^{217}Rn α decay

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	M. S. Basunia	NDS 181, 475 (2022)	1-Jan-2022

Parent: ^{217}Rn: E=0.0; $J^{\pi}=9/2^{+}$; $T_{1/2}$=0.59 ms *6*; Q(α)=7887.2 *29*; %α decay=100.0

^{217}Rn-J^{π}: From 2018Ko01 (A=217 evaluation).

^{217}Rn-$T_{1/2}$: Weighted average of 0.54 ms *5* (1961Ru06) and 0.67 ms *6* (2018Sa45). Others: ~1 ms (1949Me54), 1.0 ms *1* (1951Me10), and 0.54 ms *5* in 2018Ko01 (A=217 evaluation).

$\alpha\gamma$: no (7735α)(γ,L x ray) (1961Ru06).

Another α peak at 7.50 MeV with an intensity of 0.1% was observed by 1961Ru06. The energy difference from the 7741-keV α, including the recoil, yields 243 keV for the level energy, if the 7500-keV α is from ^{217}Rn decay. The first excited state in ^{213}Po has been observed at 293 keV in ^{213}Bi decay. The observed α peak at 7.50 MeV may be due to an impurity; no positive identification could be made by 1961Ru06.

^{213}Po Levels

E(level)	J^{π}	$T_{1/2}$	Comments
0.0	$9/2^{+}$	3.706 μs *1*	J^{π},$T_{1/2}$: From Adopted Levels.

α radiations

Eα	E(level)	Iα[‡]	HF[†]	Comments
7738 *3*	0.0	100	1.7 *2*	Eα: Weighted average of 7741 *4* (1982Bo04 − Eα=7739 keV *4* in 1982Bo04 is increased by 2 keV, as recommended by 1991Ry01 for a change in calibration energy) and 7735 *4* (1961Ru06). Other measured values: Eα=7740 *10* (2018Sa45 − 7.74 MeV *1*), 7740 *30* (1951Me10 − 7.74 MeV *3*), 7740 (1949Me54 − 7.74 MeV).

[†] Using $r_0(^{213}Po)$=1.5632 *26*, unweighted average of $r_0(^{212}Po)$=1.5658 *6* (assuming 1.56580 *59* in 2020Si16 − listed as 1.5658 *59*) and $r_0(^{214}Po)$=1.5606 *7* (2020Si16).

[‡] Absolute intensity per 100 decays.