Adopted Levels, Gammas

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	F. G. Kondev, S. Juutinen, D. J. Hartley	NDS 150, 1 (2018)	1-Feb-2018

Q(β^-)=−6650 *23*; S(n)=8883 *15*; S(p)=−503 *12*; Q(α)=7264 *5* 2017Wa10

^{188}Bi Levels

Cross Reference (XREF) Flags

A ^{192}At α decay (11.5 ms)
B ^{192}At α decay (88 ms)

E(level)†	J$^\pi$	$T_{1/2}$	XREF	Comments
0.0	(3$^+$)	60 ms *3*	AB	%α≈100 For results on beta-delayed fission see 2013La02, 1993An11 and 1993LaZT. J$^\pi$: From favored decay to J^π=(3$^+$) state in ^{184}Tl, systematics of heavier Bi isotopes and proposed configuration. $T_{1/2}$: from 6992α(t) in 2003An26, supersedes 66 ms *6* (6995α(t), 2006An04). Others: 46 ms *7* (6987α(t),1997Wa05) and 44 ms *3* (7010α(t), 1984ScZQ). Three α decays from this state were observed in 2003An26: Eα=7106 *5*, %Iα=2.05 *19*; Eα=6992 *5*, %Iα=97.2 *2*; Eα=6889 *10*, %Iα=0.33 *10*. The 6992α in coin with E1 117.5γ; the 6889α in coin with E1 99.0γ. For decay studies see also 1997Wa05 and 1984ScZQ. configuration: $\pi h_{9/2}\otimes\nu p_{3/2}$ from systematics of heavier odd-odd Bi isotopes (2003An26). This assignment is tentative, since E=117.5 keV in ^{184}Tl is too low for such a 3$^+$ state; 151 keV in ^{190}Tl, 184 keV in ^{188}Tl and 294 keV in ^{186}Tl following the trend of 9/2$^-$ states in neighboring odd-mass Tl. The energy of favoured α decay (Eα=6992 keV) is about 200 keV larger than expected between the 3$^+$ states (2003An26). Furthermore, α decay from low spin state in ^{192}At does not follow systematics (2006An04). Oblate states in ^{187}Bi and ^{189}Bi are known at very low energies (2003Ke08), which may suggest an oblate configuration in ^{188}Bi.
65 *29*		>5 μs	A	$T_{1/2}$: Estimated in 2006An04, based on non-observation of summing of 7470α keV and ce signals from the 65 keV *29* level in ^{192}At α decay (11.5 ms).
101 *29*			A	
172 *29*			A	
0+x	(10$^-$)	265 ms *15*	B	%α≈100 For results on beta-delayed fission see 2013La02, 1993An11 and 1993LaZT. E(level): x=153 *30* (syst,2017Au03). J$^\pi$: From favored decay to J^π=(10$^-$) state in ^{184}Tl, systematics of heavier Bi isotopes and proposed configuration. $T_{1/2}$: from 2813α(t) in 2003An26, supersedes 280 ms *20* (2815α(t),2006An04). Note, that a value of 265 ms *10* is quoted in 2013La02 with a reference to 2003An26. Others: 218 ms *50* (6815α(t),1997Wa05) and 210 ms *87* (6820α(t), 1984ScZQ). Four α decays from this isomer observed in 2003An026: Eα=7302 *5*, %Iα=3.3 *9*; Eα=7232 *10*, %Iα=4.1 *9*; Eα=6995 *15*, %Iα=1.4 *4*; Eα=6813 *5*, %Iα=91.2 *12*. The 7232α in coin with 70.5γ; the 6995α in coin with 249γ and 320γ. configuration: $\pi 1h_{9/2}\otimes\nu 1i_{13/2}$ (spherical) from systematics of heavier odd-odd Bi nuclei (2003An26,2006An04).
165+x‡ *1*	(9$^-$,10$^-$)		B	J$^\pi$: 165γ M1 to (10$^-$) and proposed configuration in 2003An26,2006An04. configuration: $\pi 2f_{7/2}\otimes\nu 1i_{13/2}$ (spherical shape) in 2003An26,2006An04. However, $\pi 7/2^-[514]\otimes\nu 7/2^+[633]$ (or 9/2$^+$[624]) and $\pi 13/2^+[606]\otimes\nu p_{3/2}$ (oblate shape) can be considered as alternatives (by the evaluators).
188+x‡ *1*			B	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{188}Bi Levels (continued)

† From Eα energy differences.
‡ From Eγ.

$\gamma(^{188}Bi)$

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.	Comments
101		36† *1*	100	65		E1	Mult.: The number of 36γ-7435α coincidences requires small α(exp) in ^{192}At α decay (11.5 ms) (2006An04).
165+x	(9$^-$,10$^-$)	165‡ *1*	100	0+x	(10$^-$)	M1	Mult.: From α(K)exp=3 *1* in ^{192}At α decay (88 ms) (2006An04).
188+x		(23‡)		165+x	(9$^-$,10$^-$)		
		188‡ *1*	100	0+x	(10$^-$)		

† From ^{192}At α decay (11.5 ms).
‡ From ^{192}At α decay (88 ms).

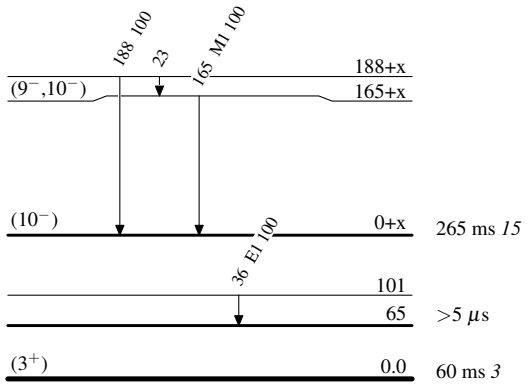
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

- - - - - - ► γ Decay (Uncertain)



$^{188}_{83}Bi_{105}$