

${}^{233}\text{Pu}$ ε decay (20.9 min) 1973Ja06

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	B. Singh, J. K. Tuli, E. Browne		NDS 170, 499 (2020)	8-Oct-2020

Parent: ${}^{233}\text{Pu}$: E=0.0; $T_{1/2}$ =20.9 min 4; $Q(\varepsilon)$ =2100 70; % ε +% β^+ decay=99.88 5

${}^{233}\text{Pu}$ - $Q(\varepsilon)$: From 2017Wa10.

1973Ja06: ${}^{238}\text{U}$, as enriched UO_2 target, was bombarded by α -particles from 35 to 55 MeV in the internal beam of the Karlsruhe Isochronous Cyclotron. Measured $E\gamma$, $I\gamma$, $\gamma(t)$ using Ge(Li) detector.

${}^{233}\text{Pu}$ ε decay scheme is given as proposed by 1973Ja06 based on systematics of neighboring Pu nuclides.

 ${}^{233}\text{Np}$ Levels

E(level)	J^π^\dagger	$T_{1/2}^\dagger$	E(level)	E(level)
0.0	(5/2 ⁺)	36.2 min 1	583.4 5	1012.4 4
34.4 3	(7/2 ⁺)		725.9 5	1035.3 5
512.5 4			770.0 6	1062.6 5
534.7 4			830.9 3	1243.3 6
558.7 4			991.8 4	

[†] From the Adopted Levels.

 $\gamma({}^{233}\text{Np})$

E_γ^\dagger	I_γ^\dagger	$E_i(\text{level})$	J_i^π	E_f	J_f^π	E_γ^\dagger	I_γ^\dagger	$E_i(\text{level})$	J_i^π	E_f	J_f^π
(34.4 [‡])		34.4	(7/2 ⁺)	0.0	(5/2 ⁺)	524.4 3	13.0 21	558.7		34.4	(7/2 ⁺)
^x 150.4 3	15.2 16			1062.6		534.8 3	90.2 36	534.7		0.0	(5/2 ⁺)
180.8 4	12.0 25	1243.3		534.7		558.8 3	26.9 25	558.7		0.0	(5/2 ⁺)
191.0 3	13.0 18	725.9		1035.3		583.3 4	8.6 20	583.4		0.0	(5/2 ⁺)
207.4 3	23.8 20	1243.3		770.0		^x 688.1 3	33.3 28				
221.7 4	11.8 12	991.8		534.7		726.2 4	9.0 14	725.9		0.0	(5/2 ⁺)
235.4 3	100	770.0		583.4		830.9 3	11.1 13	830.9		0.0	(5/2 ⁺)
247.4 4	7.2 19	830.9		534.7		978.1 3	13.4 23	1012.4		34.4	(7/2 ⁺)
457.4 3	10.2 21	991.8		770.0		991.7 3	23.0 23	991.8		0.0	(5/2 ⁺)
473.2 4	7.2 15	1243.3		34.4 (7/2 ⁺)		1000.5 3	18.0 38	1035.3		34.4	(7/2 ⁺)
478.3 3	13.8 17	512.5		34.4 (7/2 ⁺)		^x 1004.0 3	31.0 32				
500.3 3	38.6 35	534.7		558.7		1012.3 3	28.2 28	1012.4		0.0	(5/2 ⁺)
504.0 3	20.7 24	1062.6		0.0 (5/2 ⁺)		1028.4 5	6.6 17	1062.6		34.4	(7/2 ⁺)
512.4 3	12.8 28	512.5				1035.4 5	5.7 15	1035.3		0.0	(5/2 ⁺)

[†] From 1973Ja06.

[‡] Transition was not observed.

^x γ ray not placed in level scheme.

