^{88}Sr(α,3nγ) 1980ArZU,1973Ni04

Type	Author	History Citation	Literature Cutoff Date
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Includes ^{90}Zr(α,α'nγ).

1980ArZU (also 1981ArZM): E=40 MeV. Measured Eγ, Iγ, $\gamma\gamma$, $\gamma(\theta)$, lifetimes.

1973Ni04 (also 1971GrXS): (α,nγ) E=43 MeV and ^{90}Zr(α,α'nγ) E=37-43 MeV. Measured Eγ, Iγ, $\gamma\gamma$, Ag(t), $\gamma(\theta)$. Data for excited states at 1943, 2121, 2724 and 2995.

^{89}Zr Levels

E(level)[‡]	J$^\pi$[†]	T$_{1/2}$[#]	Comments
0	9/2$^+$		
1943.39 *17*	(13/2)$^+$	<10 ns	
2120.96 *17*	13/2$^-$	<7 ns	T$_{1/2}$: from 1971GrXS.
2150.2	(15/2$^-$)		
2159.4	(17/2$^-$)		
2723.7 *3*	(17/2)$^+$	<10 ns	
2829.8			
2927.1	(19/2$^-$)		
2994.9 *4*	(21/2)$^+$	5.9 ns *1*	T$_{1/2}$: from $\gamma\gamma$(t) (1980ArZU,1981ArZM).
3110.8	(19/2)$^+$		
3575.7	(23/2)$^+$	0.18[@] ps	
3717.7	(21/2$^-$)		
4276.6	(25/2)	0.18[@] ps	
4524.5	(23/2)		
4735.4	(25/2$^+$)		
5377.9	(27/2$^+$)		

[†] From Adopted Levels.
[‡] From least-squares fit to Eγ data.
[#] Ag(t) (1973Ni04), unless indicated otherwise.
[@] From 1980ArZU.

γ(^{89}Zr)

Iγ from ^{90}Zr(α,α'nγ) E=43 MeV (1973Ni04)

Eγ	Iγ
177	34 4
271	53 5
780	48 5
1943	100 10
2121	15 2

E$_\gamma$[†]	I$_\gamma$[‡]	E$_i$(level)	J$^\pi_i$	E$_f$	J$^\pi_f$	Mult.[#]	Comments
(9.2)		2159.4	(17/2$^-$)	2150.2	(15/2$^-$)		
29.3		2150.2	(15/2$^-$)	2120.96	13/2$^-$		
67.9		2994.9	(21/2)$^+$	2927.1	(19/2$^-$)		
116.0		3110.8	(19/2)$^+$	2994.9	(21/2)$^+$		
177.6[‡] *2*	32 *3*	2120.96	13/2$^-$	1943.39	(13/2)$^+$	(D)	A$_2$=+0.23 *2*, A$_4$=−0.05 *3* (1973Ni04).

Continued on next page (footnotes at end of table)

^{88}Sr(α,3nγ) 1980ArZU,1973Ni04 (continued)

γ(^{89}Zr) (continued)

E_γ †	I_γ ‡	E_i(level)	J^π_i	E_f	J^π_f	Mult. #	Comments
206.9		2150.2	(15/2$^-$)	1943.39	(13/2)$^+$		
271.2‡ *2*	55 *6*	2994.9	(21/2)$^+$	2723.7	(17/2)$^+$	(E2)	A_2=+0.23 *3*, A_4=−0.07 *4* (1973Ni04).
387.0		3110.8	(19/2)$^+$	2723.7	(17/2)$^+$		
564.3		2723.7	(17/2)$^+$	2159.4	(17/2$^-$)		
580.8		3575.7	(23/2)$^+$	2994.9	(21/2)$^+$		
642.5		5377.9	(27/2$^+$)	4735.4	(25/2$^+$)		
700.9		4276.6	(25/2)	3575.7	(23/2)$^+$		
767.7		2927.1	(19/2$^-$)	2159.4	(17/2$^-$)		
780.3‡ *2*	59 *6*	2723.7	(17/2)$^+$	1943.39	(13/2)$^+$	(E2)	A_2=+0.34 *4*, A_4=−0.10 *8* (1973Ni04).
790.4		3717.7	(21/2$^-$)	2927.1	(19/2$^-$)		
806.6		4524.5	(23/2)	3717.7	(21/2$^-$)		
886.4		2829.8		1943.39	(13/2)$^+$		
1558.5		3717.7	(21/2$^-$)	2159.4	(17/2$^-$)		
1740.5		4735.4	(25/2$^+$)	2994.9	(21/2)$^+$		
1943.4‡ *2*	100 *10*	1943.39	(13/2)$^+$	0	9/2$^+$	(E2)	A_2=+0.26 *3*, A_4=0.00 *5* (1973Ni04).
2120.9‡ *2*	13 *2*	2120.96	13/2$^-$	0	9/2$^+$		

† From 1980ArZU, unless indicated otherwise.
‡ From 1973Ni04.
# From $\gamma(\theta)$ (1973Ni04).

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Level Scheme

Intensities: Relative I_γ