Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen	NDS 194,460 (2024)	31-Oct-2022

Q(β^-)=−8910 *syst*; S(n)=11260 *60*; S(p)=−287 *23*; Q(α)=5694 *6* 2021Wa16
Estimated ΔQ(β^-)=200 (2021Wa16).
Q(ε)=8200 *30*, Q(εp)=5330 *40*, S(2n)=20800 *30*, S(2p)=2700 *40* (2021Wa16).
Additional information 1.

^{165}Re Levels

Cross Reference (XREF) Flags

- A ^{165}Os ε decay (71 ms)
- B ^{169}Ir α decay (0.570 s)
- C ^{169}Ir α decay (0.280 s)
- D ^{92}Mo(^{78}Kr,3p2nγ)

E(level)†	J$^\pi$‡	$T_{1/2}$	XREF	Comments
0.0	(1/2$^+$)	1.6 s *6*	B	%ε+%β^+=86 *8*; %α=14 *8* (2012Th13) E(level),J$^\pi$: 1999Po09 suggest $s_{1/2}$ orbital to lie below $h_{11/2}$ orbital. J^π is from favored α decay from (1/2$^+$) g.s. of ^{169}Ir. $T_{1/2}$: from a fit to α-decay time distribution using the Maximum-Likelihood method (2012Th13). Other: 2.61 s *+14−13* reported in 2005Sc22, from the same laboratory and with mostly the same authors as 2012Th13. Additional information 2. Eα=5556 keV *6* from ^{165}Re g.s. decay correlated with 6019α and 6688α from decays of ^{169}Ir g.s. and ^{173}Au g.s., respectively (2012Th13). %α from 2012Th13; %ε+%β^+ is assumed to be 100−%α, but no information on level structure is avaiable from this decay mode.
48# *26*	(11/2$^-$)	1.74 s *6*	CD	%ε+%β^+=87 *1*; %α=13 *1* (2012Th13) %α from 2012Th13; %ε+%β^+ is assumed to be 100−%α, but no information on level structure is avaiable from this decay mode. Other %α: 13 *3* (1981Ho10). E(level): from 1999Po09, deduced from α-decay energies in the α-decay chain of the ground and isomeric states of ^{177}Tl→^{173}Au→^{169}Ir→^{165}Re. 2021Ko07 give 28 keV *22*. J$^\pi$: from favored α decay from (11/2$^-$) isomer of ^{169}Ir, and systematics (1999Po09). $T_{1/2}$: from a least-squares fit to α-decay time distribution in 2012Th13. Others: 2.37 s *+10−9* (2005Sc22), 1.9 s *3* (1996Pa01), 2.2 s *4* (1984Sc06,1978Sc26), and 2.4 s *6* (1981Ho10). Weighted average of all the values, except the one from 2005Sc22, is 1.76 s *6*. Eα=5520 keV *6* (2012Th13) correlated with α peaks from parent and grandparent decays; 5518 *5* (1996Pa01); 5506 *10* (1981Ho10).
385@ *1*	(13/2$^-$)		D	
587# *1*	(15/2$^-$)		D	
1012@ *1*	(17/2$^-$)		D	
1259# *1*	(19/2$^-$)		D	
2019# *2*	(23/2$^-$)		D	

† From a least-squares fit to Eγ data, assuming 1 keV uncertainty for each γ ray, and keeping the energy of the 48-keV level fixed.
‡ From band assignments for J≥(13/2$^-$).

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{165}Re Levels (continued)

[#] Band(A): $\pi h_{11/2}$ band,α=−1/2.
[@] Band(a): $\pi h_{11/2}$ band,α=+1/2.

