^{195}Po α decay (1.92 s)   2010Co13,1993Wa04,1967Si09

	Type	Author	History Citation	Literature Cutoff Date
	Full Evaluation	M. S. Basunia	NDS 195,368 (2024)	1-Dec-2023

Parent: ^{195}Po: E=148 *9*; J$^\pi$=(13/2$^+$); T$_{1/2}$=1.92 s *2*; Q(α)=6749.7 *28*; %α decay≈90

^{195}Po-E: from 2021Ko07 − NUBASE.

^{195}Po-T$_{1/2}$: from 1993Wa04. Others: 2.0 s *2* (1967Si09), 2.8 s +*10*−*6* (2005Uu02).

^{195}Po-%α decay: from 1980Sc26 (estimated value from systematics).

Others: 1967Tr06, 1980Sc26, 1982LeZN, 2002Va13, 2005Uu02.

2010Co13: Source produced by bombarding UCx target (50 g/cm^2) with the proton pulsed beam. Nuclei produced in the spallation
   reaction diffused, effused to the high-temperature RILIS ion source cavity. Polonium atoms were irradiated with three different laser
   beams and extracted from the ion source cavity, accelerated by dc electrical fields to an energy of 50 keV and mass separated in
   the ISOLDE separator. In Run I, a single Si detector in Run II, two Si detectors (FWHM = 25 keV, 20 keV and 30 keV,
   respectively for 5500α), an HPGe detector (FWHM=4.3 keV at Eγ=1300 keV). Measured Eα, Iα, Eγ, $\alpha\gamma$, $\gamma\alpha$, $\gamma\gamma$ coin, half-life
   of ^{195}Po, deduced excited levels, spin-parity. Also studied ^{191}Bi ε decay.

1993Wa04: Source was produced <240−MeV Ne on ^{182}W reaction. The mass-separated beam was implanted in aluminized mylar
   tape. Silicon surface-barrier detectors and silicon PIPS-type (Passivated Implanted Planar Silicon) detectors with energy resolution
   between 11-20 keV for the 5486α of ^{241}Am. Measured Eα, Iα, half-life of ^{195}Po.

1967Si09: Source was produced from the ^{185}Re(^{19}F,X) reaction. Measured Eα, ^{195}Po half-life.

^{191}Pb Levels

E(level)	J$^\pi$	T$_{1/2}$	Comments
55 *12*	(13/2$^+$)	2.18 min *8*	E(level): from Adopted Levels.
			J$^\pi$: from systematics and HF of the 6699 keV α ray from the (13/2$^+$) parent state in ^{195}Po (2002Va13).
			T$_{1/2}$: from Adopted Levels.
724.6 *5*	(13/2$^+$)		E(level): from 2002Va13, based on the γ-ray energy difference to the (13/2$^+$) isomeric level. For total uncertainty propagate 12 keV in quadrature.
			J$^\pi$: based on the E0 component in 669.6γ transition to the (13/2$^+$) isomeric level (2002Va13).

α radiations

Eα	E(level)	I$\alpha$$^{†\#}$	HF‡	Comments
6047 *5*	724.6	0.17 *1*	≈2.2	Eα,Iα: from 2010Co13. Other: 6050 keV *20* and 0.20 *12*, respectively (2002Va13).
6700 *3*	55	99.83 *1*	≈2.6	Eα: weighted average of 6699 keV *5* (1993Wa04), 6699 keV *10* (2002Va13), 6700 keV *6* (2005Uu02), 6710 keV *10* (1967Si09), and 6698 keV *5* (1967Tr06). Other: 6700 keV (1982LeZN − Fig. 1),
				Iα: from 2010Co13. Other: 99.8 *25* (2002Va13).

† From 2002Va13.
‡ Using r$_0$(^{191}Pb)=1.512 *3*, obtained from the r$_0$ of neighboring even-even isotopes, r$_0$(^{190}Pb)=1.5113 *39* and r$_0$(^{192}Pb)=1.5126
   28 (2020Si16).
$^\#$ For absolute intensity per 100 decays, multiply by ≈0.9.

γ(^{191}Pb)

Eγ†	Iγ†	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.	$\alpha^‡$	Comments
^{x}143 *1*	3.5 *10*							
^{x}483 *1*	13 *3*							
669.6 *5*	100	724.6	(13/2$^+$)	55	(13/2$^+$)	E0+M1+E2	0.8 *3*	Eγ: Other: 670 *1* (2002Va13).
								Mult.: from measured total conversion

Continued on next page (footnotes at end of table)

^{195}**Po α decay (1.92 s)**   **2010Co13,1993Wa04,1967Si09 (continued)**

$\gamma(^{191}$Pb) (continued)

E$_\gamma$[†]	E$_i$(level)	Comments
		coefficient (2002Va13). Theoretical values are: α(M1)=0.0501 7, α(M2)=0.133 2, α(E2)=0.0151 2. The difference from the experimental value is attributed to the E0 component (2002Va13).
		α: Measured value in 2002Va13, deduced from conversion electron spectra gated by 6050α.

[†] from 2010Co13.

[‡] 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.

[x] γ ray not placed in level scheme.

^{195}**Po α decay (1.92 s)**   **2010Co13,1993Wa04,1967Si09 (continued)**

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Decay Scheme

Intensities: Relative I$_\gamma$

$(13/2^+)$ 148   1.92 s *2*

Q_α=6749.7 *28*   %α≈90

$^{195}_{84}$Po$_{111}$

669.6 E0+M1+E2 100

	Eα	Iα	HF
$(13/2^+)$ 724.6	6047	≈0.15	≈2.2
$(13/2^+)$ 55 2.18 min *8*	6700	≈90	≈2.6

$^{191}_{82}$Pb$_{109}$