^{193}Po α decay (388 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=0; J^π=(3/2$^-$); $T_{1/2}$=388 ms *40*; Q(α)=7094 *4*; %α decay≤100.0

^{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) E_{lab}(^{32}S) = 169 MeV; 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: ^{193}Po source 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, 1995Mo14, 1981Le23, 1977De32.

^{189}Pb Levels

E(level)†	J^π†
0.0	(3/2$^-$)
549 *1*	(3/2$^-$)

† From 2002Va13. Same J^π values are in Adopted Levels.

α radiations

Eα	E(level)	Iα‡	HF†	Comments
6420 *20*	549	0.7 *3*	2.8 *13*	Eα,Iα: From 2002Va13.
6948 *4*	0.0	99.3 *3*	2.1 *2*	Eα: weighted average of 6949 *10* (2002Va13), 6946 *20* (1995Mo14), 6949 *5* (1993Wa04) and 6940 *20* (1981Le23). Other: 6940 (1977De32). Iα: 99.3 *25* in 2002Va13. Uncertainty of 0.3 is assigned by evaluators based on 100−(Iα=0.7 *3* to 549 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)

Eγ	Iγ†	E_i(level)	J_i^π	E_f	J_f^π	Mult.	α‡	$I_{(\gamma+ce)}$†	Comments
549 *1*	72 *10*	549	(3/2$^-$)	0.0	(3/2$^-$)	E0+M1+E2	0.40 *19*	99.3 *3*	$I_{(\gamma+ce)}$: from Iα. Iγ: from I(γ+ce) and α(exp). Mult.: α(exp)=0.34 *16* (2002Va13). α(exp): α(K)exp multiplied by a factor of 1.2 to include higher shells.

† 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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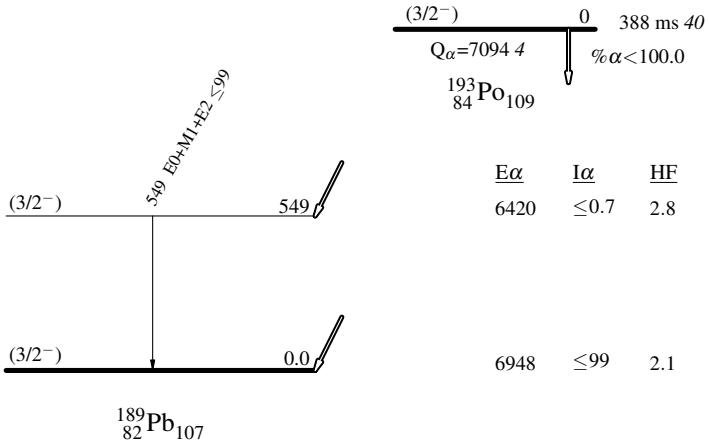
Decay Scheme

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



Eα	Iα	HF
6420	≤0.7	2.8
6948	≤99	2.1