

^{122}Ag β^- decay: mixed source 1995Za01

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	T. Tamura	NDS 108, 455 (2007)	30-Sep-2006

Parent: ^{122}Ag : E=x; $Q(\beta^-)=9500$ SY; $\% \beta^-$ decay=?

^{122}Ag -E: Isomer-mixed source.

1995Za01: ^{235}U (n,f) on-line MS; ^{122}Ag isomers without parent discrimination; measured γ , $\gamma\gamma$ -coin, $\beta\gamma\gamma$ -coin, $\gamma\gamma(\theta)$; deduced E(levels), $T_{1/2}$ (569.5 level), J^π .

Excited states of ^{122}Cd was studied using mass-separated but isomer-mixed ^{122}Ag source. Since the excited states cover wide range of J^π from 0^+ to (8^+) , the source probably includes low- and high-spin isomers. Especially, the parent must feed 1705 ($J=0^{(+)}$) and 1992 ($J=0^{(+)}$) levels for $\gamma\gamma(\theta)$, and 2823 ($J=(8^+)$).

 ^{122}Cd Levels

E(level) [†]	J^π [‡]	$T_{1/2}$	Comments
0.0	0^+		
569.45 8	2^+	10 ps 5	$T_{1/2}$: Centroid-shift analysis of $\beta\gamma(t)$ coincidence spectra using NE111A and BaF ₂ scintillators with time-to-amplitude converter.
1329.15 12	(4^+)		
1367.8 3	$(2)^+$		
1704.7 4	$0^{(+)}$		
1909.1 4	(3^-)		
1979.34 16	$(3,4^+)$		
1991.9 4	$0^{(+)}$		
2178.02 25	(6^+)		
2197.11 23			
2315.7 4			
2444.8 4			
2502.6 3			
2536.1 4			
2577.0 4			
2644.5 3			
2668.5 4			
2800.4 4			
2823.4 4	(8^+)		
3062.0 4	(8^+)		
3170.2 4			

[†] Least-squares fit to E_γ 's (evaluator).

[‡] From Adopted Levels.

 $\gamma(^{122}\text{Cd})$

E_γ [†]	I_γ [‡]	$E_i(\text{level})$	J^π_i	E_f	J^π_f	Mult. [#]	Comments
324.6 3	4.0 1	2502.6		2178.02	(6^+)		
465.5 3	6.0 2	2444.8		1979.34	$(3,4^+)$		
466.4 3	6.6 2	2644.5		2178.02	(6^+)		
523.2 3	6.2 2	2502.6		1979.34	$(3,4^+)$		
556.8 3	7.0 2	2536.1		1979.34	$(3,4^+)$		
569.45 8	100 3	569.45	2^+	0.0	0^+	E2	Mult.: Q from (1135 γ)(569 γ)(θ) and (1422 γ)(569 γ)(θ) (1995Za01) and RUL.
645.4 3	5.0 2	2823.4	(8^+)	2178.02	(6^+)		
650.20 12	28.9 9	1979.34	$(3,4^+)$	1329.15	(4^+)		
665.3 3	5.9 2	2644.5		1979.34	$(3,4^+)$		

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^{122}Ag β^- decay: mixed source [1995Za01](#) (continued) $\gamma(^{122}\text{Cd})$ (continued)

E_γ [†]	I_γ [‡]	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. [#]	Comments
667.6 3	7.9 3	3170.2		2502.6			
689.2 3	1.4 1	2668.5		1979.34	(3,4 ⁺)		
759.70 8	43.5 12	1329.15	(4 ⁺)	569.45	2 ⁺		
798.4 3	11.5 4	1367.8	(2) ⁺	569.45	2 ⁺		
821.1 3	2.0 1	2800.4		1979.34	(3,4 ⁺)		
848.8 3	15.2 5	2178.02	(6 ⁺)	1329.15	(4 ⁺)		
868.0 3	4.2 1	2197.11		1329.15	(4 ⁺)		
884.0 3	4.2 1	3062.0	(8 ⁺)	2178.02	(6 ⁺)		
1135.2 3	13.4 5	1704.7	0 ⁽⁺⁾	569.45	2 ⁺	Q	Mult.: from $A_2=+0.58$ 14, $A_4=+0.45$ 19 for (1135 γ)(569 γ)(θ) (1995Za01): 0-2-0 spin sequence.
1339.6 3	5.2 2	1909.1	(3 ⁻)	569.45	2 ⁺		
1367.8 5	4.8 5	1367.8	(2) ⁺	0.0	0 ⁺		
1422.4 3	1.8 1	1991.9	0 ⁽⁺⁾	569.45	2 ⁺	Q	Mult.: from $A_2=+0.29$ 15, $A_4=+0.56$ 21 for (1422 γ)(569 γ)(θ) (1995Za01): 0-2-0 spin sequence.
1627.6 3	3.9 1	2197.11		569.45	2 ⁺		
1746.2 3	2.4 1	2315.7		569.45	2 ⁺		
2007.5 3	4.3 1	2577.0		569.45	2 ⁺		

[†] From singles spectra, but restricted only those γ 's establish the coincidence relations in mixed source ([1995Za01](#)).

[‡] Relative to $I(569.45\gamma)=100$ from a mixed source.

[#] From angular correlation ([1995Za01](#)).

$^{122}\text{Ag} \beta^-$ decay: mixed source 1995Za01

Decay Scheme

Intensities: Relative photon intensity from mixed source

Legend

- $I_\gamma < 2\% \times I_\gamma^{\text{max}}$
- $I_\gamma < 10\% \times I_\gamma^{\text{max}}$
- $I_\gamma > 10\% \times I_\gamma^{\text{max}}$

