^{172}Yb(^{19}F,5nγ) 2012Li08,2006Zh38

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

Adapted/edited the XUNDL dataset Compiled by M. Birch and B. Singh (McMaster); May 12, 2012.
2012Li08,2006Zh38: ^{19}F beam, E=104 MeV; Target=1.9 mg/cm^2 ^{172}Yb; Gamma rays detected by the GEMINI array consisting of 13 HPGe detectors with BGO anti-Compton shields. Measured Eγ, Iγ, $\gamma\gamma$-coin, DCO ratio. Deduced levels, J, π, multipolarities.
2012Li08 and 2006Zh38 – same research group.

^{186}Au Levels

E(level)[†]	J$^\pi$	Comments
0.0+x	(7$^-$)	E(level),J$^\pi$: From Adopted Levels.
455.3+x[@]	(11$^-$)	Additional information 1.
658.6+x[#]	(11$^+$)	Additional information 2.
771.1+x[&]	(12$^-$)	
775.4+x[‡]	(12$^+$)	
924.9+x[#]	(13$^+$)	
927.4+x[@]	(13$^-$)	
1092.9+x[‡]	(14$^+$)	
1292.2+x[#]	(15$^+$)	
1293.2+x[&]	(14$^-$)	
1496.8+x[‡]	(16$^+$)	
1632.8+x[@]	(15$^-$)	
1737.8+x[#]	(17$^+$)	
1964.6+x[‡]	(18$^+$)	
1991.1+x[&]	(16$^-$)	
2159.4+x	(14$^+$)	
2212.6+x[a]	(15$^+$)	
2225.8+x[#]	(19$^+$)	
2343.6+x[@]	(17$^-$)	
2400.5+x[a]	(17$^+$)	
2461.5+x[‡]	(20$^+$)	
2584.6+x[a]	(18$^+$)	
2666.0+x[&]	(18$^-$)	
2724.8+x[#]	(21$^+$)	
2788.7+x[a]	(19$^+$)	
2919.6+x[b]	(20$^+$)	
2985.8+x[‡]	(22$^+$)	
3265.0+x[#]	(23$^+$)	
3374.3+x	(21$^+$)	
3430.9+x[b]	(22$^+$)	
3571.4+x[‡]	(24$^+$)	
3806.3+x	(22$^+$)	
3880.6+x[#]	(25$^+$)	
3935.1+x[b]	(23$^+$)	
4185.6+x[b]	(24$^+$)	
4236.5+x[‡]	(26$^+$)	
4582.3+x[#]	(27$^+$)	

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^{172}Yb(^{19}F,5nγ) 2012Li08,2006Zh38 (continued)

^{186}Au Levels (continued)

E(level)†	Jπ
4682.0+x[b]	(25+)
4980.5+x‡	(28+)
5007.8+x[b]	(26+)

† From a least-squares fit to γ-ray energies, assuming equal weight for all γ-ray energies. 455.3+x and 658.6+x levels were held fixed.
‡ Band(A): π=(+), α=0 prolate band. Possible configuration=(ν 9/2[624])(π 1/2[541]).
# Band(B): π=(+), α=1 prolate band. Possible configuration=(ν 9/2[624])(π 1/2[541]).
@ Band(C): $K^\pi=(11^-)$, α=1 oblate band. See comment on signature partner of this band.
& Band(D): $K^\pi=(11^-)$, α=0 oblate band. Probable configuration=(ν $i_{13/2}{}^{-1}$)(π $h_{11/2}{}^{-1}$). Same characteristic energy spacing as 11^- isomer bands in α=188-194 odd-odd Au isotopes.
[a] Seq. (π $h^{-1}_{11/2}$)(ν $i^{-2}_{13/2}$)j. Where j=$p_{3/2}$,$f_{5/2}$.
[b] Band(E): Oblate Band. $\pi h^{-1}_{11/2}\otimes\nu(i^{-2}_{13/2}h^{-1}_{9/2})$.

