Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	N. Nica and B. Singh	NDS 181, 1 (2022)	9-Mar-2022

Q(β^-)=−10630 *40*; S(n)=10360 *40*; S(p)=2660 *40*; Q(α)=3140 *40* 2021Wa16
S(2n)=23510 *200* (syst), S(2p)=2940 *40*, Q(εp)=8660 *40* (2021Wa16).

^{147}Er Levels

Cross Reference (XREF) Flags

A ^{147}Tm ε decay
B ^{92}Mo(^{58}Ni,2pnγ)

E(level)[†]	J^π	$T_{1/2}$	XREF	Comments
0.0	$(1/2^+)$[‡]	3.2 s *12*	AB	%ε+%β^+=100; %β^+p>0 (1988WiZN) $T_{1/2}$: estimated by 2010Ma27 from the β-delayed proton spectrum from the νs1/2 g.s. of ^{147}Er. They obtained this spectrum by subtracting the component in coincidence with the 4^+ to 2^+, 926-keV transition in ^{146}Dy from the proton spectrum gated with the 2^+ to 0^+, 683-keV transition in ^{146}Dy. This is based on the assumption that the β-delayed proton decay of ^{147}Er g.s. contributes mostly to the direct population of the 2^+, 683-keV state in ^{146}Dy granddaughter (due to the high difference in between the angular momenta of νh11/2 isomer and νs1/2 g.s. of ^{147}Er parent). Other: ≈ 2.5 s (mentioned by 1987ToZU quoting 1984ScZT, see comment on the $11/2^-$ isomer). configuration: νs1/2 (1993To02).
80.9	$(3/2^+)$[‡]		A	configuration: νd3/2 (1993To02).
0.0+x[@]	$(11/2^-)$[‡]	1.6 s *2*	AB	%ε+%β^+=100; %β^+p>0 (1988WiZN) E(level): x=100 keV *50* (2021Ko07, syst); x<118 keV (1993To02). $T_{1/2}$: measured by 2010Ma27 from the time distribution of the proton spectrum gated by the 4^+ to 2^+, 926-keV transition in ^{146}Dy assuming that the 4^+ state in ^{146}Dy was mainly produced by the β-delayed proton of the νh11/2 isomer in ^{147}Er parent. According to 2010Ma27 the delayed proton spectrum gated by the 683-keV transition in ^{146}Dy decaying with an apparent $T_{1/2}$=2.5 s *2* corresponds to the composed decay of both νh11/2 isomer and νs1/2 g.s. of ^{147}Er. The previous measurements of 1984ScZT and 1988WiZN also determined 2.5 s *2* previously adopted by 1992De38 and 2009Ni02 for this isomeric state, as well as ≈ 2.5 s for the g.s. %ε+%β^+,%β^+p: also reported by 1984ScZT (β^+p), 1984ScZT (ε+β^+). configuration: νh11/2 (1993To02).
543.0+x[@]	$(15/2^-)$[#]		B	
1455.0+x[@]	$(19/2^-)$[#]		B	
1668.0+x			B	
2179.0+x			B	
2430.0+x[@]	$(23/2^-)$[#]		B	
2549.0+x			B	
2606.0+x			B	
2793.0+x			B	
3197.0+x			B	
3361.0+x			B	
3468+x			B	
4323+x			B	
5008+x			B	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{147}Er Levels (continued)

† No uncertainties are available for the E_γ input. The E(level) values are from a least-squares fit to the E_γ data with the assumption that the uncertainties are the same for all the E_γ's.

‡ From syst of $\nu s_{1/2}$, $\nu d_{3/2}$, and $\nu h_{11/2}$ (neutron hole) states in Sm, Gd, Dy, and Er nuclei with N=77, 79, and 81 in ε decay (1993To02). This changes the previous assignment (1992De38) where J^π(g.s.)=(11/2$^-$), and J^π(0.0+x)=(1/2$^+$).

Based on multipolarities and comparison with ^{139}Nd, ^{141}Sm, ^{143}Gd, and ^{145}Dy isotones in ^{92}Mo(^{58}Ni,2pnγ) (1992De30).

@ Band(A): (11/2$^-$) $\nu h_{11/2}$ band (1992De30).

$\gamma(^{147}Er)$

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.†	α‡	Comments
80.9	(3/2$^+$)	80.9	100	0.0	(1/2$^+$)			
543.0+x	(15/2$^-$)	543	100	0.0+x	(11/2$^-$)	(E2)	0.01334	α(K)=0.01071 *15*; α(L)=0.00204 *3*; α(M)=0.000464 *7* α(N)=0.0001071 *15*; α(O)=1.459×10^{-5} *21*; α(P)=5.97×10^{-7} *9*
1455.0+x	(19/2$^-$)	912	100	543.0+x	(15/2$^-$)	(E2)	0.00407	α(K)=0.00339 *5*; α(L)=0.000531 *8*; α(M)=0.0001184 *17* α(N)=2.75×10^{-5} *4*; α(O)=3.88×10^{-6} *6*; α(P)=1.93×10^{-7} *3*
1668.0+x		1125	100	543.0+x	(15/2$^-$)			
2179.0+x		511	100	1668.0+x				
2430.0+x	(23/2$^-$)	975	100	1455.0+x	(19/2$^-$)	(E2)	0.00354	α(K)=0.00296 *5*; α(L)=0.000455 *7*; α(M)=0.0001014 *15* α(N)=2.35×10^{-5} *4*; α(O)=3.33×10^{-6} *5*; α(P)=1.683×10^{-7} *24*
2549.0+x		370	100	2179.0+x				
2606.0+x		176	100	2430.0+x	(23/2$^-$)			
2793.0+x		244	100	2549.0+x				
3197.0+x		591	100	2606.0+x				
3361.0+x		568	100	2793.0+x				
3468+x		107	100	3361.0+x				
4323+x		855	100	3468+x				
5008+x		685	100	4323+x				

