^{110}Nb β^- decay 2011Wa26

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	G. Gürdal and F. G. Kondev	NDS 113, 1315 (2012)	1-Aug-2011

Parent: ^{110}Nb: E=0.0; J$^\pi$=(5); $T_{1/2}$=82 ms *4*; Q(β^-)=1.23×10^4 *3*; %β^- decay=100.0

^{110}Nb nuclei were produced in a reaction involving the ^{238}U beams at E=345 MeV/A incident on a 3 mm thick Be target at RIKEN. A total of 5.210^4 ^{110}Nb ions were produced. The reaction products were separated using the BigRIPS spectrometer and subsequently implanted on a stack of nine DSSD that were used to detect β^- particles and conversion electrons. Gamma rays were detected using four Compton-suppressed Ge clover detectors placed in a close geometry around the DSSD′s.

^{110}Mo Levels

E(level)†	J$^\pi$‡	$T_{1/2}$	Comments
0.0#	0$^+$	0.296 s *17*	$T_{1/2}$: From Adopted Levels.
213.77# *10*	(2$^+$)		
494.21@ *14*	(2$^+$)		
599.69# *14*	(4$^+$)		
700.75@ *17*	(3$^+$)		
915.51@ *25*	(4$^+$)		
1131.70# *24*	(6$^+$)		
1163.47@ *21*	(5$^+$)		

† From a least-squares fit to Eγ.
‡ From the assigned band structures and systematics. The assignments are tentative.
# Band(A): kp=0$^+$, g.s. band.
@ Band(B): γ vibrational band.

β^- radiations

Since the decay scheme is incomplete (pandemonium), no log *ft* values were deduced.

E(decay)	E(level)	Iβ^-†‡
(1.11×10^4 *3*)	1163.47	14 *4*
(1.12×10^4 *3*)	1131.70	12 *4*
(1.14×10^4 *3*)	915.51	9 *3*
(1.17×10^4 *3*)	599.69	6 *5*

† Since the decay scheme is incomplete (pandemonium), the quoted values should be considered as tentative.
‡ Absolute intensity per 100 decays.

γ(^{110}Mo)

Iγ normalization: ΣTi(g.s.)=60 *8* (β^-n($^{110]}$Nb)=40 *8* (1996Me09)).

Continued on next page (footnotes at end of table)

^{110}Nb β^- decay 2011Wa26 (continued)

$\gamma(^{110}Mo)$ (continued)

