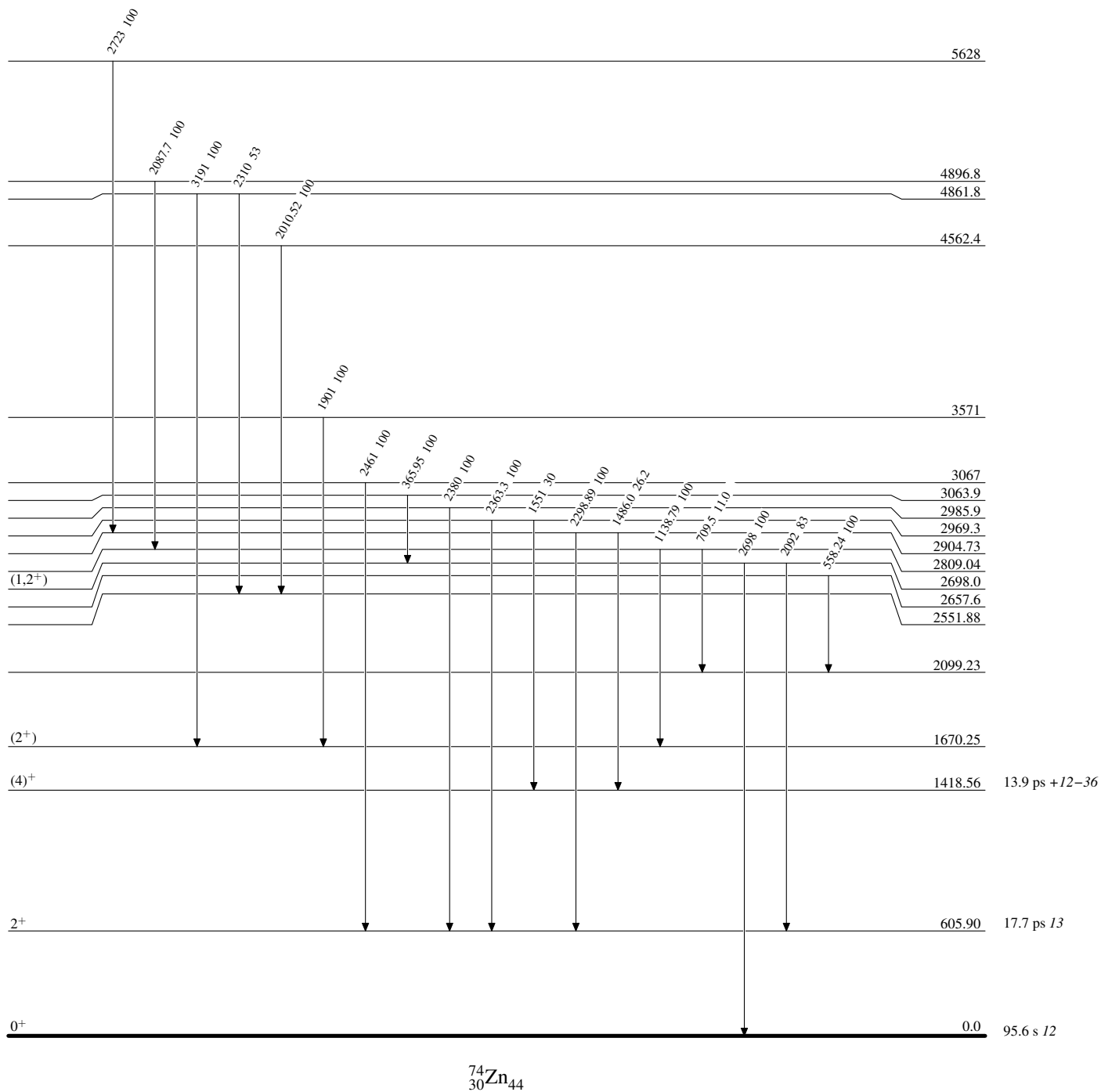
<u>E(level)</u>	<u>XREF</u>
4896.8 6	A
5628 3	A

[†] From syst of even-even nuclides ([1989Wi11](#)), unless otherwise stated.

$\gamma(^{74}\text{Zn})$							
$E_i(\text{level})$	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.	Comments
605.90	2 ⁺	605.90 11	100	0.0	0 ⁺	[E2]	B(E2)(W.u.)=21.2 16
1418.56	(4) ⁺	812.61 9	100	605.90	2 ⁺	[E2]	B(E2)(W.u.)=27 +6-2
1670.25	(2 ⁺)	1064.35 6	100 8	605.90	2 ⁺		
		1670.23 10	58 3	0.0	0 ⁺		
1788.9		1183 1	100	605.90	2 ⁺		
2099.23		680.8 7	4.1 10	1418.56	(4) ⁺		
		1493.36 15	100 5	605.90	2 ⁺		
2148.2	(1,2 ⁺)	1543 1	20 3	605.90	2 ⁺		
		2148.1 3	100 9	0.0	0 ⁺		
2353.6		935.0 9	100	1418.56	(4) ⁺		
2551.88		452.55 9	98 7	2099.23			
		881.71 17	45 5	1670.25	(2 ⁺)		
		1133.05 24	100 7	1418.56	(4) ⁺		
		1946.2 3	74 14	605.90	2 ⁺		
2621	(6 ⁺)	1202		1418.56	(4) ⁺		
2657.6		558.24 22	100	2099.23			
2698.0	(1,2 ⁺)	2092 2	83 11	605.90	2 ⁺		
		2698 3	100 11	0.0	0 ⁺		
2809.04		709.5 4	11.0 6	2099.23			
		1138.79 8	100 6	1670.25	(2 ⁺)		
2904.73		1486.0 3	26.2 24	1418.56	(4) ⁺		
		2298.89 24	100 7	605.90	2 ⁺		
2969.3		1551 1	30 5	1418.56	(4) ⁺		
		2363.3 3	100 7	605.90	2 ⁺		
2985.9		2380 2	100	605.90	2 ⁺		
3063.9		365.95 23	100	2698.0	(1,2 ⁺)		
3067		2461 3	100	605.90	2 ⁺		
3571		1901 5	100	1670.25	(2 ⁺)		
4562.4		2010.52 23	100	2551.88			
4861.8		2310 2	53 13	2551.88			
		3191 4	100 13	1670.25	(2 ⁺)		
4896.8		2087.7 5	100	2809.04			
5628		2723 3	100	2904.73			

Adopted Levels, Gammas**Level Scheme**

Intensities: Relative photon branching from each level



Adopted Levels, Gammas**Level Scheme (continued)**

Intensities: Relative photon branching from each level

