^{216}Bi β^- decay (2.25 min) 2000Ku06

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	S. -c. Wu	NDS 108, 1057 (2007)	1-Mar-2007

Parent: ^{216}Bi: E=0; J^π=(6$^-$,7$^-$); $T_{1/2}$=2.25 min *8*; Q(β^-)=4090 *11*; %β^- decay≤100.0

2000Ku06: ^{216}Bi from ^{232}Th(p, X), E=1 GeV; ISOLDE mass separator, tape transport; plastic detector, Ge detector; Measured Eγ, Iγ, γγ, $T_{1/2}$ of ^{216}Bi isotope.

%β^- feeding are not available, thus no log *ft* values are calculated.

^{216}Po Levels

The ground state of ^{216}Bi mostly β- decays to the 1551 level. From the Iγ and intensity balance, 2006Ku06 concluded the 1551 level as a member of the yrast band resulting from the coupling of the two protons at $1h_{9/2}$. The energies of this band agree with the systematics of even Po isotopes.

E(level)†	Jπ	Comments
0‡	0$^+$	
549.7‡ *3*	(2$^+$)	
968.5‡ *5*	(4$^+$)	
1328.0‡ *6*	(6$^+$)	
1551.4‡ *6*	(8$^+$)	
1699.2 *7*		
1802.6 *7*		
1873.8 *7*		
1980.1?		E(level): 1950.1 in 2000Ku06 seems a misprint.
2038.3 *7*		
2233.4 *7*		

† Δ(Eγ)=0.3 keV assumed in deducing level energies.

‡ Band(A): Yrast sequence.

γ(^{216}Po)

Eγ	Iγ	E_i(level)	J_i^π	E_f	J_f^π	Mult.†	α‡	Comments
147.8	5.6 *3*	1699.2		1551.4	(8$^+$)			
223.4	73.2 *6*	1551.4	(8$^+$)	1328.0	(6$^+$)	(E2)	0.322	α(K)=0.1305 *19*; α(L)=0.1424 *20*; α(M)=0.0375 *6*; α(N+..)=0.01165 *17* α(N)=0.00961 *14*; α(O)=0.00186 *3*; α(P)=0.0001774 *25*
251.2	19.1 *4*	1802.6		1551.4	(8$^+$)			
322.4	3.7 *3*	1873.8		1551.4	(8$^+$)			
359.5	81.2 *8*	1328.0	(6$^+$)	968.5	(4$^+$)	(E2)	0.0749	α(K)=0.0447 *7*; α(L)=0.0226 *4*; α(M)=0.00580 *9*; α(N+..)=0.00181 *3* α(N)=0.001488 *21*; α(O)=0.000292 *4*; α(P)=3.02×10^{-5} *5*
418.8	93.1 *9*	968.5	(4$^+$)	549.7	(2$^+$)	(E2)	0.0498	α(K)=0.0321 *5*; α(L)=0.01328 *19*; α(M)=0.00338 *5*; α(N+..)=0.001057 *15* α(N)=0.000868 *13*; α(O)=0.0001717 *24*; α(P)=1.82×10^{-5} *3*
428.7#	1.7 *3*	1980.1?		1551.4	(8$^+$)			
486.9	4.5 *4*	2038.3		1551.4	(8$^+$)			
549.7	100 *1*	549.7	(2$^+$)	0	0$^+$	(E2)	0.0257	α(K)=0.0183 *3*; α(L)=0.00561 *8*; α(M)=0.001399 *20*; α(N+..)=0.000440 *7*

Continued on next page (footnotes at end of table)

^{216}Bi β^- decay (2.25 min) 2000Ku06 (continued)

$\gamma(^{216}Po)$ (continued)

E_γ	I_γ	E_i(level)	E_f	J^π_f	Comments
					α(N)=0.000359 *5*; α(O)=7.21×10^{-5} *10*; α(P)=8.05×10^{-6} *12*
682.0	7.5 *4*	2233.4	1551.4	(8$^+$)	

† From γ-intensity balance.
‡ 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.
# Placement of transition in the level scheme is uncertain.

