^{176}Yb(^{9}Be,3nγ) 1994Re03

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	NDS 130, 21 (2015)	15-Jul-2015

1994Re03: E=40 MeV. Also ^{176}Yb(^{13}C,α3nγ) E=65 MeV. Measured Eγ, Iγ, $\gamma\gamma$, $\gamma\gamma$(t) using Ge detectors.

^{182}W Levels

E(level)	J$^{\pi}$‡	T$_{1/2}$†	Comments
0.0#	0$^+$		
100.3# *2*	2$^+$		
329.2# *4*	4$^+$		
680.2# *6*	6$^+$		
1143.8# *7*	8$^+$		
1711.0# *7*	10$^+$		
2229.7@ *8*	10$^+$		
2370.8# *8*	12$^+$		
2491.6@ *8*	11$^+$		
2774.4@ *9*	12$^+$		
3076.9@ *9*	13$^+$		
3110.4# *10*	14$^+$		
3396.8@ *9*	14$^+$		
3734.3@ *10*	15$^+$		
3753.1 *9*	(15$^+$)	54 ns *10*	E(level): bandhead of configuration=(ν9/2[624]ν7/2[503])$_{8-}$ $\otimes$ (π9/2[514]π5/2[402])$_{7-}$. Other possible configuration= (π9/2[514]π1/2[541])$_{5+}\otimes$(ν9/2[624]ν11/2[615])$_{10+}$ is less likely. 7/2[514] neutron configuration is excluded by comparison of experimental and theoretical g$_K$ values, as explained in 1995Sh27. T$_{1/2}$: 1994Re03 also quote 57.5 ns *14* from centroid-shift method but they adopt 54 ns *10* from $\gamma\gamma$(t).
3891.6& *10*	(16$^+$)	≤7 ns	
3907.3# *11*	16$^+$		
4038.2a *11*	(17$^-$)	17 ns *7*	T$_{1/2}$: 1994Re03 also quote 10 ns *5* from centroid-shift method but they adopt 17 ns *7* from $\gamma\gamma$(t).
4216.0& *11*	(17$^+$)		
4418.9a *12*	(18$^-$)		
4567.6& *11*	(18$^+$)		
4745.2?# *15*	(18$^+$)		
4777.2 *13*	(18)		E(level): possible configuration=(ν9/2[624]ν11/2[615])$_{10+}\otimes$ (π9/2[514]π7/2[404])$_{8-}$.
4817.9a *12*	(19$^-$)		
5236.6a *13*	(20$^-$)		

† $\gamma\gamma$(t) (1994Re03).

‡ As proposed by 1994Re03. The assignments in Adopted Levels are the same, except that some are placed in parentheses when strong arguments are lacking.

Band(A): K$^{\pi}$=0$^+$ band.

@ Band(B): K$^{\pi}$=10$^+$ band. Configuration=ν9/2[624]$\otimes\nu$11/2[615])) from i$_{13/2}$ neutron multiplet. (g$_K$-g$_R$)=0.34 *4*.

& Band(C): K$^{\pi}$=(16$^+$). 4-quasiparticle band. Configuration=(ν9/2[624]ν11/2[615])$_{10+}\otimes$ (π7/2[404]π5/2[402])$_{6+}$. (g$_K$-g$_R$)=0.21 *19*.

a Band(D): K$^{\pi}$=(17$^-$). 4-quasiparticle band. Configuration=(ν9/2[624]ν11/2[615])$_{10+}\otimes$ (π9/2[514]π5/2[402])$_{7-}$. (g$_K$-g$_R$)=0.30 *7* or 0.18 *7*.

