^{180}Hf(^{11}B,5nγ),^{181}Ta(^{9}Be,4nγ) 1997Ca01,1985Kr01

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

Other reactions: 185RE(A,3NG),187RE(A,5NG).

Minor changes compared to previous evaluation (2003Ba44).

1997Ca01: (^{11}B,5nγ), E(^{11}B)=65 MeV. GASP detector array (40 Compton-suppressed HP Ge detectors with 80 element BGO filter); measured γ spectra, three- or higher-fold coincidences, extracted DCO and γ-time matrices. Also, in separate experiment, measured internal conversion coefficients and searched for isomeric states; Ge detector, cooled Si(Li) detector coupled to mini-orange spectrometer and 11-element multiplicity filter.

1985Kr01: (^{9}Be,4nγ), E=40-55 MeV; (α,3nγ), E=30-55 MeV; (α,5nγ), E=55 MeV. Compton-suppressed Ge and high-resolution x-ray detectors; measured Eγ, Iγ, $\gamma\gamma$ coin ($\approx$15 ns resolving time), $\gamma(\theta)$, $\gamma\gamma$(t).

The level scheme is taken from 1997Ca01; that of 1985Kr01 is much less extensive, and it also differs in several important respects. The g.s. band energies of 1985Kr01 are consistent with those of 1997Ca01; however, all other level energies differ, primarily as a result of quite different proposed connections of the other bands to the g.s. Further differences result from the assignment of several of the transitions to different bands in the two studies.

^{186}Ir Levels

No isomer $T_{1/2}$ longer than the≈15 ns coin resolving time was observed by 1985Kr01. 1997Ca01 also searched for isomers, but do not report result of search (presumably, none was found).

E(level)[†]	J^π[‡]	Comments
0.0[#]	5^+	J^π: from Adopted Levels.
117.5[#]	7^+	
137.3[b]	(5^+)	
167.2[b]	6^+	
206.5		
246.5[b]	7^+	
312.7[&]	7^-	
359.2[#]	9^+	
363.4[b]	8^+	
396.6[&]	8^-	
402.9[@]	8^+	
520.0[b]	9^+	
520.1[&]	9^-	
686.0[&]	10^-	
704.8[b]	10^+	
719.3[@]	10^+	
721.8[#]	11^+	
756.1[a]	$(10)^-$	
869.8[&]	11^-	
928.2[b]	11^+	
1036.4[a]	$(11)^-$	
1117.3[&]	12^-	
1131.8[@]	12^+	
1177.5[b]	12^+	

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^{180}Hf(^{11}B,5nγ),^{181}Ta(^{9}Be,4nγ) 1997Ca01,1985Kr01 (continued)

^{186}Ir Levels (continued)

E(level)[†]	Jπ[‡]	E(level)[†]	Jπ[‡]	E(level)[†]	Jπ[‡]	E(level)[†]	Jπ[‡]
1195.9[#]	13+	1910.4[&]	15−	2555.8[a]	(16)−	3327.0[&]	19−
1300.0[a]	(12)−	1953.0		2576.7[&]	17−	3527.4[b]	19+
1338.1[&]	13−	2022.1		2636.7		3657.6[@]	20+
1449.7[b]	13+	2067.5[b]	15+	2766.4[b]	17+	3734.7	
1482.4		2220.9[a]	(15)−	2862.5		3916.6?[b]	20+
1603.1[a]	(13)−	2252.1[@]	16+	2882.1		3963.3[#]	21+
1648.0[@]	14+	2339.4[&]	16−	2930.7[@]	18+	4144.0[&]	21−
1674.1[&]	14−	2408.6[b]	16+	2935.9[a]	(17)−	4205.5	
1749.0[b]	14+	2422.8		3035.5		4398.6[@]	22+
1770.2[#]	15+	2433.0[#]	17+	3144.6[b]	18+	4566	
1869.7[a]	(14)−	2511.9		3170.8[#]	19+	4785.6[#]	23+

[†] From least-squares adjustment of Eγ allowing equal weight for all definitely-placed gammas.

[‡] From 1997Ca01; presumably based on band structure and on transition multipolarities deduced from measured DCO ratio and conversion electron data, but authors report no specific data from those measurements.

[#] Band(A): π=+, α=1 ((π 1/2[541])(ν pseudospin doublet)). Favored portion of doubly-decoupled band in which the valence neutron probably occupies a pseudospin doublet involving the 3/2[512] and 1/2[510] orbitals (1997Ca01).

[@] Band(B): π=+, α=0 ((π 1/2[541])(ν pseudospin doublet)). Unfavored portion of doubly-decoupled band in which the valence neutron probably occupies a pseudospin doublet involving the 3/2[512] and 1/2[510] orbitals (1997Ca01).

[&] Band(C): ((π $h_{9/2}$)(ν $i_{13/2}$)). Prolate semidecoupled band (1997Ca01). Band's strong population suggests it is yrast (1985Kr01).

[a] Band(D): ((π $h_{11/2}$)(ν $i_{13/2}$)). Structure very similar to (π $h_{11/2}$) band in ^{185}Ir (1997Ca01).

[b] Band(E): ((π $h_{9/2}$)(ν 7/2[503])). Compressed band, similar to one observed in ^{182}Ir (1997Ca01). Portion of band shows similarity to (ν 7/2[503]) band in ^{185}Os, consistent with expectations for a semidecoupled band (1997Ca01).