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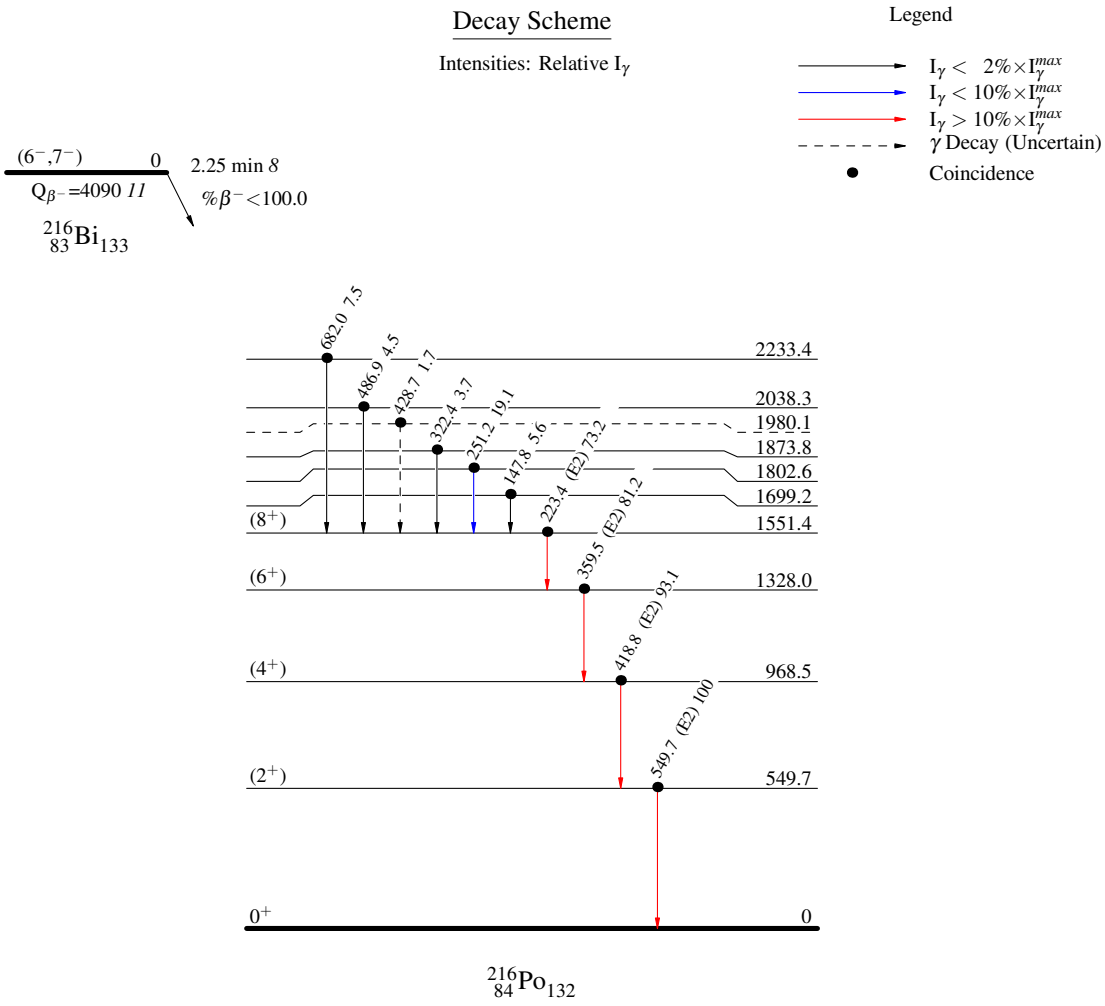
Decay Scheme

Intensities: Relative I_γ



$^{216}_{84}Po_{132}$

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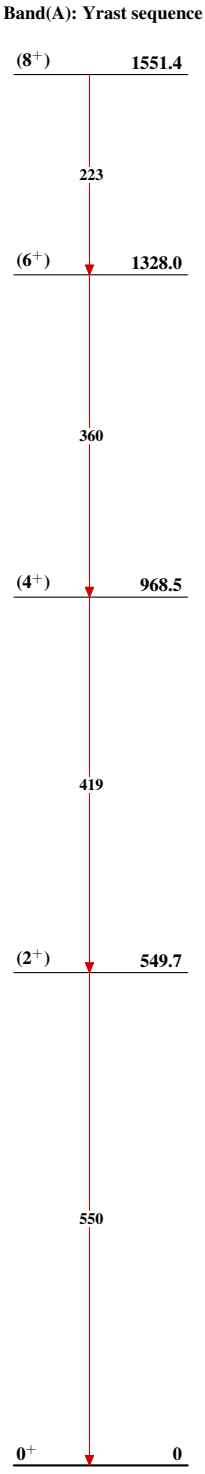

$^{216}_{84}Po_{132}$