Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	C. D. Nesaraja	NDS 204,374 (2025)	30-Jun-2024

Q(β^-)=890 *50*; S(n)=5430 *50*; S(p)=4690 *50*; Q(α)=5830 *50* 2021Wa16
S(2n)=11980 *80*, S(2p)=11440 *50* (syst), Q(ε)=740 *50* (2021Wa16).
Previous evaluator (2014Ma86) has used systematics of hindrance factors and configurations to partly justify J^π assignments. These arguments are now placed in the documentation record.

^{248}Bk Levels

Assignment: ^{246}Cm(α,pn) (1965Mi08).

Cross Reference (XREF) Flags

A ^{252}Es α decay

E(level)†	J^π	$T_{1/2}$	XREF	Comments
0.0‡	(6$^+$)	>9 y	A	%α=?; %ε=? E(level): From Eα=6632 *3* in ^{252}Es α decay (1973Fi06) and Q(α)=6738.6 *5* as given in 2021Wa16. J^π: from the ratio of energy spacings, K=6 was assigned by 1973Fi06 for the rotational band based on this level, and a π3/2[521]⊗ν9/2[734] configuration was proposed. Additional information 1. $T_{1/2}$: Deduced by 1965Mi08 from observation of no change in ^{248}Bk/^{247}Bk mass ratio of their sample for a period of ten months within the limits of analysis. $T_{1/2}(\beta^-)>1\times10^4$ y was deduced by 1965Mi08 from nonobservation of ^{248}Cf α activities.
0.0+x	1$^{(-)}$	23.7 h *2*		%β^-=70 *5*; %ε=30 *5* The ratio of ε decay/β^- decay was determined by 1978Gr10 from measured I(Curium K x ray from ε decay)/I(550.7γ from β^- decay)= 4.25 *28* and I(550.7γ)=7.1 *5* per 100 β^- decays. $T_{1/2}$: from 1978Gr10. Others: 16 h *3* (1956Ch77), and 23 h *5* (1956Hu27). J^π: log *ft*=7.8 to 2$^+$ and 7.3 to 0$^+$ in ε decay (7.8 to 2$^+$ and 7.3 to 0$^+$ in β^- decay) give J=1. Probable configuration of π7/2[633]⊗ν9/2[734] gives π=−.
70.64‡ *5*	(7$^+$)		A	J^π: M1+E2 γ to 6$^+$. Member of the K^π=6$^+$ band. Additional information 2.
135.06 *7*	(8$^-$)		A	J^π: 1973Fi06 suggest the configuration K^π=8$^-$, π7/2[633]⊗ν9/2[734]. Additional information 3.
145 *3*			A	Additional information 4.
151.32‡ *8*	(8$^+$)		A	J^π: M1+E2 80.7γ to (7$^+$) 70.6-keV level. Member of the K^π=6$^+$ band. Additional information 5.
171.5 *8*	(3$^+$,4$^+$,5$^+$)		A	J^π: M1 418.5γ from (4$^+$) 590-keV level. The authors of 1973Fi06 propose J^π=4$^-$. Additional information 6.
179.5 *4*			A	
212.6 *8*	(3$^+$,4$^+$,5$^+$)		A	J^π: M1 377.4γ from (4$^+$) 590-keV level. The authors of 1973Fi06 propose that it may be the J^π=5$^-$ member of a band based on the 171.5 level.
262 *6*			A	
339 *6*			A	
373.0 *4*			A	
399.7 *3*	(5$^+$)		A	J^π: M1 399.7γ to (6$^+$) g.s. but not to (7$^+$) or (8$^+$) members of the proposed K^π=6$^+$ band.

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Adopted Levels, Gammas (continued)

^{248}Bk Levels (continued)

E(level)[†]	J^π	XREF	Comments
424 *6*		A	
458 *6*		A	
483 *6*		A	
529.1 *7*		A	
590.0 *7*	(4^+)	A	J^π: HF=5.1 *5* from (4^+) suggests probable configuration $\pi 7/2[633]\otimes\nu 1/2[620]$, the same as that of the ^{252}Es g.s. Note in the current ENSDF database (15 April, 2025), $J^\pi(^{252}Es)=(5^-)$ (2021Ma19).
624[#] *5*	(7^+)	A	J^π: A $K^\pi=7^+$, $\pi 7/2[633]\otimes\nu 1/2[613]$ configuration is suggested by 1973Fi06. Additional information 7.
657 *5*		A	
700[#] *5*	(8^+)	A	J^π: The energy spacing suggests that the level is the 8^+ member of a rotational band built on the 624 level.

