^{101}Nb β^- decay (7.1 s) 1990Se17,1976Ah06,1978St02

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jean Blachot	ENSDF	1-Jul-2006

Parent: ^{101}Nb: E=0.0; J^π=(5/2$^+$); $T_{1/2}$=7.1 s *3*; Q(β^-)=4569 *18*; %β^- decay=100.0
On-line ms of fission products: 1990Se17, 1977LaZG, 1978St02, 1987Gr18.
On-line chem: 1976Ah06 γ(t).
Measured $\beta\gamma$ coin (1987Gr18).
Q(β^-)=4500 *60* (1982VoZR), 4570 *100* (1978St02), 4600 *200* (1970Ei02), 4575 *30* (1987Gr18).

^{101}Mo Levels

E(level)	J^π	$T_{1/2}$[†]	Comments
0.0	1/2$^+$	14.61 min *3*	
13.5	3/2$^+$	226 ns *7*	$T_{1/2}$: from (276γ)(13.5γ)(t)(1991Se08).
57.0 *2*	5/2$^+$	133 ns *7*	$T_{1/2}$: from (180.6γ)(Kα x ray)(t) (1991Se08). Other: 12.5 μs (44γ) pulsed beam (1965Mc03).
171.2 *2*	5/2$^+$		
237.6 *2*	3/2$^+$,5/2$^+$		
289.7 *2*	3/2$^+$		
293.8 *2*	1/2,3/2,5/2		
318.9 *2*	(5/2)$^+$		
351.6 *2*	3/2$^+$		
454.4 *2*	5/2$^+$		
479.4 *2*	3/2$^+$		
797.2 *2*	1/2,3/2		
810.4 *2*	1/2,3/2,5/2		
854.1 *2*	1/2,3/2$^{(+)}$		
1099.0 *2*	1/2,3/2		

[†] From Adopted Levels, unless otherwise noted.

β^- radiations

E(decay)	E(level)	Iβ^-[†]	Log *ft*	Comments
(3470 *18*)	1099.0	1.0 *4*	6.34 *9*	av Eβ=1484 *9*
(3715 *18*)	854.1	4.1 *13*	5.83 *5*	av Eβ=1600 *9*
3770 *65*	810.4	1.4 *5*	6.31 *12*	av Eβ=1621 *9* E(decay): from 1987Gr18.
(3772 *18*)	797.2	3.6 *11*	5.54 *3*	av Eβ=1627 *9*
4325 *40*	479.4	8.3 *24*	5.70 *3*	av Eβ=1779 *9* E(decay): from 1987Gr18. Other: 4100 *100* (1978St02).
4105 *38*	454.4	5.5 *16*	5.89 *4*	av Eβ=1791 *9* E(decay): from 1987Gr18. Other: 4130 *100* (1978St02).
(4217 *18*)	351.6	1.33 *5*	6.59 *3*	av Eβ=1840 *9*
(4250 *18*)	318.9	0.42 *9*	7.09 *10*	av Eβ=1856 *9*
(4275 *18*)	293.8	1.0 *3*	6.74 *14*	av Eβ=1868 *9*
4260 *25*	289.7	27 *8*	5.28 *3*	av Eβ=1870 *9* E(decay): from 1987Gr18. Others: 4280 *100* (1978St02), 4300 *250* (1970Ei02).
(4331 *18*)	237.6	0.95 *20*	6.78 *10*	av Eβ=1895 *9*
44.25×10^2 *13*	171.2	2.6 *10*	6.34 *10*	av Eβ=1926 *9* E(decay): from 1987Gr18. Other: 4350 *150* (1978St02). E(decay): from 1978St02 (4350β)(158γ) on-line ms, scin-semi, F-K plots.
(4556 *18*)	13.5	40 *13*	5.2 *3*	av Eβ=2002 *9*

[†] Absolute intensity per 100 decays.

^{101}Nb β^- decay (7.1 s) 1990Se17,1976Ah06,1978St02 (continued)

$\gamma(^{101}Mo)$

Iγ normalization: Assuming no feeding to g.s. 20% uncertainty estimated by evaluator.

