^{106}Cd(^{64}Zn,2p2nγ) 2002Ap03

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 109, 1103 (2008)	1-Mar-2008

2002Ap03: E(^{64}Zn)=334 MeV; 80% enriched ^{106}Cd target; JUROSPHERE detector array (5 NORDBALL (At 79°), 5 TESSA (At 101°) and 15 EUROGAM phase I (At 134° or 158°) Ge detectors); RITU gas-filled separator; recoils implanted into 16-strip position-sensitive Si detector; recoil decay tagging technique; measured Eγ, Iγ, recoil-α-γ-γ coin, γ asymmetry.

^{166}Os Levels

E(level)[†]	J$^\pi$[‡]	Comments
0.0[#]	0$^+$	
432.0[#] *3*	2$^+$	
1021.0[#] *5*	4$^+$	
1562.3[@] *7*	(3$^-$)	
1725.0[#] *7*	6$^+$	E(level): an alternative value (E=1647.3) is possible because the order of the 626γ-704γ cascade is not established.
1931.3[@] *7*	(5$^-$)	
2351.3[#] *9*	8$^+$	
2426.0?[&] *11*	(6$^-$)	
2452.4[@] *9*	(7$^-$)	
3009.4[#] *12*	(10$^+$)	
3025.5?[&] *11*	(8$^-$)	
3520.7[#] *13*	(12$^+$)	
3910.8?[#] *16*	(14$^+$)	

[†] From least-squares fit to Eγ.
[‡] Authors' values, based on deduced band structure, measured transition multipolarities and analogy to structures In ^{168}Os.
[#] Band(A): yrast sequence. g.s. band crossed At $\hbar\omega$=0.30 MeV (with 11 $\hbar$ gain In alignment) by (ν $i^2_{13/2}$) band (2002Ap03).
[@] Band(B): K$^\pi$=(3$^-$), α=1 band. Bandhead deexcites to J=2 and 4 members of g.s. band; structure of band appears to Be similar to that of a 3$^-$ band In ^{168}Os. Possible configuration: ν ($i_{13/2}$)($h_{9/2}$,$f_{7/2}$).
[&] Band(C): π=(−), α=0 band. Very weak band decaying through the (3$^-$) band, analogous to a side band known In ^{168}Os; on this basis, authors tentatively assign π=− and even spin. Possible configuration: ν ($i_{13/2}$)($h_{9/2}$,$f_{7/2}$).

γ(^{166}Os)

E$_\gamma$[†]	I$_\gamma$[†]	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.[‡]	α[#]	Comments
[x]171.3 *5*	7 *3*							Iγ(158°)/(Iγ(79°)+Iγ(101°))=0.74 *8*. authors suggest that this γ May belong to decay from (3$^-$) band to yrast band.
[x]321.5 *9*	7 *7*							
368.8 *5*	21 *6*	1931.3	(5$^-$)	1562.3	(3$^-$)	(Q)		Iγ(158°)/(Iγ(79°)+Iγ(101°))=0.84 *5*.
390.1[@] *9*	3 *22*	3910.8?	(14$^+$)	3520.7	(12$^+$)			
432.0 *3*	100 *2*	432.0	2$^+$	0.0	0$^+$	E2	0.0330	Iγ(158°)/(Iγ(79°)+Iγ(101°))=0.90 *3*. Mult.: Q from γ asymmetry; not M2 from intensity balance At 432 level.
[x]443.3 *6*	14 *5*					D(+Q)		Iγ(158°)/(Iγ(79°)+Iγ(101°))=0.44 *4*.
[x]482.2 *9*	8 *4*							
494.8[@] *9*	6 *5*	2426.0?	(6$^-$)	1931.3	(5$^-$)			
511.3 *5*	18 *5*	3520.7	(12$^+$)	3009.4	(10$^+$)			

Continued on next page (footnotes at end of table)

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γ(^{166}Os) (continued)

