Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	N. Nica	NDS 141, 1 (2017)	1-Feb-2017

Q(β^-)=−8798 *17*; S(n)=10660 *13*; S(p)=4.59×10^3 *3*; Q(α)=4170 *7* 2017Wa10
Q(ε)=2.69×10^3 *3*; S(2n)=18887 *13*; S(2p)=6.38×10^3 *3*; Q(εp)=1.1×10^2 *3* 2017Wa10
Additional information 1.
The data are primarily from the (HI,xnγ) studies.

^{158}Yb Levels

1988KlZX report an average g-factor=0.20 *7* for states above the second backbend in ^{158}Yb by the method of integral spin precession on unresolved transitions in a transient magnetic field with an average J=38 and and spanning the interval ΔJ=4.
See the (HI,xnγ) for six levels not included here.

Cross Reference (XREF) Flags

- A ^{158}Lu ε decay
- B ^{162}Hf α decay
- C (HI,xnγ)

E(level)†	J$^\pi$‡	T$_{1/2}$#	XREF	Comments
0.0@	0$^+$	1.49 min *13*	ABC	%α=0.0021 *12*; %ε+%β^+=100 T$_{1/2}$: Weighted average of 1.1 min *2* (1976Gi15) and 1.55 m *10* (1980Al14,1984Al31) from ^{158}Yb ε decay and 1.65 m *20* (1977Ha48) from ^{158}Yb α decay; other: ≈ 1.5 m (1969NeZW). %α: 0.0021 *12* (Approx) From 1992Ha10. Evaluated RMS charge radius: <r^2>$^{1/2}$=5.1498 fm *88* (2013An02); others: <r^2> ≈ 26.8 fm^2 (evaluator's estimate from curve in 1991Ho27 based on reference quoted therein). Δ<r^2> data quoted in 1989Sp04 and 1992Ku21 from their measurements and other references. From 1992Ku21, Δ<r^2>(^{156}Yb−^{158}Yb)=0.216 fm^2 *25* and Δ<r^2>(^{158}Yb−^{160}Yb)=0.223 fm^2 *7*. See also 1994Ma57 for rescaling of earlier values.
358.2@ *1*	(2$^+$)	25 ps *3*	A C	
835.2@ *3*	(4$^+$)	3.8 ps *10*	A C	
1403.5@	(6$^+$)		C	
2046.6@	(8$^+$)		C	
2121.4&	(7$^-$)		C	
2230.2b	(6$^-$)		C	
2573.8&	(9$^-$)		C	
2650.2b	(8$^-$)		C	
2653.4	(9$^-$)		C	
2743.5@	(10$^+$)		C	
2923.4b	(10$^-$)		C	
2957.4&	(11$^-$)		C	
2958.9a	(10$^-$)		C	
3406.9b	(12$^-$)		C	
3426.2@	(12$^+$)		C	
3456.8&	(13$^-$)		C	

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Adopted Levels, Gammas (continued)

^{158}Yb Levels (continued)

E(level)†	Jπ‡	XREF	E(level)†	Jπ‡	XREF	E(level)†	Jπ‡	XREF	E(level)†	Jπ‡	XREF
3482.4[a]	(12⁻)	C	5129.2[@]	(18⁺)	C	7396.5[b]	(24⁻)	C	10225[&]	(31⁻)	C
3486.2	(12⁺)	C	5281.7[b]	(18⁻)	C	7633.2[&]	(25⁻)	C	10425.1[@]	(32⁺)	C
3934.7[@]	(14⁺)	C	5448.4[&]	(19⁻)	C	8061.0[@]	(26⁺)	C	11136[&]	(33⁻)	C
3970.4[b]	(14⁻)	C	5862.1[@]	(20⁺)	C	8105.5[b]	(26⁻)	C	11185.9[@]	(34⁺)	C
4048.9[&]	(15⁻)	C	6006.5[b]	(20⁻)	C	8454.6[&]	(27⁻)	C	12084.6[@]	(36⁺)	C
4083.4[a]	(14⁻)	C	6195.2[&]	(21⁻)	C	8846.5[@]	(28⁺)	C	12147[&]	(35⁻)	C
4502.2[@]	(16⁺)	C	6586.8[@]	(22⁺)	C	8902.5[b]	(28⁻)	C	13186[&]	(37⁻)	C
4584.8[b]	(16⁻)	C	6691.5[b]	(22⁻)	C	9328.2[&]	(29⁻)	C	13199.0[@]	(38⁺)	C
4697.6[&]	(17⁻)	C	6911.1[&]	(23⁻)	C	9639.6[@]	(30⁺)	C	13959.8[@]	(40⁺)	C
4736.4[a]	(16⁻)	C	7319.7[@]	(24⁺)	C	9740.5[b]	(30⁻)	C			