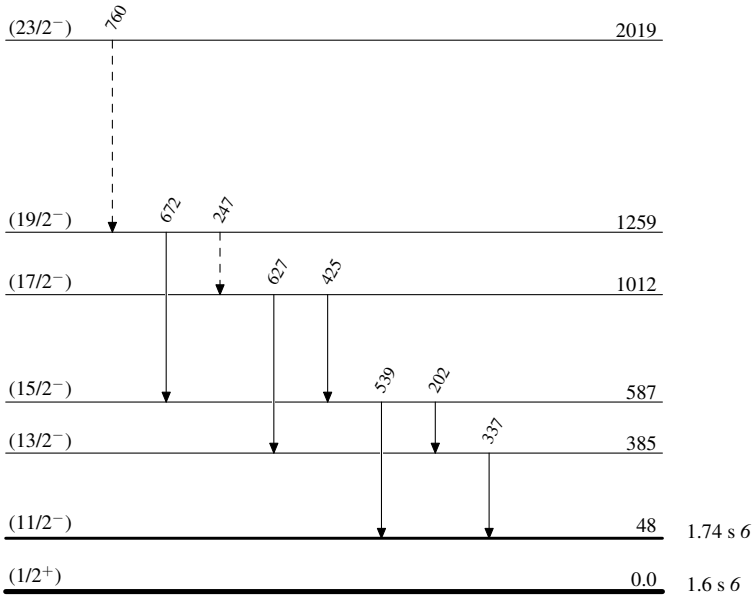
$\gamma(^{165}Re)$

E_i(level)	J_i^π	E_γ	E_f	J_f^π
385	(13/2$^-$)	337	48	(11/2$^-$)
587	(15/2$^-$)	202	385	(13/2$^-$)
		539	48	(11/2$^-$)
1012	(17/2$^-$)	425	587	(15/2$^-$)
		627	385	(13/2$^-$)
1259	(19/2$^-$)	247[†]	1012	(17/2$^-$)
		672	587	(15/2$^-$)
2019	(23/2$^-$)	760[†]	1259	(19/2$^-$)

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

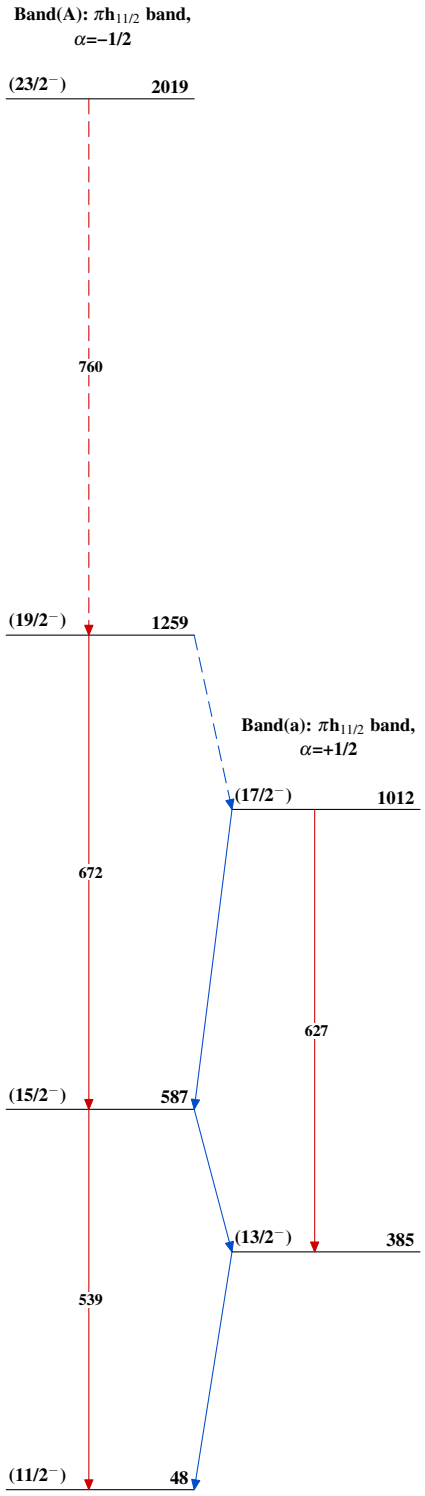
Adopted Levels, Gammas

Level Scheme



$^{165}_{75}Re_{90}$

Adopted Levels, Gammas



$^{165}_{75}Re_{90}$