^{153}Dy α decay (6.4 h) 1974To07

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen	NDS 185, 2 (2022)	23-Aug-2022

Parent: ^{153}Dy: E=0.0; $J^\pi=7/2^{(-)}$; $T_{1/2}$=6.4 h *1*; Q(α)=3559 *4*; %α decay=0.0094 *14*

^{153}Dy-J^π,$T_{1/2}$: From ^{153}Dy Adopted Levels in the ENSDF database (August 2020 update).

^{153}Dy-$T_{1/2}$: Additional information 1.

^{153}Dy-Q(α): From 2021Wa16.

^{153}Dy-%α decay: 1974To07 deduced branching=1.13×10^{-4} *17* from absolute intensities of 80.75-, 99.65- and 274.7-keV gamma rays measured by 1970Ch09, and 0.83×10^{-4} *13* from their observed Kα x-ray intensity. The listed value is the weighted average of these results. Both results are in disagreement with the value, Branching=3.0×10^{-3}% *3*, reported by 1964Ma19. Compilation of 1991Ry01 gives %α=0.009 *4*.

1974To07: ^{153}Dy source was produced in ^{142}Nd(^{12}C,n) with 118 MeV ^{12}C beam from the Oak Ridge isochronous cyclotron. Measured Iα, Kα x-ray, Iγ, Eγ, α-decay branching ratio.

Other measurements: 1978AfZZ, 1967Go32, 1965Ma51, 1964Ma19, 1962Ry03, 1960To05, 1958To27.

Theoretical calculations: 1985Ch32.

^{149}Gd Levels

E(level)	J^π[†]	$T_{1/2}$[†]
0.0	$7/2^-$	9.28 d *10*
164.5	$5/2^-$	

[†] From the Adopted Levels.

α radiations

Eα	E(level)	Iα[‡]	HF[†]	Comments
3305 *5*	164.5	0.02 *1*	2.7×10^2 *15*	Eα,Iα: from 1967Go32. Iα(3305α)/Iα(3464α)=$(2.3\times10^{-8}$ *12*$)/(1.13\times10^{-4}$ *17*) in 1974To07.
3464 *5*	0.0	99.98 *1*	1.2 *2*	Eα: from 1967Go32 and 1978AfZZ. Others: 3480 *20* (1964Ma19), 3480 *50* (1960To05), 3464 *8* (1965Ma51). Iα: 1967Go32 also report that Iα/Iα(3464α)<2×10^{-5} for any alpha in the energy range 3000 to 3300 keV.

[†] The nuclear radius parameter $r_0(^{149}Gd)$=1.560 *21* is deduced from interpolation (or unweighted average) of radius parameters of the adjacent even-even nuclides in 2020Si16.

[‡] For absolute intensity per 100 decays, multiply by 9.4×10^{-5} *14*.