[†] Additional information 8.
[‡] Band(A): $K^\pi=6^+$, $\pi 3/2[521]\otimes\nu 9/2[734]$ band.
[#] Band(B): $K^\pi=7^+$, $\pi 7/2[633]\otimes\nu 7/2[613]$ band.

$\gamma(^{248}Bk)$

Additional information 9.
All data are from ^{252}Es α decay.

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.	δ	α[†]	Comments
70.64	(7^+)	70.65 *5*	100	0.0	(6^+)	M1+E2	3.4 *21*	98 *24*	α(L)=71 *17*; α(M)=20 *5* α(N)=5.6 *14*; α(O)=1.37 *35*; α(P)=0.23 *5*; α(Q)=1.0×10^{-3} *9*
135.06	(8^-)	64.42 *5*	100	70.64	(7^+)	[E1]		0.450 *6*	α(L)=0.336 *5*; α(M)=0.0843 *12* α(N)=0.02294 *32*; α(O)=0.00559 *8*; α(P)=0.000920 *13*; α(Q)=3.14×10^{-5} *4*
151.32	(8^+)	80.7 *1*	44 *7*	70.64	(7^+)	M1+E2	1.3 *+25−6*	40 *13*	α(L)=29 *9*; α(M)=8.1 *27* α(N)=2.3 *8*; α(O)=0.56 *18*; α(P)=0.095 *28*; α(Q)=0.0013 *7*
		151.3 *1*	100 *9*	0.0	(6^+)	[E2]		3.26 *5*	α(K)=0.1614 *23*; α(L)=2.235 *32*; α(M)=0.633 *9* α(N)=0.1770 *25*; α(O)=0.0435 *6*; α(P)=0.00732 *10*; α(Q)=4.63×10^{-5} *7*
373.0		193.5 *1*	100 *12*	179.5		M1		5.33 *7*	α(K)=4.17 *6*; α(L)=0.869 *12*; α(M)=0.2130 *30* α(N)=0.0587 *8*; α(O)=0.01512 *21*; α(P)=0.00298 *4*; α(Q)=0.0002092 *29*
		228.0 *4*	53 *9*	145		M1		3.36 *5*	α(K)=2.63 *4*; α(L)=0.547 *8*; α(M)=0.1339 *20* α(N)=0.0369 *5*; α(O)=0.00950 *14*; α(P)=0.001876 *28*; α(Q)=0.0001313 *20*
399.7	(5^+)	399.7 *3*		0.0	(6^+)	M1		0.709 *10*	α(K)=0.556 *8*; α(L)=0.1145 *16*; α(M)=0.0280 *4* α(N)=0.00772 *11*; α(O)=0.001987 *28*; α(P)=0.000392 *6*; α(Q)=2.74×10^{-5} *4*

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Adopted Levels, Gammas (continued)

$\gamma(^{248}Bk)$ (continued)

