^{215}Bi IT decay (36.9 s) 2003Ku26

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation		NDS 114, 2023 (2013)	23-Sep-2013

Parent: ^{215}Bi: E=1347.50+x; J^π=(25/2 to 29/2)$^{(-)}$; $T_{1/2}$=36.9 s *6*; %IT decay=76.9 *5*
^{215}Bi-%IT decay: From $\%\beta^-$=23.1 *5* (from Adopted Levels).
2003Ku26: ^{215}Bi produced by ^{232}Th(p,X) and ^{238}U(p,X) at 1 GeV proton energy, followed by mass separation. Measured Eγ, Iγ, α, $\gamma\gamma$, $\beta\gamma$ coin, $\alpha\gamma$ coin, γ(x-ray) coin using large Ge detector for γ, and low energy Ge detector for x rays and low-energy γ rays, plastic scintillator for β.

^{215}Bi Levels

E(level)†	J^π#	$T_{1/2}$#	Comments
0.0	(9/2$^-$)	7.6 min *2*	
746.60?‡ *10*	(13/2$^-$)		
1160.70?‡ *14*	(17/2$^-$)		
1347.50 *17*	(21/2$^-$)		
1347.50+x	(25/2 to 29/2)$^{(-)}$	36.9 s *6*	%IT=76.2 *4*; $\%\beta^-$=23.8 *4* $\%\beta^-$: from 2003Ku26, comparison of γ intensities in the two cascades: one from IT decay and the other from β^- decay of this isomer. $T_{1/2}$: from weighted average of values from decay curves for seven γ rays (2003Ku26). See comment in Adopted Levels. J^π: possible configuration= $[\pi h_{9/2}\otimes((\nu g^5_{9/2})_{9/2}\otimes\nu i_{11/2})_{10+}]_{(25/2:29/2)^{(-)}}$. E(level): x=40 *+80−40* (2003Ku26).

† From Eγ values.
‡ The ordering of the 187-414-747 cascade is not established, the one given here is just one of the possibilities. Thus the positions of the intermediate levels at 747 and 1161 could be different.
# From Adopted Levels.

$\gamma(^{215}Bi)$

Eγ	Iγ‡	E_i(level)	J^π_i	E_f	J^π_f	Mult.	α#	Comments
x		1347.50+x	(25/2 to 29/2)$^{(-)}$	1347.50	(21/2$^-$)			Eγ: x=40 *+80−40* (2003Ku26).
186.8† *1*	52 *2*	1347.50	(21/2$^-$)	1160.70?	(17/2$^-$)	(E2)	0.571	α(K)=0.195 *3*; α(L)=0.280 *4*; α(M)=0.0737 *11*; α(N)=0.0188 *3* α(K)exp=0.24 *3* (2003Ku26) α(K)exp measured from K x ray and Iγ. Mult.: measured α(K)exp gives dominant E2; δ(E2/M1)=5.0 *11*, or unlikely possibility of E1+M2 with δ(M2/E1)=0.165 *15*.
414.1† *1*	76 *3*	1160.70?	(17/2$^-$)	746.60?	(13/2$^-$)	(E2)	0.0491	α(K)=0.0320 *5*; α(L)=0.01282 *18*; α(M)=0.00325 *5* Mult.: α(exp)=0.075 *60* (evaluators) from intensity balance at 1160.7 level is consistent with E2; with δ(E2/M1)=2.2 *12*. Other possibility of E1+M2 with δ(M2/E1)=0.35 *15* is unlikely.
746.6† *1*	75 *3*	746.60?	(13/2$^-$)	0.0	(9/2$^-$)	(E2)	0.01258	α(K)=0.00962 *14*; α(L)=0.00224 *4* Mult.: intensity balance at 746.6 level

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^{215}Bi IT decay (36.9 s) 2003Ku26 (continued)

$\gamma(^{215}Bi)$ (continued)

E_γ	E_i(level)	Comments
		is consistent with E2 or M1, and marginally with E1 also.

† The ordering of the 187-414-747 cascade is not established.
‡ Absolute intensity per 100 decays.
# 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.

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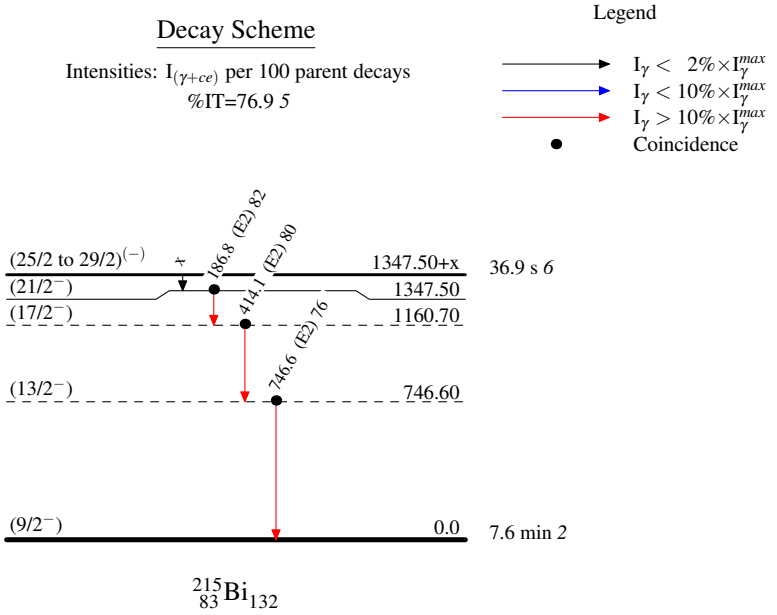
Decay Scheme

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
%IT=76.9 *5*



$^{215}_{83}Bi_{132}$