† From γ energies.
‡ From authors and based on assigned band structure, on theory calculations and systematics (similar to ^{156}Er), based on the unique parity orbitals $\nu i_{13/2}$ and $\pi h_{11/2}$.
# Values for excited levels are from (HI,xnγ) study (1975Tr08).
@ Band(A): yrast band, π=+.
& Band(B): Band based on (7⁻).
a Band(C): Band based on (8⁻).
b Band(D): Band based on (6⁻).

γ(^{158}Yb)

E_i(level)	J_i^π	E_γ	E_f	J_f^π	Mult.	α†	Comments
358.2	(2⁺)	358.2 *1*	0.0	0⁺	[E2]	0.0439	α(K)=0.0327 *5*; α(L)=0.00866 *13*; α(M)=0.00204 *3* α(N)=0.000471 *7*; α(O)=6.04×10⁻⁵ *9*; α(P)=1.721×10⁻⁶ *25* B(E2)(W.u.)=72 *9*
835.2	(4⁺)	477.0 *3*	358.2	(2⁺)	[E2]	0.0201	α(K)=0.01573 *23*; α(L)=0.00340 *5*; α(M)=0.000788 *12* α(N)=0.000183 *3*; α(O)=2.42×10⁻⁵ *4*; α(P)=8.59×10⁻⁷ *12* B(E2)(W.u.)=1.2×10² *3*
1403.5	(6⁺)	568.3	835.2	(4⁺)			
2046.6	(8⁺)	643.1	1403.5	(6⁺)			
2121.4	(7⁻)	717.9	1403.5	(6⁺)			
2230.2	(6⁻)	826.7	1403.5	(6⁺)			
2573.8	(9⁻)	452.5	2121.4	(7⁻)			
		527.1	2046.6	(8⁺)			
2650.2	(8⁻)	420	2230.2	(6⁻)			
		529	2121.4	(7⁻)			
		603.4	2046.6	(8⁺)			
2653.4	(9⁻)	532	2121.4	(7⁻)			
		607	2046.6	(8⁺)			
2743.5	(10⁺)	696.9‡	2046.6	(8⁺)			
2923.4	(10⁻)	270	2653.4	(9⁻)			
		273	2650.2	(8⁻)			
		350	2573.8	(9⁻)			
2957.4	(11⁻)	213.7	2743.5	(10⁺)			
		304	2653.4	(9⁻)			
		383.5	2573.8	(9⁻)			
2958.9	(10⁻)	305	2653.4	(9⁻)			

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Adopted Levels, Gammas (continued)

