^{131}Ba IT decay (14.6 min) 1963Ho05

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Yu. Khazov, I. Mitropolsky, A. Rodionov	NDS 107,2715 (2006)	17-Jul-2006

Parent: ^{131}Ba: E=187.50 *20*; $J^\pi=9/2^-$; $T_{1/2}$=14.6 min *2*; %IT decay=100

1963Ho05: ^{131}Ba IT decay [from ^{127}I(^{7}Li,3n), E≈38 MeV, ^{131}La ε decay]; measured x-rays, γ, γγ, γ(t), deduced levels, J^π, $T_{1/2}$. Scintillation detectors, chemical separations.

1972Ha41: ^{131}Ba IT decay [from ^{131}La ε decay]; measured Ece, Ice, deduced levels, γ-multipolarities, J^π. Chemical separation, permanent-magnet, semi-circular focusing spectrograph with 0.5 keV FWHM at 150 keV.

^{131}Ba Levels

E(level)	J^π	$T_{1/2}$	Comments
0.0	$1/2^+$	11.50 d *6*	
108.45 *16*	$3/2^+$		
187.50 *20*	$9/2^-$	14.6 min *2*	The level is populated by ^{131}La ε decay with intensity ≤ 1% (1963Ho05,1972Ha41). The level is populated in ^{141}Pr,^{140}Ce,^{139}La(π^-,xpyn) reactions; σ_m/σ_g=5.1 *5* for ^{139}La(π,8n) (1982Bu07).

γ(^{131}Ba)

Iγ normalization: From level scheme.

E_γ[†]	I_γ[‡#]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	δ	α[@]	Comments
79.05 *12*	2.4 *12*	187.50	$9/2^-$	108.45	$3/2^+$	E3		80.8 *13*	α(K)exp=12.3 *15* (1963Ho05) α(K)=12.21 *18*; α(L)=53.4 *9*; α(M)=12.34 *21*; α(N+..)=2.88 *5* α(N)=2.55 *5*; α(O)=0.323 *6*; α(P)=0.000490 *8* L2:L3:M=2.3 3:2.1 3:1.5 3 (1972Ha41).
108.45 *16*	100	108.45	$3/2^+$	0.0	$1/2^+$	M1+E2	0.127 *14*	0.794	α(K)=0.675 *10*; α(L)=0.0948 *18*; α(M)=0.0196 *4*; α(N+..)=0.00491 *10* α(N)=0.00422 *8*; α(O)=0.000640 *12*; α(P)=4.42×10^{-5} *7* α(exp): K:L1:L2:L3:M=745 *80*:100 *10*:11 *2*:4.2 *8*:26 *3* (1972Ha41). δ: from 1972Ha41.

† From 1972Ha41.
‡ From 1963Ho05.
# For absolute intensity per 100 decays, multiply by 0.5544 *8*.
@ 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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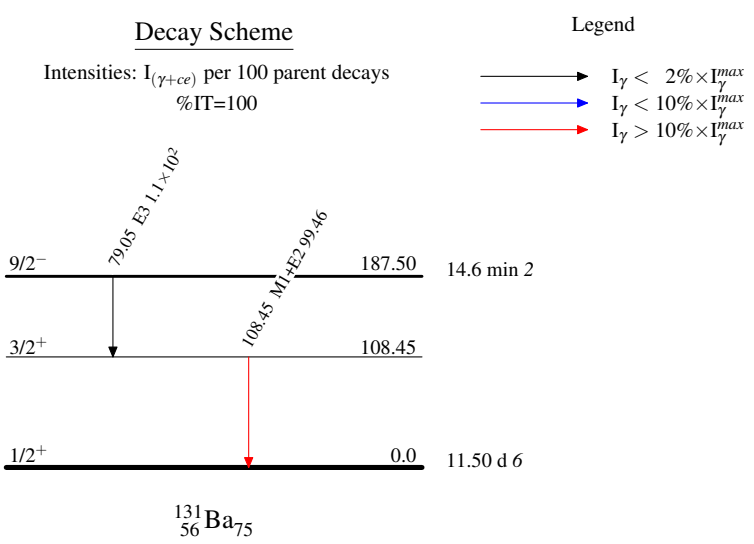
Decay Scheme

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays

%IT=100



$^{131}_{56}Ba_{75}$