E_γ[†]	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	Comments
521.1 *6*	18 *6*	2452.4	(7^-)	1931.3	(5^-)		
541.6 *7*	17 *6*	1562.3	(3^-)	1021.0	4^+	D	Iγ(158°)/(Iγ(79°)+Iγ(101°))=0.66 *7*.
573.0[@] *9*	2 *5*	3025.5?	(8^-)	2452.4	(7^-)		
589.2 *4*	78 *2*	1021.0	4^+	432.0	2^+	Q	Iγ(158°)/(Iγ(79°)+Iγ(101°))=0.92 *6*.
599.6[@] *9*	6 *5*	3025.5?	(8^-)	2426.0?	(6^-)		
[x]614.0 *5*	8 *5*						
626.3 *5*	32 *7*	2351.3	8^+	1725.0	6^+	Q	Iγ(158°)/(Iγ(79°)+Iγ(101°))=1.20 *14*.
658.1 *8*	13 *5*	3009.4	(10^+)	2351.3	8^+		
704.0 *5*	33 *9*	1725.0	6^+	1021.0	4^+	Q	Iγ(158°)/(Iγ(79°)+Iγ(101°))=0.88 *8*.
910.9 *9*	15 *9*	1931.3	(5^-)	1021.0	4^+	D	Iγ(158°)/(Iγ(79°)+Iγ(101°))=0.46 *9*.
1129.2 *9*	25 *6*	1562.3	(3^-)	432.0	2^+		

[†] From 2002Ap03.
[‡] Based on γ asymmetry In recoil-α-γ data, except As noted. Values for ^{165}W transitions of known multipolarity, also observed In this experiment, served As an asymmetry calibration. Values expected for pure stretched D are 0.55 and, for stretched Q (or D, ΔJ=0), 1.0.
[#] Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.
[@] Placement of transition in the level scheme is uncertain.
[x] γ ray not placed in level scheme.

