^{190}Bi ε decay (6.3 s+6.2 s) 1991Va04

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh, [1] and Jun Chen[2]	NDS 169, 1 (2020)	15-Oct-2020

Parent: ^{190}Bi: E=0; J^π=(3$^+$); $T_{1/2}$=6.3 s *1*; Q(ε)=9817 *26*; %ε+%$β^+$ decay<40.0

Parent: ^{190}Bi: E=191 *65*; J^π=(10$^-$); $T_{1/2}$=6.2 s *1*; Q(ε)=9817 *26*; %ε+%$β^+$ decay=30 *9*

^{190}Bi(0)-J^π,$T_{1/2}$: From ^{190}Bi Adopted Levels.

^{190}Bi(0)-Q(ε): From 2017Wa10.

^{190}Bi(0)-%ε+%$β^+$ decay: %ε+%$β^+$=10 *+30−10* implied by %α=90 *+10−30* (1991Va04).

^{190}Bi(191)-E,J^π,$T_{1/2}$: From ^{190}Bi Adopted Levels.

^{190}Bi(191)-Q(ε): From 2017Wa10.

^{190}Bi(191)-%ε+%$β^+$ decay: %ε+%$β^+$=30 *9* implied by %α=70 *9* (1991Va04).

1991Va04: ^{190}Bi source was produced from heavy-ion fusion evaporation reactions of ^{nat}Re+^{16}O, ^{181}Ta+^{20}Ne, and ^{182}W+^{20}Ne with ^{16}O and ^{20}Ne beams from the CYCLONE cyclotron in Louvain-la-Neuve and with reaction products separated by the LISOL separator. Measured Eγ, Iγ. On the basis of the systematics of ^{192}Bi and ^{194}Bi, 1991Va04 assumed that the 20% *10* contribution is from the low-spin isomer of ^{190}Bi and 80% *10* from the high-spin isomer.

No level scheme is suggested by 1991Va04. A tentative level scheme shown here is suggested by the evaluators, based on the level scheme in ^{166}Er(^{28}Si,4nγ) dataset.

The $β^+$,ε feedings are not known, thus, the decay scheme is not normalized. The assignment of γ rays to this decay is based on a half-life measurement ($T_{1/2}$=5.3 s *10*) (1991Va04).

^{190}Pb Levels

E(level)[†]	J^π[‡]
0.0	0$^+$
773.8 *5*	2$^+$
1228.8 *7*	(4)$^+$
1735.0 *9*	(6)$^+$
2274.4 *10*	(8)$^+$

[†] From Eγ data, assuming ΔEγ=0.5 keV.

[‡] From the Adopted Levels.

γ(^{190}Pb)

E_γ[†]	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	α[‡]	Comments
[x]145.2	70 *13*							
455.0[#]	94 *15*	1228.8	(4)$^+$	773.8	2$^+$	[E2]	0.0370	
506.2[#]	92 *15*	1735.0	(6)$^+$	1228.8	(4)$^+$	[E2]	0.0285	
539.4[#]	66 *12*	2274.4	(8)$^+$	1735.0	(6)$^+$	[E2]	0.0245	
[x]700.6	61 *14*							
773.8[#]	100	773.8	2$^+$	0.0	0$^+$	[E2]	0.01113	
[x]846.4	70 *14*							Additional information 1.

[†] From 1991Va04.

[‡] 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.

[#] Placement of transition in the level scheme is uncertain.

[x] γ ray not placed in level scheme.

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Decay Scheme

Intensities: Relative I_γ