

Adopted Levels, Gammas

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Huang Xiaolong, Zhou Chunmei		NDS 104,283 (2005)	1-Jan-2002

$Q(\beta^-) = -7.01 \times 10^3$ 8; $S(n) = 7.95 \times 10^3$ 6; $S(p) = 2.64 \times 10^3$ 6; $Q(\alpha) = 6412$ 4 [2012Wa38](#)

Note: Current evaluation has used the following Q record -7014 71 7955 51 2638 55 6412 4 [2003Au03](#).

$Q(\alpha)$: If 6282 α is g.s. to g.s.

 ^{197}Po LevelsCross Reference (XREF) Flags

- A** ^{201}Rn α decay (7.1 s)
B ^{201}Rn α decay (3.8 s)
C (HL,xny)

E(level)	J^π	$T_{1/2}$	XREF	Comments
0.0	(3/2 ⁻)	84 s 16	A	$\% \alpha = 44$ 7; $\% \epsilon + \% \beta^+ = 56$ 7 (1981Sc01) $\mu = -0.882$ 65 (2014Se07) $Q = -0.44$ 20 (2014Se07) $\delta \nu(^{197}\text{Po}, ^{196}\text{Po}) = 30$ GHz 15; $\delta \langle r^2 \rangle(^{197}\text{Po}, ^{210}\text{Po}) = -0.657$ fm ² 13 (2013Se03). The uncertainties are statistical only. $\langle \beta_2^2 \rangle^{1/2} = 0.13$ (2013Se03 , 2014Se07). μ, Q : hyperfine structure studies using in-source resonance ionization spectroscopy at CERN-ISOLDE facility (2014Se07). Total (statistical uncertainties=0.013 for μ and 0.15 for Q , and systematic) uncertainties are given. $\% \alpha$: Other: 90 10 (1971Ho01). Compared to 1.6 3 for ^{201}Po , 12 2 for ^{199}Po , 75 15 for ^{195}Po . $T_{1/2}$: from 1996Ta18 . other: 53 s 1 (1993Wa04), 58 s 3 (1967Le21), 52 s 4 (1967Si09), 60 s 6 (1971Ho01). J^π : HF(6721 α)=1.4 5 via (3/2 ⁻), ^{201}Rn decay (7.0 s). E(level): extrapolated from regional trend (1980Sc26). First 5/2 ⁻ states in ^{199}Po , ^{201}Po , ^{203}Po occur at 73 ⁻ , 6.5 ⁻ , 0.0-keV, respectively.
130? syst	(5/2 ⁻)		A	$\% \alpha = 84$ 9; $\% \epsilon + \% \beta^+ = 16$ 9 (1981Sc01); $\% \text{IT} = 0.01$ syst (1980Sc26) $\mu = -1.053$ 75 (2014Se07) $Q = +1.26$ 45 (2014Se07) $\delta \nu(^{197}\text{Po}, ^{196}\text{Po}) = 0.12$ GHz 15; $\delta \langle r^2 \rangle(^{197}\text{Po}, ^{210}\text{Po}) = -0.642$ fm ² 13 (2013Se03). The uncertainties are statistical only. $\langle \beta_2^2 \rangle^{1/2} = 0.13$ (2013Se03 , 2014Se07). μ, Q : hyperfine structure studies using in-source resonance ionization spectroscopy at CERN-ISOLDE facility (2014Se07). Total (statistical uncertainties=0.020 for μ and 0.30 for Q , and systematic) uncertainties are given. $\% \text{IT}$: Other: 1.8 (1977StZJ). Compared to 40 14 for ^{201}Po , 2.1 for ^{199}Po , <0.01 for ^{195}Po . E(level): from 6282 α to ^{193}Pb g.s., 6383 α to 5.8-min ^{193}Pb (13/2 ⁺) state at 100 keV (syst). J^π : spin consistent with optical hyperfine spectrum shown in Fig. 6 of 2014Se07 . $T_{1/2}$: from 1996Ta18 . other: 25.8 s 1 (1993Wa04), 29 s 9 (1967Le21), 26 s 2 (1967Si09), 27 s 3 (1971Ho01), 40 s 10 (1982Bo04). J^π : HF(6770 α) $\approx$ 1.25 via 13/2 ⁺ , ^{201}Rn decay (3.8 s). Analog: 4.2-min ^{199}Po at 311 keV; $\% \alpha = 39$ 4 (1971Ho01), $\% \text{IT} = 1.8$ (1977StZJ), HF(M4,238 γ)=0.45 W.u.
204 ⁺ syst	(13/2 ⁺)	32 s 2	BC	
687.5 ⁺ 10	(17/2 ⁺)		C	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued) ^{197}Po Levels (continued)