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Level Scheme

Intensities: Relative I_γ

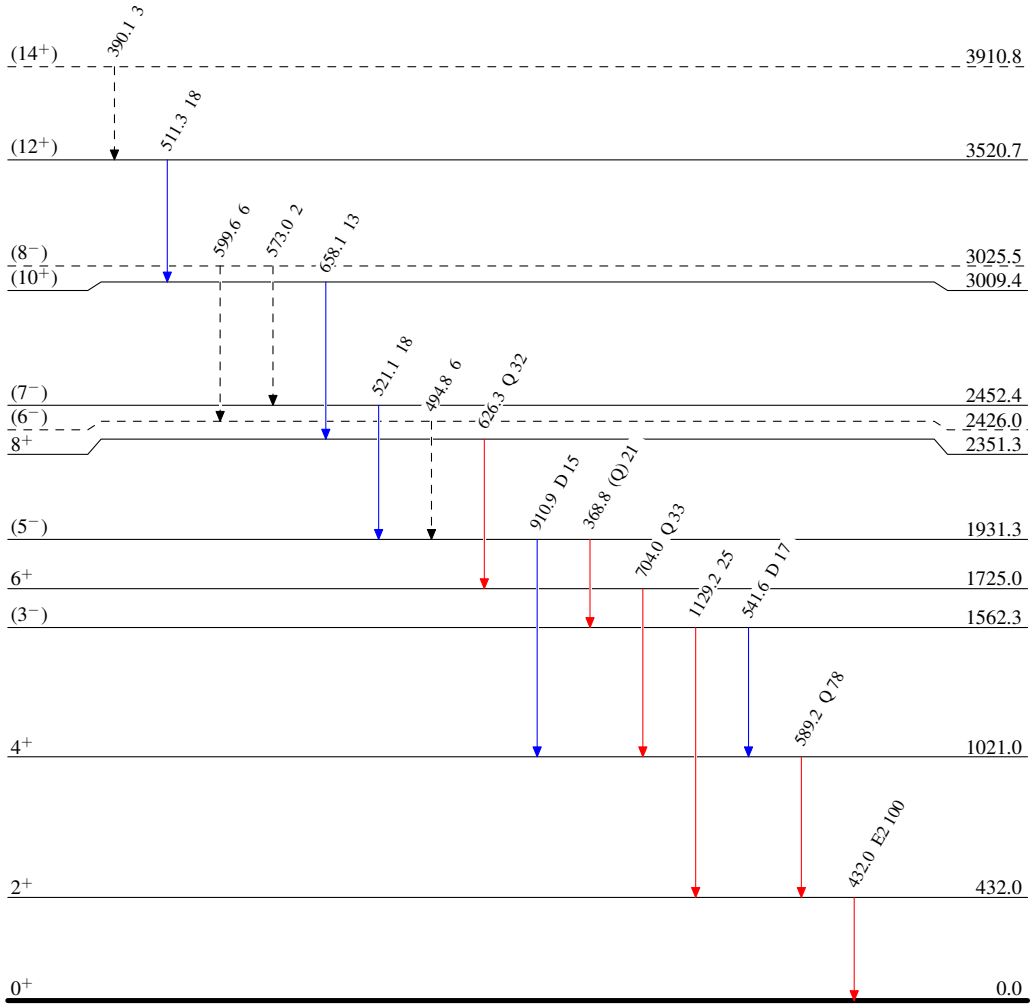
Legend

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

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

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

γ Decay (Uncertain)



$^{166}_{76}Os_{90}$

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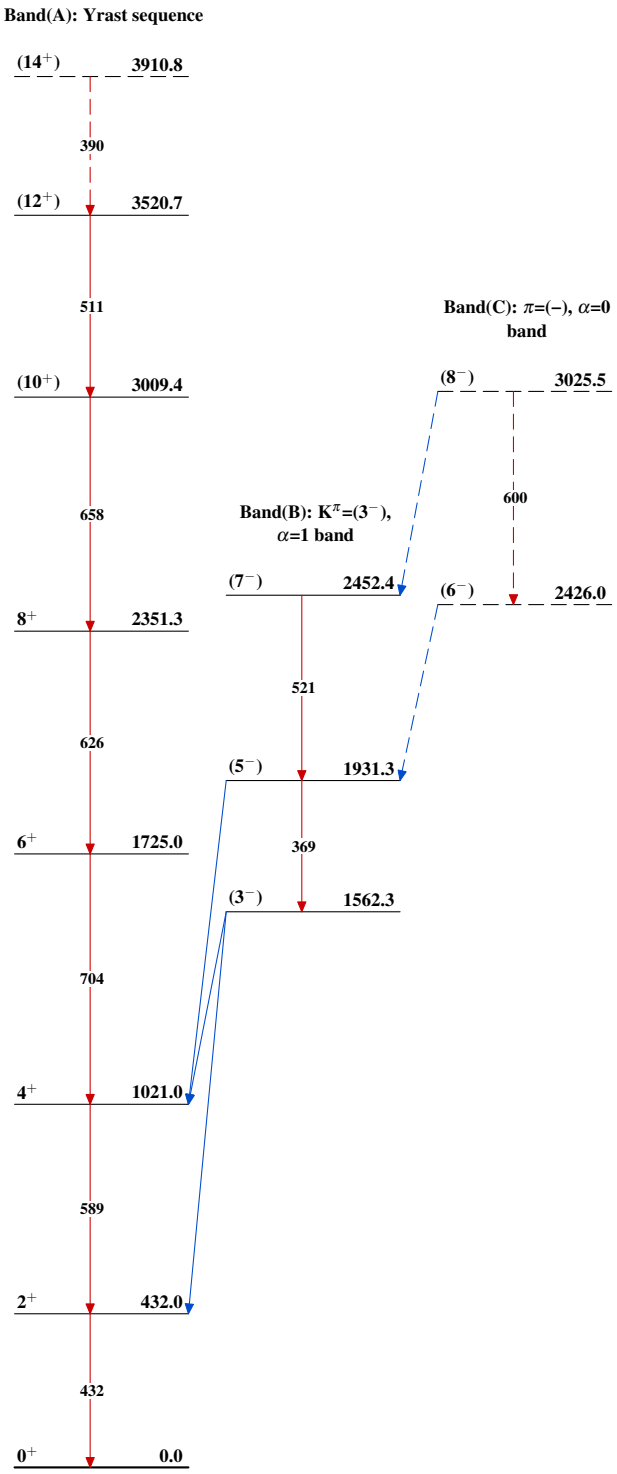

$^{166}_{76}Os_{90}$