γ(^{186}Au)

E_γ†	E_i(level)	J^π_i	E_f	J^π_f	Mult.	Comments
(53.2‡)	2212.6+x	(15+)	2159.4+x	(14+)		E_γ: From level energy difference.
116.9	775.4+x	(12+)	658.6+x	(11+)		
130.8	2919.6+x	(20+)	2788.7+x	(19+)	D+Q	Mult.: From DCO=0.77 *6* (2012Li08). δ: 2012Li08 suggest a positive δ.
149.5	924.9+x	(13+)	775.4+x	(12+)		
156.2‡	927.4+x	(13−)	771.1+x	(12−)		
168.2	1092.9+x	(14+)	924.9+x	(13+)		
184.1‡	2584.6+x	(18+)	2400.5+x	(17+)		DCO(Iγ(40)/Iγ(90))=0.69 *5* (2012Li08).
187.9‡	2400.5+x	(17+)	2212.6+x	(15+)		
199.4	1292.2+x	(15+)	1092.9+x	(14+)		
204.1‡	2788.7+x	(19+)	2584.6+x	(18+)		DCO(Iγ(40)/Iγ(90))=0.65 *4* (2012Li08).
204.8	1496.8+x	(16+)	1292.2+x	(15+)		
226.8	1964.6+x	(18+)	1737.8+x	(17+)		
235.8	2461.5+x	(20+)	2225.8+x	(19+)		
241.2	1737.8+x	(17+)	1496.8+x	(16+)		
250.4‡	4185.6+x	(24+)	3935.1+x	(23+)		
261.0	2985.8+x	(22+)	2724.8+x	(21+)		
261.4	2225.8+x	(19+)	1964.6+x	(18+)		
263.4	2724.8+x	(21+)	2461.5+x	(20+)		
266.2	924.9+x	(13+)	658.6+x	(11+)		
279.1	3265.0+x	(23+)	2985.8+x	(22+)		
306.5	3571.4+x	(24+)	3265.0+x	(23+)		
309.3	3880.6+x	(25+)	3571.4+x	(24+)		
315.8‡	771.1+x	(12−)	455.3+x	(11−)		
317.5	1092.9+x	(14+)	775.4+x	(12+)		
322.3‡	2666.0+x	(18−)	2343.6+x	(17−)		
335.0‡	2919.6+x	(20+)	2584.6+x	(18+)		
339.6‡	1632.8+x	(15−)	1293.2+x	(14−)		
346.0	4582.3+x	(27+)	4236.5+x	(26+)		
352.5‡	2343.6+x	(17−)	1991.1+x	(16−)		

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^{172}Yb(^{19}F,5nγ) 2012Li08,2006Zh38 (continued)

$\gamma(^{186}Au)$ (continued)

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
356.0	4236.5+x	(26^+)	3880.6+x	(25^+)	524.2	2985.8+x	(22^+)	2461.5+x	(20^+)
358.4[‡]	1991.1+x	(16^-)	1632.8+x	(15^-)	540.1	3265.0+x	(23^+)	2724.8+x	(21^+)
365.7[‡]	1293.2+x	(14^-)	927.4+x	(13^-)	585.8	3571.4+x	(24^+)	2985.8+x	(22^+)
367.2	1292.2+x	(15^+)	924.9+x	(13^+)	615.4	3880.6+x	(25^+)	3265.0+x	(23^+)
403.8	1496.8+x	(16^+)	1092.9+x	(14^+)	665.2	4236.5+x	(26^+)	3571.4+x	(24^+)
432.0[‡]	3806.3+x	(22^+)	3374.3+x	(21^+)	674.9[‡]	2666.0+x	(18^-)	1991.1+x	(16^-)
445.5	1737.8+x	(17^+)	1292.2+x	(15^+)	698.0[‡]	1991.1+x	(16^-)	1293.2+x	(14^-)
454.7[‡]	3374.3+x	(21^+)	2919.6+x	(20^+)	701.4	4582.3+x	(27^+)	3880.6+x	(25^+)
467.9	1964.6+x	(18^+)	1496.8+x	(16^+)	705.4[‡]	1632.8+x	(15^-)	927.4+x	(13^-)
472.2[‡]	927.4+x	(13^-)	455.3+x	(11^-)	710.6[‡]	2343.6+x	(17^-)	1632.8+x	(15^-)
487.9	2225.8+x	(19^+)	1737.8+x	(17^+)	744.0	4980.5+x	(28^+)	4236.5+x	(26^+)
496.4[‡]	4682.0+x	(25^+)	4185.6+x	(24^+)	746.8[‡]	4682.0+x	(25^+)	3935.1+x	(23^+)
496.8	2461.5+x	(20^+)	1964.6+x	(18^+)	754.8[‡]	4185.6+x	(24^+)	3430.9+x	(22^+)
499.0	2724.8+x	(21^+)	2225.8+x	(19^+)	822.2[‡]	5007.8+x	(26^+)	4185.6+x	(24^+)
504.2[‡]	3935.1+x	(23^+)	3430.9+x	(22^+)	919.4[‡]	2212.6+x	(15^+)	1293.2+x	(14^-)
511.3[‡]	3430.9+x	(22^+)	2919.6+x	(20^+)	1232.0[‡]	2159.4+x	(14^+)	927.4+x	(13^-)
522.1[‡]	1293.2+x	(14^-)	771.1+x	(12^-)					