E(level)	J^π	XREF
1146.9 [†] 15	(21/2 ⁺)	C
1686.2 [†] 18	(25/2 ⁺)	C

[†] Band(A): regular quadrupole band.

[‡] From systematics of the odd-mass polonium isotopes.

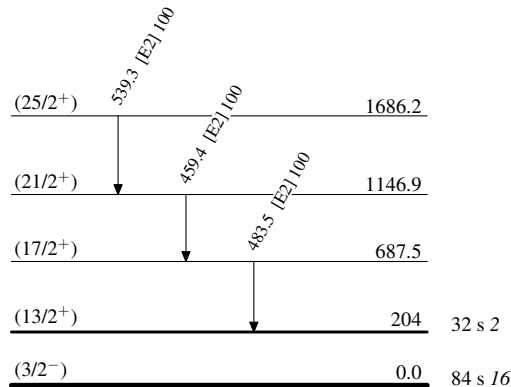
 $\gamma(^{197}\text{Po})$

$E_i(\text{level})$	J^π_i	E_γ	I_γ	E_f	J^π_f	Mult.	$\alpha^\dagger$	Comments
687.5	(17/2 ⁺)	483.5	100	204	(13/2 ⁺)	[E2]	0.0352	$\alpha(\text{K})=0.0239$ 8; $\alpha(\text{L})=0.0084$ 3; $\alpha(\text{M})=0.00212$ 7; $\alpha(\text{N}+..)=0.00071$ 2
1146.9	(21/2 ⁺)	459.4	100	687.5	(17/2 ⁺)	[E2]	0.0399	$\alpha(\text{K})=0.0266$ 8; $\alpha(\text{L})=0.0099$ 3; $\alpha(\text{M})=0.00251$ 8; $\alpha(\text{N}+..)=0.00084$ 3
1686.2	(25/2 ⁺)	539.3	100	1146.9	(21/2 ⁺)	[E2]	0.027 2	$\alpha(\text{K})=0.0192$ 6; $\alpha(\text{L})=0.00602$ 18

[†] 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.

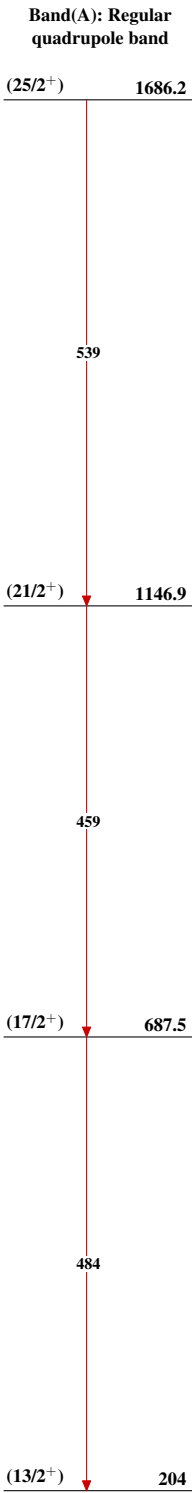
Adopted Levels, GammasLevel Scheme

Intensities: Relative photon branching from each level



$^{197}_{84}\text{Po}_{113}$

Adopted Levels, Gammas



$^{197}_{84}\text{Po}_{113}$