

^{203}Po IT decay (45 s) [1986Fa04](#),[1969MoZV](#),[1976Ko13](#)

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	F. G. Kondev	NDS 177, 509, 2021	4-Jul-2021

Parent: ^{203}Po : E=641.64 14; $J^\pi=13/2^+$; $T_{1/2}=45$ s 2; %IT decay=100.0

^{203}Po -E, J^π , $T_{1/2}$: From Adopted Levels.

 ^{203}Po Levels

E(level) [†]	J^π [†]	$T_{1/2}$ [†]	Comments
0	$5/2^-$	36.7 min 5	configuration: $\nu(f_{5/2}^{-1})$.
62.51 11	$3/2^-$		configuration: $\nu(p_{3/2}^{-1})$.
639.33 11	$7/2^-$		configuration: Dominant $\nu(f_{5/2}^{-1})\otimes 2^+$. Small $\nu(f_{7/2}^{-1})$ admixtures are possible in order to account for the E3 transition from the $J^\pi=13/2^+$ isomer.
641.64 14	$13/2^+$	45 s 2	%IT=100 %IT: from 1986Fa04 . Note, that $\% \beta^- = 4.5\%$ has been suggested by 1976Ko13 , but no evidence was given by the authors. $T_{1/2}$: From 1986Fa04 . The reported values were: 45 s 1 (639.4 γ (t)), 45 s 1 (641.8 γ (t)), and 44 s 2 (577.2 γ (t)). Others: 1.2 min 2 (1969MoZV) and ≈ 1 min (1976Ko13). configuration: Dominant $\nu(i_{13/2}^{-1})$.

[†] From Adopted Levels.

²⁰³Po IT decay (45 s) [1986Fa04](#),[1969MoZV](#),[1976Ko13](#) (continued)

$\gamma(^{203}\text{Po})$										
E_γ^\dagger	$I_\gamma^\ddagger\&$	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult.	δ	$\alpha^@$	$I_{(\gamma+ce)}^\&$	Comments
(2.3 2)	9.0×10^{-11} 7	641.64	13/2 ⁺	639.33	7/2 ⁻	[E3]		$4. \times 10^{11}$ 3	36 [#]	$\alpha(\text{N})=3.\text{E}11$ 3; $\alpha(\text{O})=5.\text{E}10$ 5; $\alpha(\text{P})=3.\text{E}9$ 3
62.6 2	0.174 25	62.51	3/2 ⁻	0	5/2 ⁻	M1+E2	0.52 8	20 3	3.65 7	$\alpha(\text{L})=15.0$ 22; $\alpha(\text{M})=3.8$ 6
577.0 2	3.57 7	639.33	7/2 ⁻	62.51	3/2 ⁻	E2		0.0230	3.65 7	$\alpha(\text{N})=0.98$ 15; $\alpha(\text{O})=0.19$ 3; $\alpha(\text{P})=0.0196$ 23 $\alpha(\text{K})=0.01657$ 24; $\alpha(\text{L})=0.00486$ 7; $\alpha(\text{M})=0.001209$ 17 $\alpha(\text{N})=0.000311$ 5; $\alpha(\text{O})=6.24 \times 10^{-5}$ 9; $\alpha(\text{P})=7.03 \times 10^{-6}$ 10
639.4 2	30.33 7	639.33	7/2 ⁻	0	5/2 ⁻	M1		0.0666	32.35 7	$I_{(\gamma+ce)}$: From $I(\gamma+ce)(2.3\gamma)=36\%$ and $\%BR(639.4\gamma)=0.0115$ 19 using the adopted γ -ray intensities and α . $\alpha(\text{K})=0.0544$ 8; $\alpha(\text{L})=0.00931$ 13; $\alpha(\text{M})=0.00219$ 3 $\alpha(\text{N})=0.000563$ 8; $\alpha(\text{O})=0.0001180$ 17; $\alpha(\text{P})=1.527 \times 10^{-5}$ 22
641.5 2	34.46 22	641.64	13/2 ⁺	0	5/2 ⁻	M4		0.857	64 [#]	$I_{(\gamma+ce)}$: From $I(\gamma+ce)(2.3\gamma)=36\%$ and $\%BR(639.4\gamma)=0.8985$ 19 using the adopted γ -ray intensities and α . $\alpha(\text{K})=0.573$ 8; $\alpha(\text{L})=0.211$ 3; $\alpha(\text{M})=0.0552$ 8 $\alpha(\text{N})=0.01441$ 21; $\alpha(\text{O})=0.00294$ 5; $\alpha(\text{P})=0.000348$ 5 Mult.: From $\alpha(\text{K})\text{exp}=0.61$ 2 (1986Fa04). Other: $\alpha(\text{K})\text{exp}/(\alpha(\text{L})\text{exp} + \alpha(\text{M})\text{exp})=2.4$ 3 and $\alpha(\text{K})\text{exp}=0.18$ 7 (1969MoZV).

† From adopted gammas.

‡ From $I(\gamma+ce)=100$ and α .

From $I(\gamma+ce)(641.8\gamma)/(I(\gamma+ce)(577.0\gamma)+I(\gamma+ce)(639.4\gamma))=1.82$ in [1986Fa04](#).

@ [Additional information 1](#).

& Absolute intensity per 100 decays.

^{203}Po IT decay (45 s) 1986Fa04,1969MoZV,1976Ko13**Decay Scheme**

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
 $\%IT=100.0$

Legend

- ▶ $I_{\gamma} < 2\% \times I_{\gamma}^{max}$
- ▶ $I_{\gamma} < 10\% \times I_{\gamma}^{max}$
- ▶ $I_{\gamma} > 10\% \times I_{\gamma}^{max}$
- - -▶ γ Decay (Uncertain)