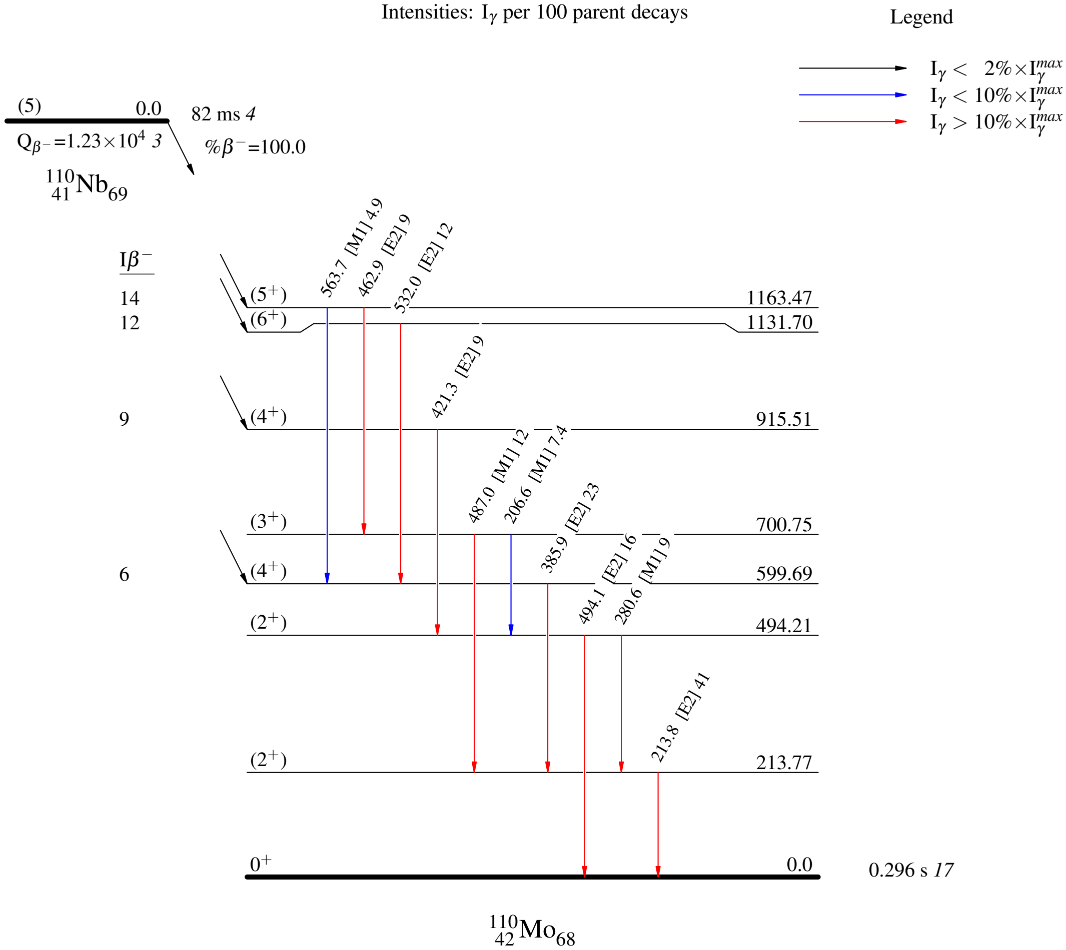
E_γ †	I_γ †#	E_i(level)	J_i^π	E_f	J_f^π	Mult. ‡	α @	Comments
206.6 *2*	18 *4*	700.75	(3⁺)	494.21	(2⁺)	[M1]	0.0352	α(N)=9.77×10^{-5} *14*; α(O)=5.46×10^{-6} *8* α(K)=0.0308 *5*; α(L)=0.00359 *6*; α(M)=0.000643 *10*; α(N+..)=0.0001031 *15*
213.8 *1*	100 *12*	213.77	(2⁺)	0.0	0⁺	[E2]	0.0782	α(N)=0.000245 *4*; α(O)=1.055×10^{-5} *15* α(K)=0.0670 *10*; α(L)=0.00930 *14*; α(M)=0.001670 *24*; α(N+..)=0.000255 *4*
280.6 *2*	21 *5*	494.21	(2⁺)	213.77	(2⁺)	[M1]	0.01597	α(N)=4.40×10^{-5} *7*; α(O)=2.48×10^{-6} *4* α(K)=0.01402 *20*; α(L)=0.001617 *23*; α(M)=0.000289 *4*; α(N+..)=4.64×10^{-5} *7*
385.9 *1*	56 *9*	599.69	(4⁺)	213.77	(2⁺)	[E2]	0.01055	α(N)=3.04×10^{-5} *5*; α(O)=1.520×10^{-6} *22* α(K)=0.00918 *13*; α(L)=0.001136 *16*; α(M)=0.000203 *3*; α(N+..)=3.19×10^{-5} *5*
421.3 *2*	21 *6*	915.51	(4⁺)	494.21	(2⁺)	[E2]	0.00799	α(N)=2.28×10^{-5} *4*; α(O)=1.160×10^{-6} *17* α(K)=0.00697 *10*; α(L)=0.000852 *12*; α(M)=0.0001525 *22*; α(N+..)=2.40×10^{-5} *4*
462.9 *3*	22 *6*	1163.47	(5⁺)	700.75	(3⁺)	[E2]	0.00598	α(N)=1.693×10^{-5} *24*; α(O)=8.74×10^{-7} *13* α(K)=0.00522 *8*; α(L)=0.000631 *9*; α(M)=0.0001129 *16*; α(N+..)=1.78×10^{-5} *3*
487.0 *2*	30 *6*	700.75	(3⁺)	213.77	(2⁺)	[M1]	0.00411	α(N)=1.117×10^{-5} *16*; α(O)=6.35×10^{-7} *9* α(K)=0.00362 *5*; α(L)=0.000410 *6*; α(M)=7.33×10^{-5} *11*; α(N+..)=1.180×10^{-5} *17*
494.1 *2*	38 *7*	494.21	(2⁺)	0.0	0⁺	[E2]	0.00491	α(N)=1.384×10^{-5} *20*; α(O)=7.21×10^{-7} *11* α(K)=0.00429 *6*; α(L)=0.000515 *8*; α(M)=9.21×10^{-5} *13*; α(N+..)=1.456×10^{-5} *21*
532.0 *2*	29 *6*	1131.70	(6⁺)	599.69	(4⁺)	[E2]	0.00395	α(N)=1.108×10^{-5} *16*; α(O)=5.83×10^{-7} *9* α(K)=0.00346 *5*; α(L)=0.000412 *6*; α(M)=7.36×10^{-5} *11*; α(N+..)=1.166×10^{-5} *17*
563.7 *2*	12 *5*	1163.47	(5⁺)	599.69	(4⁺)	[M1]	0.00291	α(N)=7.88×10^{-6} *11*; α(O)=4.49×10^{-7} *7* α(K)=0.00256 *4*; α(L)=0.000290 *4*; α(M)=5.17×10^{-5} *8*; α(N+..)=8.33×10^{-6} *12*

