^{186}W(^{238}U,^{238}U′γ): delayed γ′s 1998Wh02

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	J. C. Batchelder and A. M. Hurst, M. S. Basunia	NDS 183, 1 (2022)	1-Mar-2022

No change compared to previous evaluation (2003Ba44).

E=1600 MeV (10-15% above Coulomb barrier); pulsed beam; 12 Compton-suppressed Ge-detector array with 50-element BGO inner ball; measured Eγ, γγ coin, γ(t) for delayed gammas (1.65 μs≤t≤1.65 ms); identified two high-K isomers; blocked BCS model calculations. See also 2000WhZZ.

^{186}W Levels

E(level)‡	Jπ†	$T_{1/2}$#	Comments
0.0@	0^+		
122@	2^+		
396@	4^+		
738&	2^+		
809@	6^+		
863&	3^+		
953a	2^-		
1007&	4^+		
1045a	3^-		
1172a	4^-		
1322a	5^-		
1398&	6^+		
1517b	7^-	18 μs *1*	
1737b	(8^-)		
2118c	(9^-)		
2286c	(10^-)		
2523c	(11^-)		
2673?	(11^+)		
2838c	(12^-)		
3144	(13^+)		
3363	(14^+)		
3534	(14^+)		
3543	(16^+)	>3 ms	$T_{1/2}$: upper limit is 30 s. Possible configuration is (π 5/2[402])+(π 9/2[514])+(ν 7/2[503])+(ν 11/2[615]) (1998Wh02); designated as four-quasiparticle yrast trap.

† Authors′ suggested values; uncertain due to the large number of intrinsic states above the $K^\pi=7^-$ isomer, and resultant ambiguities in level ordering (1998Wh02).
‡ From least-squares adjustment of Eγ, allowing equal weight for all data.
# From γ(t) (1998Wh02).
@ Band(A): $K^\pi=0^+$ g.s. band. Band assignment taken from Adopted Levels.
& Band(B): $K^\pi=2^+$ γ band. Band assignment taken from Adopted Levels.
a Band(C): Possible $K^\pi=2^-$ band.
b Band(D): $K^\pi=7^-$, (π 9/2[514])+(π 5/2[402]) band. An alternative (ν 3/2[512])+(ν 11/2[615]) configuration cannot be excluded (1998Wh02), but its calculated energy is somewhat high.
c Band(E): π=(−), high-K band.

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γ(^{186}W)

E_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	E_γ[†]	E_i(level)	J_i^π	E_f	J_f^π
93	1045	3^-	953	2^-	309	1172	4^-	863	3^+
119	1517	7^-	1398	6^+	315	1322	5^-	1007	4^+
122	122	2^+	0.0	0^+	315	2838	(12^-)	2523	(11^-)
150	1322	5^-	1172	4^-	380	2118	(9^-)	1737	(8^-)
165	2838	(12^-)	2673?	(11^+)	387[#]	2673?	(11^+)	2286	(10^-)
168	2286	(10^-)	2118	(9^-)	390	3534	(14^+)	3144	(13^+)
180	3543	(16^+)	3363	(14^+)	391	1398	6^+	1007	4^+
183	1045	3^-	863	3^+	399[‡]	3543	(16^+)	3144	(13^+)
195	1517	7^-	1322	5^-	413	809	6^+	396	4^+
215	953	2^-	738	2^+	552	2838	(12^-)	2286	(10^-)
219	1172	4^-	953	2^-	589	1398	6^+	809	6^+
219	3363	(14^+)	3144	(13^+)	601	2118	(9^-)	1517	7^-
220	1737	(8^-)	1517	7^-	610	1007	4^+	396	4^+
237	2523	(11^-)	2286	(10^-)	615	738	2^+	122	2^+
269	1007	4^+	738	2^+	708	1517	7^-	809	6^+
274	396	4^+	122	2^+	738	738	2^+	0.0	0^+
277	1322	5^-	1045	3^-	740	863	3^+	122	2^+
306	3144	(13^+)	2838	(12^-)	884	1007	4^+	122	2^+
308	1045	3^-	738	2^+					

[†] From 1998Wh02; uncertainty unstated by authors.

