^{119}Cs ε decay (30.4 s) 2001Ge01

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	D. M. Symochko, E. Browne, J. K. Tuli	NDS 110,2945 (2009)	1-Dec-2008

Parent: ^{119}Cs: E=0.0+x; $J^\pi=3/2^{(+)}$; $T_{1/2}$=30.4 s *1*; Q(ε)=6.35×10^3 *12*; %ε+%β^+ decay=100.0

Additional information 1.

See ^{119}Cs ε decay (43.0 s) for a description of the experimental set up.

^{119}Xe Levels

Decay scheme is from evaluators based on that from 2001Ge01.

E(level)‡	Jπ†	E(level)‡	Jπ†	$T_{1/2}$	E(level)‡	Jπ†
0.0	(5/2$^+$)	225.42 *15*	(7/2$^+$)		476.12 *12*	(3/2$^+$,5/2$^+$)
169.69 *11*	(5/2$^+$)	246.23 *12*	(1/2$^+$)	70 ns	524.63 *13*	(5/2$^+$)
176.45 *17*	(7/2$^-$)	314.30 *13*	(3/2$^+$)		1071.35 *20*	(3/2$^+$,5/2$^+$)
197.40 *20*	(5/2$^-$)	390.50 *13*	(3/2$^+$,5/2$^+$)			

† From Adopted Levels, Gammas.

‡ Deduced by evaluators from least-squares fit to γ-ray energies.

γ(^{119}Xe)

E_γ	I_γ‡	E_i(level)	J_i^π	E_f	J_f^π	Mult.†	α@	Comments
68.0 *2*	9.4 *3*	314.30	(3/2$^+$)	246.23	(1/2$^+$)	(M1)	2.48	α(L)exp=0.9 *4* α(K)=2.13 *4*; α(L)=0.283 *5*; α(M)=0.0575 *10*; α(N+..)=0.01337 *22*
76.4 *2*	1.9 *1*	246.23	(1/2$^+$)	169.69	(5/2$^+$)	E2	4.73 *8*	α(K)exp=3.0 *4*; α(K)exp/α(L)exp=1.7 *2* α(K)=2.70 *5*; α(L)=1.61 *3*; α(M)=0.347 *7*; α(N+..)=0.0750 *14*
85.5 *2*	0.6 *3*	476.12	(3/2$^+$,5/2$^+$)	390.50	(3/2$^+$,5/2$^+$)	M1	1.284	α(K)exp=1.1 *3* α(K)=1.102 *18*; α(L)=0.1458 *23*; α(M)=0.0296 *5*; α(N+..)=0.00689 *11*
134.2 *2*	11.0# *8*	524.63	(5/2$^+$)	390.50	(3/2$^+$,5/2$^+$)	(M1)	0.358	α(K)exp=0.38 *8*; α(K)exp/α(L)exp≥7 α(K)=0.308 *5*; α(L)=0.0404 *6*; α(M)=0.00821 *12*; α(N+..)=0.00191 *3*
144.3 *3*	1.70 *7*	390.50	(3/2$^+$,5/2$^+$)	246.23	(1/2$^+$)			
144.7 *3*	2.0 *2*	314.30	(3/2$^+$)	169.69	(5/2$^+$)	M1	0.290	α(K)exp=0.20 *5*; α(K)exp/α(L)exp≥7 α(K)=0.249 *4*; α(L)=0.0327 *5*; α(M)=0.00664 *10*; α(N+..)=0.001547 *24*
161.8 *2*	1.5 *6*	476.12	(3/2$^+$,5/2$^+$)	314.30	(3/2$^+$)	M1	0.213	α(K)exp=0.17 *4*; α(K)exp/α(L)exp≥7 α(K)=0.183 *3*; α(L)=0.0240 *4*; α(M)=0.00487 *7*; α(N+..)=0.001133 *17*
169.8 *2*	52.0# *8*	169.69	(5/2$^+$)	0.0	(5/2$^+$)	M1+(E2)	0.23 *5*	α(K)exp=0.15 *1*; α(K)exp/α(L)exp=6.9 *7* α(K)=0.19 *3*; α(L)=0.036 *16*; α(M)=0.008 *4*; α(N+..)=0.0017 *7*
176.5 *2*	2.05 *8*	176.45	(7/2$^-$)	0.0	(5/2$^+$)	E1	0.0434	α(K)exp=0.039 *1*;