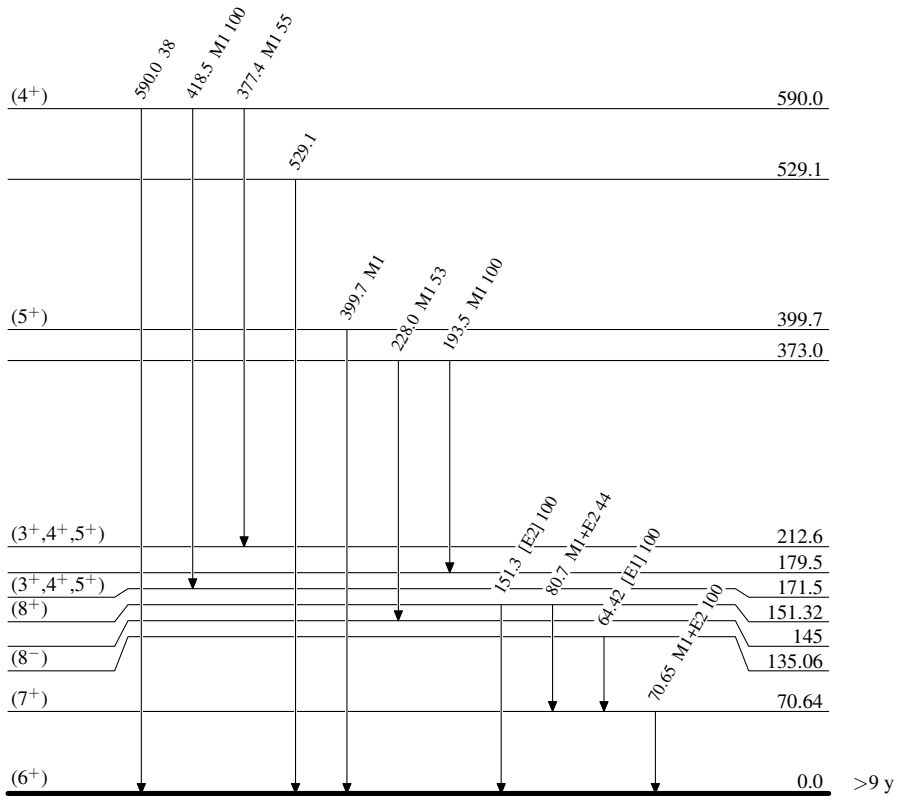
E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.	α[†]	Comments
529.1		529.1 *7*		0.0	(6^+)			
590.0	(4^+)	377.4 *3*	55 *7*	212.6	$(3^+,4^+,5^+)$	M1	0.830 *12*	α(K)=0.651 *9*; α(L)=0.1341 *19*; α(M)=0.0328 *5* α(N)=0.00905 *13*; α(O)=0.002328 *33*; α(P)=0.000459 *7*; α(Q)=3.21×10^{-5} *5*
		418.5 *3*	100 *10*	171.5	$(3^+,4^+,5^+)$	M1	0.625 *9*	α(K)=0.491 *7*; α(L)=0.1009 *14*; α(M)=0.02468 *35* α(N)=0.00680 *10*; α(O)=0.001751 *25*; α(P)=0.000345 *5*; α(Q)=2.413×10^{-5} *34*
		590.0 *7*	38 *3*	0.0	(6^+)			

[†] Additional information 10.

Adopted Levels, Gammas

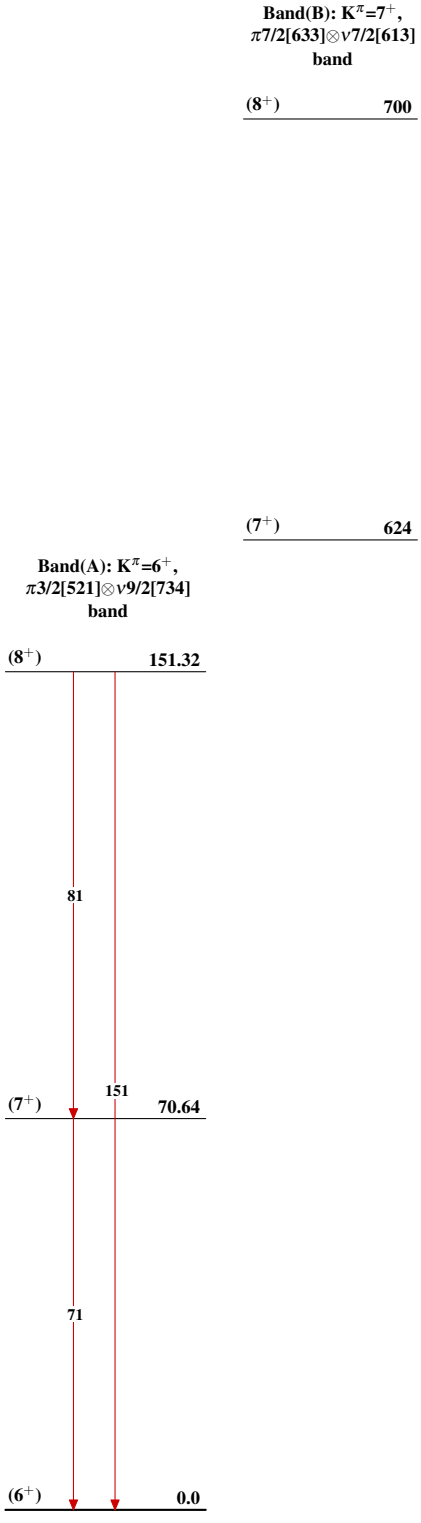
Level Scheme

Intensities: Relative photon branching from each level



$^{248}_{97}Bk_{151}$

Adopted Levels, Gammas



$^{248}_{97}Bk_{151}$