Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	C. D. Nesaraja	NDS 195,718 (2024)	12-Oct-2023

Q(β^-)=−3.66×10^3 *16*; S(n)=6450 *10*; S(p)=4070 *syst*; Q(α)=7709 *6* 2021Wa16
ΔS(p)=50 (syst,2021Wa16).
S(2n)=14300 *180* (syst), S(2p)=7168 *16* (2021Wa16).

All data are from ^{253}No α decay.

^{249}Fm Levels

Cross Reference (XREF) Flags

A ^{253}No α decay

E(level)	J$^\pi$	T$_{1/2}$	XREF	Comments
0.0†	(7/2$^+$)	2.05 min *25*	A	%ε+%β^+=84 *1*; %α=16 *1* J$^\pi$: Analogy with other N=149 nuclei (^{243}Pu, ^{245}Cm, ^{247}Cf). Configuration=7/2[624] (2012He09). T$_{1/2}$: Weighted average from 1.95 min *25* (2006Ni09) and 2.6 min *7* (1966Ak01). Other: 2.5 min (1959Pe27). %α: From the number of recorded α's in ^{253}No and ^{249}Fm (2012He09). Other: 32.7 *85* (1993An10).
58.20† *17*	(9/2$^+$)		A	J$^\pi$: (M1) 58.20γ, band member.
129.2† *3*	(11/2$^+$)		A	J$^\pi$: E2 129.2γ to (7/2$^+$) g.s, band member.
140? *20*			A	E(level): May consist of unresolved doublet as observed by 1997He29 unresolved doublet.
209.30 *20*	(5/2$^+$)		A	J$^\pi$: M1 209.3γ to (7/2$^+$) g.s, configuration=5/2[622] (2012He09). Configuration=5/2[622] (2012He09).
248 *17*			A	
279.80 *16*	(9/2$^-$)		A	J$^\pi$: E1 150.6γ to (11/2$^+$) 129.2-keV level, E1 221.7γ to (9/2$^+$) 58.20-keV level and configuration=9/2[734] (2012He09). Configuration=9/2[734] (2012He09).
669.5 *4*	(7/2$^-$)		A	J$^\pi$: From configuration=7/2[743] (2012He09). Configuration=7/2[743] (2012He09).

† Band(A): 7/2[624].

$\gamma(^{249}Fm)$

E$_i$(level)	J$_i^\pi$	E$_\gamma$	I$_\gamma$	E$_f$	J$_f^\pi$	Mult.	α†	Comments
58.20	(9/2$^+$)	58.3 *2*	100	0.0	(7/2$^+$)	(M1)	50.6 *9*	α(L)=37.8 *7*; α(M)=9.36 *16* α(N)=2.62 *5*; α(O)=0.691 *12*; α(P)=0.1342 *23*; α(Q)=0.00758 *13* Mult.: From 2012He09 who notes that for M1 transition, the expected I(γ+ce)(58.3γ)/I(γ+ce)(221.5γ)=1. The experimental ratio is 0.73 *25* for M1, 4.1 *15* for E2, 0.022 *10* for E1; thus M1 (or M1 with small E2 admixture) for 58.3γ is most probable. It is noted by the evaluator that if 58.3γ is pure M1, Iγ should be 2.1, deduced from γ intensity balance at 58.2

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

γ(^{249}Fm) (continued)

