^{200}Bi ε decay (31 min) 1978LiZM

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	F. G. Kondev	NDS 192,1 (2023)	1-Aug-2023

Parent: ^{200}Bi: E=0+x; $J^\pi=(2^+)$; $T_{1/2}$=31 min *2*; Q(ε)=5880 *25*; %ε+%$β^+$ decay≈100

1978LiZM: The source was produced by the decay of ^{200}Po which was mass separated from reaction products of Ir(^{14}N,xn). Decays of the 36.4-min, 7^+ state in ^{200}Bi are also present in the source, as evident from the population of the 5^- and 7^- levels. From Iγ(245)/Iγ(1026) in this data set and ^{200}Bi ε decay (36.4 min), we conclude that ≈10% of the activity studied by 1978LiZM is due to 36.4-min decays from the 7^+ state in ^{200}Bi. The decay scheme is preliminary and based on unpublished data (1978LiZM).

Other: 1987Va09.

^{200}Pb Levels

E(level)†	J^π‡	$T_{1/2}$‡
0.0	0^+	21.5 h *4*
1026.81 *22*	2^+	
1489.21 *24*	4^+	0.33 ns *2*
1625.5 *9*	0^+	
1739.51 *20*	$1,2^+$	
1761.8? *3*	$(5)^+$	
1867.0 *9*	0^+	
1909.0 *3*	$(5)^-$	1.35 ns *6*
2153.7 *1*	$(7)^-$	45.2 ns *7*

† From a least-squares fit to Eγ.
‡ From Adopted Levels.

γ(^{200}Pb)

Iγ normalization: The decay scheme is incomplete, so no normalization to absolute γ-ray emission probabilities and log *ft* values are goven.

E_γ†	I_γ†	E_i(level)	J_i^π	E_f	J_f^π	Comments
x84.3 *1*	3.8 *4*					
x102.3 *2*	0.2 *1*					
x187.5 *1*	0.5 *1*					
x202.3 *5*	0.1 *1*					E_γ: Close to the strong 205γ assigned to ^{200}Po ε decay.
x235.5 *1*	0.2 *1*					
245.3# *1*	5.1 *3*	2153.7	$(7)^-$	1909.0	$(5)^-$	I_γ: Probably due to 36.4-min ^{200}Bi ε decay impurity.
x267.7 *1*	0.4 *1*					
272.6 *1*	0.5 *1*	1761.8?	$(5)^+$	1489.21	4^+	
x294.6 *1*	0.2 *1*					E_γ: Close to the weak 295.2γ assigned to ^{214}Bi ε decay, produced in the ^{226}Ra α decay chain (background).
x302.6 *4*	1.8 *1*					
x348.4 *1*	1.4 *1*					
419.8 *1*	23.7 *12*	1909.0	$(5)^-$	1489.21	4^+	
462.4 *1*	41.6 *22*	1489.21	4^+	1026.81	2^+	
x494.1 *1*	3.9 *2*					
x518.9 *1*	1.0 *1*					
x545.8 *1*	2.4 *1*					
x564.1 *1*	2.6 *1*					
x597.1 *4*	0.5 *1*					

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^{200}Bi ε decay (31 min) 1978LiZM (continued)

γ(^{200}Pb) (continued)

E_γ †	I_γ †	E_i(level)	J_i^π	E_f	J_f^π	Mult.	Comments
x628.3 *1*	1.0 *1*						
x648.0 *1*	0.5 *1*						
x651.8 *3*	0.3 *1*						
x680.0 *2*	0.4 *1*						
x682.5 *1*	1.0 *1*						
712.7 *1*	1.8 *1*	1739.51	1,2$^+$	1026.81	2$^+$		
x737.7 *1*	0.8 *1*						
x745.8 *5*	1.4 *5*						
x777.5 *2*	0.7 *1*						
x782.1 *2*	1.0 *1*						
x792.6 *1*	2.1 *1*						
x810.5 *5*	4.1 *4*						
x829.3 *1*	0.7 *1*						
x859.4 *2*	0.8 *1*						
x882.3 *5*	1.4 *1*						
x891.0 *1*	0.9 *1*						
x902.2 *4*	0.2 *1*						
x904.5 *1*	0.6 *1*						
x911.4 *1*	1.0 *1*						
x932.0 *1*	1.0 *1*						
x935.5 *1*	0.5 *1*						
x939.6 *1*	0.5 *1*						
x953.8 *1*	0.4 *1*						
x956.4 *2*	0.5 *1*						
x968.3 *1*	1.0 *1*						
x993.6 *1*	4.6 *3*						
1026.8	100 *5*	1026.81	2$^+$	0.0	0$^+$		
x1035.6 *4*	0.6 *1*						
x1057.8 *1*	0.5 *1*						
x1111.7 *1*	0.8 *1*						
x1127.7 *1*	0.6 *1*						
x1239.6 *1*	0.8 *1*						
x1260.4 *2*	0.4 *1*						E_γ: Close to the weak 1260.5γ assigned to ^{196}Pb ε decay.
x1322.2 *1*	7.1 *4*						
x1330.9 *3*	0.4 *1*						
x1338.1 *3*	0.2 *1*						
x1392.8 *3*	0.3 *1*						
x1446.5 *1*	1.5 *1*						
x1470.7 *2*	0.4 *1*						
x1473.7 *6*	0.1 *1*						
x1488.9 *1*	2.2 *1*						
x1539.1 *2*	0.5 *1*						
1625.5‡ *9*		1625.5	0$^+$	0.0	0$^+$	E0‡	
x1672.5 *2*	0.3 *1*						
x1726.4 *1*	0.9 *1*						
1739.5 *2*	4.3 *2*	1739.51	1,2$^+$	0.0	0$^+$		
x1800.0 *1*	1.6 *1*						
x1818.8 *1*	1.1 *1*						
x1836.8 *1*	1.3 *1*						
1867.0‡ *9*		1867.0	0$^+$	0.0	0$^+$	E0‡	
x1874.5 *1*	0.5 *1*						
x1920.1 *1*	2.5 *1*						
x1981.7 *1*	0.8 *1*						
x2007.6 *1*	0.4 *1*						

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^{200}Bi ε decay (31 min) 1978LiZM (continued)

γ(^{200}Pb) (continued)

E_γ †	I_γ †	E_i(level)
[x]2083.5 *1*	0.5 *1*	
[x]2102.0 *2*	0.4 *1*	
[x]2128.8 *3*	0.3 *1*	
[x]2135.1 *2*	0.3 *1*	
[x]2161.8 *1*	2.2 *1*	
[x]2188.6 *3*	1.8 *3*	

† From 1978LiZM.
‡ From ce data in 1987Va09.
# Placement of transition in the level scheme is uncertain.
[x] γ ray not placed in level scheme.

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Decay Scheme

Intensities: Relative I_γ