^{200}At α decay (47 s) 1992Hu04,1987Va09

History

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

Parent: ^{200}At: E=104; $J^\pi=(7^+)$; $T_{1/2}$=47 s *1*; Q(α)=6596.4 *14*; %α decay=43 *7*

^{200}At-$T_{1/2}$: From 1992Hu04.

$J^\pi=(7^+)$, $T_{1/2}$=47 s isomer.

The decay scheme is from 1992Hu04.

2005Uu02: 141Pr(63,65Cu, xnypzα), 170Yb(36Ar, xnypzα),E=278-293MeV, measured Eα.

1992Hu04: source prepared by natural Re(^{20}Ne,xn) E<245 MeV. Mass separated with LISOL facility. Measured Eγ, Iγ, x-ray, ce, Eα, Iα, Ag(t).

1987Va09: measured Eγ,Iγ (Ge detectors, FWHM=2.0 keV at 1332 keV, FWHM=580 eV at 122 keV), E(ce),I(ce) (Si(Li), FWHM=2.5 keV at 624 keV), $\gamma\gamma$ coin, ceγ coin, triparameter coin.

1967Tr06: ^{185}Re,^{187}Re(^{20}Ne,xn), x=5,7; E(^{20}Ne)=100-200 MeV.

1974Ho27: ^{232}Th(p,spallation)^{204}Fr α decay, E(p)=600 MeV.

^{196}Bi Levels

E(level)[†]	J^π[†]
0	(3^+)
158.3 *3*	(6^+)
167 *4*	(7^+)
269 *4*	(10^-)

[†] From Adopted Levels.

α radiations

Eα[@]	E(level)	Iα[‡@&]	HF[†#]	Comments
6306 *5*	269	0.17 *4*	4.8×10^2 *14*	
6411.8 *13*	167	99.00 *14*	2.1 *4*	Eα: weighted average of 6413 *6*(2005Uu02), 6411 *2* (1992Hu04), 6412 *2* (1975BaYJ), 6415 *9* (1963Ho18), 6412 *5* (1967Tr06), and 6415 *8* (1974Ho27). Except for 1992Hu04, the values are as given by 1991Ry01, corrected for revised calibration energies.
6575 *3*	0	0.83 *14*	1.14×10^3 *27*	Eα: other: 6574 *5* (1975BaYJ).

[†] r_0=1.500 *5* (1967Tr06). HF from 1987Va09.
[‡] From 1975BaYJ.
[#] r_0=1.502 *2*.
[@] From 1992Hu04 except where noted otherwise.
[&] For absolute intensity per 100 decays, multiply by 0.43 *7*.

γ(^{196}Bi)

E$_\gamma$[‡]	E$_i$(level)	J_i^π	E$_f$	J_f^π	Mult.	α[@]	I$_{(\gamma+ce)}$[†#]	Comments
9 *4*	167	(7^+)	158.3	(6^+)			99.17 *15*	I$_{(\gamma+ce)}$: from the decay scheme, I(γ+ce)=Iα(6411α+6306α).
102.0 *20*	269	(10^-)	167	(7^+)	(E3)	155	0.17 *4*	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$_{(\gamma+ce)}$: from the decay scheme, I(γ+ce)=Iα(6306α).

Continued on next page (footnotes at end of table)

^{200}At α decay (47 s) 1992Hu04,1987Va09 (continued)

$\gamma(^{196}Bi)$ (continued)

E_γ ‡	E_i(level)	J_i^π	E_f	J_f^π	Mult.	α @	$I_{(\gamma+ce)}$ †#	Comments
158.3 *3*	158.3	(6^+)	0	(3^+)	M3	77.3	99.17 *15*	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* $I_{(\gamma+ce)}$: from the decay scheme, I(γ+ce)=Ti(11γ).

† Relative to 100 for 1049.4γ in ^{196}Pb from ^{196}Bi $\varepsilon+\beta^+$ decay (240 s+308 s).
‡ From adopted gammas.
# For absolute intensity per 100 decays, multiply by 0.43 *7*.
@ 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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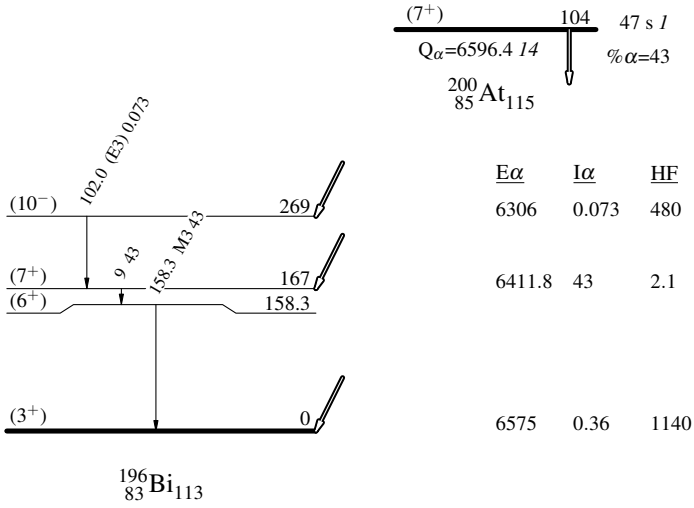
Decay Scheme



Eα	Iα	HF
6306	0.073	480
6411.8	43	2.1
6575	0.36	1140