^{132}Ce IT decay (9.4 ms) 2001Mo05

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Yu. Khazov, A. A. Rodionov and S. Sakharov, Balraj Singh	NDS 104, 497 (2005)	10-Feb-2005

Parent: ^{132}Ce: E=2340.6; $J^\pi=(8^-)$; $T_{1/2}$=9.4 ms *3*; %IT decay=100.0

2001Mo05 (also 2001Mo30): ^{120}Sn(^{16}O,4nγ) E=80 MeV. Measured Eγ, Iγ, $\gamma\gamma$, and lifetime using OSIRIS multidetector array comprised six Compton-suppressed HPGe detectors.

1969WaZX (also 1968Wa14) : ^{120}Sn(^{16}O,4nγ) E=78 MeV; ^{116}Cd(^{20}Ne,4nγ) E=85 MeV. Measured Eγ, Iγ, γ(t). A total of five γ rays reported from the decay of a 13-ms isomer.

^{132}Ce Levels

E(level)[†]	J^π[‡]	$T_{1/2}$	Comments
0[@]	0^+		
325.61[@] *16*	2^+		
822.29[&] *16*	2^+		
859.01[@] *20*	4^+		
1199.64[&] *19*	3^+		
1383.62[&] *21*	4^+		
1542.5[@] *3*	6^+		
1814.25[&] *21*	(5^+)		J^π: Population from 8^-, depopulation to 3^+ and 4^+.
2330.5[@] *3*	8^+		
2340.5[#] *3*	(8^-)[#]	9.4 ms *3*	E(level): 2340 (1969WaZX,1968Wa14). $T_{1/2}$: from 2001Mo05. Other: 13 ms *2* (1968Wa14,1969WaZX).

[†] From least-squares fit to Eγ's, assuming 0.2 keV uncertainty (same as quoted for 788.0γ by 2001Mo05) for each γ ray when not stated.
[‡] From Adopted Levels.
[#] $K^\pi=8^-$ isomer.
[@] Band(A): g.s. band.
[&] Band(B): γ band.

γ(^{132}Ce)

Iγ normalization: Σ(I(γ+ce) of γ's to g.s.)=100.

Eγ	Iγ[†#]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	α[@]	I$_{(\gamma+ce)}$[#]	Comments
(10.0[‡])	0.083 *21*	2340.5	(8^-)	2330.5	8^+	[E1]	23 *4*	2.0[‡] *6*	Eγ: from level-energy difference.
325.5	100 *10*	325.61	2^+	0	0^+	E2	0.038		Additional information 1.
(340.6[‡])		1199.64	3^+	859.01	4^+			2.0[‡] *6*	Eγ: 2001Mo05 quote 340.0.
377.2	5.0 *10*	1199.64	3^+	822.29	2^+				
431.0	2.0 *6*	1814.25	(5^+)	1383.62	4^+				
496.9	5.0 *10*	822.29	2^+	325.61	2^+				
524.5	1.0 *3*	1383.62	4^+	859.01	4^+				
526.3	30 *3*	2340.5	(8^-)	1814.25	(5^+)	[E3]	0.026		
533.0	76 *8*	859.01	4^+	325.61	2^+				Additional information 2.
561.8	1.0 *3*	1383.62	4^+	822.29	2^+				

Continued on next page (footnotes at end of table)

^{132}Ce IT decay (9.4 ms) 2001Mo05 (continued)

$\gamma(^{132}Ce)$ (continued)

E_γ	I_γ †#	E_i(level)	J_i^π	E_f	J_f^π	Mult.	Comments
614.5	22 *2*	1814.25	(5^+)	1199.64	3^+		
683.5	70 *7*	1542.5	6^+	859.01	4^+		Additional information 3.
788.0 *2*	2.0 *6*	2330.5	8^+	1542.5	6^+		Additional information 4.
798.0	68 *7*	2340.5	(8^-)	1542.5	6^+	[M2]	Additional information 5.
822.4	5.0 *10*	822.29	2^+	0	0^+		
874.1	17 *2*	1199.64	3^+	325.61	2^+		
955.0	5.0 *10*	1814.25	(5^+)	859.01	4^+		

† Off-beam intensities from $\gamma\gamma$ coincidence data. Uncertainties are assigned as 10% for RI>15, 20% for RI=5-15, and 30% for RI<5; based on a general statement by the authors.

‡ γ not observed directly, energy from level-energy difference and total intensity from an appropriate intensity balance.

For absolute intensity per 100 decays, multiply by 0.92 *9*.

@ 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.