^{176}Yb(^{9}Be,3nγ) 1994Re03 (continued)

$\gamma(^{182}W)$

E_γ	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	α[‡]	Comments
(19)		3753.1	(15^+)	3734.3	15^+			E_γ: from (657γ)(138γ,147γ)(t) the existence of a 19-keV transition with ≈10% branch is expected.
100.3 *2*	28.7 *10*	100.3	2^+	0.0	0^+			
138.5 *4*	1.30 *20*	3891.6	(16^+)	3753.1	(15^+)	(M1)	1.87	α(K)=1.55 *3*; α(L)=0.247 *4*; α(M)=0.0561 *10* α(N)=0.01352 *22*; α(O)=0.00221 *4*; α(P)=0.000157 *3* Mult.: α(exp)=1.8 *6* (1994Re03) from intensity balance at 3892 level.
146.6 *4*	2.2 *4*	4038.2	(17^-)	3891.6	(16^+)	(E1)	0.1391 *22*	α(K)=0.1147 *18*; α(L)=0.0189 *3*; α(M)=0.00430 *7* α(N)=0.001021 *17*; α(O)=0.0001575 *25*; α(P)=8.63×10^{-6} *14* Mult.: α(exp)<0.27 (1994Re03) from intensity balance at 4038 level, 0.45 *35* from prompt intensities given here.
228.9 *3*	44.5 *25*	329.2	4^+	100.3	2^+			
261.9 *2*	11.0 *12*	2491.6	11^+	2229.7	10^+			
282.7 *2*	6.2 *6*	2774.4	12^+	2491.6	11^+			$(g_K-g_R)/Q_0$=0.048 *5*.
302.4 *3*	3.7 *5*	3076.9	13^+	2774.4	12^+			$(g_K-g_R)/Q_0$=0.045 *6*.
319.9 *4*	2.4 *5*	3396.8	14^+	3076.9	13^+			$(g_K-g_R)/Q_0$=0.051 *9*.
324.4 *5*	0.80 *20*	4216.0	(17^+)	3891.6	(16^+)			
337.7 *5*	0.37 *15*	3734.3	15^+	3396.8	14^+			$(g_K-g_R)/Q_0$=0.034 *12*.
351.0 *4*	42 *3*	680.2	6^+	329.2	4^+			
351.6 *5*	0.62 *20*	4567.6	(18^+)	4216.0	(17^+)			$(g_K-g_R)/Q_0$=0.030 *13*.
356.3 *4*	3.0 *5*	3753.1	(15^+)	3396.8	14^+			
380.8 *5*	1.1 *3*	4418.9	(18^-)	4038.2	(17^-)			
398.9 *5*	1.2 *3*	4817.9	(19^-)	4418.9	(18^-)			$(g_K-g_R)/Q_0$=0.043 *10*.
418.5 *6*	0.35 *15*	5236.6	(20^-)	4817.9	(19^-)			$(g_K-g_R)/Q_0$=0.025 *10*.
463.6 *3*	32.8 *25*	1143.8	8^+	680.2	6^+			
518.5 *5*	11.7 *15*	2229.7	10^+	1711.0	10^+			
545.3 *5*	1.7 *3*	2774.4	12^+	2229.7	10^+			
567.2 *3*	18.3 *20*	1711.0	10^+	1143.8	8^+			
585.3 *5*	2.3 *5*	3076.9	13^+	2491.6	11^+			
622.5 *5*	2.0 *4*	3396.8	14^+	2774.4	12^+			
657.2 *6*	0.74 *20*	3734.3	15^+	3076.9	13^+			
659.8 *4*	4.2 *5*	2370.8	12^+	1711.0	10^+			
676.1 *5*	1.7 *4*	3753.1	(15^+)	3076.9	13^+			
676.1 *7*	0.15 *5*	4567.6	(18^+)	3891.6	(16^+)			
739.0 *7*	0.50 *20*	4777.2	(18)	4038.2	(17^-)			
739.6 *5*	1.9 *4*	3110.4	14^+	2370.8	12^+			
779.7 *7*	0.20 *7*	4817.9	(19^-)	4038.2	(17^-)			
796.9 *6*	1.13 *25*	3907.3	16^+	3110.4	14^+			
818.0 *9*	0.24 *7*	5236.6	(20^-)	4418.9	(18^-)			
837.9[#] *9*	0.25 *7*	4745.2?	(18^+)	3907.3	16^+			
1086.2 *8*	8.1 *8*	2229.7	10^+	1143.8	8^+			

[†] 1994Re03 list I(γ+ce) values also based on assumed multipolarities.
[‡] From BrIcc v2.3b (16-Dec-2014) 2008Ki07, "Frozen Orbitals" appr.
[#] Placement of transition in the level scheme is uncertain.

