^{130}Ba IT decay (9.4 ms) 1969WaZX,1966Br14,1999DeZZ

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	NDS 93, 33 (2001)	11-May-2001

Parent: ^{130}Ba: E=2476.2 *7*; $J^\pi=8^-$; $T_{1/2}$=9.4 ms *4*; %IT decay=100.0

1969WaZX: ^{124}Sn(^{12}C,6n) E=90 MeV; ^{122}Sn(^{12}C,4n) E=62 MeV; measured isomer $T_{1/2}$ by pulsed beam and α(K)exp′s.

1966Br14, 1969Ro23: ^{122}Sn(^{12}C,4n) E=65 MeV. Measured $T_{1/2}$ of isomer.

And conversion electrons, pulsed beam.

1999DeZZ: ^{133}Cs(d,5n) E=45 MeV. Measured isomer $T_{1/2}$ from time decay of four main γ rays with a pulsed deuteron beam.

^{130}Ba Levels

E(level)	J^π†	$T_{1/2}$	Comments
0.0	0^+		
357.2 *3*	2^+		
901.8 *6*	4^+		
908.3 *9*	2^+		
1360.8 *7*	$3^{(+)}$		
1593.0 *7*	6^+		
2013.2 *7*	5^+		
2395.9 *7*	8^+		
2476.2 *7*	8^-	9.4 ms *4*	$T_{1/2}$: weighted average of 9.54 ms *14* (1999DeZZ), 13.5 ms *10* (1969WaZX) and 8.8 ms *2* (1966Br14). Additional information 1.

† From Adopted Levels.

γ(^{130}Ba)

Iγ normalization: Ti(357γ+908γ)=100.

E_γ†	I_γ†#	E_i(level)	J_i^π	E_f	J_f^π	Mult.‡	δ	α@	Comments
80.3 *2*	6.7 *7*	2476.2	8^-	2395.9	8^+	E1		0.419	α(K)= 0.357; α(L)= 0.0495; α(M)=0.01009; α(N+..)=0.00259 Mult.: from α(exp)=0.37 *8* (1969WaZX, from intensity balance at 2395.9 level).
357.2 *3*	100	357.2	2^+	0.0	0^+	E2		0.0263	α(K)=0.02167; α(L)=0.00365; α(M)=0.00076; α(N+..)=0.00020
420.3 *5*	3 *1*	2013.2	5^+	1593.0	6^+				
452.5 *5*	3 *1*	1360.8	$3^{(+)}$	908.3	2^+				
463.1 *4*	13 *2*	2476.2	8^-	2013.2	5^+	E3		0.0361	α(K)= 0.0281; α(L)=0.00626; α(M)=0.00134; α(N+..)=0.00036 Mult.: from α(K)exp=0.028 *3* (1969WaZX).
544.5 *5*	85 *10*	901.8	4^+	357.2	2^+	E2		0.00790	α(K)=0.00660; α(L)=0.00097 Mult.: from α(K)exp=0.0076 *10* (1969Ro23). Additional information 2.
551.1	≈2	908.3	2^+	357.2	2^+				
652.5 *5*	7 *1*	2013.2	5^+	1360.8	$3^{(+)}$				
691.1 *5*	76 *10*	1593.0	6^+	901.8	4^+	E2			Mult.: from α(K)exp=0.0043 *7* (1969Ro23). Additional information 3.
802.9 *5*	9 *1*	2395.9	8^+	1593.0	6^+				
883.0 *5*	66 *8*	2476.2	8^-	1593.0	6^+	M2+E3	1.1 *6*	0.0069 *8*	α(K)=0.0058 *7*; α(L)=0.00082 *7* Additional information 4.