[‡] 1998Wh02 conclude that this is probably a ΔJ=3 transition (based on comparison between partial $T_{1/2}$ and Weisskopf estimates).

[#] Placement of transition in the level scheme is uncertain.

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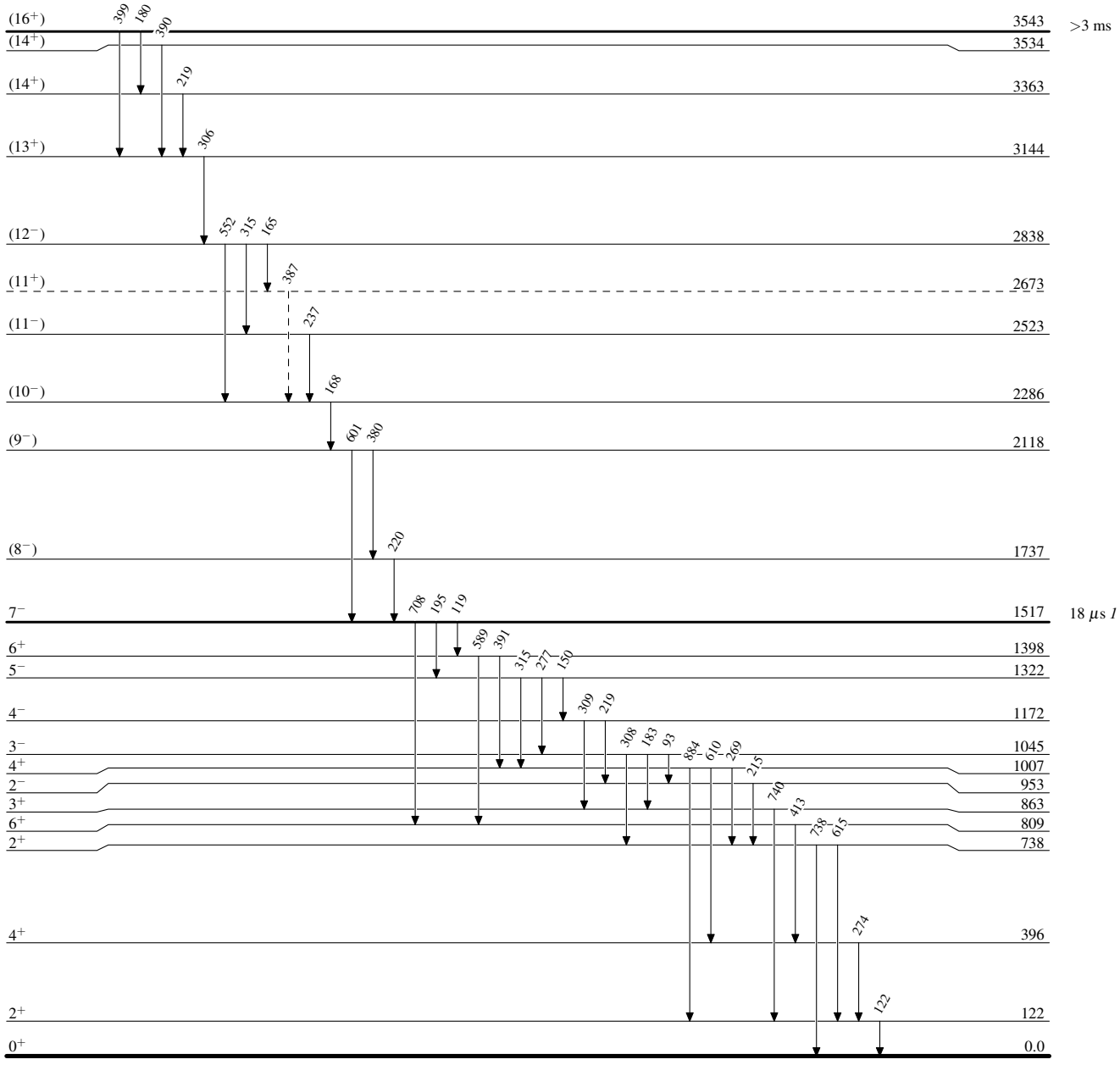
Legend