Continued on next page (footnotes at end of table)

^{119}Cs ε decay (30.4 s) 2001Ge01 (continued)

γ(^{119}Xe) (continued)

E_γ	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	α[@]	Comments
								α(K)exp/α(L)exp=7.1 *4* α(K)=0.0374 *6*; α(L)=0.00480 *7*; α(M)=0.000968 *14*; α(N+..)=0.000222 *4* I_γ: Evaluators assumed the 176-keV level to be populated only through the 524 (5/2$^+$)-keV level. Thus I(γ+ce)(176)= I(γ+ce)(348)=2.14 *8*. Using α(176)=0.0434 gives Iγ(176)=2.05(8).
197.4 *2*	19.9 *1*	197.40	(5/2$^-$)	0.0	(5/2$^+$)	E1	0.0319 *5*	α(K)exp=0.030 *3*; α(K)exp/α(L)exp≥7 α(K)=0.0275 *4*; α(L)=0.00351 *5*; α(M)=0.000709 *11*; α(N+..)=0.0001627 *3*
220.8 *2*	3.5 *4*	390.50	(3/2$^+$,5/2$^+$)	169.69	(5/2$^+$)	(M1)	0.0916	α(K)exp=0.06 *2* α(K)=0.0788 *12*; α(L)=0.01022 *15*; α(M)=0.00207 *3*; α(N+..)=0.000483 *7*
225.5 *2*	8.9 *3*	225.42	(7/2$^+$)	0.0	(5/2$^+$)	M1+(E2)	0.097 *11*	α(K)exp=0.070 *2*; α(K)exp/α(L)exp=5.3 *3* α(K)=0.080 *6*; α(L)=0.013 *4*; α(M)=0.0027 *8*; α(N+..)=0.00062 *17* I_γ: Evaluators assumed the 225-keV level to be populated only through the 476(3/2$^+$,5/2$^+$)- and 524(5/2$^+$)-keV levels. Thus I(γ+ce)(225)= I(γ+ce)(250)+I(γ+ce)(299)= 5.6(2)+4.2(2)=9.8(3). Using α(225)=0.097 gives Iγ(225)=8.9(3).
246.2 *2*	22.6 *3*	246.23	(1/2$^+$)	0.0	(5/2$^+$)	E2	0.0798	α(K)exp=0.060 *3*; α(K)exp/α(L)exp=5.4 *4* α(K)=0.0646 *10*; α(L)=0.01210 *18*; α(M)=0.00252 *4*; α(N+..)=0.000565 *8*
250.7 *3*	5.2 *2*	476.12	(3/2$^+$,5/2$^+$)	225.42	(7/2$^+$)	(M1,E2)	0.070 *5*	α(K)exp=0.11 *2*; α(K)exp/α(L)exp≥7 α(K)=0.059 *3*; α(L)=0.0093 *21*; α(M)=0.0019 *5*; α(N+..)=0.00044 *10*
278.3 *3*	1.26[#] *20*	524.63	(5/2$^+$)	246.23	(1/2$^+$)	E2	0.0533	α(K)exp=0.045 *5*; α(K)exp/α(L)exp=3 *2* α(K)=0.0436 *7*; α(L)=0.00771 *12*; α(M)=0.001598 *24*; α(N+..)=0.000361 *6*
299.3 *2*	3.6[#] *2*	524.63	(5/2$^+$)	225.42	(7/2$^+$)	M1,E2	0.0416 *9*	α(K)exp=0.025 *2*; α(K)exp/α(L)exp= 6 *3* α(K)=0.0350 *6*; α(L)=0.0052 *7*; α(M)=0.00107 *16*; α(N+..)=0.00025 *4*
306.6 *2*	0.8 *2*	476.12	(3/2$^+$,5/2$^+$)	169.69	(5/2$^+$)			
314.3 *2*	29.0 *3*	314.30	(3/2$^+$)	0.0	(5/2$^+$)	M1+E2	0.0361 *6*	α(K)exp=0.029 *1*; α(K)exp/α(L)exp=9 *3* α(K)=0.0304 *8*; α(L)=0.0045 *5*; α(M)=0.00092 *12*; α(N+..)=0.000211 *23*