γ(^{186}Ir)

Eγ[†]	Ei(level)	J^π_i	Ef	J^π_f	Mult.[#]	α[b]	Comments
40	246.5	7+	206.5				
66.2	312.7	7−	246.5	7+	E1	0.237	α(L)=0.183 *3*; α(M)=0.0425 *6* α(N)=0.01019 *15*; α(O)=0.001645 *23*; α(P)=7.27×10^{-5} *11* Eγ=66.4, A_2=+0.20 *26* (1985Kr01). Iγ:Iγ(123)=645 *130*:100 in (α,3nγ) at 45 MeV (1985Kr01). Mult.: based on Iγ(66) (1985Kr01).
70	756.1	(10)−	686.0	10−			
79.2	246.5	7+	167.2	6+	[M1]	11.89	α(K)=9.77 *14*; α(L)=1.634 *23*; α(M)=0.376 *6* α(N)=0.0926 *13*; α(O)=0.01638 *23*; α(P)=0.001233 *18* Iγ/Iγ(123)=0.50 *10* in (α,3nγ) at 45 MeV (1985Kr01). Mult.: D from γ(θ). 1985Kr01 ruled out E1 based on intensity balance, but their level scheme differs from adopted. Eγ=78.8, A_2=−0.40 *24* (1985Kr01).
80.7	2636.7		2555.8	(16)−			
83.7	396.6	8−	312.7	7−	(M1)[&]	10.19	α(K)=8.38 *12*; α(L)=1.391 *20*; α(M)=0.321 *5* α(N)=0.0788 *11*; α(O)=0.01395 *20*; α(P)=0.001050 *15* Iγ/Iγ(123)=0.60 *12* in (α,3nγ) at 45 MeV (1985Kr01). Eγ=83.9, A_2=−0.29 *26* (1985Kr01).

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^{180}Hf(^{11}B,5nγ),^{181}Ta(^{9}Be,4nγ) 1997Ca01,1985Kr01 (continued)

γ(^{186}Ir) (continued)

Eγ[†]	Iγ[‡]	Ei(level)	J^π_i	Ef	J^π_f	Mult.[#]	α[b]	Comments
x95.1	6.0[@] *12*							
116.9		363.4	8+	246.5	7+	D	3.92	α(K)=3.23 *5*; α(L)=0.530 *8*; α(M)=0.1221 *17* α(N)=0.0300 *5*; α(O)=0.00531 *8*; α(P)=0.000400 *6* Iγ/Iγ(123)=0.34 *7* in (α,3nγ) at 45 MeV (1985Kr01). Eγ=116.9, A_2=−0.39 *22* (1985Kr01).
117.6		117.5	7+	0.0	5+	E2	2.41	α(K)=0.584 *9*; α(L)=1.372 *20*; α(M)=0.352 *5* α(N)=0.0853 *12*; α(O)=0.01305 *19*; α(P)=6.16×10^{-5} *9* Iγ/Iγ(123)=0.68 *14* in (α,3nγ) at 45 MeV (1985Kr01). Eγ=117.6, A_2=+0.41 *22* (1985Kr01).
123.2	100 *20*	520.1	9−	396.6	8−	(M1)[&]	3.37	α(K)=2.78 *4*; α(L)=0.456 *7*; α(M)=0.1050 *15* α(N)=0.0258 *4*; α(O)=0.00457 *7*; α(P)=0.000344 *5* Eγ=123.1, A_2=−0.48 *19* (1985Kr01).
124.7		2636.7		2511.9				
137.3	45[@] *14*	137.3	(5+)	0.0	5+	[M1]	2.48	α(K)=2.04 *3*; α(L)=0.334 *5*; α(M)=0.0770 *11* α(N)=0.0189 *3*; α(O)=0.00335 *5*; α(P)=0.000252 *4* Eγ=137.6 (1985Kr01). Mult.: 1985Kr01 assign M1 but give no justification.
145.4		312.7	7−	167.2	6+			
152.4[c]		2022.1		1869.7	(14)−			Eγ: from level energy difference.
153.4		3035.5		2882.1				
156.4	29 *6*	520.0	9+	363.4	8+	D	1.711	α(K)=1.412 *20*; α(L)=0.231 *4*; α(M)=0.0531 *8* α(N)=0.01307 *19*; α(O)=0.00231 *4*; α(P)=0.0001744 *25* Eγ=156.3, A_2=−0.25 *16* (1985Kr01).
165.7		686.0	10−	520.1	9−	[M1]	1.454	α(K)=1.200 *17*; α(L)=0.196 *3*; α(M)=0.0451 *7* α(N)=0.01109 *16*; α(O)=0.00196 *3*; α(P)=0.0001481 *21* Iγ/Iγ(123)=0.60 *12* in (α,3nγ) at 45 MeV, Eγ=165.6 (1985Kr01); there, Eγ and Iγ may conceivably belong to a doublet including the 167.1γ and 165.7γ reported in 1997Ca01. Mult.: 1985Kr01 assign M1 but give no justification.
167.1		167.2	6+	0.0	5+			Should also have been observed by 1985Kr01; see comment on 166γ from 686 level.
173.0		3035.5		2862.5				
183.9		869.8	11−	686.0	10−	D	1.085	α(K)=0.896 *13*; α(L)=0.1460 *21*; α(M)=0.0336 *5* α(N)=0.00826 *12*; α(O)=0.001464 *21*; α(P)=0.0001104 *16* Iγ/Iγ(123)=0.56 *11* in (α,3nγ) at 45 MeV (1985Kr01). Eγ=183.7, A_2=−0.30 *22* (1985Kr01).
184.8		704.8	10+	520.0	9+			
195.3		312.7	7−	117.5	7+			
195.6[c]		363.4	8+	167.2	6+			
199.3		719.3	10+	520.0	9+			
201.8[c]		2422.8		2220.9	(15)−			
207.6		520.1	9−	312.7	7−			
208.8		928.2	11+	719.3	10+			
214.1		2636.7		2422.8				
220.6	15 *3*	1338.1	13−	1117.3	12−	D	0.654	α(K)=0.540 *8*; α(L)=0.0877 *13*; α(M)=0.0202 *3* α(N)=0.00496 *7*; α(O)=0.000879 *13*; α(P)=6.64×10^{-5} *10* Eγ=220.3, A_2=−0.2 *3* (1985Kr01).
223.5		928.2	11+	704.8	10+			