[†] From 2006Zh38, except otherwise noted.
[‡] From 2012Li08.

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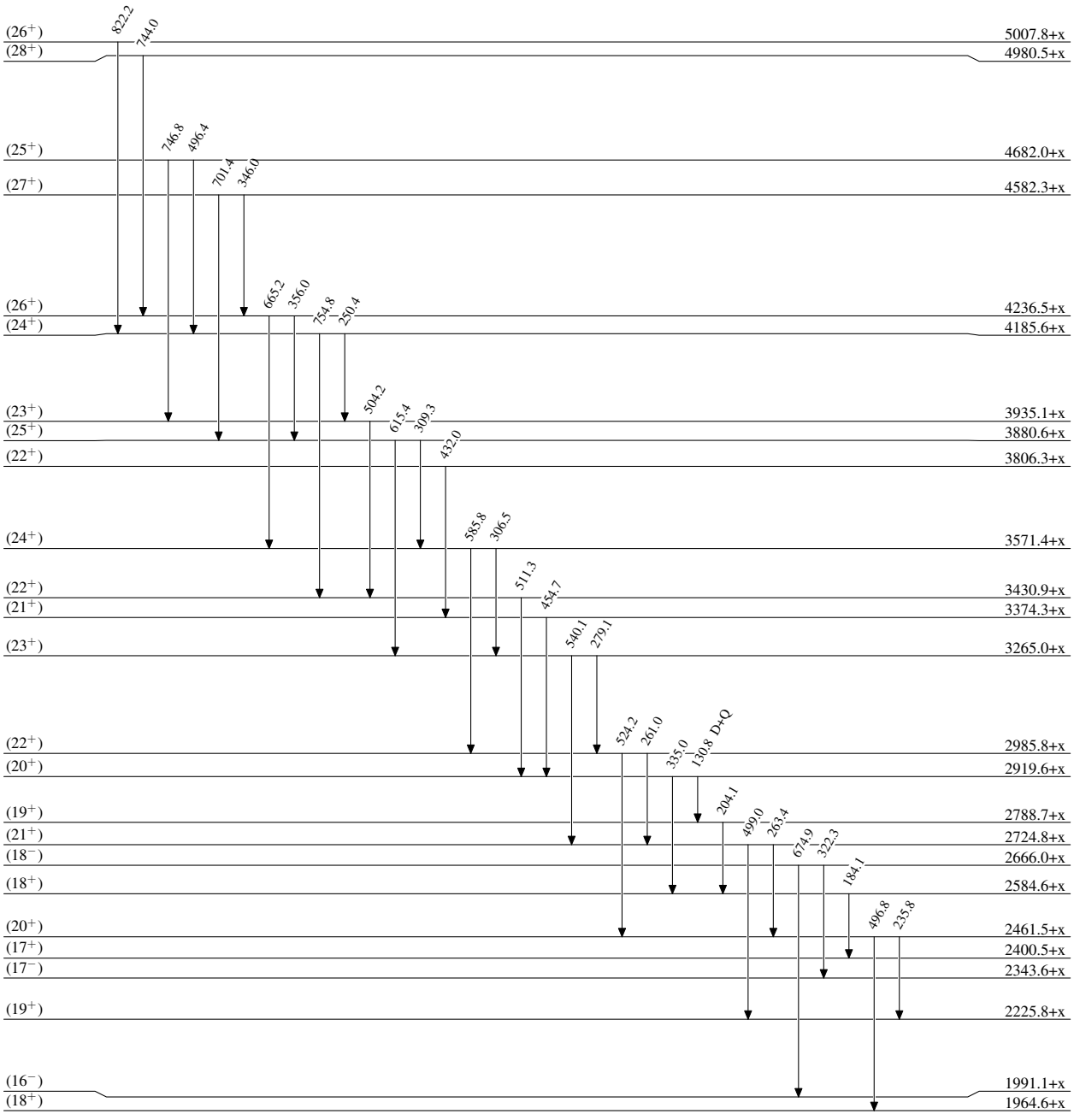
Level Scheme



