^{172}Au α decay (22 ms) 2009Ha42

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 111, 1807 (2010)	15-Jun-2010

Parent: ^{172}Au: E=0.0; $T_{1/2}$=22 ms *+6−4*; Q(α)=6923 *10*; %α decay≈100.0

^{172}Au-$T_{1/2}$: From 6762α(t) (2009Ha42).

^{172}Au-J^{π}: Possibly (3^-), analogous to that suggested by 2004GoZZ for ^{174}Au and ^{176}Au (2009Ha42).

^{172}Au-%α decay: α decay only has been observed but proton and $\varepsilon+\beta^+$ decay are possible. $T_{1/2}(\varepsilon+\beta^+)\approx$0.9 s (1973Ta30) from gross β decay theory and 0.27 s (1997Mo25) imply %ε+%$\beta^+\approx$2.4% and 8.1%, respectively.

2009Ha42: ^{172}Au source from ^{96}Ru(^{78}Kr,pnγ), E=342, 348 MeV; 96% enriched ^{96}Ru target followed by C charge reset foil; In-flight mass separation using RITU gas-filled separator; fusion-evaporation residues implanted In 2 double-sided Si strip detectors In the GREAT spectrometer (which also includes a multiwire proportional counter, 28 Si PIN diode detectors, a segmented planar Ge detector and a HPGe clover detector) At the RITU focal plane; measured Eα, α(t), α correlations.

^{168}Ir Levels

E(level)	$T_{1/2}$	Comments
0.0	222 ms *+60−40*	$T_{1/2}$: adopted value; from 6230α(t) (2009Ha42).

α radiations

Eα	E(level)	Iα‡	HF†	Comments
6762 *10*	0.0	100	≈3.1	HF: 3.1 *9* if %α(^{172}Au)=100. Eα: from 2009Ha42; this Eα implies Q(α)(^{172}Au)=6923 *10* if this is a g.s. to g.s. transition (cf. 7034 *50* from 2003Au03, 2009AuZZ). correlated with 6230α from ^{168}Ir g.s., 5780α from ^{164}Re g.s. and 5320α from ^{160}Ta.

† If r_0=1.556 *3*, unweighted average of r_0(^{166}Os)=1.5638 *12* (2008Ba14), r_0(^{168}Os)=1.557 *4* and r_0(^{168}Pt)=1.556 *3* (this evaluation), and r_0(^{170}Pt)=1.548 *12* (2002Ba93) (weighted average is 1.5562 *19*).

‡ For absolute intensity per 100 decays, multiply by ≈1.0.