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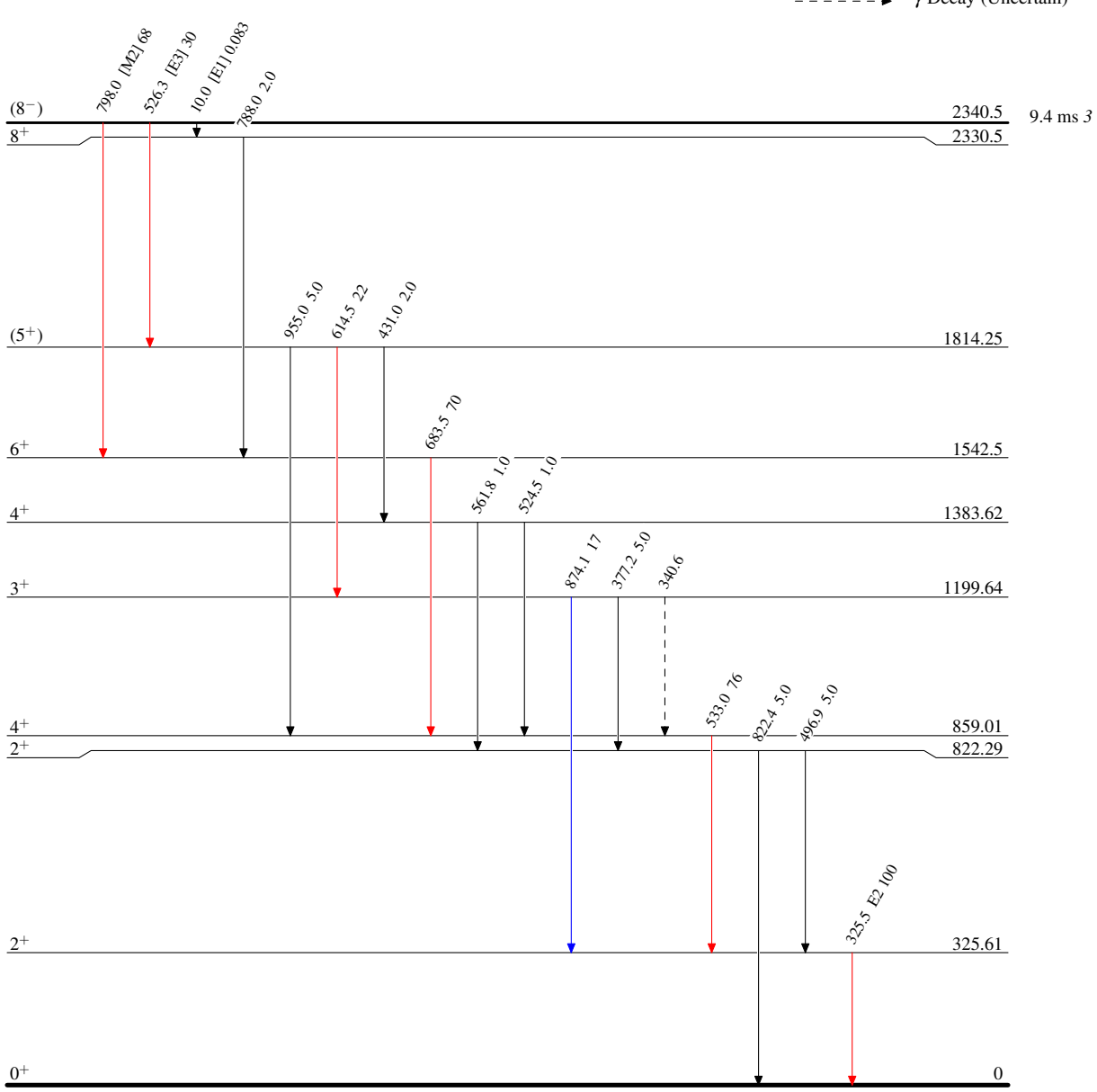
Decay Scheme

Intensities: Relative I_γ

%IT=100.0



$^{132}_{58}Ce_{74}$

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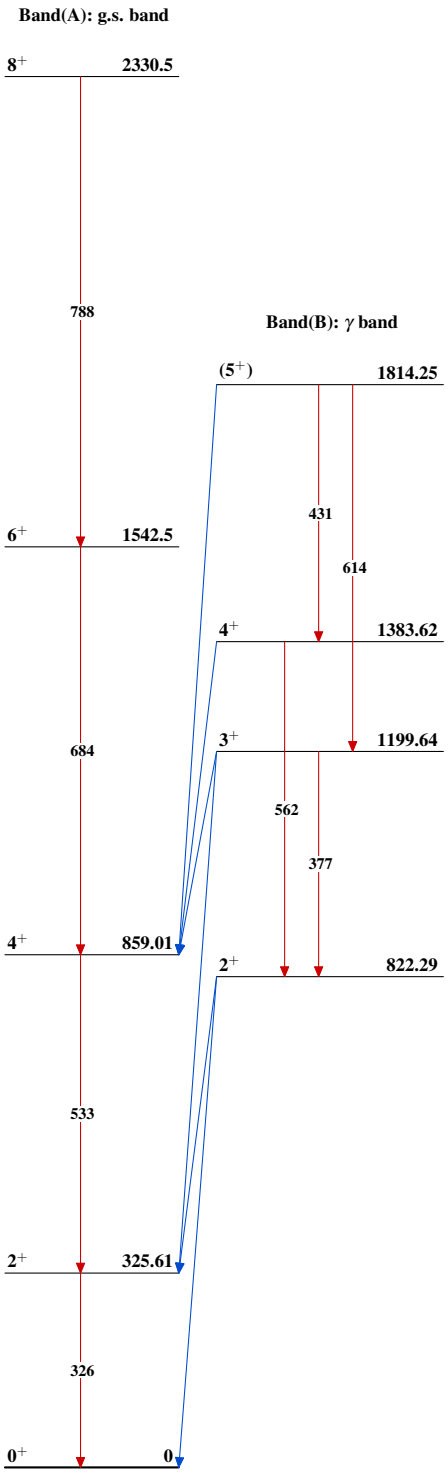

$^{132}_{58}Ce_{74}$