^{171}Ir α decay (3.2 s) 2013An10,2010An01

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen	NDS 191,1 (2023)	22-Aug-2023

Parent: ^{171}Ir: E=0.0; J^π=(1/2$^+$); $T_{1/2}$=3.2 s *+13−7*; Q(α)=5997 *12*; %α decay=15 *2*

^{171}Ir-E,J^π,$T_{1/2}$: From ^{171}Ir Adopted Levels in the ENSDF database (June 2018 update), where half-life is based on measurements by 2002Ro17.

^{171}Ir-Q(α): 5997 *12* from systematics (2021Wa16).

^{171}Ir-%α decay: %α=15 *2* from ^{171}Ir Adopted Levels in the ENSDF database (June 2018 update), where data are from 2013An10.

2013An10, 2010An01: ^{171}Ir from α decay chain of ^{179}Tl produced in two reactions. First reaction E(p)=1.4 GeV at ISOLDE. Target=50 g/cm^2 ^{238}U. ^{179}Tl ionized to 1$^+$ charge by the Resonance Ionization Laser Ion Source (RILIS) and mass separated by the High Resolution (HRS) and General Purpose (GPS) Separators. Second reaction E(^{40}Ca)=232 MeV provided by the UNILAC at GSI. Target≈350 μg/cm^2 ^{144}Sm. Separated by the velocity filter SHIP. Measured Eγ, Iγ, Eα, Iα, $T_{1/2}$, yield using a single Miniball Ge cluster and a PSSD. Deduced J^π, and α branching ratio.

^{167}Re Levels

E(level)	J^π	$T_{1/2}$	Comments
0.0	(1/2$^+$)	3.4 s *4*	E(level),J^π,$T_{1/2}$: from the Adopted Levels.

α radiations

Eα	E(level)	Iα[‡]	HF[†]	Comments
5734 *9*	0.0	100	2.6 *12*	Eα: from 2013An10. Statistical uncertainty of 7 keV and systematic uncertainty of 5 keV added in quadrature. Statistical uncertainty from Gaussian fit of α-decay peak. Systematical uncertainty of about 5 keV from calibration procedures used at SHIP and ISOLDE.

[†] The nuclear radius parameter r_0(^{167}Re)=1.5595 *50* is deduced from interpolation (or unweighted average) of radius parameters of the adjacent even-even nuclides (2020Si16).

[‡] For absolute intensity per 100 decays, multiply by 0.15 *2*.