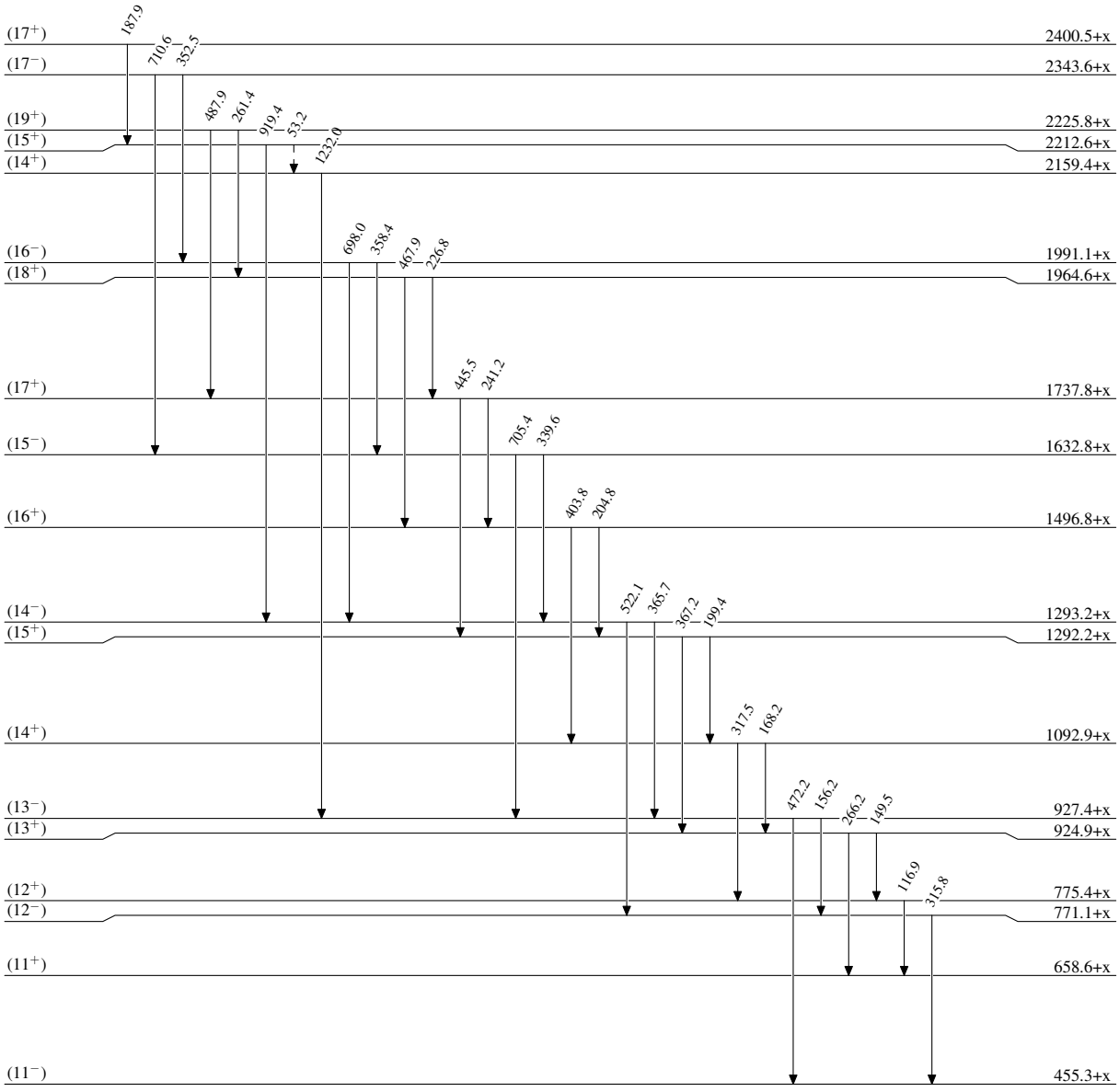
$^{186}_{79}Au_{107}$

Legend

^{172}Yb(^{19}F,5nγ) **2012Li08,2006Zh38**

Level Scheme (continued)