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^{180}Hf(^{11}B,5nγ),^{181}Ta(^{9}Be,4nγ) 1997Ca01,1985Kr01 (continued)

γ(^{186}Ir) (continued)

E_γ [†]	I_γ [‡]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [#]	α [b]	Comments
225.8		2862.5		2636.7				
236.2	144 *29*	756.1	(10)⁻	520.1	9⁻	[M1]	0.541	α(K)=0.447 *7*; α(L)=0.0725 *11*; α(M)=0.01669 *24* α(N)=0.00410 *6*; α(O)=0.000727 *11*; α(P)=5.49×10⁻⁵ *8* Eγ=235.8, A_2=−0.06 *5* (1985Kr01). Mult.: D from γ(θ). 1985Kr01 favored M1 from intensity balance; however, their level scheme differs from adopted.
236.5		1910.4	15⁻	1674.1	14⁻			
237 [c]		2576.7	17⁻	2339.4	16⁻			
241.7	116 *23*	359.2	9⁺	117.5	7⁺	E2	0.185	α(K)=0.1043 *15*; α(L)=0.0609 *9*; α(M)=0.01532 *22* α(N)=0.00372 *6*; α(O)=0.000586 *9*; α(P)=1.084×10⁻⁵ *16* Eγ=241.3, A_2=+0.37 *12* (1985Kr01).
245.4		2882.1		2636.7				
247.6	38 *8*	1117.3	12⁻	869.8	11⁻	D	0.475	α(K)=0.393 *6*; α(L)=0.0636 *9*; α(M)=0.01464 *21* α(N)=0.00360 *5*; α(O)=0.000638 *9*; α(P)=4.82×10⁻⁵ *7* Eγ=247.3, A_2=−0.22 *18* (1985Kr01).
249.4		1177.5	12⁺	928.2	11⁺			
263.6	71 *14*	1300.0	(12)⁻	1036.4	(11)⁻	D	0.400	α(K)=0.331 *5*; α(L)=0.0535 *8*; α(M)=0.01231 *18* α(N)=0.00303 *5*; α(O)=0.000536 *8*; α(P)=4.05×10⁻⁵ *6* Eγ=263.1, A_2=−0.8 *10* (1985Kr01).
266.6	16 *3*	1869.7	(14)⁻	1603.1	(13)⁻	D	0.388	α(K)=0.321 *5*; α(L)=0.0519 *8*; α(M)=0.01193 *17* α(N)=0.00293 *5*; α(O)=0.000520 *8*; α(P)=3.93×10⁻⁵ *6* Eγ=265.1, A_2=−0.3 *4* (1985Kr01).
272.3		1449.7	13⁺	1177.5	12⁺			
274 [c]		520.0	9⁺	246.5	7⁺			
280.3	94 *19*	1036.4	(11)⁻	756.1	(10)⁻	D	0.338	α(K)=0.280 *4*; α(L)=0.0452 *7*; α(M)=0.01040 *15* α(N)=0.00256 *4*; α(O)=0.000453 *7*; α(P)=3.42×10⁻⁵ *5* Eγ=279.7, A_2=−0.3 *3* (1985Kr01).
285.6	19 *4*	402.9	8⁺	117.5	7⁺	D	0.321	α(K)=0.266 *4*; α(L)=0.0429 *6*; α(M)=0.00987 *14* α(N)=0.00243 *4*; α(O)=0.000430 *6*; α(P)=3.25×10⁻⁵ *5* Eγ=285.2, A_2=−0.6 *5* (1985Kr01).
289.4		686.0	10⁻	396.6	8⁻			
299.5		1749.0	14⁺	1449.7	13⁺			
301.8		704.8	10⁺	402.9	8⁺			
303.1	45 *9*	1603.1	(13)⁻	1300.0	(12)⁻	[M1]	0.273	α(K)=0.226 *4*; α(L)=0.0365 *6*; α(M)=0.00839 *12* α(N)=0.00206 *3*; α(O)=0.000365 *6*; α(P)=2.76×10⁻⁵ *4* Eγ=302.3 (1985Kr01). Mult.: 1985Kr01 assign M1 but give no justification.
306.7		2862.5		2555.8	(16)⁻			
[x]315.4 [a]								
316.5		719.3	10⁺	402.9	8⁺			
318.4		2067.5	15⁺	1749.0	14⁺			
335.0		2555.8	(16)⁻	2220.9	(15)⁻			
336.0		1674.1	14⁻	1338.1	13⁻			
341.0		2408.6	16⁺	2067.5	15⁺			
341.4		704.8	10⁺	363.4	8⁺			
345.4		704.8	10⁺	359.2	9⁺			
349.8	58 *12*	869.8	11⁻	520.1	9⁻	E2	0.0608	α(K)=0.0410 *6*; α(L)=0.01504 *21*; α(M)=0.00371 *6* α(N)=0.000903 *13*; α(O)=0.0001460 *21*; α(P)=4.49×10⁻⁶ *7* Eγ=349.3, A_2=+0.60 *11* (1985Kr01).
351.3		2220.9	(15)⁻	1869.7	(14)⁻			
358		2766.4	17⁺	2408.6	16⁺			

