^{123}Cs IT decay   1981Ma01

Type	Author	History Citation	Literature Cutoff Date
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Parent: ^{123}Cs: E=156.30 *23*; J$^\pi$=11/2$^{(-)}$; T$_{1/2}$=1.7 s *2*; %IT decay=100.0

1981Ma01: ^{123}Cs isotopes were produced via ^{139}La(p,3p14n) with E=600 MeV proton provided by the CERN synchro-cyclotron and separated by the ISOLDE separator. Separated ions were implanted into a aluminum-coated mylar tape. γ rays were detected with Ge(Li) detectors and conversion electrons were detected with a Si(Li) detector. Measured Eγ, Iγ, $\gamma\gamma$-coin, γ(t), E(ce), I(ce), γ-ce-coin. Deduced levels, T$_{1/2}$, conversion coefficients, γ-ray multipolarities. Comparisons with theoretical calculations.

1972Dr06: ^{123}Cs isotopes were produced via ^{115}In(^{12}C,4n) and ^{109}Ag(^{18}O,4n) reactions with ^{12}C and ^{18}O beams provided by the U-300 heavy-ion cyclotron at the Joint Institute for Nuclear Research at Dubna. γ rays were detected with a Ge(Li) and a NaI(Tl) spectrometers and conversion electrons were detected with a magnetic β-ray spectrometer. Measured Eγ, Iγ, E(ce), I(ce), excitation functions. Deduced levels, conversion coefficients, γ-ray multipolarities.

^{123}Cs Levels

E(level)†	J$^{\pi\ddagger}$	T$_{1/2}$‡	Comments
0.0	1/2$^{(+)}$	5.86 min *10*	
30.60 *14*	(3/2$^+$)		
94.60 *10*	5/2$^{(+)}$		
156.30 *23*	11/2$^{(-)}$	1.7 s *2*	T$_{1/2}$: adopted value from weighted average of 1.7 s *2* (1981Ma01) and 1.6 s *2* (1972Dr06).

† From a least-squares fit to γ-ray energies.
‡ From Adopted Levels.

γ(^{123}Cs)

Iγ normalization: From I(γ+ce)(61.7γ)=100.
I(K x ray)=1300 *200*, relative to I(94.6γ)=1000 (1981Ma01).

E$_\gamma$‡	I$_\gamma$$^{\ddagger@}$	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.$^\#$	$\alpha^\dagger$	I$_{(\gamma+ce)}$$^@$	Comments
(30.6)		30.60	(3/2$^+$)	0.0	1/2$^{(+)}$			6.4×10^2 *9*	E$_\gamma$: transition not observed, but expected from proposed decay scheme (1981Ma01). I$_{(\gamma+ce)}$: from intensity balance.
61.7 *2*	12 *2*	156.30	11/2$^{(-)}$	94.60	5/2$^{(+)}$	E3	289 *7*		α(K)=22.94 *35*; α(L)=207 *5*; α(M)=47.8 *11* α(N)=9.65 *23*; α(O)=1.066 *25*; α(P)=0.000570 *9* Mult.: α(K)exp=30 *10*, α(L)exp=260 *60*, α(M)exp=87 *40* (1981Ma01).
64.0 *1*	150 *20*	94.60	5/2$^{(+)}$	30.60	(3/2$^+$)	M1	3.25 *5*		α(K)=2.78 *4*; α(L)=0.373 *5*; α(M)=0.0764 *11* α(N)=0.01615 *24*; α(O)=0.002243 *33*; α(P)=0.0001096 *16* E$_\gamma$: other: 63 (1972Dr06). I$_\gamma$: other: 345 *+182−88* from I(95γ/62γ)=2.9 *10* (1972Dr06) seems discrepant. Mult.: D or M1+E2 ($\delta\leq$0.47) from α(L)exp<1.5 and intensity balance (1981Ma01).

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^{123}Cs IT decay   1981Ma01 (continued)

$\gamma(^{123}$Cs) (continued)

E_γ ‡	I_γ ‡@	E_i(level)	J_i^π	E_f	J_f^π	Mult.#	α†	Comments
94.6 *1*	1000	94.60	5/2$^{(+)}$	0.0	1/2$^{(+)}$	E2	2.274 *33*	I(ce(L))(64γ)/I(ce(K))(95γ)=1.6 *5* (1972Dr06). α(K)=1.433 *21*; α(L)=0.665 *10*; α(M)=0.1440 *21* α(N)=0.0292 *4*; α(O)=0.00342 *5*; α(P)=3.93×10^{-5} *6* E_γ: other: 95.5 (1972Dr06). Mult.: E2 from α(K)exp=1.4 *5*, α(L)exp=0.6 *1*, α(M)exp=0.16 *6* (1981Ma01), and K/L=2.5 *10* (1972Dr06). I(K x ray)/I(95γ)=2.5 *6* (1972Dr06), 1.3 *2* (1981Ma01).

† Additional information 1.
‡ From 1981Ma01, unless otherwise noted.
# From Adopted Gammas. Supporting arguments or assignments (if different) from ce data in this study are given under comments.
@ For absolute intensity per 100 decays, multiply by 0.0287 *48*.

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Decay Scheme

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
%IT=100.0

Legend

→ $I_\gamma < 2\% \times I_\gamma^{max}$
→ $I_\gamma < 10\% \times I_\gamma^{max}$
→ $I_\gamma > 10\% \times I_\gamma^{max}$
- - - → γ Decay (Uncertain)
●   Coincidence

$^{123}_{55}$Cs$_{68}$