^{165}Dy IT decay (1.257 min) 1972Ma06,1964Ha19,1960To06

History

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

Parent: ^{165}Dy: E=108.1562 *13*; $J^\pi=1/2^-$; $T_{1/2}$=1.257 min *6*; %IT decay=97.73 *9*

^{165}Dy-E: from the Adopted Levels.

^{165}Dy-%IT decay: From %IT+%Iβ^-=%I(γ+ce)(108.6γ)(^{165}Dy)+ΣI(γ+ce to g.s.)(^{165}Ho)=100, using measured Iγ in 1972Ma06. See the dataset of ^{165}Dy β^- decay for γ intensity data of ^{165}Ho. Others: %IT=97.5 *4* (1964Ha19), 97.6 *3* (1960To06).

1972Ma06: ^{165}Dy isomers were produced via ^{164}Dy(n,γ) with neutron beam from the SAPHIR reactor at EIR in Wurenlingen on a natural dysprosium target (99.9% purity). γ rays were detected with a Ge(Li) detector and conversion electrons were detected with the Fribourg double-focusing magnetic spectrometer. Measured Eγ, Iγ, E(ce), I(ce). Deduced levels.

1964Ha19: ^{165}Dy isomers were produced by irradiating about 10 mg Dy_2O_3 in a flux of neutrons from the reactor R2.0 at Studsvik, Sweden. γ and X rays were detected with NaI(Tl) scintillators. Measured Eγ, Iγ, E(X ray), I(X ray), $\gamma\gamma$-coin, γ(t). Deduced isomer $T_{1/2}$, decay branching ratio, γ-ray conversion coefficient.

1960To06: ^{165}Dy isomers were produced by thermal neutron bombardment of Dy_2O_3. γ and X rays were detected with NaI(Tl) scintillators. Measured Eγ, Iγ, E(X ray), I(X ray). Deduced isomer decay branching ratio.

Others:

γ: 1992Kr03 (HPGe); 1965Sc09, 1962Ni11, 1962Ha46 (Curved-crystal).

ce: 1967Du05, 1950Ca10. Magnetic spectrometer.

^{165}Dy Levels

E(level)	J^π[†]	$T_{1/2}$[†]	Comments
0.0	$7/2^+$	2.331 h *4*	
108.1562 *13*	$1/2^-$	1.257 min *6*	%IT=97.73 *9*; %β^-=2.27 *9* E(level): from the Adopted Levels. $T_{1/2}$: from the Adopted Levels, where value is from time scaling of γ rays in 1964Ha19. Others: 1.263 min *16* (1960Ho16), 1960Wi10, 1959Cr80.

[†] From Adopted Levels.

γ(^{165}Dy)

Iγ normalization: From %I(γ+ce)(108γ)=100.

Eγ	Iγ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	α[†]	Comments
108.160 *3*	100.0 *30*	108.1562	$1/2^-$	0.0	$7/2^+$	E3	31.0 *4*	α(K)=3.25 *5*; α(L)=21.09 *30*; α(M)=5.32 *7* α(N)=1.199 *17*; α(O)=0.1410 *20*; α(P)=0.0002065 *29* %Iγ=3.05 *4* Eγ: from 1965Sc09. Others: 108.165 *15* (1962Ha46), 108.200 *4* (1962Ni11), using Curved-crystal spectrometer. Iγ: from 1972Ma06. Mult.: α(K)exp=2.92 *8* (1992Kr03), 3.4 *2*(1964Ha19), 3.62 *22* (1960To06); K:L2:L3:M:N=100:795:523:350:167 (1950Ca10); K:L2:L3=100 *30*:459 *92*:296 59 (1967Du05); K:L3=100:893 *72* (1960Ho16), 100:770 *59* (1964Ha19).

[†] Additional information 1.

[‡] For absolute intensity per 100 decays, multiply by 0.0305.

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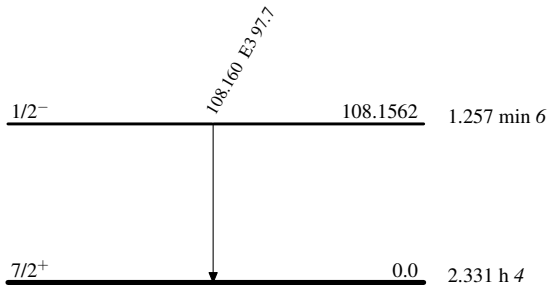
Decay Scheme

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

%IT=97.73 *9*



$^{165}_{66}Dy_{99}$