Level Scheme

γ Decay (Uncertain)



$^{186}_{74}W_{112}$

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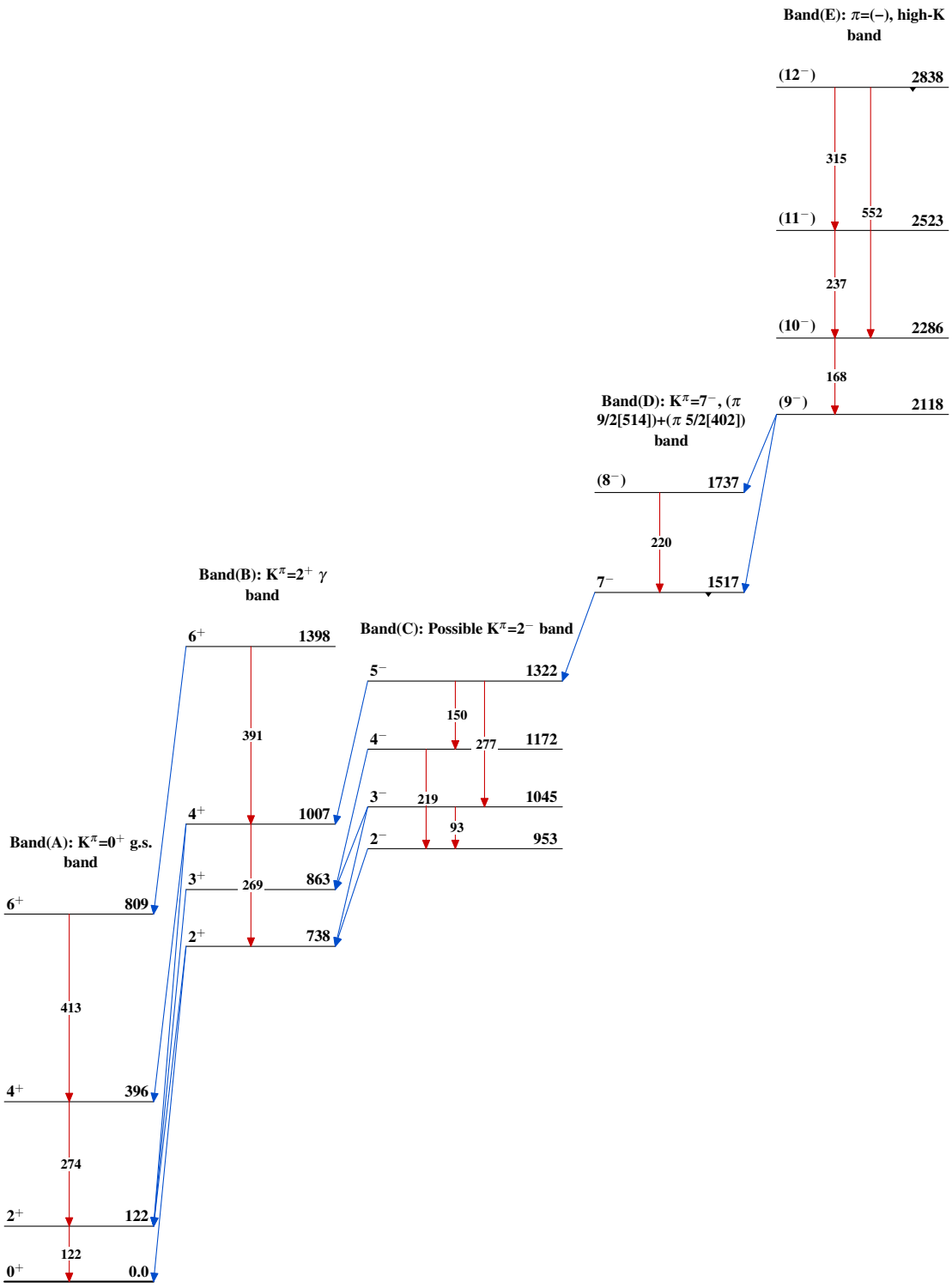

$^{186}_{74}W_{112}$