^{131}Xe IT decay

History

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

Parent: ^{131}Xe: E=163.930 *8*; J^π=11/2$^-$; $T_{1/2}$=11.84 d *4*; %IT decay=100

1990Ta18: ^{131}Xe(γ,γ') E=1.17, 1.33 MeV, ^{60}Co source; measured γ(t), ^{131m}Xe deduced $T_{1/2}$. Ge detectors.

1974Me21: ^{131}I β decay; measured γ(t), deduced $T_{1/2}$.

1992Un01: ^{131}I β decay; measured γ(t), deduced $T_{1/2}$. 4π ionization chamber.

^{131}Xe Levels

E(level)	J^π	$T_{1/2}$	Comments
0.0	3/2$^+$	stable	
163.930 *8*	11/2$^-$	11.86 d *4*	$T_{1/2}$: weighted average of 11.8 d *1* (1965An05), 11.94 d *4* (1966Kn03), 12.00 d *2* (1972Em01), 11.770 d *12* (1974Me21), 11.92 d *3* (1975Ho18), 11.9 d *2* (1990Ta18), 11.934 d *21* (1992Un01,2002Un02). Additional information 1.

γ(^{131}Xe)

Iγ normalization: from I(γ+ce)(163.9γ)=100.

E_γ	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	α[#]	Comments
163.930 *8*	1.95 *6*	163.930	11/2$^-$	0.0	3/2$^+$	M4	50.5	α(K)exp=32.1 *4* (1966Kn03) α(K)=31.6 *5*; α(L1)=7.14 *10*; α(L2)=1.643 *23*; α(L3)=6.00 *8*; α(L)=14.75 *21*; α(M)=3.38 *5* α(N+..)=0.767 *11*; α(N)=0.691 *10*; α(O)=0.0755 *11* E_γ: from 1974Me21. $K:L1:L2:L3=100 2:23.8 7:5.5 3:19.6 6 (1962Ge09). Other:L1:L2:L3=100 *3*:24.1 *9*:77.2 *22* (1969Fr04).

[†] From ce measurements.
[‡] Absolute intensity per 100 decays.
[#] 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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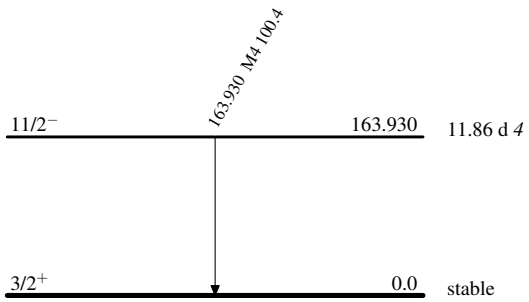
Decay Scheme

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

%IT=100



$^{131}_{54}Xe_{77}$