Continued on next page (footnotes at end of table)

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$\gamma(^{130}Ba)$ (continued)

E_γ[†]	I_γ[†#]	E_i(level)	J_i^π	E_f	J_f^π	Comments
						δ: from α(K)exp=0.0058 *6* (weighted average of 0.0075 *8* (1969Ro23) and 0.0052 *5* (1969WaZX)).
908.3	≈1	908.3	2^+	0.0	0^+	
1004.0 *8*	5 *2*	1360.8	$3^{(+)}$	357.2	2^+	
1111.0 *10*	2.5 *10*	2013.2	5^+	901.8	4^+	

[†] From 1969WaZX.
[‡] From α(K)exp′s of 1969WaZX and 1969Ro23 normalized to α(K)(357.2)=0.217 (E2 theory).
[#] For absolute intensity per 100 decays, multiply by 0.965.
[@] 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: $I_{(\gamma+ce)}$ per 100 parent decays

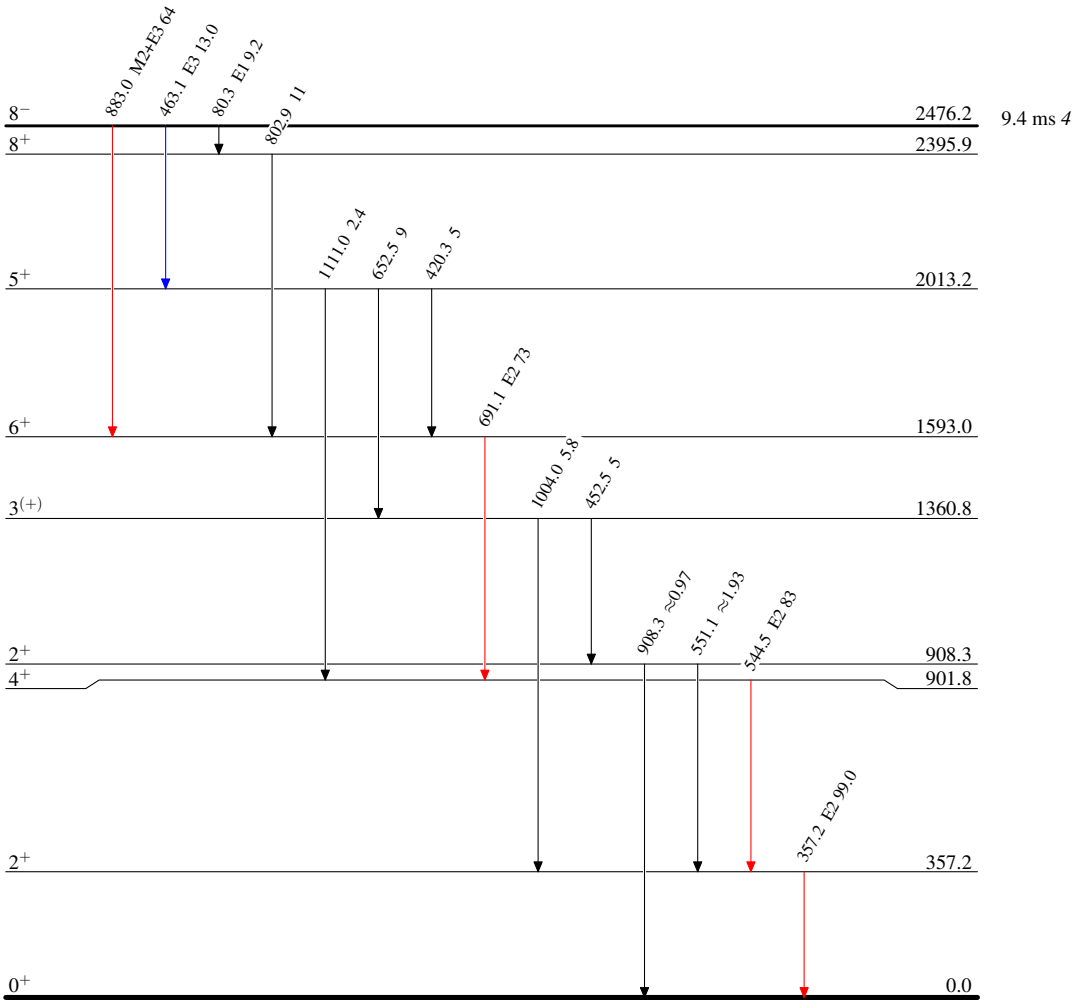
%IT=100.0

Legend

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

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

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



$^{130}_{56}Ba_{74}$