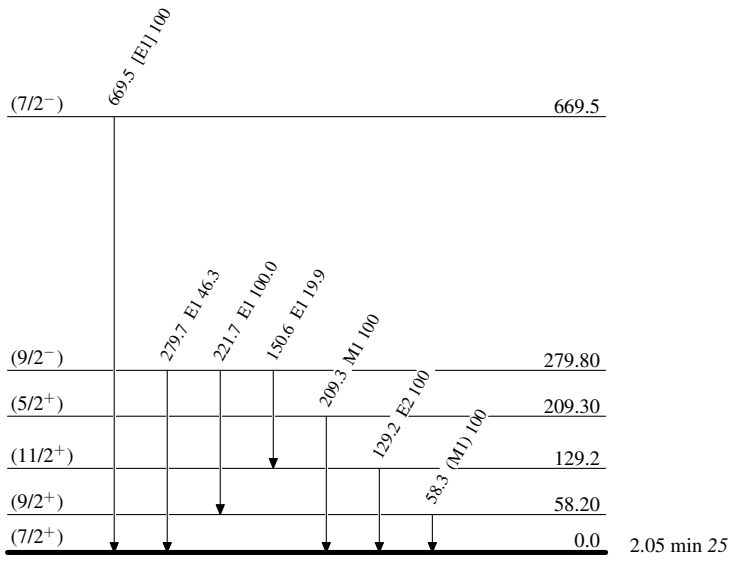
E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.	α†	Comments
								level: I(γ+ce)(58.3γ)=I(γ+ce)(221.5γ)= 109.2 units. If Iγ=1.3 *3* is correct, then 58.3γ may be M1+E2 with δ ≈ 0.35.
129.2	(11/2$^+$)	129.2 *4*	100	0.0	(7/2$^+$)	E2	8.19 *16*	α(L)=5.88 *12*; α(M)=1.690 *34* α(N)=0.481 *10*; α(O)=0.1216 *24*; α(P)=0.0195 *4*; α(Q)=9.24×10^{-5} *17* Mult.: From α(LMN+)exp=4.0 *18* (2006Lo12),.
209.30	(5/2$^+$)	209.3 *2*	100	0.0	(7/2$^+$)	M1	5.61 *8*	α(K)=4.35 *6*; α(L)=0.945 *13*; α(M)=0.2335 *33* α(N)=0.0652 *9*; α(O)=0.01722 *25*; α(P)=0.00334 *5*; α(Q)=0.0001866 *27* Mult.: From α(LMN+)exp==2.8 *22* (2006Lo12), α(K)exp=4.4 *12* (2012He09), α(K)exp=4.9 *19* (2012He09) α(LMN+)exp=3.42 *87* (2011Lo06).
279.80	(9/2$^-$)	150.6 *3*	19.9 *19*	129.2	(11/2$^+$)	E1	0.2151 *32*	α(K)=0.1594 *23*; α(L)=0.0416 *6*; α(M)=0.01035 *15* α(N)=0.00287 *4*; α(O)=0.000734 *11*; α(P)=0.0001266 *19*; α(Q)=4.54×10^{-6} *7* Mult.: From α(LMN+)exp=0.11 *3* (2006Lo12), α(K)exp<0.98 (2004He28), α(L)exp<0.3 (2004He28), α(LMN+)exp=0.11 *2* (2011Lo06).
		221.7 *2*	100.0 *34*	58.20	(9/2$^+$)	E1	0.0916 *13*	α(K)=0.0698 *10*; α(L)=0.01631 *23*; α(M)=0.00404 *6* α(N)=0.001119 *16*; α(O)=0.000289 *4*; α(P)=5.14×10^{-5} *7*; α(Q)=2.054×10^{-6} *29* Mult.: From α(LMN+)exp=0.04 *1* (2006Lo12), α(K)exp<0.17 (2004He28), α(L)exp<0.05 (2004He28), α(LMN+)exp=0.023 *4* (2011Lo06).
		279.7 *2*	46.3 *23*	0.0	(7/2$^+$)	E1	0.0556 *8*	α(K)=0.0429 *6*; α(L)=0.00953 *13*; α(M)=0.002349 *33* α(N)=0.000652 *9*; α(O)=0.0001687 *24*; α(P)=3.05×10^{-5} *4*; α(Q)=1.294×10^{-6} *18* Mult.: α(LMN+)exp=0.08 *2* (2006Lo12), α(K)exp=0.12 *3* (2006Lo12), α(K)exp<0.35 (2004He28), α(L)exp<0.1 (2004He28), α(K)exp=0.145 *22* (2011Lo06), α(LMN+)=0.076 *12* (2011Lo06).
669.5	(7/2$^-$)	669.5 *4*	100	0.0	(7/2$^+$)	[E1]	0.01023 *14*	α(K)=0.00814 *11*; α(L)=0.001571 *22*; α(M)=0.000382 *5* α(N)=0.0001059 *15*; α(O)=2.77×10^{-5} *4*; α(P)=5.22×10^{-6} *7*; α(Q)=2.64×10^{-7} *4*

† Additional information 1.

Adopted Levels, Gammas

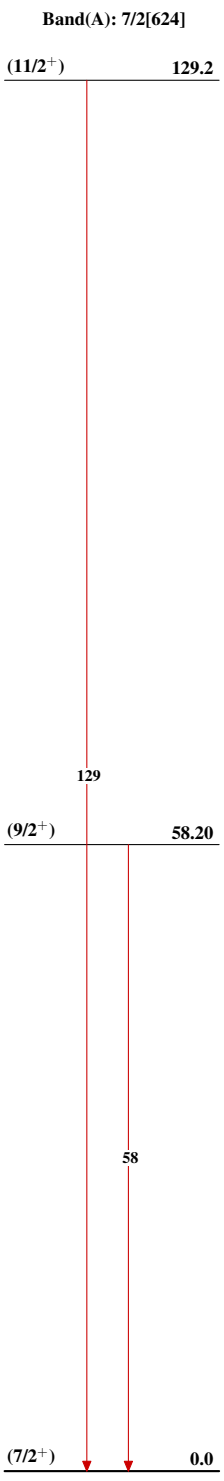
Level Scheme

Intensities: Relative photon branching from each level



$^{249}_{100}Fm_{149}$

Adopted Levels, Gammas



$^{249}_{100}Fm_{149}$