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^{180}Hf(^{11}B,5nγ),^{181}Ta(^{9}Be,4nγ) 1997Ca01,1985Kr01 (continued)

γ(^{186}Ir) (continued)

Eγ[†]	Iγ[‡]	Ei(level)	J^π_i	Ef	J^π_f	Mult.[#]	α[b]	Comments
360.1		719.3	10+	359.2	9+			
360.5		4566		4205.5				
362.6	79 *16*	721.8	11+	359.2	9+	E2	0.0550	α(K)=0.0375 *6*; α(L)=0.01325 *19*; α(M)=0.00326 *5* α(N)=0.000794 *12*; α(O)=0.0001287 *18*; α(P)=4.13×10^{-6} *6* Eγ=362.0, A_2=+0.55 *10* (1985Kr01).
x378.9[a]								
380.2		2935.9	(17)−	2555.8	(16)−			
400.7		2422.8		2022.1				
408.1		928.2	11+	520.0	9+			
409.9	16 *3*	1131.8	12+	721.8	11+			Eγ=409.1 (1985Kr01).
412.6		1131.8	12+	719.3	10+			
415.9		2636.7		2220.9	(15)−			
419.0	40 *8*	2022.1		1603.1	(13)−	Q		Eγ=417.5, A_2=+0.36 *14* (1985Kr01).
426.9		1131.8	12+	704.8	10+			
429.0		2339.4	16−	1910.4	15−			
431.2	31 *6*	1117.3	12−	686.0	10−	E2	0.0345	α(K)=0.0248 *4*; α(L)=0.00738 *11*; α(M)=0.00180 *3* α(N)=0.000438 *7*; α(O)=7.19×10^{-5} *10*; α(P)=2.78×10^{-6} *4* Eγ=431.0, A_2=+0.50 *20* (1985Kr01).
446.0		1482.4		1036.4	(11)−			
452.0		1648.0	14+	1195.9	13+			
458.4		1177.5	12+	719.3	10+			
468.3	25 *5*	1338.1	13−	869.8	11−	E2	0.0279	α(K)=0.0205 *3*; α(L)=0.00566 *8*; α(M)=0.001373 *20* α(N)=0.000335 *5*; α(O)=5.53×10^{-5} *8*; α(P)=2.31×10^{-6} *4* Eγ=467.8, A_2=+0.40 *21* (1985Kr01).
470.5	35 *7*	1953.0		1482.4		(E2)	0.0276	α(K)=0.0203 *3*; α(L)=0.00558 *8*; α(M)=0.001352 *19* α(N)=0.000330 *5*; α(O)=5.45×10^{-5} *8*; α(P)=2.29×10^{-6} *4* Eγ=470.4, A_2=+0.26 *20* (1985Kr01). Note that 1985Kr01 do not report the 446.0γ which follows the 470.5γ in the scheme of 1997Ca01, so the 470.5γ of 1997Ca01 may not be the same as the 470.4γ of 1985Kr01. Mult.: (Q) from γ(θ).
470.8		4205.5		3734.7				
472.7		1177.5	12+	704.8	10+			
474.1	42 *8*	1195.9	13+	721.8	11+	E2	0.0271	α(K)=0.0199 *3*; α(L)=0.00545 *8*; α(M)=0.001320 *19* α(N)=0.000322 *5*; α(O)=5.33×10^{-5} *8*; α(P)=2.25×10^{-6} *4* Eγ=473.6, A_2=+0.34 *12* (1985Kr01).
482.0		2252.1	16+	1770.2	15+			
489.8		2511.9		2022.1				
497.8		2930.7	18+	2433.0	17+			
516.2		1648.0	14+	1131.8	12+			
521.4		1449.7	13+	928.2	11+			
543.8	38 *8*	1300.0	(12)−	756.1	(10)−	(E2)	0.0194	α(K)=0.01468 *21*; α(L)=0.00359 *5*; α(M)=0.000863 *12* α(N)=0.000211 *3*; α(O)=3.52×10^{-5} *5*; α(P)=1.665×10^{-6} *24* Eγ=542.8, A_2=+0.5 *4* (1985Kr01). Mult.: (Q) from γ(θ); Δπ from band structure.
553.2		2422.8		1869.7	(14)−			
556.9		1674.1	14−	1117.3	12−			
558.9		2511.9		1953.0				

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^{180}Hf(^{11}B,5nγ),^{181}Ta(^{9}Be,4nγ) 1997Ca01,1985Kr01 (continued)

γ(^{186}Ir) (continued)