γ Decay (Uncertain)



$^{186}_{79}Au_{107}$

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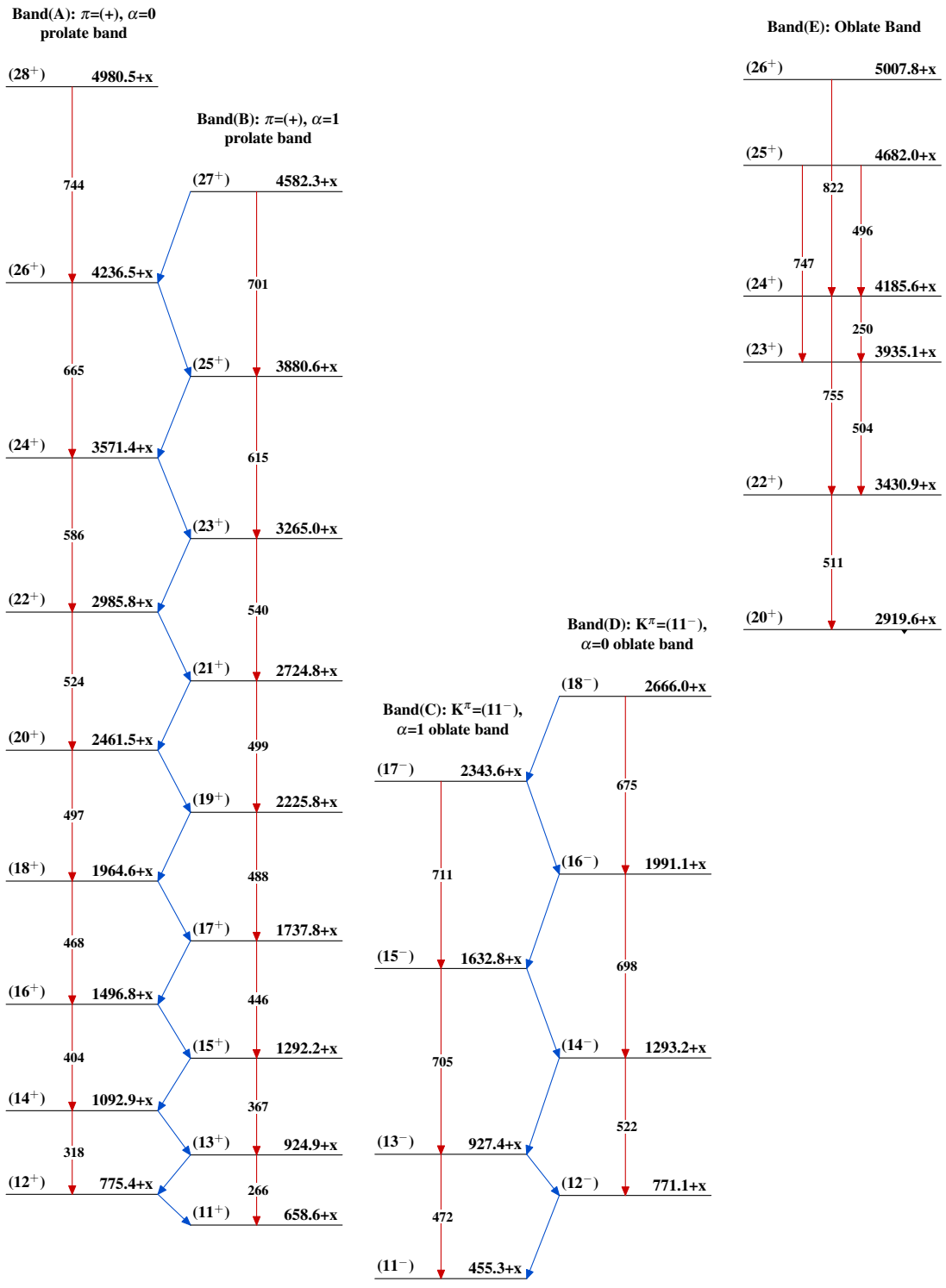

$^{186}_{79}Au_{107}$