^{196}Bi IT decay (240 s) 1987Va09

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Huang Xiaolong	NDS 108, 1093 (2007)	1-Jan-2006

Parent: ^{196}Bi: E=269; J^π=(10$^-$); $T_{1/2}$=240 s *3*; %IT decay=25.8 *25*

^{196}Bi-%IT decay: From 1991Va04.

The decay scheme is from 1987Va09.

Sources from natural Re(^{16}O,xn), E(^{16}O)≤210 MeV. Mass separation; measured Eγ, Iγ (Ge detectors, FWHM=2.0−keV at 1332 keV, FWHM=580 eV at 122-keV), E(ce), Ice, Si(Li) FWHM=2.5−keV at 624 keV, γγ coin, ceγ coin, triparameter coin. 1984Va11 are from the same group.

^{196}Bi Levels

E(level)†	J^π‡	$T_{1/2}$	Comments
0.0	(3$^+$)	308 s *12*	J^π: β decay feeds levels In ^{196}Pb up to J=5 (quoted by 1991Va04). $T_{1/2}$: the data of 1987Va09 supersede 308 s *6* of 1984Va11 from γ(t).
158.3 *3*	(6$^+$)		$T_{1/2}$: from γ(t), 158γ's short-lived component. This is two times faster than the Weisskopf estimate for an M3 transition. Besides a direct feeding (0.6S component), this (5$^+$,6$^+$) state has to Be fed via 210 s *20* component.
167	(7$^+$)	0.6 s *5*	$T_{1/2}$: from γ(t).
269	(10$^-$)	240 s *3*	%IT=25.8 *25* (1991Va04) E(level): energy difference between (10$^-$) and (7$^+$) is 102 keV *7* from α decay of ^{200}At. $T_{1/2}$: from γ(t) (1987Va09).

† From Eγ's and scheme of ^{196}Bi Adopted Levels.

‡ From ^{196}Bi Adopted Levels.

γ(^{196}Bi)

E_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.	α‡	$I_{(\gamma+ce)}$†	Comments
(9)	167	(7$^+$)	158.3	(6$^+$)			100	E_γ: from difference between 167-keV level and 158-keV level from 1992Hu04's figure 5, unobserved, Eγ=7 keV *8* (1987Va09).
102.0 *20*	269	(10$^-$)	167	(7$^+$)	[E3]	155 *19*	100	ce(K)/(γ+ce)=0.0025 *5*; ce(L)/(γ+ce)=0.72 *7*; ce(M)/(γ+ce)=0.21 *4*; ce(N+)/(γ+ce)=0.064 *11* $I_{(\gamma+ce)}$: total intensity (1987Va09). 98.7 keV *4* E- line with $T_{1/2}$=248 s *10* and 87 keV *2* E- line with $T_{1/2}$=280 s *100* are good candidates for the L and M conversion lines of the 102 keV transition.
158.3 *3*	158.3	(6$^+$)	0.0	(3$^+$)	M3	77.3 *13*	100	ce(K)/(γ+ce)=0.401 *7*; ce(L)/(γ+ce)=0.426 *8*; ce(M)/(γ+ce)=0.121 *3*; ce(N+)/(γ+ce)=0.0386 *9* α(K)exp=26 *15*; α(L)exp=32 *17*; α(K)exp/α(L)exp=0.80 *4* (α(L1)exp+α(L2)exp)/α(L3)exp=2.15 *5*. Mult.: from ce data. This transition has short-lived (0.6 s) and long-lived (210 s *20*) components. $I_{(\gamma+ce)}$: total intensity (1987Va09).

† For absolute intensity per 100 decays, multiply by 0.258 *25*.

‡ 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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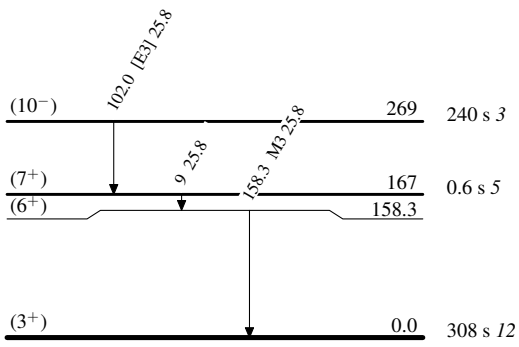
Legend

Decay Scheme

%IT=25.8 *25*

γ Decay (Uncertain)



$^{196}_{83}Bi_{113}$