^{171}Ho β^- decay 1990Ch34

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin, E. A. Mccutchan	NDS 151, 334 (2018)	30-Jun-2018

Parent: ^{171}Ho: E=0.0; J^π=(7/2$^-$); $T_{1/2}$=53 s *2*; Q(β^-)=3.2×10^3 *6*; %β^- decay=100.0

The partial decay scheme and all data are from 1990Ch34. Sources from multi-nucleon transfer reactions between ^{170}Er and tungsten targets, on-line mass separation; E(^{170}Er)=1445 MeV; measured Eβ, Iβ (plastic, silicon detectors), Eγ, Iγ (germanium, planar hyperpure germanium), time-resolved singles measurements, $\beta\gamma$ coin, $\gamma\gamma$ coin.

Others: 1989Ch05, 1989Ry04.

^{171}Er Levels

E(level)[†]	J^π[‡]	$T_{1/2}$	Comments
0.0	5/2$^-$	7.516 h *2*	$T_{1/2}$: from Adopted Levels.
79.04 *10*	(7/2$^-$)		
198.62 *9*	1/2$^-$	200 ns *30*	$T_{1/2}$: from 1990Ch34; adopted value is 210 ns *10*.
358.28 *25*	(7/2$^+$)		
532.27 *10*	(7/2$^-$)		
727.60 *10*			
841.23 *21*	(3/2$^-$,5/2$^-$)		E(level): Order of 61.2γ-642.5γ cascade could be reversed, changing E(level) to 259.8 keV. However, such a low energy seems unlikely since the lowest energy configurations have been assigned already to other levels.
903.12 *21*	(5/2$^-$)		
907.14 *12*	(5/2$^-$)		
1766.2 *10*			

[†] From a least-squares fit to Eγ.

[‡] From the Adopted Levels.

γ(^{171}Er)

Iγ(K x ray) (relative to Iγ(903.3γ)=100)

	E(x ray)	I(x ray)
Er Kα_2 x ray	48.2	51 8
Er Kα_1 x ray	49.1	106 7
Er Kβ_1' x ray	55.7	34 3

E$_\gamma$	I$_\gamma$	E$_i$(level)	J_i^π	E$_f$	J_f^π	Mult.	α[‡]	Comments
61.2 *5*	4 *2*	903.12	(5/2$^-$)	841.23	(3/2$^-$,5/2$^-$)			
79.1 *1*	25 *2*	79.04	(7/2$^-$)	0.0	5/2$^-$	(M1)[†]	5.59	α(K)=4.68 *7*; α(L)=0.706 *11*; α(M)=0.1567 *23*; α(N+..)=0.0421 *6* α(N)=0.0365 *6*; α(O)=0.00528 *8*; α(P)=0.000290 *5*
198.6 *1*	88 *23*	198.62	1/2$^-$	0.0	5/2$^-$	E2	0.258	α(K)=0.1655 *24*; α(L)=0.0710 *10*; α(M)=0.01691 *24*; α(N+..)=0.00433 *7* α(N)=0.00385 *6*; α(O)=0.000475 *7*; α(P)=7.78×10^{-6} *11* Mult.: adopted value.
279.2 *4*	60 *9*	358.28	(7/2$^+$)	79.04	(7/2$^-$)			
358.3 *3*	49 *33*	358.28	(7/2$^+$)	0.0	5/2$^-$			
453.8 *3*	13 *4*	532.27	(7/2$^-$)	79.04	(7/2$^-$)			
532.2 *1*	58 *4*	532.27	(7/2$^-$)	0.0	5/2$^-$			

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^{171}Ho β^- decay 1990Ch34 (continued)

$\gamma(^{171}Er)$ (continued)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π
642.5 *2*	39 *5*	841.23	$(3/2^-,5/2^-)$	198.62	$1/2^-$
704.7 *3*	27 *5*	903.12	$(5/2^-)$	198.62	$1/2^-$
708.5 *1*	34 *19*	907.14	$(5/2^-)$	198.62	$1/2^-$
727.6 *1*	44 *5*	727.60		0.0	$5/2^-$
823.9 *5*	30 *6*	903.12	$(5/2^-)$	79.04	$(7/2^-)$
903.3 *4*	100 *6*	903.12	$(5/2^-)$	0.0	$5/2^-$
907.2 *2*	57 *6*	907.14	$(5/2^-)$	0.0	$5/2^-$
1687.1 *10*	25 *8*	1766.2		79.04	$(7/2^-)$

† Probable multipolarity, consistent with large total K x ray intensity (only plausible source of substantial K x ray intensity).

‡ Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

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Decay Scheme

Intensities: Relative I_γ