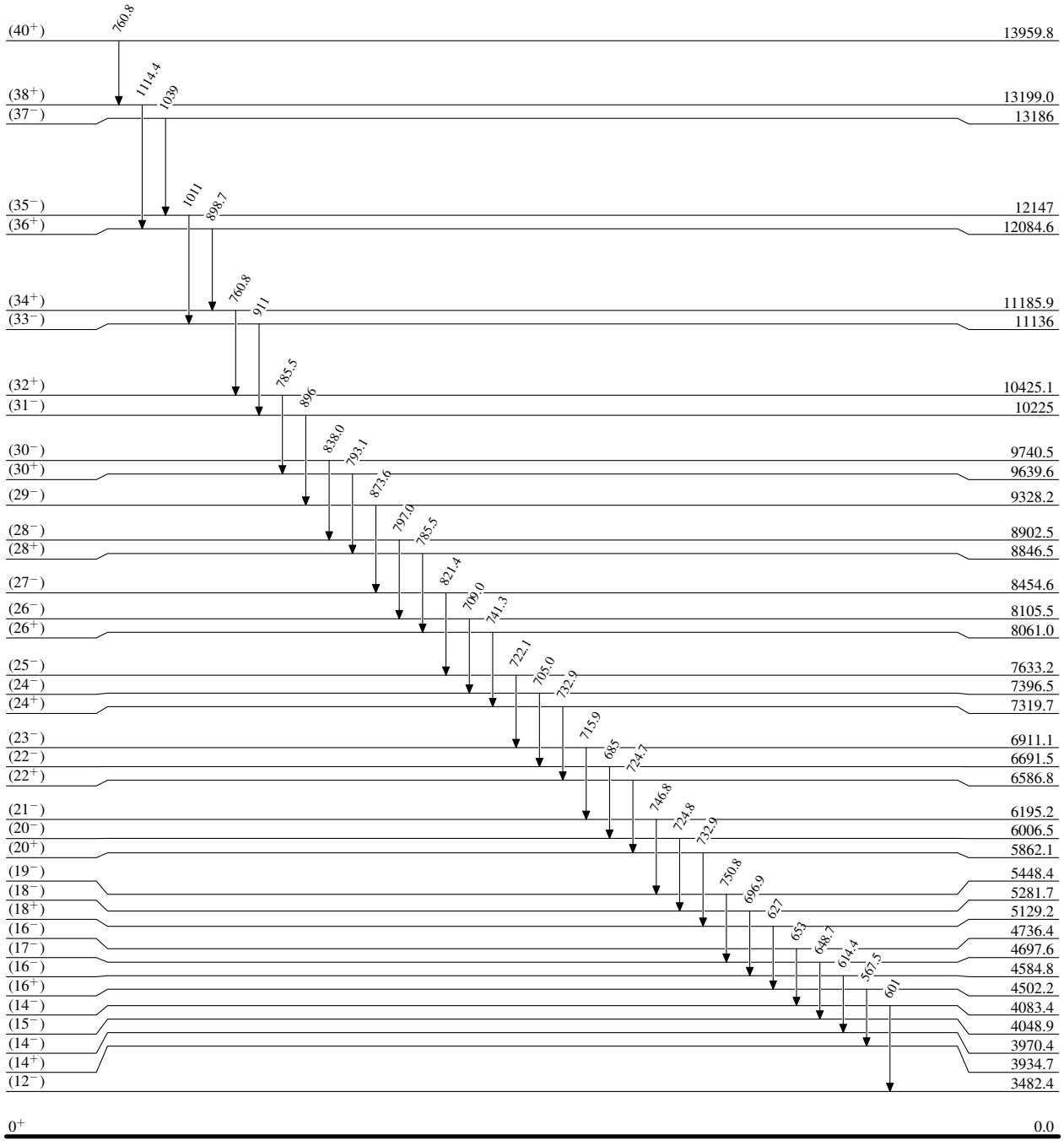
$\gamma(^{158}Yb)$ (continued)

E_i(level)	J_i^π	E_γ	E_f	J_f^π	E_i(level)	J_i^π	E_γ	E_f	J_f^π
2958.9	(10^-)	309	2650.2	(8^-)	6691.5	(22^-)	685	6006.5	(20^-)
		385	2573.8	(9^-)	6911.1	(23^-)	715.9	6195.2	(21^-)
3406.9	(12^-)	483.5	2923.4	(10^-)	7319.7	(24^+)	732.9‡	6586.8	(22^+)
3426.2	(12^+)	682.7	2743.5	(10^+)	7396.5	(24^-)	705.0	6691.5	(22^-)
3456.8	(13^-)	499.4	2957.4	(11^-)	7633.2	(25^-)	722.1	6911.1	(23^-)
3482.4	(12^-)	523.5	2958.9	(10^-)	8061.0	(26^+)	741.3	7319.7	(24^+)
3486.2	(12^+)	742.7	2743.5	(10^+)	8105.5	(26^-)	709.0	7396.5	(24^-)
3934.7	(14^+)	448.4	3486.2	(12^+)	8454.6	(27^-)	821.4	7633.2	(25^-)
		508.5	3426.2	(12^+)	8846.5	(28^+)	785.5‡	8061.0	(26^+)
3970.4	(14^-)	563.5	3406.9	(12^-)	8902.5	(28^-)	797.0	8105.5	(26^-)
4048.9	(15^-)	592.1	3456.8	(13^-)	9328.2	(29^-)	873.6	8454.6	(27^-)
4083.4	(14^-)	601	3482.4	(12^-)	9639.6	(30^+)	793.1	8846.5	(28^+)
4502.2	(16^+)	567.5	3934.7	(14^+)	9740.5	(30^-)	838.0	8902.5	(28^-)
4584.8	(16^-)	614.4	3970.4	(14^-)	10225	(31^-)	896	9328.2	(29^-)
4697.6	(17^-)	648.7	4048.9	(15^-)	10425.1	(32^+)	785.5‡	9639.6	(30^+)
4736.4	(16^-)	653	4083.4	(14^-)	11136	(33^-)	911	10225	(31^-)
5129.2	(18^+)	627	4502.2	(16^+)	11185.9	(34^+)	760.8‡	10425.1	(32^+)
5281.7	(18^-)	696.9‡	4584.8	(16^-)	12084.6	(36^+)	898.7	11185.9	(34^+)
5448.4	(19^-)	750.8	4697.6	(17^-)	12147	(35^-)	1011	11136	(33^-)
5862.1	(20^+)	732.9‡	5129.2	(18^+)	13186	(37^-)	1039	12147	(35^-)
6006.5	(20^-)	724.8	5281.7	(18^-)	13199.0	(38^+)	1114.4	12084.6	(36^+)
6195.2	(21^-)	746.8	5448.4	(19^-)	13959.8	(40^+)	760.8‡	13199.0	(38^+)
6586.8	(22^+)	724.7	5862.1	(20^+)					

