^{161}Lu ε decay 1980Be39

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	C. W. Reich	NDS 112,2497 (2011)	1-Jun-2011

Parent: ^{161}Lu: E=0; $J^\pi=1/2^+$; $T_{1/2}$=77 s *2*; Q(ε)=5280 *32*; %ε+%β^+ decay=100.0

^{161}Lu-J^π: From ^{161}Lu Adopted Levels.

^{161}Lu-$T_{1/2}$: From ^{161}Lu Adopted Levels.

^{161}Lu-Q(ε): From 2009AuZZ. 2003Au03 report Q=5.09×10^{03} *21*.

Additional information 1.

The decay scheme is that of 1980Be39. Note that, with a Q+ value of 5.28 MeV and no ^{161}Yb levels reported above 0.37 MeV, the proposed decay scheme is incomplete and thus no meaningful intensities can be deduced for the ε+β^+ transitions feeding the ^{161}Yb levels.

^{161}Yb Levels

E(level)	J^π[†]	$T_{1/2}$	Comments
0[‡]	3/2⁻	4.2 min *2*	$T_{1/2}$: from ^{161}Yb Adopted Levels (1974AdZR).
43.67[‡] *18*	5/2⁻		
110.79[‡] *9*	7/2⁻		
197.20? *25*			
211.08 *12*	(3/2⁻)		
367.28 *14*			

[†] From adopted values.

[‡] Band(A): $K^\pi=3/2^-$ band, probably containing a mixture of the 3/2[521] and 3/2[532] Nilsson orbitals.

γ(^{161}Yb)

Since the γ multipolarities are unknown, a γ intensity normalization is not possible. The 43-keV γ can have an α from 6.4 to 118, so there is a factor of 10 uncertainty in this transition intensity.

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.	α[†]	Comments
43.7 *3*	≈70	43.67	5/2⁻	0	3/2⁻	[M1,E2]	6.×10^1 *6*	
67.13 *20*	48 *5*	110.79	7/2⁻	43.67	5/2⁻	[M1,E2]	13 *3*	
86.79[‡] *15*	17 *4*	197.20?		110.79	7/2⁻			
100.32 *10*	95 *9*	211.08	(3/2⁻)	110.79	7/2⁻			
[x]105.20 *10*	28 *5*							
110.78 *10*	100 *9*	110.79	7/2⁻	0	3/2⁻	[E2]	2.17	α(K)=0.807 *12*; α(L)=1.045 *16*; α(M)=0.257 *4*; α(N+..)=0.0655 *10* α(N)=0.0587 *9*; α(O)=0.00678 *10*; α(P)=3.41×10^{-5} *5*
156.24 *10*	49 *5*	367.28		211.08	(3/2⁻)			
170.08 *20*	14 *4*	367.28		197.20?				
[x]177.13 *20*	14 *4*							
[x]204.57 *20*	30 *6*							
211.10 *20*	20 *10*	211.08	(3/2⁻)	0	3/2⁻			
[x]221.76 *20*	20 *4*							
256.24 *25*	49 *8*	367.28		110.79	7/2⁻			

[†] 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.

Continued on next page (footnotes at end of table)

^{161}Lu ε decay 1980Be39 (continued)

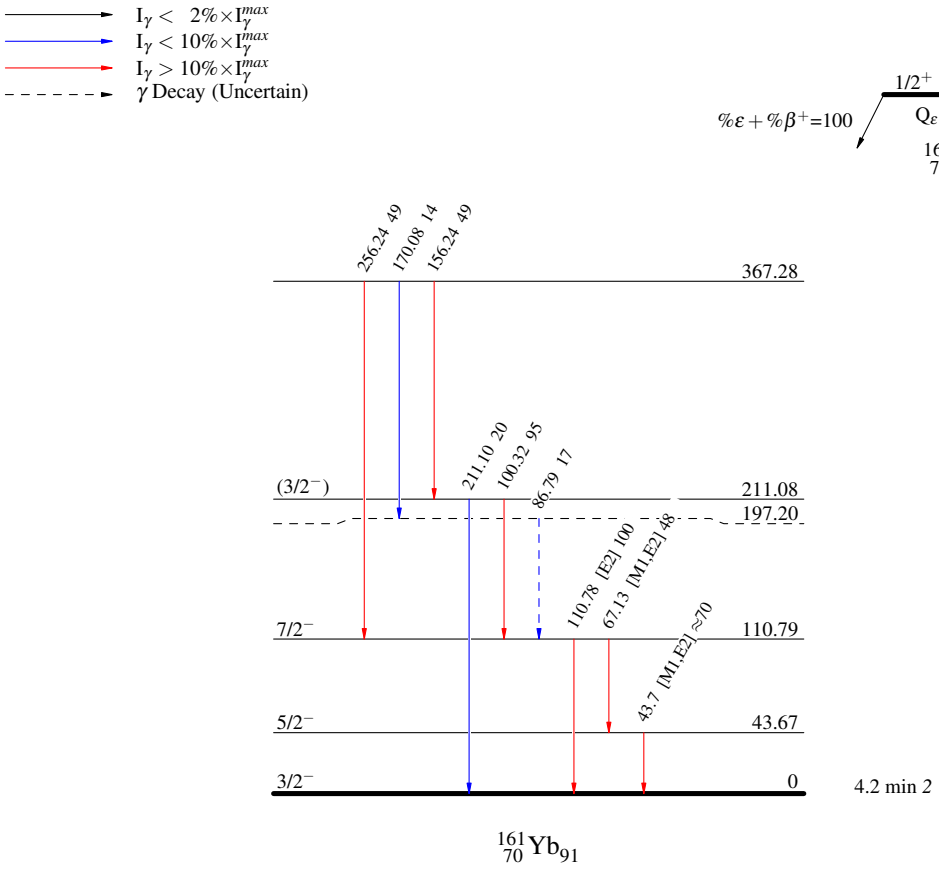
γ(^{161}Yb) (continued)

‡ Placement of transition in the level scheme is uncertain.
x γ ray not placed in level scheme.

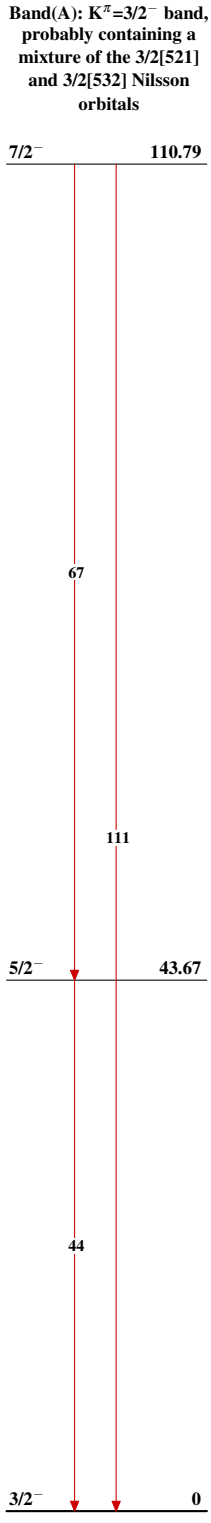
^{161}Lu ε decay 1980Be39

Decay Scheme

Intensities: Relative I_γ



^{161}Lu ε decay 1980Be39



$^{161}_{70}Yb_{91}$