^{133}Ba ε decay (38.93 h) 1971Su04,1980AnZG

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*; Q(ε)=517.5 *10*; %ε decay=100.0

1971Su04: ^{133}Ba ε decay (38.9 h) [from ^{133}Cs(p,n), E=5.5 MeV]; measured Eγ, Iγ(t), log *ft*; deduced levels, J^π. Ge(Li) spectrometry. Van de Graaff.

1980AnZG: ^{133}Ba ε decay (38.9 h) [from ^{133}Cs(p,n), E not given]; measured Eγ, Iγ, $T_{1/2}$; deduced by means of Ge(Li) spectrometry. Cyclotron, chemical refinement.

^{133m}Ba (J=11/2$^-$), $T_{1/2}$=38.9 h decays to only one 633-keV, 11/2$^+$ state in ^{133}Cs level according to 1980AnZG. The second 606-keV, 11/2$^-$ state, suggested in 1971Su04 and in 1971Ki10 ((n,n′γ) reaction) was not confirmed by available data (see ^{133}Cs(n,n′γ)).

^{133}Cs Levels

E(level)†	J^π‡	$T_{1/2}$
0.0	7/2$^+$	stable
632.59 *9*	11/2$^+$	

† From Eγ.
‡ From Adopted Levels.

ε radiations

E(decay)	E(level)	Iε†	Log *ft*	Comments
(173.2 *10*)	632.59	0.0103 *7*	8.08 *3*	εK=0.7973 *5*; εL=0.1571 *4*; εM+=0.04557 *11* Iε: from Iγ(632.5,^{133}Cs)/Iγ(275.9,^{133}Ba)=0.00058 *4*, weighted average of 0.00061 *3* (1971Su04), 0.00049 *5* (1980AnZG) and 0.00055 *10* (1969Be76).

† Absolute intensity per 100 decays.

γ(^{133}Cs)

E_i(level)	J_i^π	E_γ	I_γ‡	E_f	J_f^π	Mult.	α†	Comments
632.59	11/2$^+$	632.59 *9*	0.0103 *7*	0.0	7/2$^+$	E2	0.00503 *7*	α=0.00503 *7*; α(K)=0.00428 *6*; α(L)=0.000598 *9*; α(M)=0.0001230 *18*; α(N+..)=2.95×10^{-5} *5* α(N)=2.58×10^{-5} *4*; α(O)=3.51×10^{-6} *5*; α(P)=1.563×10^{-7} *22* E_γ: from adopted gammas. Others: 632.5 (1971Su04) and 633.5 (1980AnZG).

† Additional information 1.
‡ Absolute intensity per 100 decays.

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Decay Scheme

Intensities: Relative photon branching from each level