Adopted Levels, Gammas

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	B. Singh and N. Nica	ENSDF	31-Dec-2017

S(n)=12234 (syst) *500*; S(p)=1328 (syst) *335*; Q(α)=6613 *3* 2017Wa10
Q(ε)=7534 (syst) *358*; S(2p)=394 (syst) *335*; Q(εp)=7982 (syst) *358* 2017Wa10

^{158}W Levels

With S(2p)(^{158}W)=390 *340* (syst,2017Wa10), all the observed excited states are expected to be unbound towards two-proton emission, but no evidence has been found for this decay mode for the decay of the (8$^+$) isomer.

Cross Reference (XREF) Flags

A ^{159}Re p decay (20 μs)
B ^{162}Os α decay (2.1 ms)
C ^{102}Pd(^{58}Ni,2nγ)

E(level)[†]	Jπ[‡]	$T_{1/2}$	XREF	Comments
0.0	0$^+$	1.25 ms *21*	ABC	%α=100 $T_{1/2}$: weighted average of 0.9 ms *3* (1989Ho12), 0.9 ms *+4−3* (1996Pa01), and 1.5 ms *2* (2000Ma95), all from ^{158}W α decay. %α: from gross beta theory (1973Ta30), $T_{1/2}$(ε+β+) ≈ 2 seconds, so %ε+%β+ ≈ 0.05. Similarly, 1997Mo25 give 0.33 s which would correspond to %ε+%β+ ≈ 0.3.
913[#&]	(2$^+$)		C	
1679[#&]	(4$^+$)		C	
1888[a] *8*	(8$^+$)	0.143 ms *19*	C	%α≈100; %2p≤0.17 (2017Jo09); %IT=? %2p branch at 90% confidence level, corresponding to partial $T_{1/2}$≥85 ms for 2p-decay mode (2017Jo09). Spin-trap isomer, with configuration=$\nu f_{7/2}\otimes\nu h_{9/2}$ (2017Jo09). E(level): from 2000Ma95 based on α decay of this level with E_α=8286 *7* and the assumption that this α branch populates the daughter ground state. This level was earlier proposed by 1989Ho12 with only slightly different energies. Jπ: proposed by 1989Ho12 and 2000Ma95, based on analogy with a supposedly similar situation in ^{156}Hf. The hindrance factor for the implied resulting ΔL=8 α transition is consistent with those in several near-lying nuclides (1996Pa01). $T_{1/2}$: weighted average of 0.16 ms *5* (1996Pa01) and 0.14 ms *2* (2000Ma95); other: 0.01 ms < $T_{1/2}$ < 1 ms (1989Ho12).
2048[#&]	(6$^+$)		C	
2846[@a]	(10$^+$)		C	
3690[@a]	(12$^+$)		C	
4165[@a]	(14$^+$)		C	
4368[@a]	(16$^+$)		C	

[†] From Eγ values, except that the isomer energy is based on observed Eα from its decay.
[‡] From 2017Jo09, based on yrast sequences built on g.s. and the (8$^+$) isomer, and shell-model configurations.
[#] Proposed configuration=$\nu f^2_{7/2}$ (2017Jo09).
[@] Proposed configuration=$\pi h^2_{11/2}\otimes\nu f^2_{7/2}$, based on shell-model calculations (2017Jo09).
[&] Seq.(A): γ cascade based on g.s.
[a] Seq.(B): γ cascade based on (8$^+$) isomer.

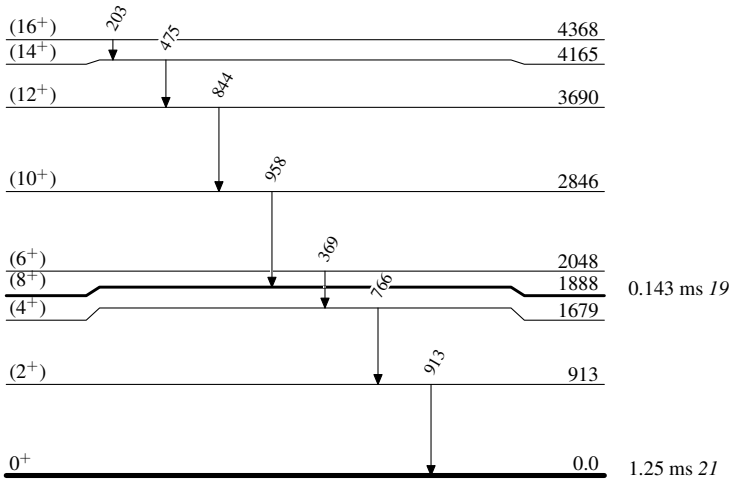
Adopted Levels, Gammas (continued)

$\gamma(^{158}W)$

E_i(level)	J_i^π	E_γ	E_f	J_f^π
913	(2^+)	913	0.0	0^+
1679	(4^+)	766	913	(2^+)
2048	(6^+)	369	1679	(4^+)
2846	(10^+)	958	1888	(8^+)
3690	(12^+)	844	2846	(10^+)
4165	(14^+)	475	3690	(12^+)
4368	(16^+)	203	4165	(14^+)

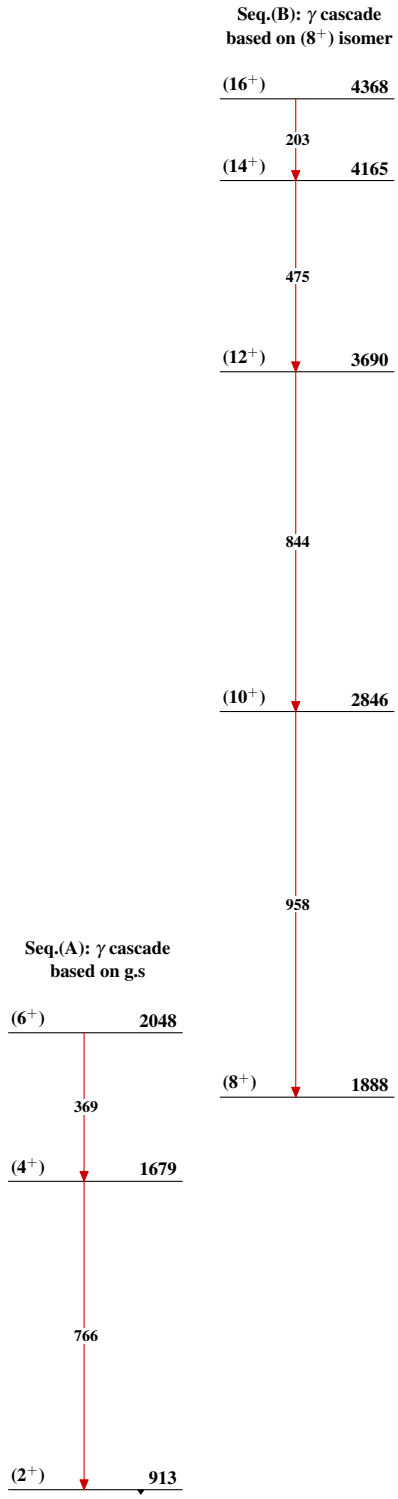
Adopted Levels, Gammas

Level Scheme



$^{158}_{74}W_{84}$

Adopted Levels, Gammas



$^{158}_{74}W_{84}$