^{193}Po α decay (245 ms) 2002Va13,1993Wa04

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	T. D. Johnson, Balraj Singh	NDS 142, 1 (2017)	15-Apr-2017

Parent: ^{193}Po: E=95 *7*; J^π=(13/2$^+$); $T_{1/2}$=245 ms *11*; Q(α)=7094 *4*; %α decay≤100.0

^{193}Po-E,J^π: From 2013Sa43 from Eα values and decay pattern in ^{197}Rn -> ^{193}Po -> ^{189}Pb -> ^{185}Hg -> ^{181}Pt α-decay chain. The same values are given in ^{193}Po Adopted Levels in the ENSDF database (Nov 2015 update). Energy of this state is listed as 100 keV *6* in 2017Au03 from energy difference in α decay.

^{193}Po-$T_{1/2}$: From ^{193}Po Adopted Levels in the ENSDF database (Nov 2015 update).

^{193}Po-Q(α): From 2017Wa10.

^{193}Po-%α decay: %α≤100 (from ^{193}Po Adopted Levels in the ENSDF database; Nov 2015 update).

2002Va13: ^{193}Po produced by ^{166}Er(^{32}S,5n); implanted into position sensitive silicon strip detector to register the decayed α-particles; Ge detectors for γ and X-rays; Silicon detectors for conversion electrons; Eα, Eγ, E(ce), $\alpha\gamma$ and α-ce coincidences measured.

1993Wa04: α-sources ^{193}Po produced by <240 MeV Ne beam on 2.1 mg/cm^2 ^{182}W target; LISOL separator; Silicon surface-barrier detector and silicon PIPS-type detectors; Eα, $T_{1/2}$ measured.

See also, 2005Uu02, 1995Mo14, 1981Le23, 1967Si09.

^{189}Pb Levels

E(level)	J^π	Comments
40 *4*	(13/2$^+$)	Additional information 1. E(level): from 2013Sa43. J^π: from ^{189}Pb Adopted Levels.
677 *1*	(13/2$^+$)	E(level),J^π: from 2013Sa43. The same J^π value in Adopted Levels.

α radiations

Eα	E(level)	Iα‡	HF†	Comments
6375 *15*	677	0.8 *3*	1.1 *5*	Eα,Iα: from 2002Va13.
7002 *4*	40	99.2 *3*	2.0 *1*	Eα: weighted average of 7004 *10* (2002Va13), 6991 *20* (1995Mo14), 7004 *5* (1993Wa04), 7000 *20* (1981Le23) and 6980 *20* (1967Si09). Other: 6995 keV (1977De32). Iα: 99.2 *35* in 2002Va13. Uncertainty of 0.3 is assigned by evaluators based on 100−(Iα=0.8 *3* to 677 level).

† Deduced by evaluators using r_0(^{189}Pb)=1.511 *8*, from r_0(^{188}Pb)=1.511 *8* and r_0(^{190}Pb)=1.511 *6* (1998Ak04).

‡ For absolute intensity per 100 decays, multiply by ≤1.

γ(^{189}Pb)

E$_\gamma$	I$_\gamma$†	E$_i$(level)	J_i^π	E$_f$	J_f^π	Mult.	α‡	I$_{(\gamma+ce)}$†	Comments
637 *1*	67 *9*	677	(13/2$^+$)	40	(13/2$^+$)	E0+M1+E2	0.49 *19*	99.2 *3*	I$_{(\gamma+ce)}$: from Iα. I$_\gamma$: from I(γ+ce) and α(exp). Mult.: α(exp)=1.1 *4* (2002Va13). α(exp): from Adopted Gammas, based on α(K)exp=0.41 *16* (2009Dr03).

† For absolute intensity per 100 decays, multiply by ≤1.

‡ 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.

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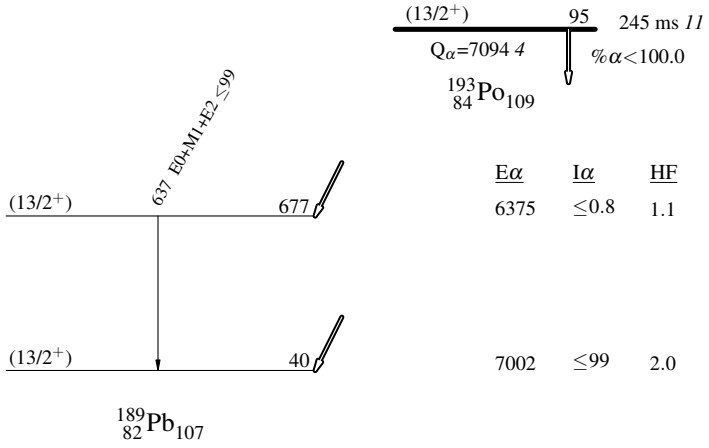
Decay Scheme

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays



Eα	Iα	HF
6375	≤0.8	1.1
7002	≤99	2.0