

¹⁵⁹Ho IT decay 1971Ge01

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	C. W. Reich	NDS 113, 157 (2012)	31-Dec-2010

Parent: ¹⁵⁹Ho: E=205.91 5; J^π=1/2⁺; T_{1/2}=8.30 s 8; %IT decay=100.0

[Additional information 1.](#)

¹⁵⁹Ho (8 s) from ¹⁶⁰Dy(p,2n) at 12-15 MeV with pulsed beam (1971Ge01). Data are from 1971Ge01, unless noted as being from 1966Bo02.

Problems with the current theoretical understanding of the measured M3 transition probabilities in selected odd-mass nuclides are discussed by 2003Lo04.

¹⁵⁹Ho Levels

E(level) [†]	J ^π [‡]	T _{1/2}	Comments
0.0	7/2 ⁻		
166.19 22	7/2 ⁺		
205.88 10	1/2 ⁺	8.30 s 8	%IT=100 T _{1/2} : From 1971Ge01, other: 6.9 s 3 (1966Bo02); both measured by γ(t) after proton pulse. .

[†] From least-squares fit to γ energies.

[‡] From ¹⁵⁹Ho Adopted Levels.

γ(¹⁵⁹Ho)

I_γ normalization: normalized to give 100% feeding of ground state, assuming 166 γ is pure E1 and 205 γ is pure E3.

E _γ	I _γ [†]	E _i (level)	J _i ^π	E _f	J _f ^π	Mult.	α [‡]	I _(γ+ce) [†]	Comments
39.5 3	6.0×10 ⁻⁴ 5	205.88	1/2 ⁺	166.19	7/2 ⁺	[M3]	2.27×10 ⁴ 12	14.2 9	ce(L)/(γ+ce)=0.74 3; ce(M)/(γ+ce)=0.209 13; ce(N+)/(γ+ce)=0.055 4 ce(N)/(γ+ce)=0.049 4; ce(O)/(γ+ce)=0.0059 5; ce(P)/(γ+ce)=0.000115 8 I _γ : Calculated from transition intensity and α for pure M3. I _(γ+ce) : Calculated to agree with transition intensity of 166 G.
166.0 3	13.1 9	166.19	7/2 ⁺	0.0	7/2 ⁻	E1	0.0821		α(K)=0.0690 11; α(L)=0.01027 16; α(M)=0.00226 4; α(N+..)=0.000593 9 α(N)=0.000518 8; α(O)=7.18×10 ⁻⁵ 11; α(P)=3.38×10 ⁻⁶ 5 Mult.: From α _K (exp) < 0.08, based on α _K (exp)(166)/α _K (exp)(205) < 0.02, compared to α _K (E1)=0.069.
205.9 1	100	205.88	1/2 ⁺	0.0	7/2 ⁻	E3	1.364		α(K)=0.492 7; α(L)=0.665 10; α(M)=0.1647 24; α(N+..)=0.0419 6 α(N)=0.0374 6; α(O)=0.00449 7; α(P)=2.76×10 ⁻⁵ 4 Mult.: From measured K/L=0.7 (1966Bo02) compared to K/L(E3)=0.74.

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† For absolute intensity per 100 decays, multiply by 0.399 5.

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

 ^{159}Ho IT decay **1971Ge01**Decay Scheme

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
%IT=100.0

Legend

- $I_{\gamma} < 2\% \times I_{\gamma}^{max}$
- $I_{\gamma} < 10\% \times I_{\gamma}^{max}$
- $I_{\gamma} > 10\% \times I_{\gamma}^{max}$

