^{133}Ba IT decay 1965Th05,1980VyZZ,1980Mi13

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Yu. Khazov and A. Rodionov, F. G. Kondev	NDS 112,855 (2011)	31-Oct-2010

Parent: ^{133}Ba: E=288.252 *9*; J^π=11/2$^-$; $T_{1/2}$=38.93 h *10*; %IT decay=99.9896 *5*

1980Mi13: ^{133m}Ba decay [from ^{133}Cs(p,n)]; measured γ, $\gamma\gamma$(t); deduced levels, $T_{1/2}$, α(exp). Cyclotron, chemical and mass separations, Ge detectors.

1980VyZZ: ^{133m}Ba decay [from Gd(p,X) E=660 MeV]; measured γ, ce; deduced transitions, subshell ratios. Synchrocyclotron, chemical and mass separations.

1965Th05: ^{133m}Ba decay [from ^{nat}Cs(d,2n) E=20 MeV]; measured ce, γ, ceγ(t), ce-ce(t); deduced levels, $T_{1/2}$, subshell ratios, α(exp). Cyclotron, chemical separation, magnetic lens and iron-free spectrometers, NaI(Tl) detector.

1980AnZG: ^{133m}Ba decay [from Cs(p,n)]; measured Eγ, Iγ, isomer $T_{1/2}$. Cyclotron, chemical procedure.

Others: 1966Ha23, 1979An06, 1981An17, 2011Gr01.

^{133}Ba Levels

E(level)†	J^π†	$T_{1/2}$†	Comments
0.0	1/2$^+$	10.551 y *11*	
12.327 *6*	3/2$^+$	7.0 ns *3*	
288.252 *9*	11/2$^-$	38.93 h *10*	%ε=0.0104 *5*; %IT=99.9896 *5*

† From 'Adopted Levels'.

γ(^{133}Ba)

Iγ normalization: from $\Sigma(\gamma+ce)$=100 depopulating the 288.252−keV level.

E$_\gamma$‡	I$_\gamma$@	E$_i$(level)	J_i^π	E$_f$	J_f^π	Mult.#	δ	α†	Comments
12.327 *6*	8.01 *25*	12.327	3/2$^+$	0.0	1/2$^+$	M1+E2	≤0.013	69.5 *19*	α(exp)=65 *3* (1980Mi13) α(L)=55.2 *15*; α(M)=11.4 *3*; α(N+..)=2.86 *8* α(N)=2.46 *7*; α(O)=0.373 *9*; α(P)=0.0261 *4* α(L1)=48.6 *7*; α(L2)=4.9 *5*; α(L3)=1.8 *7* L1:L2:L3=100:9.6 *20*:3.1 *15* (1965Th05). I$_\gamma$: calculated by evaluators from intensity balance with 275.9-keV transition and α=69.5 *19*; others: 0.086 *5* (1980Mi13), 0.0515 *25* (1980VyZZ). Mult.,δ: from 1965Th05, 1980Mi13; maximum possible E2 admixture of δ^2=1.6×10^{-4}. δ: =0.007 *5* calculated with BrIccMixing program by evaluators using the L-subshell ratio of 1965Th05; α=68.9 *20* with that δ.
275.925 *7*	100	288.252	11/2$^-$	12.327	3/2$^+$	M4		4.65	α(K)exp=3.45 *20*; K/(L+M+N)+O+P=2.55 *10* (1965Th05) α(K)=3.34 *5*; α(L)=1.018 *15*; α(M)=0.229 *4*; α(N+..)=0.0565 *8*

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^{133}Ba IT decay 1965Th05,1980VyZZ,1980Mi13 (continued)

γ(^{133}Ba) (continued)

E_γ ‡	I_γ @	E_i(level)	J_i^π	E_f	J_f^π	Mult. #	α †	Comments
288 *1*	<0.0018	288.252	11/2⁻	0.0	1/2⁺	[E5]	4.08 *11*	α(N)=0.0491 *7*; α(O)=0.00705 *10*; α(P)=0.000352 *5* K:L:M:N=100.0 *11*:31.5 *4*:6.68 *12*:1.78 *7* (1980VyZZ). E_γ: from 2011Gr01 and 1980AnZG: ΔEγ=1 keV (assigned by evaluators). I_γ: from 2011Gr01. Other: 0.036 *25* (1980AnZG).

† Additional information 1.
‡ From 1980VyZZ, except as noted.
# From α(K)exp and sub-shell ratios, except as noted.
@ For absolute intensity per 100 decays, multiply by 0.1769 *25*.

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