Continued on next page (footnotes at end of table)

^{119}Cs ε decay (30.4 s) 2001Ge01 (continued)

γ(^{119}Xe) (continued)

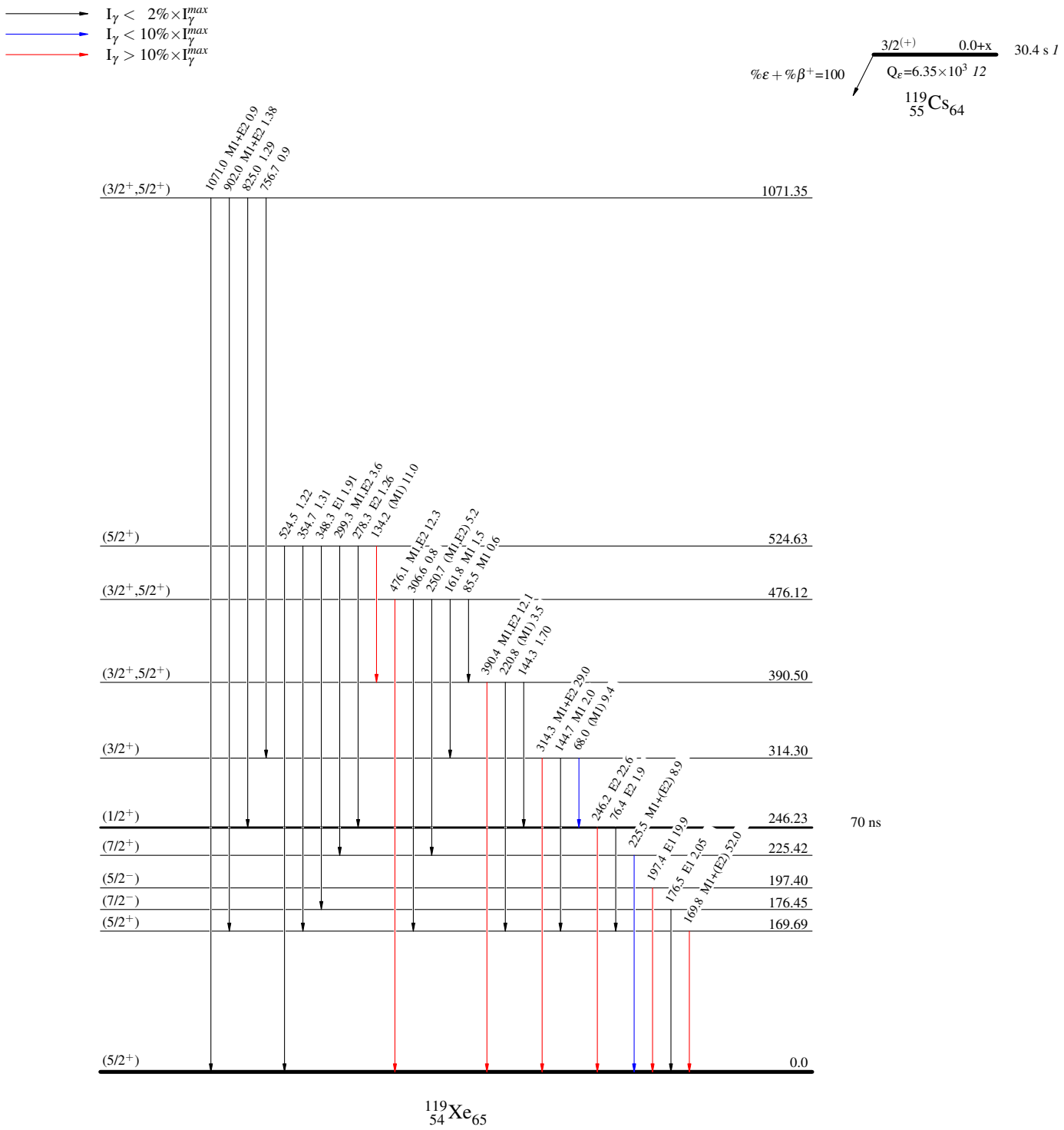
E_γ	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	α[@]	Comments
348.3 *3*	1.91[#] *8*	524.63	(5/2$^+$)	176.45	(7/2$^-$)	E1	0.00709 *10*	α(K)exp=0.0086 *13* α(K)=0.00613 *9*; α(L)=0.000768 *11*; α(M)=0.0001547 *22*; α(N+..)=3.58×10^{-5} *5*
354.7 *3*	1.31[#] *7*	524.63	(5/2$^+$)	169.69	(5/2$^+$)			
390.4 *3*	12.1 *1*	390.50	(3/2$^+$,5/2$^+$)	0.0	(5/2$^+$)	M1,E2	0.0196 *12*	α(K)exp=0.012 *1*; α(K)exp/α(L)exp=10 *3* α(K)=0.0166 *13*; α(L)=0.00234 *7*; α(M)=0.000477 *18*; α(N+..)=0.000110 *3*
476.1 *2*	12.3 *3*	476.12	(3/2$^+$,5/2$^+$)	0.0	(5/2$^+$)	M1,E2	0.0114 *12*	α(K)exp=0.009 *3*; α(K)exp/α(L)exp=5.1 *13* α(K)=0.0098 *11*; α(L)=0.00133 *6*; α(M)=0.000270 *9*; α(N+..)=6.2×10^{-5} *3*