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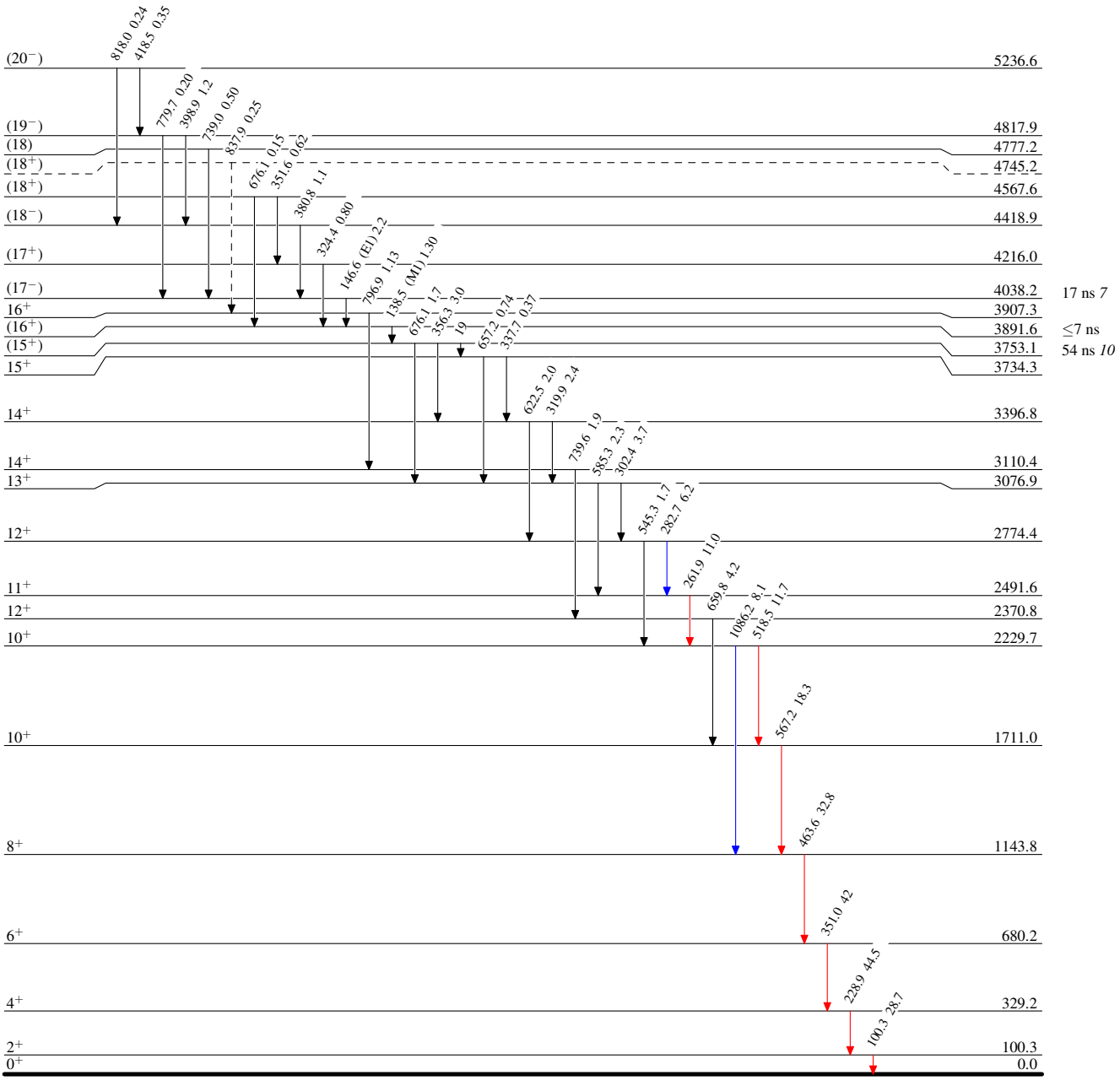
Level Scheme

