^{138}Ce IT decay (8.73 ms) 1977Go15

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 146, 1 (2017)	30-Sep-2017

Parent: ^{138}Ce: E=2129.7 *15*; $J^{\pi}=7^{-}$; $T_{1/2}$=8.73 ms *20*; %IT decay=100.0

^{138}Ce-E,J^{π},$T_{1/2}$: From Adopted Levels.

^{138}Ce-$T_{1/2}$: From 1977Go15.

1977Go15: Measured Eγ, Iγ. Deduced σ for isomer production.

Others: 1960Mo19, 1963Re02, 1964Ra09, 1964Re10.

^{138}Ce Levels

E(level)†	J^{π}‡	$T_{1/2}$	Comments
0.0	0^+		
789.2 *8*	2^+		
1826.8 *12*	4^+		
2129.7 *15*	7^-	8.73 ms *20*	$T_{1/2}$: weighted average of 8.65 ms *20* (1977Go15) and 9.2 ms *5* (1960Mo19) from γ(t), the same value adopted in Adopted Levels.

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

‡ From Adopted Levels.

γ(^{138}Ce)

Iγ normalization: from I(γ+ce)(303γ)=I(γ+ce)(1038γ)=I(γ+ce)(789γ)=100.

E_γ	I_γ‡	E_i(level)	J_i^{π}	E_f	J_f^{π}	Mult.†	α#	$I_{(\gamma+ce)}$‡	Comments
302.9 *8*	84.5 *5*	2129.7	7^-	1826.8	4^+	E3	0.182 *4*	100	ce(K)/(γ+ce)=0.1044 *16*; ce(L)/(γ+ce)=0.0390 *8*; ce(M)/(γ+ce)=0.00873 *17* ce(N)/(γ+ce)=0.00189 *4*; ce(O)/(γ+ce)=0.000274 *6*; ce(P)/(γ+ce)=7.02×10^{-6} *12* α(K)=0.1234 *21*; α(L)=0.0461 *9*; α(M)=0.01032 *20* α(N)=0.00223 *5*; α(O)=0.000324 *6*; α(P)=8.30×10^{-6} *14* Mult.: α(K)exp≈0.1, α(exp)=0.30 *5* (1963Re02), K/L=2.44 *20* (1964Ra09), E3 is based on more reliable data from ^{138}Pr ε decay (2.03 h).
789.2 *8*	99.66 *11*	789.2	2^+	0.0	0^+	E2	0.00342	100	I_γ: from I(γ+ce) and α. ce(K)/(γ+ce)=0.00290 *4*; ce(L)/(γ+ce)=0.000405 *6*; ce(M)/(γ+ce)=8.48×10^{-5} *12* ce(N)/(γ+ce)=1.87×10^{-5} *3*; ce(O)/(γ+ce)=2.99×10^{-6} *5*; ce(P)/(γ+ce)=2.09×10^{-7} *3* α(K)=0.00291 *5*; α(L)=0.000406 *6*; α(M)=8.51×10^{-5} *13* α(N)=1.88×10^{-5} *3*; α(O)=3.00×10^{-6} *5*; α(P)=2.10×10^{-7} *3*

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^{138}Ce IT decay (8.73 ms) 1977Go15 (continued)

$\gamma(^{138}Ce)$ (continued)

E_γ	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	α[#]	$I_{(\gamma+ce)}$[‡]	Comments
1037.6 *9*	99.81 *1*	1826.8	4^+	789.2	2^+	E2	0.00186	100	ce(K)/(γ+ce)=0.001592 *23*; ce(L)/(γ+ce)=0.000213 *3*; ce(M)/(γ+ce)=4.44×10^{-5} *7* ce(N)/(γ+ce)=9.82×10^{-6} *14*; ce(O)/(γ+ce)=1.580×10^{-6} *23*; ce(P)/(γ+ce)=1.155×10^{-7} *17* α(K)=0.001595 *23*; α(L)=0.000213 *3*; α(M)=4.45×10^{-5} *7* α(N)=9.84×10^{-6} *14*; α(O)=1.583×10^{-6} *23*; α(P)=1.157×10^{-7} *17*

[†] From Adopted Gammas.
[‡] For absolute intensity per 100 decays, multiply by 1.0 *1*.
[#] 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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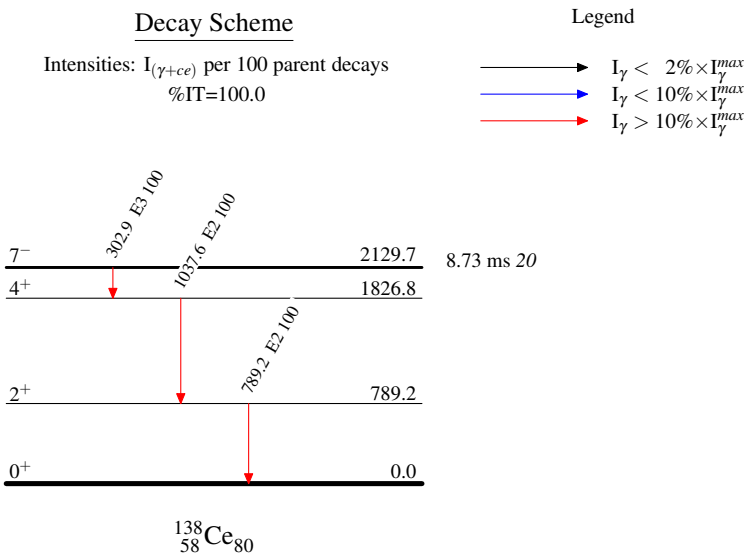
Decay Scheme

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



$^{138}_{58}Ce_{80}$