† From 2011Wa26.
‡ From the observed band structures. The assignments are tentative.
# For absolute intensity per 100 decays, multiply by 0.41 *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.

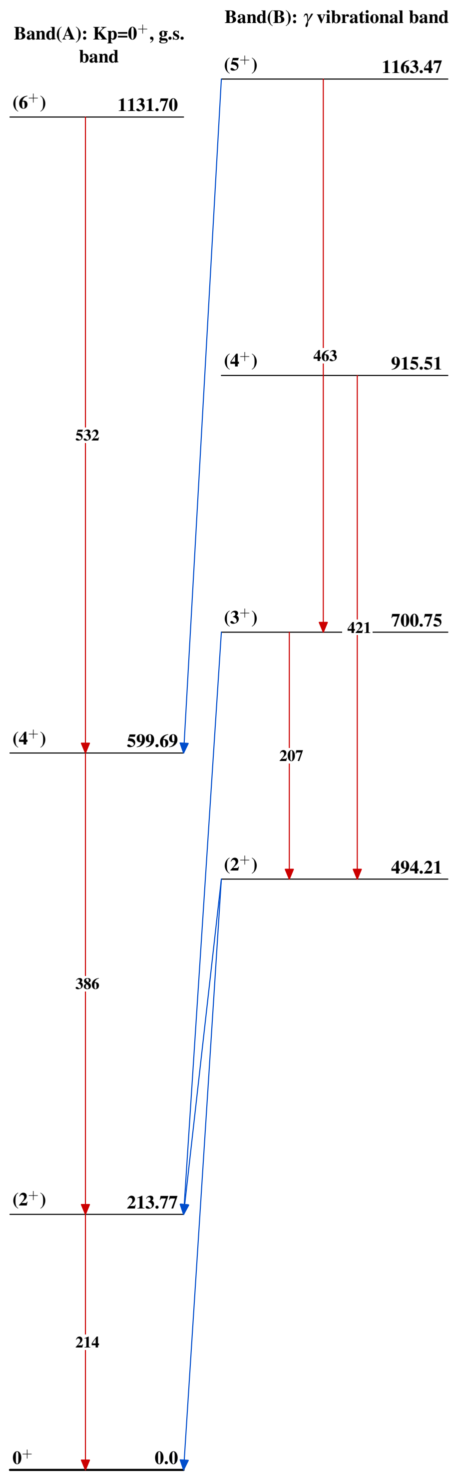
^{110}Nb β^- decay 2011Wa26

Decay Scheme

Intensities: I_γ per 100 parent decays



^{110}Nb β^- decay 2011Wa26



$^{110}_{42}Mo_{68}$