

Adopted Levels

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	M. J. Martin, C. D. Nesaraja		NDS 186, 261 (2022)	31-Dec-2021

$S(n)=8890$  SY;  $S(p)=2780$  SY;  $Q(\alpha)=8700$  SY [2021Wa16](#)

$\Delta S(n)=500$ ,  $\Delta S(p)=460$ ,  $\Delta Q(\alpha)=500$  (syst,[2021Wa16](#)).

$S(2p)=4170$  400,  $Q(\epsilon p)=1780$  430 (syst,[2021Wa16](#)).

Assignment:  $^{204}\text{Pb}(225\text{-MeV } ^{40}\text{Ar},2n)$ ;  $T_{1/2}(\text{SF})$  systematics [1975Te01](#). Also produced in  $^{206}\text{Pb}(203\text{-}225\text{ MeV } ^{40}\text{Ar},4n)$  ([1975Te01](#)).

For systematics of SF decays, spontaneous fission half-lives, calculations of fission barriers, and other theory works see the NSR.

 $^{242}\text{Fm}$  Levels

E(level)	$J^\pi$	$T_{1/2}$	Comments
0.0	$0^+$	0.8 ms 2	$\% \text{SF} \approx 100$ Only SF decay was observed ( <a href="#">1975Te01</a> ). $\alpha$ and $\epsilon$ branchings are estimated to be small from calculated partial half-lives: $T_{1/2}(\alpha)=20\text{-}250$ ms ( <a href="#">1975Te01</a> ), $10^{0.62}$ s ( <a href="#">2019Mo01</a> ); $T_{1/2}(\beta^+)=9.7633$ s ( <a href="#">2019Mo01</a> ), $\approx 100$ s ( <a href="#">1973Ta30</a> ). See also <a href="#">1988Sa35</a> for calculations of partial half-lives for decays by Sn emission, as well as for SF and $\alpha$ decays. See <a href="#">2000Po25</a> and <a href="#">1997Po18</a> semiempirical formulas deduced for $T_{1/2}(\alpha)$ from experimental half-lives in the heavy-nuclei region. $T_{1/2}$ : measured by <a href="#">1975Te01</a> . This half-life is recommended also by <a href="#">2000Ho27</a> .