^{172}Os ε decay (19.2 s) 1995Hi02

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	ENSDF	31-Dec-2015

Parent: ^{172}Os: E=0.0; $J^\pi=0^+$; $T_{1/2}$=19.2 s *9*; Q(ε)=4280 *40*; %ε+%$β^+$ decay=98.0

^{172}Os-$T_{1/2}$: From ^{172}Os Adopted Levels.

^{172}Os-Q(ε): From 2012Wa38.

^{172}Os-%ε+%$β^+$ decay: from %α=0.2 (1971Bo06). 1995Hi02 deduce %α=1.1 *2*, but several assumptions are made for the level scheme (which is considered incomplete as yet) of ^{172}Re from ^{172}Os ε decay. Sufficient data are lacking to deduce absolute γ-ray intensities and ε branches.

1995Hi02: source produced by ^{140}Ce(^{36}Ar,4n) E=178,185,194 MeV. Measured Eα, Eγ, Iγ, γγ, $T_{1/2}$(^{172}Os isotope).

Others: 1972Be89, 1974Be59, 1977Be66 (all by the same group). ^{172}Os produced by Tl(p,X) E=1 GeV, spallation reaction. 1972Be89 reported four γ rays with energy (intensity): 177 (100), 187 (50), 276 (25), 285 (30). 1995Hi02 confirm the existence of 177γ, but not the others within an upper limit of ≈5%, relative to Iγ(177γ).

^{172}Re Levels

E(level)	J^π †	$T_{1/2}$	Comments
0+y	(2)	55 s *5*	J^π,$T_{1/2}$: from Adopted Levels.
63.0+y *3*	(1)		
161.4+y *5*			
169.8+y *5*			
185.0+y *5*			
239.8+y *2*	(0,1)		
274.1+y *5*			
291.5+y *3*			
360.5+y *5*			
906.3+y *10*			

† From Adopted Levels.

γ(^{172}Re)

E_γ †	I_γ †	E_i(level)	J_i^π	E_f	J_f^π	Mult.	α‡	Comments
63.0 *3*	100	63.0+y	(1)	0+y	(2)	(E1)	0.25	Mult.: from α(exp)=0.4 *1* (from γγ,1995Hi02).
98.4 *4*	≈1	161.4+y		63.0+y	(1)			
106.8 *4*	≈1	169.8+y		63.0+y	(1)			
120.7 *4*	≈2	360.5+y		239.8+y	(0,1)			
122.0 *4*	≈1	185.0+y		63.0+y	(1)			
x159.9 *4*	4 *1*							
176.7 *2*	40 *6*	239.8+y	(0,1)	63.0+y	(1)			
211.1 *4*	≈2	274.1+y		63.0+y	(1)			
x226.1 *5*	≈2							γ in coin with 63γ.
228.4 *4*	≈2	291.5+y		63.0+y	(1)			
239.8 *2*	37 *7*	239.8+y	(0,1)	0+y	(2)			
291.5 *3*	5.5 *12*	291.5+y		0+y	(2)			
843.3 *10*	4 *2*	906.3+y		63.0+y	(1)			
x1120.1 *15*	15 *10*							

† From 1995Hi02.

‡ 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.

x γ ray not placed in level scheme.

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Decay Scheme

Intensities: Relative I_γ