^{233}Pu ϵ decay (20.9 min) 1973Ja06

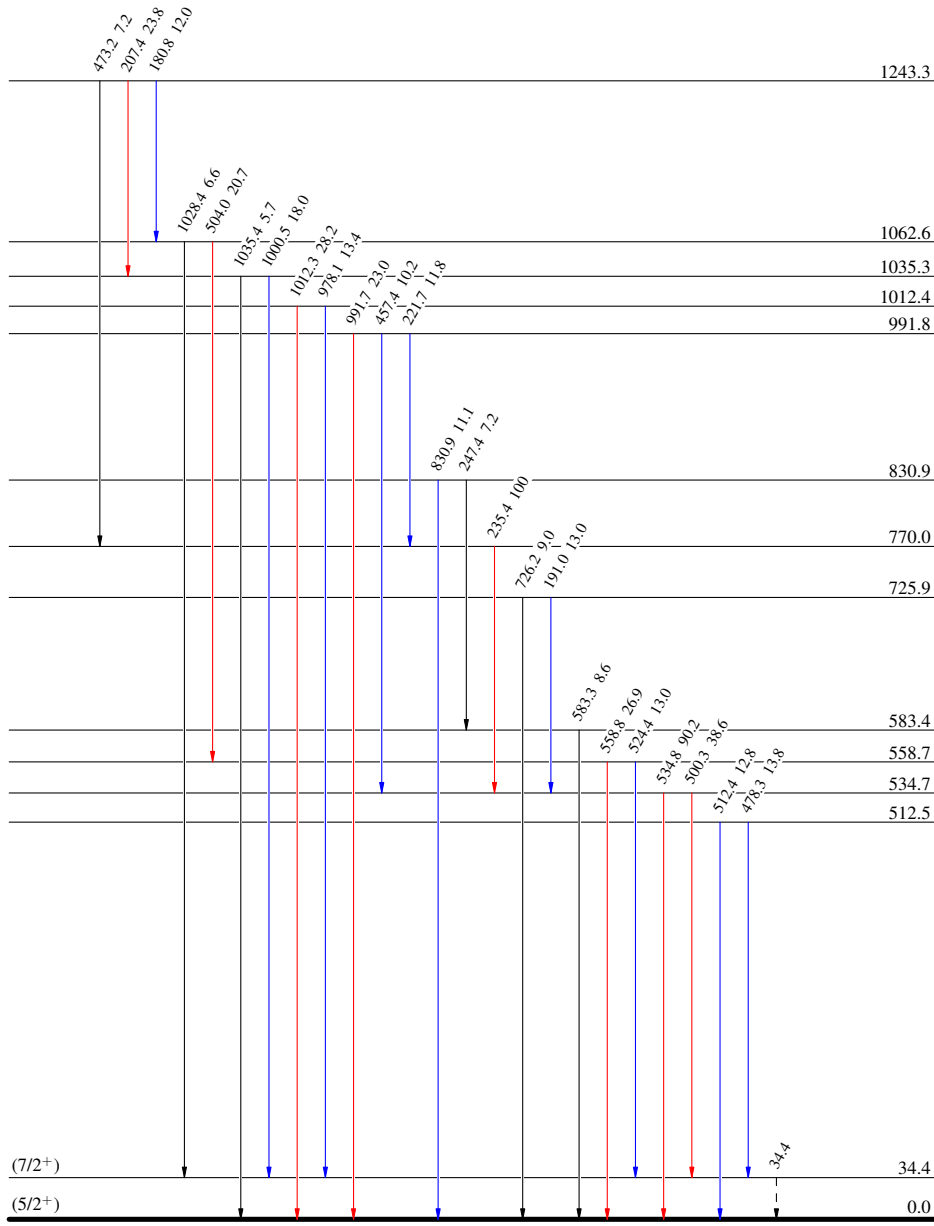
Legend

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

Decay Scheme

Intensities: Relative I_γ

$^{233}\text{Pu}_{139}$ 0.0 20.9 min 4
 $Q_\epsilon = 2100.70$
 $\% \epsilon + \% \beta^+ = 99.88$



$^{233}_{93}\text{Np}_{140}$

36.2 min 1