^{159}Gd IT decay (26.2 ns) 1968Bo10

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

Parent: ^{159}Gd: E=67.829 *24*; $J^\pi=5/2^+$; $T_{1/2}$=26.2 ns *8*; %IT decay=100.0

Additional information 1.

Isomer was produced in the ^{158}Gd(d,p) reaction.

^{159}Gd Levels

E(level)	J^π[†]	$T_{1/2}$	Comments
0.0	$3/2^-$		
50.7	$5/2^-$		
67.8	$5/2^+$	26.2 ns *8*	$T_{1/2}$: From γ(t) following p pulse in (d,p) reaction.

[†] From ^{159}Gd Adopted Levels.

$\gamma(^{159}Gd)$

E_γ	I_γ[†@]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	α[&]	$I_{(\gamma+ce)}$[#@]	Comments
(17.1)	4.6	67.8	$5/2^+$	50.7	$5/2^-$	[E1]	6.57	35 *5*	ce(L)/(γ+ce)=0.680 *6*; ce(M)/(γ+ce)=0.151 *3*; ce(N+)/(γ+ce)=0.0368 *7* ce(N)/(γ+ce)=0.0327 *6*; ce(O)/(γ+ce)=0.00398 *8*; ce(P)/(γ+ce)=0.0001120 *21*
50.7 *4*	2.35	50.7	$5/2^-$	0.0	$3/2^-$	[M1]	13.9	35 *5*	ce(K)/(γ+ce)=0.782; ce(L)/(γ+ce)=0.116; ce(M)/(γ+ce)=0.0254; ce(N+)/(γ+ce)=0.0068 ce(N)/(γ+ce)=0.0058; ce(O)/(γ+ce)=0.00091; ce(P)/(γ+ce)=6.01×10^{-5} α: Note that the Eγ value is only 0.5 *4* keV above the K-shell binding energy of 50.239 keV, rendering the calculation of the respective conversion coefficient problematic. Listed value is from extrapolation of values calculated for higher-energy γ's.
67.8 *4*	35.7	67.8	$5/2^+$	0.0	$3/2^-$	[E1]	0.824 *18*	65 *5*	ce(K)/(γ+ce)=0.375 *6*; ce(L)/(γ+ce)=0.0605 *14*; ce(M)/(γ+ce)=0.0131 *3*; ce(N+)/(γ+ce)=0.00339 *8* ce(N)/(γ+ce)=0.00295 *7*; ce(O)/(γ+ce)=0.000422 *10*; ce(P)/(γ+ce)=1.98×10^{-5} *5*

[†] Computed from the Iγ(1+α) and α values.

[‡] From ^{159}Gd Adopted γ radiation.

[#] Calculated by evaluator and based on authors' ratio of the L-shell conversion-electron intensities, L(68)/L(51)=1.1 *2*; and photon intensity ratio, I(K x ray)/I(68)=1.4 *2*; and the assumption that the 50.7 γ is pure M1. The authors report Iγ(1+α)(17) = Iγ(1+α)(50) = 26% (4) and Iγ(1+α)(67) = 74% (4). These values differ from those adopted here due to the differences in the conversion coefficients used. The measured data cannot be fit if the 50 γ is pure E2, but some E2 mixture is possible.

[@] Absolute intensity per 100 decays.

[&] 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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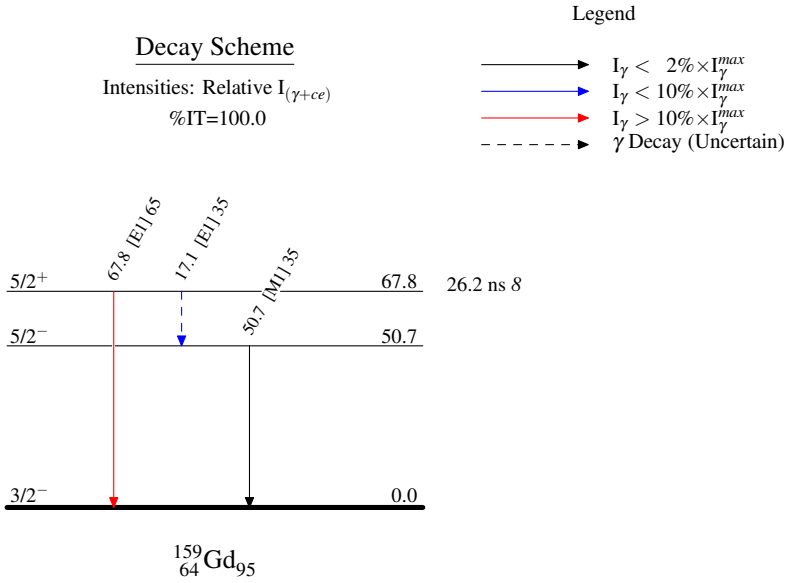
Decay Scheme

Intensities: Relative $I_{(\gamma+ce)}$

%IT=100.0



$^{159}_{64}Gd_{95}$