† Additional information 2.
‡ Multiply placed.

Adopted Levels, Gammas

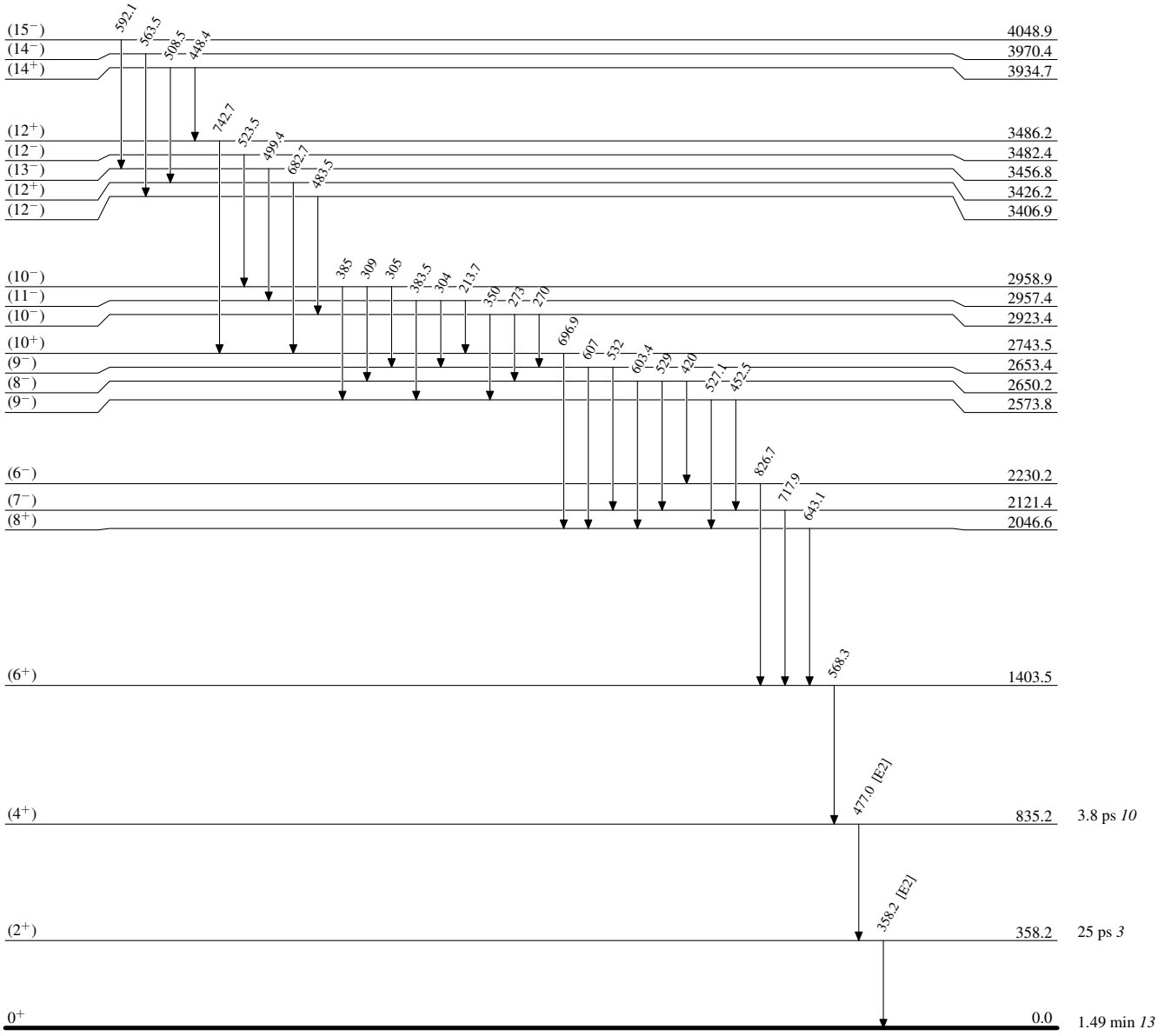
Level Scheme



$^{158}_{70}Yb_{88}$