E_γ [†]	I_γ [‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	δ	α [#]	Comments
13.49 *10*	100	13.5	$3/2^+$	0.0	$1/2^+$	M1(+E2)	<0.03	12.3 *13*	α(L)=10.2 *11*; α(M)=1.83 *19*; α(N+..)=0.286 *25* α(N)=0.272 *25*; α(O)=0.0134 *4* α(L)= 9.29; α(M)= 1.659 B(M1)(W.u.)>0.0026; B(E2)(W.u.)<15 Mult.: Mult,α: from (n,γ).
43.515 *5*	100 *7*	57.0	$5/2^+$	13.5	$3/2^+$	M1+E2	1.06 *13*	14.1 *13*	α(K)=8.9 *9*; α(L)=4.0 *5*; α(M)=0.74 *9*; α(N+..)=0.101 *12* α(N)=0.100 *12*; α(O)=0.00119 *10* B(M1)(W.u.)=6.3×10^{-5} *11*; B(E2)(W.u.)=34 *6* Mult.: from (n,γ) 1990Se17 yield the E2 or M2 component as 53% *10* and 21% *3*.
81.2 *1*	1.0 *2*	318.9	$(5/2)^+$	237.6	$3/2^+$,$5/2^+$				
114.0 *1*	2.0 *2*	171.2	$5/2^+$	57.0	$5/2^+$	[M1]		0.1751	α(K)=0.1527 *22*; α(L)=0.0181 *3*; α(M)=0.00324 *5*; α(N+..)=0.000519 *8* α(N)=0.000491 *7*; α(O)=2.72×10^{-5} *4*
118.6 *1*	14 *1*	289.7	$3/2^+$	171.2	$5/2^+$	[M1]		0.1570	α(K)=0.1369 *20*; α(L)=0.01620 *23*; α(M)=0.00290 *5*; α(N+..)=0.000465 *7* α(N)=0.000440 *7*; α(O)=2.44×10^{-5} *4*
157.5 *1*	32 *2*	171.2	$5/2^+$	13.5	$3/2^+$	[M1]		0.0736	α(K)=0.0633 *9*; α(L)=0.00743 *11*; α(M)=0.001331 *19*; α(N+..)=0.000213 *3* α(N)=0.000202 *3*; α(O)=1.125×10^{-5} *16*
165.0 *3*	0.2 *1*	454.4	$5/2^+$	289.7	$3/2^+$				
180.6 *1*	8.8 *6*	237.6	$3/2^+$,$5/2^+$	57.0	$5/2^+$				
186.0 *3*	2.6 *2*	479.4	$3/2^+$	293.8	1/2,3/2,5/2				
217.0 *2*	1.2 *2*	454.4	$5/2^+$	237.6	$3/2^+$,$5/2^+$				
224.0 *2*	0.7 *2*	237.6	$3/2^+$,$5/2^+$	13.5	$3/2^+$				
232.6 *1*	4.9 *4*	289.7	$3/2^+$	57.0	$5/2^+$				
236.8 *3*	1.5 *5*	293.8	1/2,3/2,5/2	57.0	$5/2^+$				
237.5 *5*	0.2 *2*	237.6	$3/2^+$,$5/2^+$	0.0	$1/2^+$				
276.1 *1*	100 *6*	289.7	$3/2^+$	13.5	$3/2^+$				
280.3 *1*	3.4 *4*	293.8	1/2,3/2,5/2	13.5	$3/2^+$				
283.5 *1*	3.3 *4*	454.4	$5/2^+$	171.2	$5/2^+$				
289.6 *1*	10.0 *8*	289.7	$3/2^+$	0.0	$1/2^+$				
294.0 *5*	2 *1*	293.8	1/2,3/2,5/2	0.0	$1/2^+$				
294.5 *3*	5 *2*	351.6	$3/2^+$	57.0	$5/2^+$				
305.2 *2*	0.9 *3*	318.9	$(5/2)^+$	13.5	$3/2^+$				
338.1 *2*	0.2 *2*	351.6	$3/2^+$	13.5	$3/2^+$				
351.6 *1*	2.4 *3*	351.6	$3/2^+$	0.0	$1/2^+$				
356.3 *2*	0.8 *3*	810.4	1/2,3/2,5/2	454.4	$5/2^+$				
374.5 *5*	0.4 *2*	854.1	$1/2,3/2^{(+)}$	479.4	$3/2^+$				

^{101}Nb β^- decay (7.1 s) 1990Se17,1976Ah06,1978St02 (continued)

$\gamma(^{101}Mo)$ (continued)

E_γ †	I_γ ‡	E_i(level)	J_i^π	E_f	J_f^π	E_γ †	I_γ ‡	E_i(level)	J_i^π	E_f	J_f^π
397.5 *5*	1.4 *3*	454.4	$5/2^+$	57.0	$5/2^+$	639.5 *3*	0.8 *3*	810.4	1/2,3/2,5/2	171.2	$5/2^+$
399.3 *5*	2.8 *6*	854.1	$1/2,3/2^{(+)}$	454.4	$5/2^+$	682.9 *2*	3.2 *6*	854.1	$1/2,3/2^{(+)}$	171.2	$5/2^+$
422.8 *2*	0.5 *3*	479.4	$3/2^+$	57.0	$5/2^+$	740.2 *2*	1.7 *4*	797.2	1/2,3/2	57.0	$5/2^+$
441.1 *1*	22 *1*	454.4	$5/2^+$	13.5	$3/2^+$	753.6 *4*	0.8 *3*	810.4	1/2,3/2,5/2	57.0	$5/2^+$
454.5 *2*	1.7 *5*	454.4	$5/2^+$	0.0	$1/2^+$	783.5 *2*	7.4 *15*	797.2	1/2,3/2	13.5	$3/2^+$
459.1 *2*	1.9 *4*	810.4	1/2,3/2,5/2	351.6	$3/2^+$	797.1 *2*	7.2 *12*	854.1	$1/2,3/2^{(+)}$	57.0	$5/2^+$
466.3 *1*	18 *1*	479.4	$3/2^+$	13.5	$3/2^+$	810.6 *4*	2.5 *12*	810.4	1/2,3/2,5/2	0.0	$1/2^+$
479.8 *1*	19 *1*	479.4	$3/2^+$	0.0	$1/2^+$	840.5 *3*	1.4 *3*	854.1	$1/2,3/2^{(+)}$	13.5	$3/2^+$
507.5 *3*	4.0 *6*	797.2	1/2,3/2	289.7	$3/2^+$	853.9 *2*	4.6 *9*	854.1	$1/2,3/2^{(+)}$	0.0	$1/2^+$
559.7 *2*	3.3 *5*	797.2	1/2,3/2	237.6	$3/2^+,5/2^+$	1042.2 *2*	3.6 *7*	1099.0	1/2,3/2	57.0	$5/2^+$
626.1 *2*	0.9 *3*	797.2	1/2,3/2	171.2	$5/2^+$	1085.7 *3*	1.2 *6*	1099.0	1/2,3/2	13.5	$3/2^+$

† From 1990Se17 (semi).

‡ For absolute intensity per 100 decays, multiply by 0.21 *6*.

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.

$^{101}_{42}Mo_{59}$-3

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Decay Scheme

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays