
 ^{219}At β^- decay (56 s) [2015Fi07](#),[1989Bu09](#),[1953Hy83](#)

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh et al. ,	NDS 175, 1 (2021)	19-May-2021

Parent: ^{219}At : $E=0.0$; $J^\pi=(9/2^-)$; $T_{1/2}=56$ s 4; $Q(\beta^-)=1566.7$ 29; $\% \beta^-$ decay=6.4 10

^{219}At - $T_{1/2}$: From ^{219}At Adopted Levels.

^{219}At - $Q(\beta^-)$: From [2021Wa16](#).

^{219}At - $\% \beta^-$ decay: $\% \alpha=93.6$ 10 ([2015Fi07](#)) for decay of ^{219}At , which implies $\% \beta^-$ =6.4 10. Other: $\% \beta^- \approx 3$ from $\% \alpha \approx 97$ ([1953Hy83](#)).

[2015Fi07](#): ^{219}At activity from β^- decay of ^{219}Po produced in $^{238}\text{U}(\text{p},\text{F})$, $E=1.4$ GeV from CERN synchrotron (PS) Booster.

Target=ISOLDE UC $_{\chi}$. Pure laser-ionized beam of ^{219}Po is extracted from the reaction products using a Laser-Ion Source and Trap (LIST) system, which suppresses contamination from Francium activity by more than a factor of 1000. Measured $E\alpha$ and $I\alpha$ of ^{219}At activity, branching ratio for decay of ^{219}At .

[1989Bu09](#): ^{219}At activity was produced by spallation of 600-MeV protons on targets of ^{232}Th . Assignment to ^{219}At based on mass separation and on identification of the daughter nucleus ^{215}Bi in the source. The disintegration rate was determined by measuring the β^- activity with a 4π plastic scintillator detector.

[1953Hy83](#): descendant of ^{227}Ac . Assignment to ^{219}At based on chemical separation and on the genetic relationship to its α parent nucleus ^{223}Fr .

DDEP evaluation: see [2011BeZW](#).

 ^{219}Rn Levels

E(level)	J^π	Comments
0	$5/2^+$	It is assumed that the ground state is populated in this decay through γ feeding from higher levels. J^π : from Adopted Levels.