Eγ[†]	Iγ[‡]	Ei(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[b]	Comments
x565.4[a]								
566.7		1603.1	(13)$^-$	1036.4	(11)$^-$			Iγ=52 *10*, Eγ=567.5, A_2=+0.3 *3* in 1985Kr01 for presumed 566.7γ+569.9γ doublet. Mult.: (Q) from γ(θ) for presumed doublet.
569.9		1869.7	(14)$^-$	1300.0	(12)$^-$			Iγ=52 *10*, Eγ=567.5, A_2=+0.3 *3* in 1985Kr01 for presumed 566.7γ+569.9γ doublet. Mult.: (Q) from γ(θ) for presumed doublet.
571.4		1749.0	14$^+$	1177.5	12$^+$			
572.1		1910.4	15$^-$	1338.1	13$^-$			
574.4	27 *5*	1770.2	15$^+$	1195.9	13$^+$	E2	0.01704	α(K)=0.01303 *19*; α(L)=0.00307 *5*; α(M)=0.000734 *11* α(N)=0.000179 *3*; α(O)=3.01×10^{-5} *5*; α(P)=1.480×10^{-6} *21* Eγ=572.9, A_2=+0.5 *3* (1985Kr01).
604.0		2252.1	16$^+$	1648.0	14$^+$			
617.7		2067.5	15$^+$	1449.7	13$^+$			
617.8		2220.9	(15)$^-$	1603.1	(13)$^-$			
659.8		2408.6	16$^+$	1749.0	14$^+$			
662.9		2433.0	17$^+$	1770.2	15$^+$			
665.3		2339.4	16$^-$	1674.1	14$^-$			
666.3		2576.7	17$^-$	1910.4	15$^-$			
678.5		2930.7	18$^+$	2252.1	16$^+$			
686.0		2555.8	(16)$^-$	1869.7	(14)$^-$			
698.7		2766.4	17$^+$	2067.5	15$^+$			
699.2		3734.7		3035.5				
714.8		2935.9	(17)$^-$	2220.9	(15)$^-$			
722.0		2022.1		1300.0	(12)$^-$			
726.9		3657.6	20$^+$	2930.7	18$^+$			
736		3144.6	18$^+$	2408.6	16$^+$			
737.8		3170.8	19$^+$	2433.0	17$^+$			
741		4398.6	22$^+$	3657.6	20$^+$			
750.3		3327.0	19$^-$	2576.7	17$^-$			
761		3527.4	19$^+$	2766.4	17$^+$			
772[c]		3916.6?	20$^+$	3144.6	18$^+$			
792.5		3963.3	21$^+$	3170.8	19$^+$			
817		4144.0	21$^-$	3327.0	19$^-$			
819.8		2422.8		1603.1	(13)$^-$			
822.3		4785.6	23$^+$	3963.3	21$^+$			

† Values from (^{11}B,4nγ) (1997Ca01); authors do not state uncertainties in Eγ. 1985Kr01 report Eγ from (^{9}Be,4nγ) at 47 MeV and (α,3nγ) at 45 MeV with a precision of 0.15-0.25 keV; Eγ from 1985Kr01 is frequently lower than Eγ from 1997Ca01, and is given in comments.

‡ From (^{9}Be,4nγ) at 47 MeV (1985Kr01). For some transitions, 1985Kr01 report Iγ only from (α,3nγ) at 45 MeV; these values are given in comments. Uncertainties are reported as 10-20% (except ΔIγ(137)=30%); evaluators assign ΔIγ=20% to all but the 137γ. 1997Ca01 do not report Iγ data.

Based on A_2 of γ(θ) (1985Kr01) given in comments (A_4 not measured); for the stretched Q transitions (543γ and 567γ excepted), RUL and the 15 ns coin resolving time in 1985Kr01 rule out M2. D transitions are assumed by 1985Kr01 to be M1, except as noted. 1997Ca01 measured DCO ratios and conversion electron coefficients also, but report no specific results.

@ From γγ coin data (1985Kr01). Absent in 1997Ca01.

& D from γ(θ); not E1 from intensity balance.

a From fig. 6 of 1985Kr01; γ not included in table 1 of 1985Kr01 and not confirmed in 1997Ca01. Probably does not belong to ^{186}Ir.

Continued on next page (footnotes at end of table)

^{180}Hf(^{11}B,5nγ),^{181}Ta(^{9}Be,4nγ) 1997Ca01,1985Kr01 (continued)

γ(^{186}Ir) (continued)

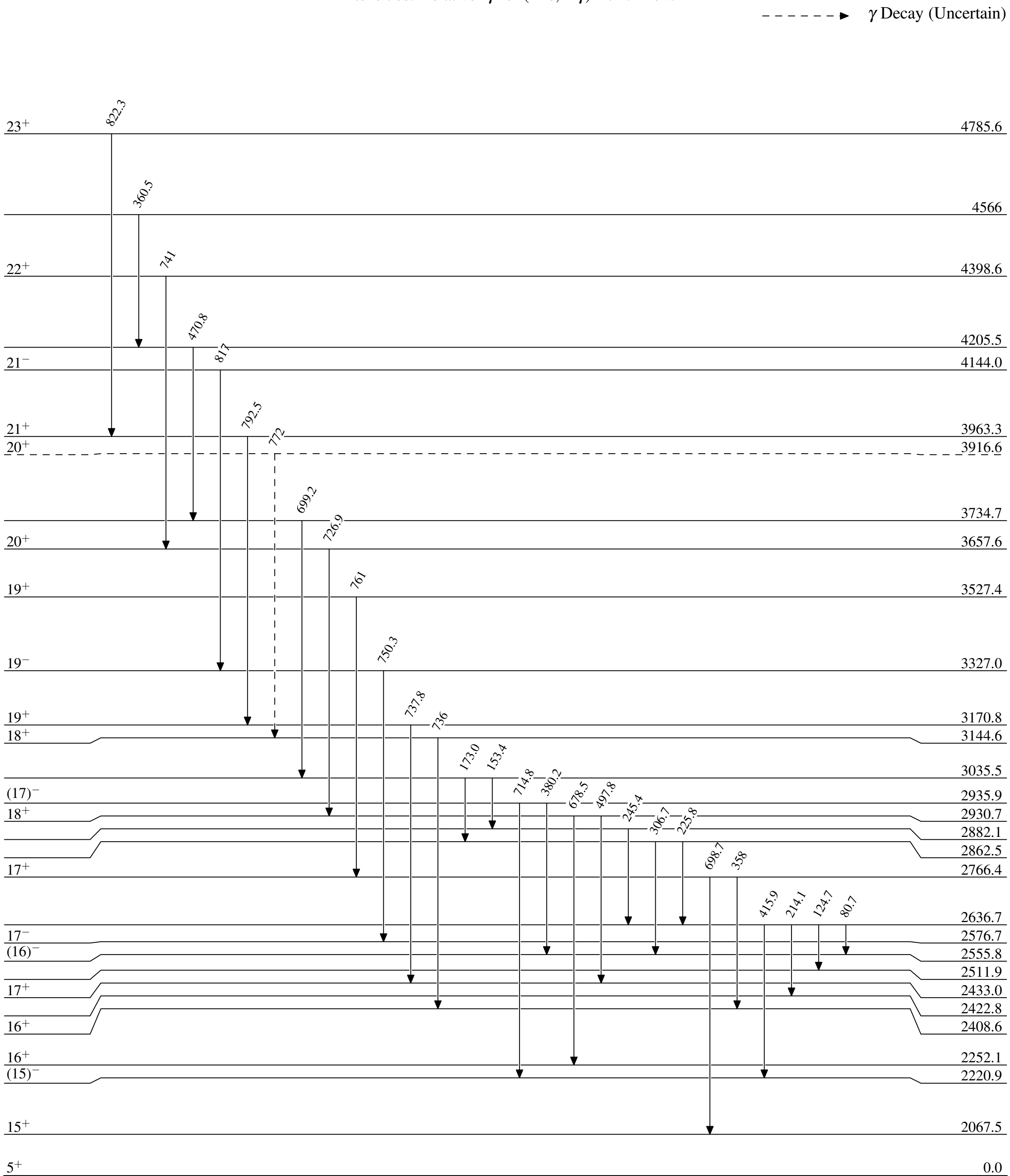
[b] Additional information 1.
[c] Placement of transition in the level scheme is uncertain.
[x] γ ray not placed in level scheme.