524.5 *3*	1.22[#] *8*	524.63	(5/2$^+$)	0.0	(5/2$^+$)			
756.7	0.9 *4*	1071.35	(3/2$^+$,5/2$^+$)	314.30	(3/2$^+$)			
825.0 *3*	1.29 *6*	1071.35	(3/2$^+$,5/2$^+$)	246.23	(1/2$^+$)			
902.0 *3*	1.38 *6*	1071.35	(3/2$^+$,5/2$^+$)	169.69	(5/2$^+$)	M1+E2	0.0024 *4*	α(K)exp=0.0015 *4* α(K)=0.0021 *3*; α(L)=0.00026 *4*; α(M)=5.2×10^{-5} *7*; α(N+..)=1.22×10^{-5} *16*
1071.0 *4*	0.9 *2*	1071.35	(3/2$^+$,5/2$^+$)	0.0	(5/2$^+$)	M1+E2	0.00161 *22*	α(K)exp=0.0013 *4* α(K)=0.00140 *19*; α(L)=0.000174 *22*; α(M)=3.5×10^{-5} *5*; α(N+..)=8.2×10^{-6} *10*

[†] From conversion electron data.
[‡] Decay-scheme normalization was not done because possible ε feeding to ground state is unknown.
[#] Evaluators have removed the contribution from ^{119}Cs ε decay (43 s).
[@] 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.

^{119}Cs ε decay (30.4 s) 2001Ge01

Decay Scheme

Intensities: Relative I_γ



$^{119}_{54}Xe_{65}$