^{46}Ti(^{58}Ni,α2nγ) 2004Bl10,1997Go18

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jun Chen, Balraj Singh	NDS 164, 1 (2020)	15-Feb-2020

2004Bl10: pulsed beam. Measured Eγ, Iγ, $\gamma\gamma$-coin, γn-coin, $\gamma\gamma$(t) with the EUROBALL spectrometer consisting of 26 Clover and 15 Cluster detectors in combination with the EUCLIDES Si ball and the neutron ball. Deduced levels, J, π, $T_{1/2}$, transition strengths. Comparisons with shell-model calculations. Beam energy is not quoted but it is probably close to 215-225 MeV as in 1997Go18. See also 2005Gr34.

1997Go18 (also 1997Go02,1997Gr12) E=215, 225 MeV. Measured Eγ, $\gamma\gamma$-coin, (particle)γ-coin, $\gamma\gamma$(t) using γ-detector array and several other particle detector arrays. Deduced levels, J, π, transition strengths, conversion coefficients. Systematics of neighboring nuclei. Comparisons with shell-model calculations.

Several authors are the same in 2004Bl10 and 1997Go18.

^{98}Cd Levels

E(level)[†]	J$^\pi$[‡]	$T_{1/2}$	Comments
0.0[#]	0^+		
1394.9[#] *2*	(2^+)		
2082.7[#] *4*	(4^+)		
2280.9[#] *5*	(6^+)	<20 ns	$T_{1/2}$: from centroid shift method with limit at 2σ confidence level (2004Bl10).
2428.0[#] *5*	(8^+)	0.17 μs *+6−4*	$T_{1/2}$: from single exponential fit to $\gamma\gamma$(t) (2004Bl10). Others: 0.48 μs *16* (1997Go18), 0.20 μs *+30−17* (1997Gr02).
6635.1 *21*	(12^+)	0.23 μs *+4−3*	E(level): core-excited state (2004Bl10). J$^\pi$: tentatively assigned by 2004Bl10 based on shell-model predictions and observed isomeric decay. $T_{1/2}$: from single exponential fit to background-subtracted γ(t) (2004Bl10).

[†] From a least-squares fit to γ-ray energies.
[‡] From 1997Go18 based on systematics of neighboring N=50 isotones and shell-model predictions of $\pi g_{9/2}^{-2}$ structure, unless otherwise noted.
[#] Seq.(A): Yrast cascade.

γ(^{98}Cd)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.	Comments
147.2 *2*	74 *10*	2428.0	(8^+)	2280.9	(6^+)	(E2)	α(K)exp=0.35 *23* (1997Go18) E_γ: weighted average of 147.1 *2* (2004Bl10) and 147.3 *3* (1997Go18). I_γ: weighted average of 70 *15* (2004Bl10) and 75 *10* (1997Go18). Mult.: from α(K)exp.
198.1 *2*	85 *11*	2280.9	(6^+)	2082.7	(4^+)	[E2]	α(K)exp=0.16 *18* (1997Go18) E_γ: weighted average of 198.2 *2* (2004Bl10) and 197.9 *3* (1997Go18). I_γ: weighted average of 80 *15* (2004Bl10) and 87 *11* (1997Go18).
687.7 *3*	104 *15*	2082.7	(4^+)	1394.9	(2^+)		E_γ: weighted average of 687.8 *3* (2004Bl10) and 687.6 *3* (1997Go18). I_γ: weighted average of 105 *15* (2004Bl10) and 102 *15* (1997Go18).
1394.8 *2*	100 *15*	1394.9	(2^+)	0.0	0^+		E_γ: weighted average of 1394.9 *2* (2004Bl10) and 1394.7 *3* (1997Go18). I_γ: from 1997Go18 and 2004Bl10.
4207 *2*	50 *35*	6635.1	(12^+)	2428.0	(8^+)	[E4]	

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Level Scheme

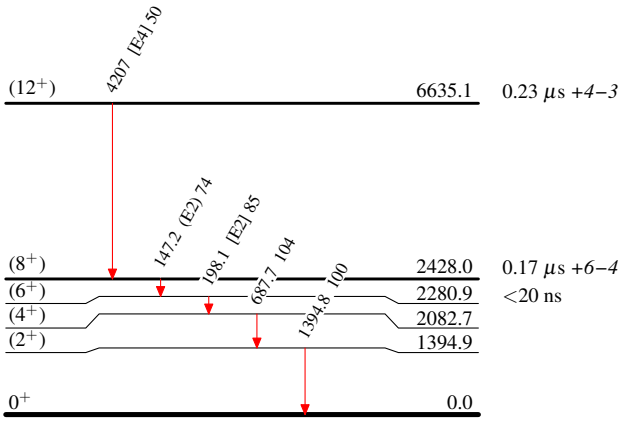
Intensities: Relative I_γ

Legend

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

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

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



$^{98}_{48}Cd_{50}$

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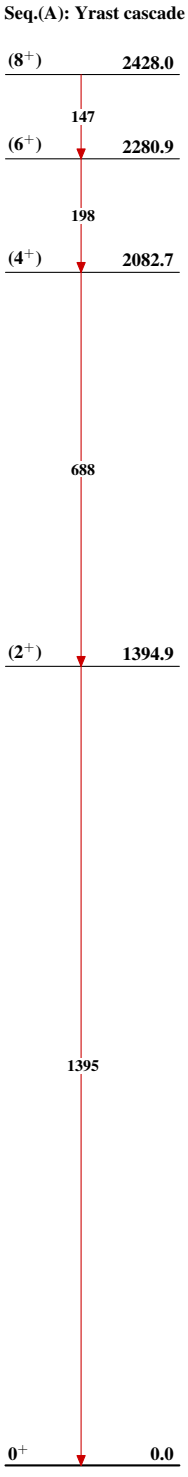

$^{98}_{48}Cd_{50}$