$^{180}Hf(^{11}B,5n\gamma),^{181}Ta(^{9}Be,4n\gamma)$ 1997Ca01,1985Kr01

Legend

Level Scheme

Intensities: Relative Iγ for (^{9}Be,4nγ) At 47 MeV.



$^{186}_{77}Ir_{109}$

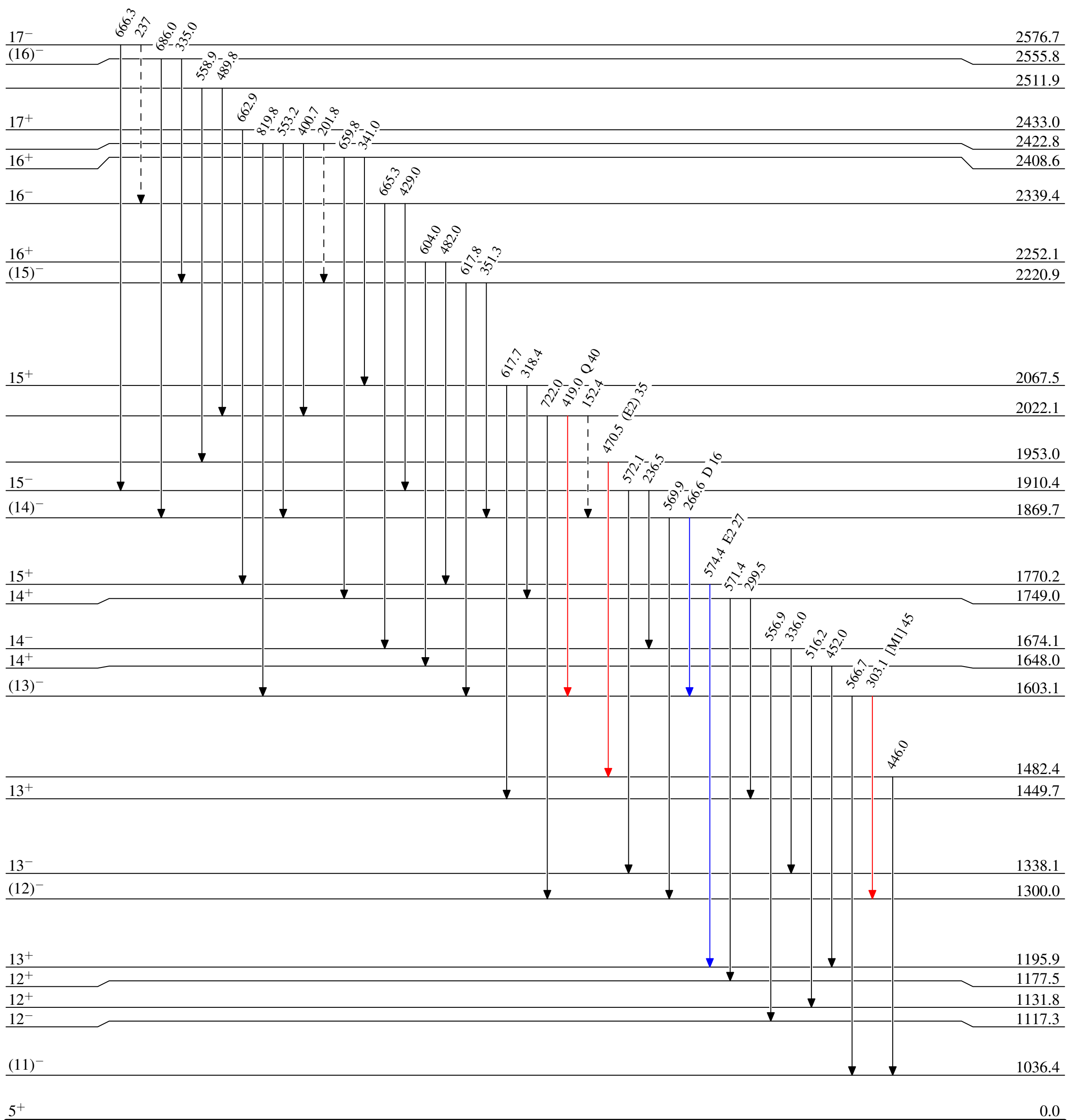
^{180}Hf(^{11}B,5nγ),^{181}Ta(^{9}Be,4nγ) 1997Ca01,1985Kr01

Level Scheme (continued)

Intensities: Relative Iγ for (^{9}Be,4nγ) At 47 MeV.

