^{213}Po α decay 1998Ar03,1989Ko26,1982Bo04

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	J. Chen # and F. G. Kondev	NDS 126, 373 (2015)	30-Sep-2013

Parent: ^{213}Po: E=0.0; $J^\pi=9/2^+$; $T_{1/2}$=3.72 μs *2*; Q(α)=8536.1 *26*; %α decay=100.0

^{213}Po-Q(α): From 2012Wa38.

^{213}Po-J^π,$T_{1/2}$: From Adopted Levels of ^{213}Po.

^{213}Po-Additional information 1.

1998Ar03: ^{213}Po particles were from β-decays of the ^{213}Bi from the ^{229}Th parent source. γ-rays were detected by a HPGe detector of 17% efficiency (FWHM=1.9 keV at 1.33 MeV) and a coaxial HPGe detector of 30% efficiency (FWHM=1.9 keV). Measured Eγ, Iγ, $\gamma\gamma$-coin. Deduced levels, α-branchings.

1989Ko26: ^{213}Po particles were from β-decays of the ^{213}Bi source from the C.E.N. at Fontenay aux Roses. γ-rays were detected with a 17% efficiency HPGe coaxial detector (FWHM=1.9 keV at 1.33 MeV), a 2 cm^3 low-energy photon spectrometer (LEPS) (FWHM=190 eV at the Fe K_α x-line) and an Ge(Li) detector. Measured Eγ, Iγ, $\gamma\gamma$-coin. Deduced levels, branchings.

1982Bo04: source activity was produced from the LBL Bevatron. Decay α-particles were detected with gold-plated silicon surface-barrier detectors. Measured Eα, Iα. Deduced levels.

Others: 2009In01, 2000Gr35, 1998Wa25, 1997Ch53, 1997Wa27, 1986He06, 1977Vy02, 1964Va20, 1963Uh01, 1961Ru06, 1960Vo05, 1955St04, 1951Me10, 1950Ha52, 1948Cr12, 1969LeZW.

^{209}Pb Levels

E(level)	J^π †
0.0	$9/2^+$
778.8 *3*	$11/2^+$

† From Adopted Levels.

α radiations

Eα	E(level)	Iα ‡	HF †	Comments
7614 *10*	778.8	0.0045 *4*	236 *22*	Eα: from 1964Va20. Iα: from Iγ. Iα=0.003 *1* is reported by 1964Va20, and 0.006 *2* by 1969LeZW.
8376 *3*	0.0	100	1.47 *5*	Eα: weighted average from 8376 *3* (1982Bo04), 8377 *5* (1964Va20), 8368 *10* (1960Vo05). 8375.9 *25* is recommended by 1991Ry01.

† $r_0(^{209}Pb)$=1.530 *9*, unweighted average of $r_0(^{208}Pb)$=1.5212 *4* and $r_0(^{210}Pb)$=1.5394 *6*, deduced from HF=1.

‡ Absolute intensity per 100 decays.

$\gamma(^{209}Pb)$

Eγ	Iγ †	E$_i$(level)	J_i^π	E$_f$	J_f^π	Mult.	α ‡	Comments
778.87 *5*	0.0044 *4*	778.8	$11/2^+$	0.0	$9/2^+$	[M1]	0.0339	α(K)=0.0278 *4*; α(L)=0.00462 *7*; α(M)=0.001079 *16*; α(N+..)=0.000335 *5* α(N)=0.000274 *4*; α(O)=5.47×10^{-5} *8*; α(P)=5.87×10^{-6} *9* Eγ: from 1998Ar03. Other: 778.8 keV *3* (1989Ko26). Iγ: from Iγ(778.87 in ^{209}Pb)/Iγ(440γ ^{213}Po)=0.000165 *15* from the ^{213}Bi decay chain (1998Ar03), with the adopted Iγ(440γ)=25.94 *15* per 100 ^{213}Bi decays, %β^-(213BI)=97.860 *10* (2013Ma13) and %α(^{213}Po)=100.

Continued on next page (footnotes at end of table)

^{213}Po α decay 1998Ar03,1989Ko26,1982Bo04 (continued)

$\gamma(^{209}Pb)$ (continued)

† Absolute intensity per 100 decays.

‡ 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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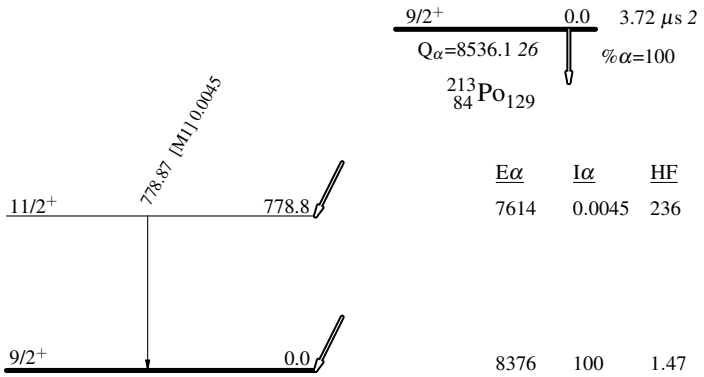
Decay Scheme

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



Eα	Iα	HF
7614	0.0045	236
8376	100	1.47