Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	E. A. Mccutchan	NDS 152, 331 (2018)	1-Apr-2018

Q(β^-)=9918 *6*; S(n)=2888 *6*; S(p)=11164 *7*; Q(α)=−4.52×10^3 *6* 2017Wa10
S(2n)=6629 *6*; S(2p)=27420 syst *300*; Q(β^-n)=5151 *6* (2017Wa10).
α: Additional information 1.

^{136}Sb Levels

Evaluator adopts level scheme proposed by 2015Lo08 in ^{9}Be(^{238}U,Fγ). An alternative scheme is given by 2007Si27 in ^{241}Pu(n,Fγ), where the cascade depopulating the isomer is given by 51.4γ −173.0γ − 53.4γ, resulting in an isomer excitation energy of 277.8-keV. 2015Lo08 find no evidence for the 51.4γ, however, identify a new 43.4γ and give an alternative cascade ordering of 53.4γ-173γ-43.4γ.

Cross Reference (XREF) Flags

A ^{9}Be(^{238}U,Fγ)
B ^{241}Pu(n,Fγ)

E(level)†	J$^\pi$	T$_{1/2}$	XREF	Comments
0	(1$^-$)	0.923 s *14*	AB	%β^-=100; %β^-n=18.5 *18*; %β^-2n<1 T$_{1/2}$: from 1993Ru01. Others: 0.9 s *1* (1978Cr03), 0.75 s *20* (1977Ru04), and 0.82 s *2* (1976Lu02). J$^\pi$: a negative parity is expected since with only 1 proton and 3 neutrons away from closed shell, the configuration of ^{136}Sb should be $\pi g_{7/2}\nu f^3_{7/2}$. Assuming a negative parity, the log *ft* values of 5.8 and 6.6 to the 0$^+$ and 2$^+$ states of ^{136}Te (1997Ho15), respectively, indicate J^π=1$^-$. This assignment is additionally supported following a comparison with ^{212}Bi, where the 1$^-$ state of the $\pi h_{9/2}\nu g^3_{9/2}$ multiplet is the g.s. %β^-n: weighted average of 19.2 *18* (2015CaZM) and 16.3 *32* (1993Ru01). Others: 32 *14* (1977Ru04) and 19 *9* (1978Cr03). These have been adjusted to 44 *57* and 33 *40* in 1993Ru01 based on a reassessment of fission yield data. %β^-2n: preliminary report in 2017CaZZ states observation of β^-2n branch with an upper limit of 1%. 2005Ga61 give a limit of %β^-2n<2.8 *2*%, with the upper limit corresponding to the case where all the observed two-neutron activity in their experiment originates from ^{136}Sb.
43.4 *3*	(2$^-$)		AB	XREF: B(53.4). J$^\pi$: M1 43.4γ to (1$^-$).
215.9 *4*	(4$^-$)		AB	XREF: B(226.4). J$^\pi$: E2 173γ to (2$^-$).
269.3 *5*	(6$^-$)	540 ns *30*	AB	%IT=100 XREF: B(277.8). T$_{1/2}$: weighted average of 540 ns *30* from implant-γ(t) using 173γ in ^{9}Be(^{238}U,Fγ) and 480 ns *100* from sum of implant-γ(t) using 173γ and implant-Kα x-ray(t) in ^{241}Pu(n,Fγ). J$^\pi$: E2 53.4γ to (4$^-$).

† From Eγ.

Adopted Levels, Gammas (continued)

γ(^{136}Sb)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult.	α	Comments
43.4	(2⁻)	43.4 *3*	100	0	(1⁻)	(M1)	6.90 *18*	α(K)=5.94 *15*; α(L)=0.774 *20*; α(M)=0.153 *4*; α(N)=0.0296 *8*; α(O)=0.00290 *8* Mult.: from intensity balance in ^{9}Be(^{238}U,Fγ).
215.9	(4⁻)	172.5 *3*	100	43.4	(2⁻)	E2	0.241	α(K)=0.192 *3*; α(L)=0.0393 *7*; α(M)=0.00798 *13*; α(N)=0.001481 *24*; α(O)=0.0001218 *19* α(K)exp=0.17 *4* (2007Si27). Mult.: from α(K)exp.
269.3	(6⁻)	53.4 *3*	100	215.9	(4⁻)	(E2)	15.6 *4*	α(K)=7.40 *15*; α(L)=6.57 *20*; α(M)=1.37 *5*; α(N)=0.247 *8*; α(O)=0.0168 *5* B(E2)(W.u.)=3.5 *4* Mult.: from intensity balance in ^{9}Be(^{238}U,Fγ).

† From ^{9}Be(^{238}U,Fγ).

Adopted Levels, Gammas