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)



$^{186}_{77}Ir_{109}$

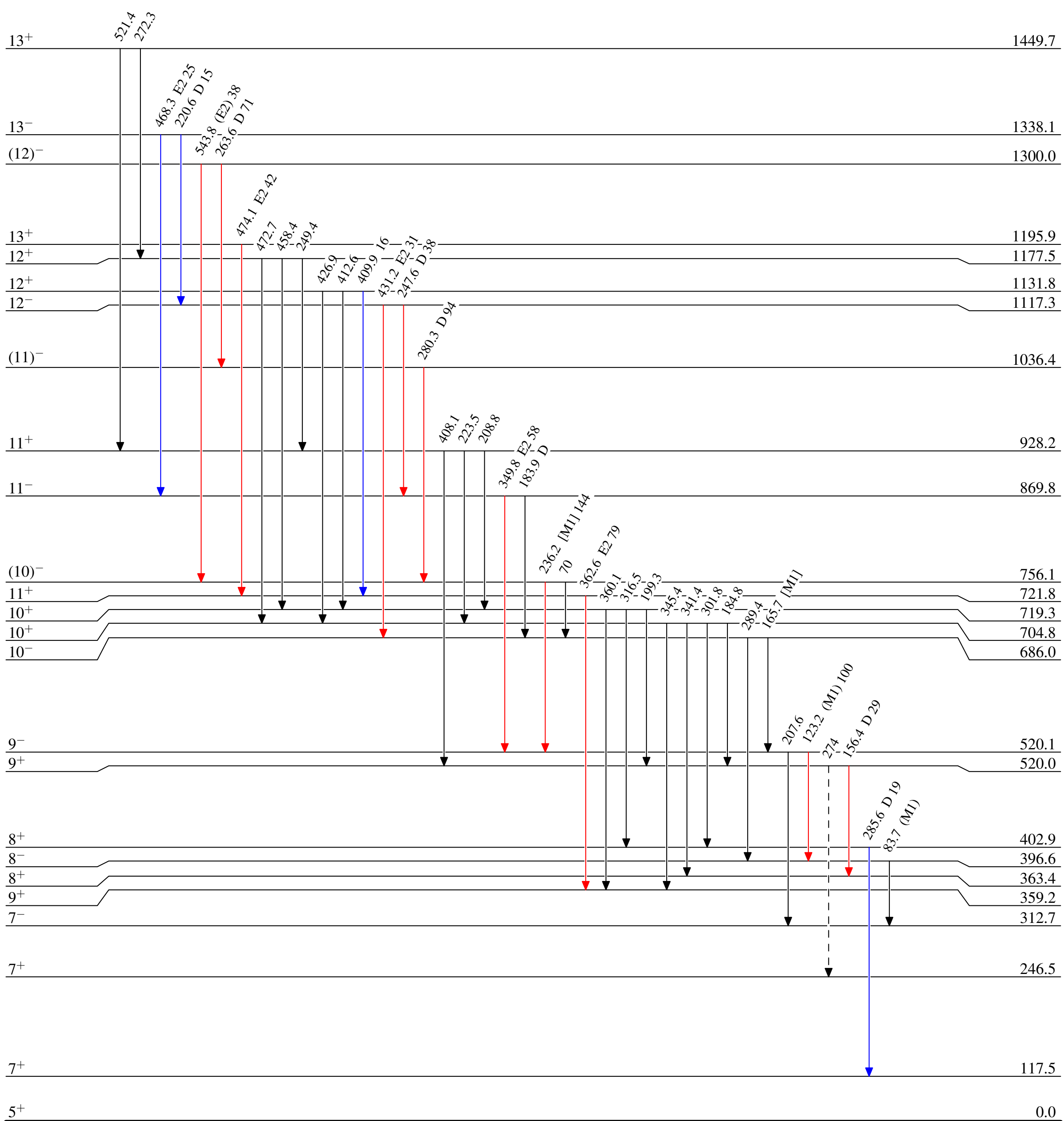
$^{180}Hf(^{11}B,5n\gamma),^{181}Ta(^{9}Be,4n\gamma)$ 1997Ca01,1985Kr01

Level Scheme (continued)

Intensities: Relative Iγ for (^{9}Be,4nγ) At 47 MeV.