Intensities: Relative I_γ

Legend
- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$
- γ Decay (Uncertain)



$^{182}_{74}W_{108}$

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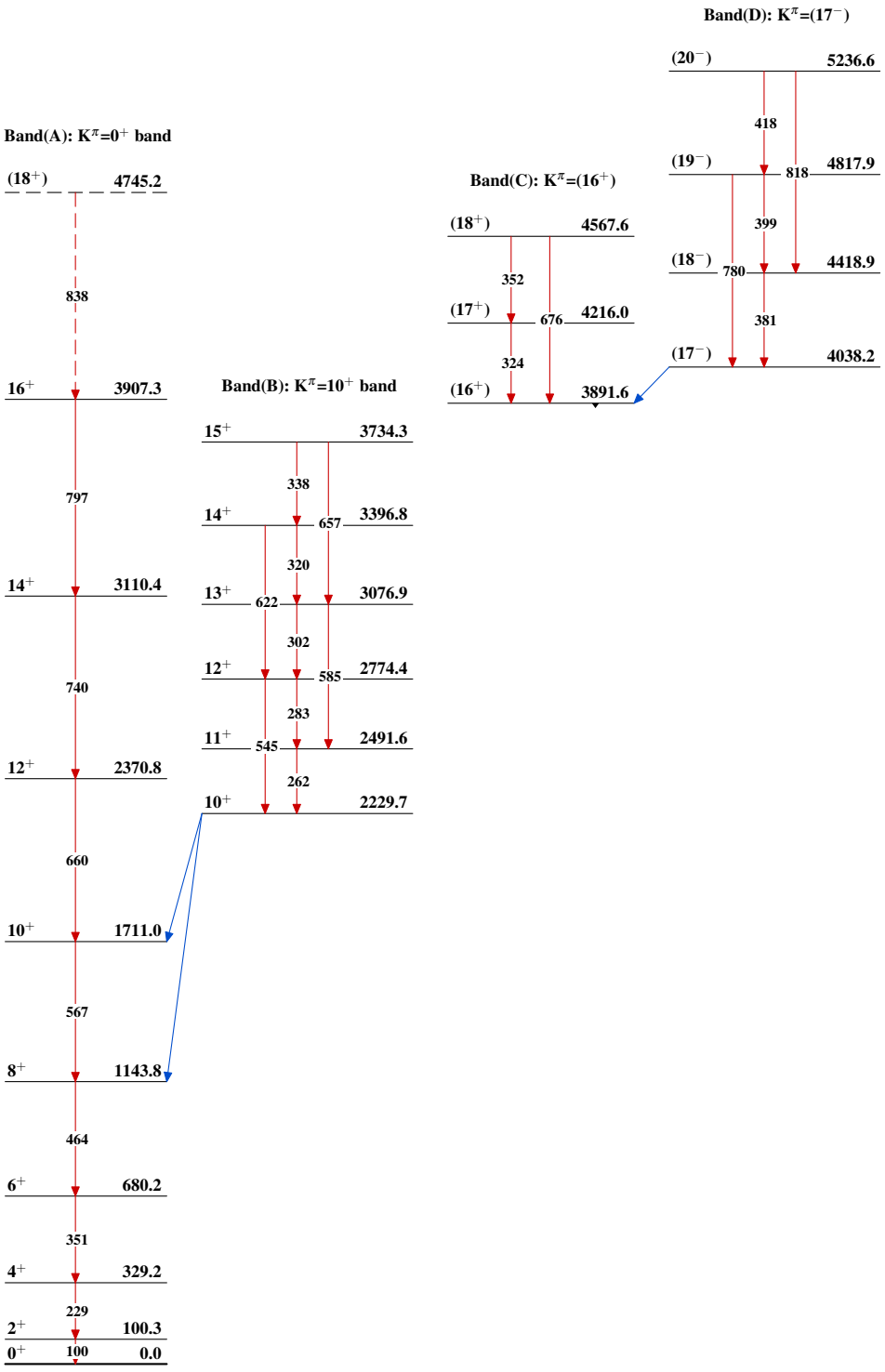

$^{182}_{74}W_{108}$