^{64}**Zn(^{40}Ca,α2pnγ)**   **1990Pi01**

	Type	Author	History Citation	Literature Cutoff Date
	Full Evaluation	N. Nica	NDS 111, 525 (2010)	19-Nov-2009

E=167 MeV. Measured Eγ, Iγ, γ excit, $\gamma(\theta)$, $\gamma\gamma$, nγ, nγ(t).
Other: 1990Al07: ^{64}Zn(^{36}Ar,2pn) E=130 MeV; measured nγ(t).

^{97}Pd Levels

E(level)	J$^{\pi\dagger}$	T$_{1/2}$	E(level)	J$^{\pi\dagger}$	E(level)	J$^{\pi\dagger}$
0.0	5/2$^+$		2480.9?		4820.6	31/2
686.2‡	7/2$^{+\ddagger}$		2639.5‡	21/2$^{+\ddagger}$	4915.5	
1172.7?			2882.3		5535.6	
1294.5‡	9/2$^{+\ddagger}$		3005.2		5887.6‡	33/2$^{+\ddagger}$
1469.5			3251.3	23/2	6126.0?	
1630.6			3577.8	21/2$^+$	6313.0?	
1881.4‡	13/2$^{+\ddagger}$		3675.8	23/2$^{(+)}$	6540.7	
1925.1			3810.5‡	25/2$^{+\ddagger}$	7522.7	
2244.0‡	17/2$^{+\ddagger}$	2.3$^\#$ ns 5	4181.2?			
2468.8‡	19/2$^{+\ddagger}$		4636.6‡	29/2$^{+\ddagger}$		

† Spin assignments are those proposed by the authors and are based on angular distribution results and N=51 systematics (can be different from those in Adopted Levels, Gammas dataset).

‡ Yrast state, established through cascading γ's.

$^\#$ From n(363γ,1295γ)(t) (1990Al07).

γ(^{97}Pd)

E$_\gamma$	I$_\gamma^\dagger$	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.‡	$\delta^\ddagger$	Comments
134.66 22	2.7 3	3810.5	25/2$^+$	3675.8	23/2$^{(+)}$	D		A$_2$=−0.18 27; A$_4$=0
170.70 18	66$^\#$ 4	2639.5	21/2$^+$	2468.8	19/2$^+$	(M1+E2)	−0.09 7	A$_2$=−0.29 3; A$_4$=+0.00 6 δ: −0.16≤δ≤−0.016.
184.03 22	2.8 3	4820.6	31/2	4636.6	29/2$^+$	D		A$_2$=−0.27 26; A$_4$=0
224.85 22	85.2 11	2468.8	19/2$^+$	2244.0	17/2$^+$			A$_2$=−0.241 24; A$_4$=−0.084 54
227.7 3	9.9$^\#$ 23	6540.7		6313.0?				
278.9 4	1.3 6	4915.5		4636.6	29/2$^+$			A$_2$=+0.7 12; A$_4$=0
362.52 25	80 4	2244.0	17/2$^+$	1881.4	13/2$^+$	(E2)		A$_2$=+0.32 6; A$_4$=−0.20 6
413.5 4	2.7$^\#$ 9	2882.3		2468.8	19/2$^+$			
425.48 25	13$^\#$ 3	6313.0?		5887.6	33/2$^+$			A$_2$=−0.04 8; A$_4$=+0.11 17 Feeds the 5887.6 level (from coin data).
486.5 4	4.2$^\#$ 16	1172.7?		686.2	7/2$^+$			Feeds the 686.2 level (from coin data).
586.91 25	102.7 16	1881.4	13/2$^+$	1294.5	9/2$^+$	(E2)		A$_2$=+0.241 43; A$_4$=−0.084 88
599.7	2.8$^\#$ 14	2480.9?		1881.4	13/2$^+$			E$_\gamma$: from (^{3}He,2nγ) data. Feeds the 1881.4-keV level (from coin data).
608.3 3	12.4 9	1294.5	9/2$^+$	686.2	7/2$^+$	(M1+E2)	−3.5 35	A$_2$=−0.42 22; A$_4$=+0.33 39 δ: −7.0≤δ≤+0.037.
611.8 5	8.4 9	3251.3	23/2	2639.5	21/2$^+$	D		A$_2$=−0.30 24; A$_4$=0
630.6 5	3.1 8	1925.1		1294.5	9/2$^+$			
686.2 4	32 2	686.2	7/2$^+$	0.0	5/2$^+$	(M1+E2)	+0.19 15	A$_2$=+0.01 10; A$_4$=+0.10 18 I$_\gamma$: value may be perturbed by an unresolved transition. δ: +0.048≤δ≤+0.34 or δ>1.

^{64}Zn(^{40}Ca,α2pnγ)　　**1990Pi01 (continued)**

γ(^{97}Pd) (continued)