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)

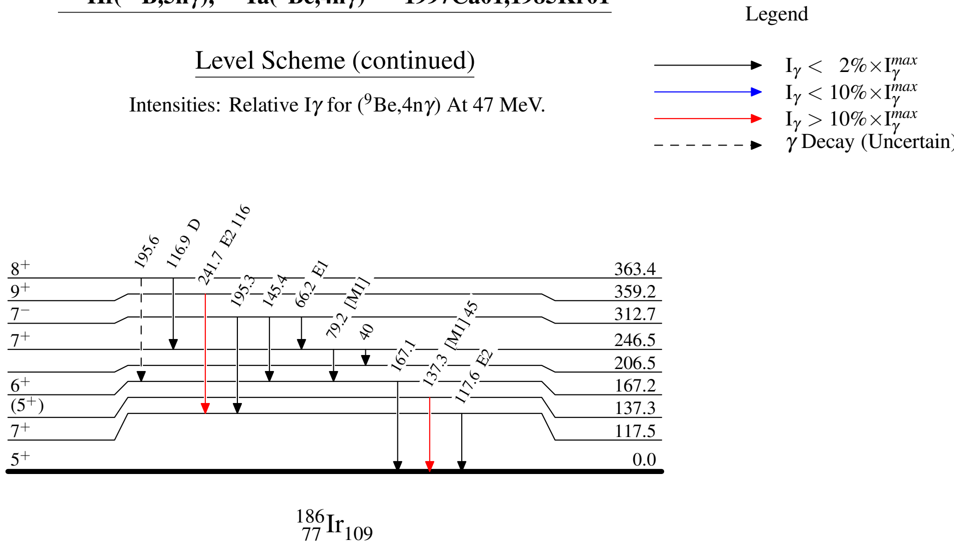


$^{186}_{77}Ir_{109}$

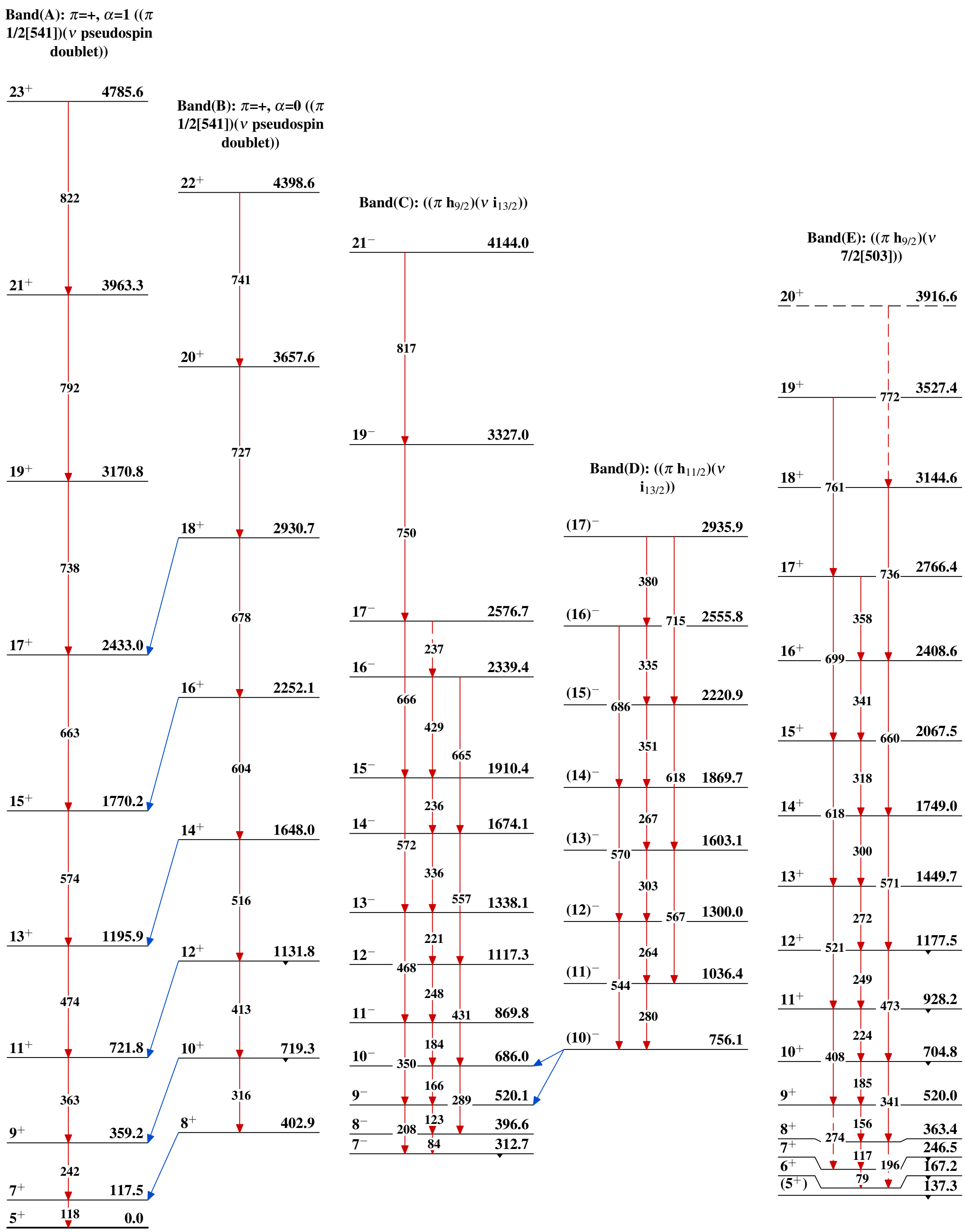
^{180}Hf(^{11}B,5nγ),^{181}Ta(^{9}Be,4nγ) 1997Ca01,1985Kr01

Level Scheme (continued)

Intensities: Relative Iγ for (^{9}Be,4nγ) At 47 MeV.



$^{180}Hf(^{11}B,5n\gamma),^{181}Ta(^{9}Be,4n\gamma)$ 1997Ca01,1985Kr01



$^{186}_{77}Ir_{109}$