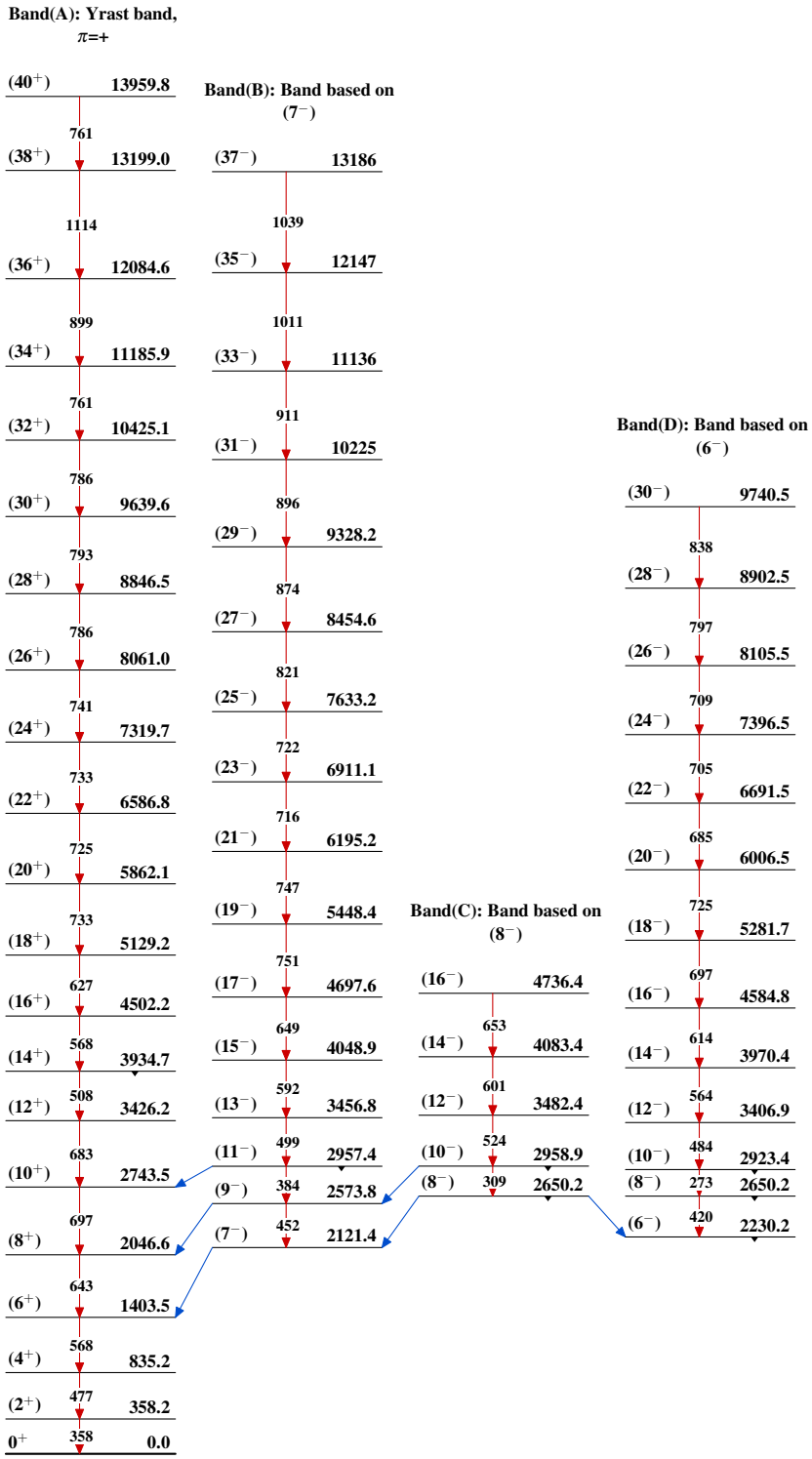
Adopted Levels, Gammas

Level Scheme (continued)



$^{158}_{70}Yb_{88}$

Adopted Levels, Gammas



$^{158}_{70}Yb_{88}$