

^{188}Bi α decay (265 ms) [2003An26,1997Wa05,1980Sc09](#)

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 111,275 (2010)	1-Oct-2009

Parent: ^{188}Bi : $E=0.0+x$; $J^\pi=(10^-)$; $T_{1/2}=265$ ms *l0*; $Q(\alpha)=7255$ 7; % α decay=100.0

Other: [2006An04](#).

[2003An26](#): sources from $^{142}\text{Nd}(^{52}\text{Cr,p5n})$ and $^{142}\text{Nd}(^{50}\text{Cr,p3n})$, $E=380-480$ MeV; 99.8% ^{142}Nd target; separated evaporation residues implanted into 16-strip position sensitive Si detector (FWHM \approx 18 keV); four-fold segmented Clover Ge detector; measured $E\alpha$, $I\alpha$, $E\gamma$, prompt and delayed (0-5 μs) α - γ and α -x coin, recoil- α coin. See also [2006An04](#) (sources from α decay of ^{192}At produced in the $^{144}\text{Sm}(^{51}\text{V},3n)$ reaction at 230 MeV).

[1997Wa05](#): sources from $^{96}\text{Mo}(^{95}\text{Mo},X)$, $E=418$ MeV; isotopically enriched target; fragment mass analyzer, parallel grid avalanche counter, double-sided Si strip detector; measured $E\alpha$, $\alpha(t)$.

[1980Sc09](#) identified ^{188}Bi by assigning an α particle group detected in a mass-separated sample obtained from the reaction $^{107}\text{Ag}(^{84}\text{Kr},3n)^{188}\text{Bi}$ at $E=4.60$ MeV/nucleon. α decay systematics also were used in assigning α groups to nuclei of a specific atomic number.

Other (from the same laboratory as [1980Sc09](#)): [1984ScZQ](#). Reaction: $^{100}\text{Mo}(^{92}\text{Mo},p3n)$ $E=437$ MeV, measured α -recoil(t). Two isomers identified.

^{184}Tl Levels

E(level) [†]	J^π [‡]	Comments
0.0+x	(7 ⁺)	
70.6+x 5	(6 ⁺)	
319.8+x 8		
500+x 7	(10 ⁻)	E(level): from energy difference between α feeding this level and that feeding 0.0+x level.

[†] From least-squares fit to $E\gamma$, except as noted.

[‡] From Adopted Levels.

α radiations

$E\alpha$	E(level)	$I\alpha$ ^{‡#}	HF [†]	Comments
6813 5	500+x	91.2 12	0.82 4	$E\alpha$: from 2003An26 . other $E\alpha$: 6820 20 (1980Sc09) (quoted as 6820 10 by 1984ScZQ), 6815 6 (1997Wa05). the weighted average of all data is 6814 4. $T_{1/2}(6813\alpha)=0.21$ s 9 (1984ScZQ), 0.22 s 5 (1997Wa05), 0.265 s 10 (2003An26).
6995 15	319.8+x	1.4 5	233 85	
7232 10	70.6+x	4.1 9	5.0×10^2 12	
7302 5	0.0+x	3.3 9	1.0×10^3 3	

[†] $r_0=1.498$ 5, unweighted average of $r_0(^{182}\text{Hg})=1.50$ 2 ([1998Ak04](#)), $r_0(^{184}\text{Hg})=1.494$ 4 and $r_0(^{184}\text{Pb})=1.486$ 10 (this evaluation), and $r_0(^{186}\text{Pb})=1.510$ 2 ([2003Ba44](#)).

[‡] Relative intensity ([2003An26](#)) renormalized so $\Sigma I\alpha = 100$.

Absolute intensity per 100 decays.

^{188}Bi α decay (265 ms) [2003An26,1997Wa05,1980Sc09](#) (continued)

 $\gamma(^{184}\text{Tl})$

E_γ †	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult.	α^\ddagger	Comments
70.5 5	70.6+x	(6 ⁺)	0.0+x	(7 ⁺)	M1	4.36 11	$\alpha(\text{L})=3.34$ 9; $\alpha(\text{M})=0.781$ 20; $\alpha(\text{N+..})=0.239$ 6 $\alpha(\text{N})=0.197$ 5; $\alpha(\text{O})=0.0383$ 10; $\alpha(\text{P})=0.00361$ 10 Mult.: from $\alpha(\text{exp})=5$ 1 (2003An26) based on 7232 α -70.5 γ coin.
249 1	319.8+x		70.6+x	(6 ⁺)			
320 1	319.8+x		0.0+x	(7 ⁺)			

 † From [2003An26](#).

 ‡ Total theoretical internal conversion coefficients, calculated using the BrIcc code ([2008Ki07](#)) with Frozen orbital approximation based on γ -ray energies, assigned multiplicities, and mixing ratios, unless otherwise specified.

 ^{188}Bi α decay (265 ms) [2003An26,1997Wa05,1980Sc09](#)

Decay Scheme

