Adopted Levels, Gammas

History

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

Q(β^-)=−6280 *30*; S(n)=9030 *50*; S(p)=370 *40*; Q(α)=5991 *10* 2012Wa38
S(2n)=20160 *90* (syst), S(2p)=3040 *40*, Q(εp)=6580 *40* (2012Wa38).
1992Sc16: ^{172}Ir from ^{141}Pr(^{36}Ar,5n), E(^{36}Ar)=234 MeV primary beam, helium-jet transport; monoisotopic targets; measured Eα, Iα, Eγ, Iγ, $\alpha\gamma$ coin, (α)(K x ray) coin.
2004GoZZ: ^{172}Ir from α-decay of ^{176}Au produced in ^{84}Sr bombardment of Mo; fragment mass analyzer and double-sided Si strip detector (for recoils and decay α particles), recoil decay tagging technique. Measured Eα, Iα, recoil-α-γ coin, α(t), parent-daughter α correlations.
2014An10: measured α branching ratio from high-spin isomer of ^{172}Ir.

^{172}Ir Levels

Cross Reference (XREF) Flags

A ^{176}Au α decay (1.05 s)
B ^{176}Au α decay (1.36 s)

E(level)	J$^\pi$	T$_{1/2}$	XREF	Comments
0+x	(3$^-$,4$^-$)	4.4 s *3*	A	%α≈2 (1992Sc16); %ε+%β^+≈98 Other %α<2 (2004GoZZ), also a low value is consistent with the measurements in 2014An10, but a precise branching ratio could not be extracted by 2014An10 due to detection sensitivity limit. J$^\pi$: from 2014An10 based on favored α decay from (3$^-$,4$^-$) parent state of ^{176}Au. Possible configuration=π1/2$^+$,(s$_{1/2}$ orbital)⊗ ν7/2$^-$,(f$_{7/2}$ or h$_{9/2}$ orbital). From α and β-decay studies of ^{172}Ir decay, (3$^+$) proposed by 1992Sc16 and (2,3) by 1992Bo21. T$_{1/2}$: from α decay (1992Sc16).
0+y	(7$^+$)	2.19 s *7*	B	%α=9.5 *11* (2014An10); %ε+%β^+=90.5 *11* E(level): 138 keV *3* (based on data in 1992Sc16) and 139 keV *10* listed in 2012Au07 are no longer supported by the measurements in 2014An10 who propose two activities in ^{168}Re, a low-spin and a high-spin. Some of the γ rays reported by 1992Sc16 and which implied the energy of this level were not confirmed by 2004GoZZ. %α measured by 2014An10 by two methods: $\alpha\gamma$-coin and $\alpha\alpha$-correlations, first giving a value of 10% *2* and the other 9% *1*. Other measured values of %α: 23 *3* (1992Sc16), 22 *6* (2004GoZZ), <32 (1984ScZQ). J$^\pi$: from 2014An10 with possible configuration= π11/2$^-$,(h$_{11/2}$ orbital)⊗ν3/2$^-$,(f$_{7/2}$ or h$_{9/2}$ orbital). From β and α-decay studies of ^{172}Ir, (7$^+$) proposed by 1992Sc16 and (5$^+$,6$^+$) by 1992Bo21. T$_{1/2}$: from α decay, weighted average of 2.26 s *5* (2004GoZZ), 2.0 s *1* (1992Sc16) and 2.1 s *1* (1978Sc26). Others: 1.7 s *5* (1967Si02), 2.1 s *5* (1984ScZQ).
126.3+x *3*			A	
151.5+x *3*			A	
175.2+y *3*	(8$^+$,9$^+$)		B	J$^\pi$: 2014An10 assign (8$^+$,9$^+$) based on favored α decay from (8$^+$,9$^+$) parent state. But (9$^+$) is not likely if 175.2γ to (7$^+$) is (M1). Possible configuration=π11/2$^-$,(h$_{11/2}$ orbital)⊗ν7/2$^-$,(f$_{7/2}$ or h$_{9/2}$ orbital).
211.6+y *3*	(8$^+$,9$^+$)		B	J$^\pi$: 2014An10 assign (8$^+$,9$^+$) based on favored α decay from (8$^+$,9$^+$) parent state. But (9$^+$) is not likely if 211.6γ to (7$^+$) is (M1). Possible configuration=π11/2$^-$,(h$_{11/2}$ orbital)⊗ν7/2$^-$,(f$_{7/2}$ or h$_{9/2}$ orbital).
236.6+x *3*			A	
500.0+x *5*			A	

Adopted Levels, Gammas (continued)

$\gamma(^{172}Ir)$

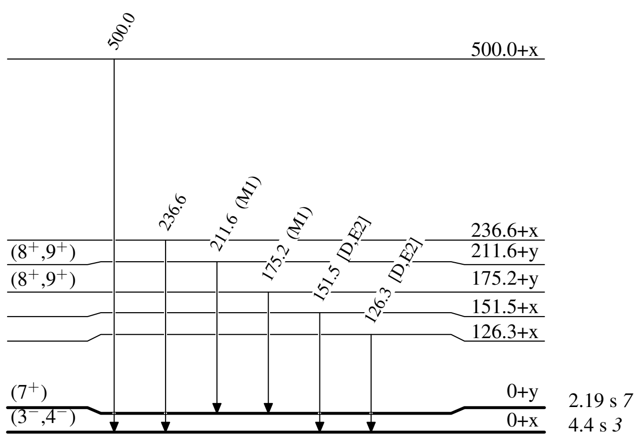
E_i(level)	J^π_i	E_γ	E_f	J^π_f	Mult.	α‡
126.3+x		126.3 *3*	0+x	$(3^-,4^-)$	[D,E2]	1.7 *15*
151.5+x		151.5 *3*	0+x	$(3^-,4^-)$	[D,E2]	1.0 *9*
175.2+y	$(8^+,9^+)$	175.2 *3*	0+y	(7^+)	(M1)†	1.243
211.6+y	$(8^+,9^+)$	211.6 *3*	0+y	(7^+)	(M1)†	0.734
236.6+x		236.6 *3*	0+x	$(3^-,4^-)$		
500.0+x		500.0 *5*	0+x	$(3^-,4^-)$		

† From considerations of observed intensities of K-x rays of Ir as compared to the photon intensities of 175.2γ and 211.6γ from the decay of high-spin isomer of ^{176}Au, and 126.3γ and 151.5γ from the decay of low-spin isomer of ^{176}Au.

‡ 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.

Adopted Levels, Gammas

Level Scheme



$^{172}_{77}Ir_{95}$