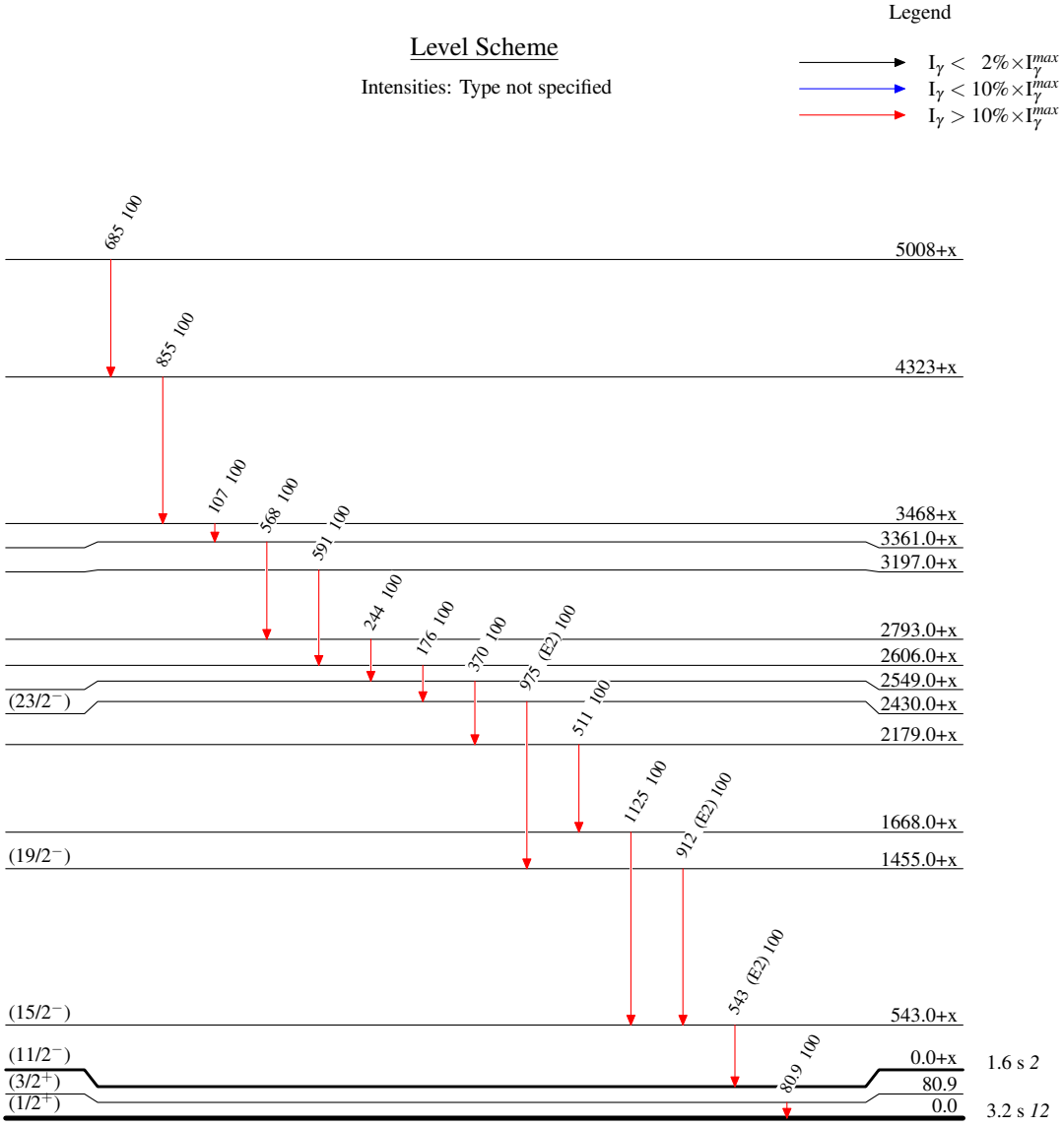
† From DCO in (^{58}Ni,2pnγ); 1992De30 assume E2 for quadrupole transitions.

‡ Additional information 1.

Adopted Levels, Gammas

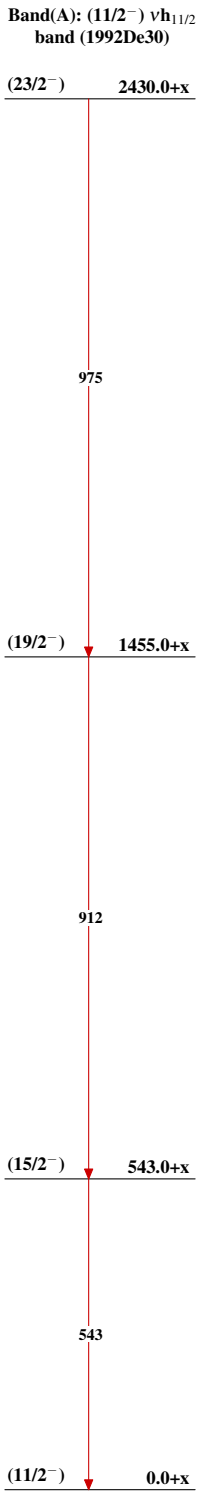
Level Scheme

Intensities: Type not specified



$^{147}_{68}Er_{79}$

Adopted Levels, Gammas



$^{147}_{68}Er_{79}$