E$_\gamma$	I$_\gamma$[†]	E$_i$(level)	J$^\pi_i$	E$_f$	J$^\pi_f$	Mult.[‡]	Comments
761.3 5	4.0[#] 14	3005.2		2244.0	17/2$^+$		
783.3 5	7.0 10	1469.5		686.2	7/2$^+$		A$_2$=+0.06 31; A$_4$=0
826.1 3	58[#] 3	4636.6	29/2$^+$	3810.5	25/2$^+$	(E2)	A$_2$=+0.24 6; A$_4$=−0.08 9
899.0 5	2.3 13	5535.6		4636.6	29/2$^+$		A$_2$=−1.2 15; A$_4$=0
944.4 5	9.5[#] 20	1630.6		686.2	7/2$^+$		
982.0 4	4.3[#] 10	7522.7		6540.7			A$_2$=−0.98 28; A$_4$=0
1036.0 4	5.2[#] 13	3675.8	23/2$^{(+)}$	2639.5	21/2$^+$		
1109.0 5	7.2 8	3577.8	21/2$^+$	2468.8	19/2$^+$		A$_2$=−0.58 27; A$_4$=0
1170.98 25	58[#] 3	3810.5	25/2$^+$	2639.5	21/2$^+$	(E2)	A$_2$=+0.193 38; A$_4$=−0.062 81
1207.2 5	10.0 9	3675.8	23/2$^{(+)}$	2468.8	19/2$^+$		A$_2$=+0.06 5; A$_4$=0
1210.5 7		6126.0?		4915.5			I$_\gamma$: weak transition, feeds the 4916-keV level (from coin data).
1250.99 25	13.7 16	5887.6	33/2$^+$	4636.6	29/2$^+$	(E2)	A$_2$=+0.28 17; A$_4$=+0.19 29
1294.54 22	100.0 12	1294.5	9/2$^+$	0.0	5/2$^+$	(E2)	A$_2$=+0.247 34; A$_4$=+0.073 76
1541.7 5	3.1 8	4181.2?		2639.5	21/2$^+$		A$_2$=−0.17 58; A$_4$=0 Feeds the 2639.5 level (from coin data).

[†] Relative Iγ obtained from neutron gated spectra.

[‡] Deduced from $\gamma(\theta)$ data. Stretched Q and D+Q transitions in the main yrast cascade are assumed to be (E2) and (M1+E2), respectively.
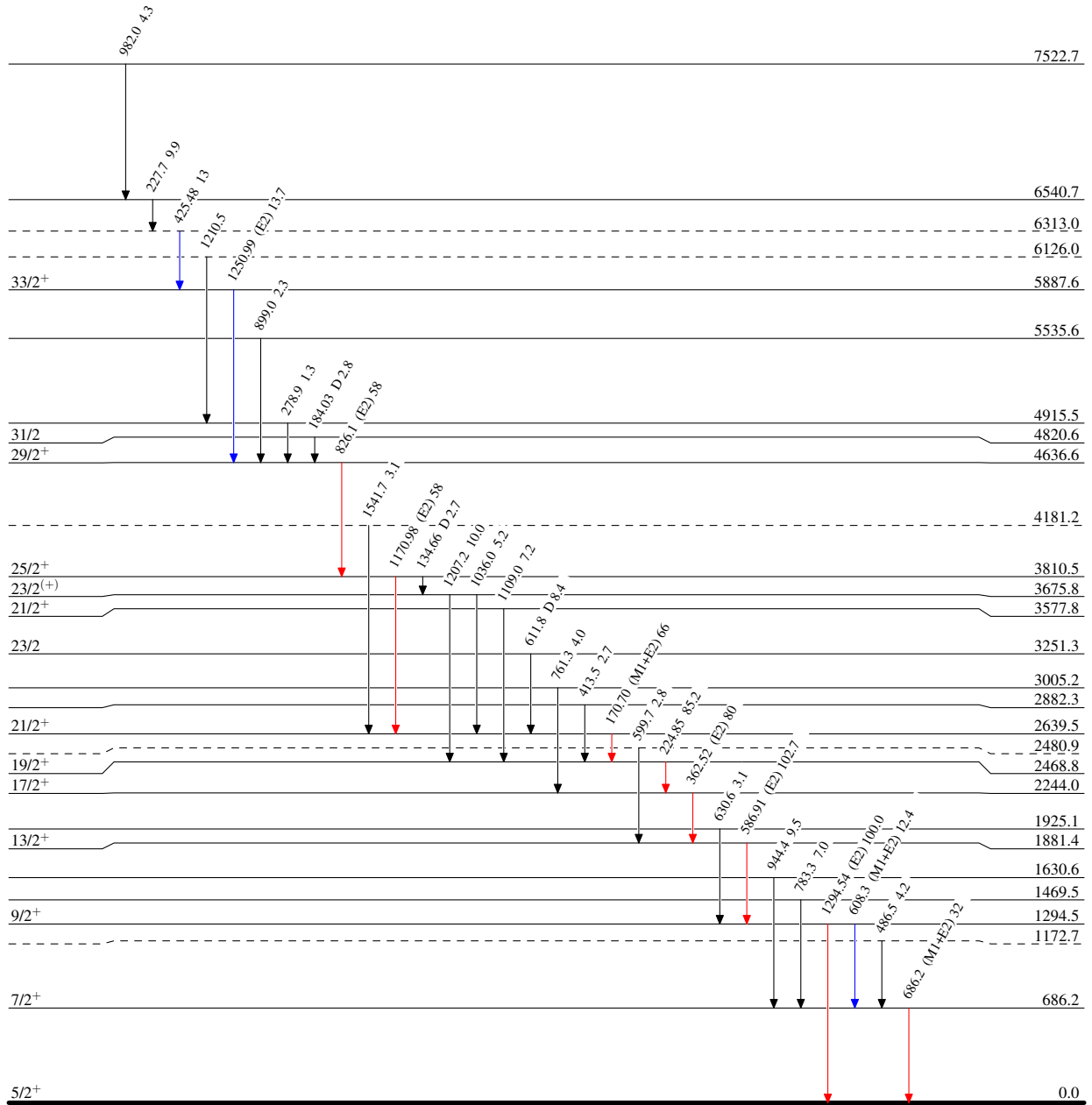
[#] Value obtained from coin data.

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Level Scheme

Intensities: Relative I$_\gamma$

Legend

I$_\gamma$ < 　2%×I$_\gamma^{max}$
I$_\gamma$ < 10%×I$_\gamma^{max}$
I$_\gamma$ > 10%×I$_\gamma^{max}$

$^{97}_{46}$Pd$_{51}$