^{215}Fr α decay:prompt:1440 keV 1984Sc25,1984De16

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	B. Singh, S. Singh, H. X. Nguyen and M. Patial	NDS 114, 661 (2013)	28-Feb-2013

Parent: ^{215}Fr: E=1440.0 *1*; $J^{\pi}=(19/2)^{-}$; $T_{1/2}$=4 ns *2*; Q(α)=9540 *7*; %α decay=4.7 *4*

^{215}Fr-E,J^{π}: From Adopted Levels of ^{215}Fr in ENSDF database.

^{215}Fr-$T_{1/2}$: From $\gamma\gamma$(t) (1984De16); this half-life may correspond to 1440 or 1573 level. However, half-life of 1573 level is measured as 3.5 ns *14* in 1984Sc25.

^{215}Fr-Q(α): From 2012Wa38.

^{215}Fr-%α decay: %α=4.7 *4* (deduced by evaluators from Iα(10740)/Iα(total)= 4.1% *3* (1984Sc25), and renormalizing g.s. α branch from 87.7% to 100%. It is assumed by the evaluators that 1984Sc25 have corrected for 78% detection of the ground state α branch in $\alpha\gamma$-coin spectrum. Other: I(10789α)/I(9369α)=1.5% (1984De16) is in disagreement.

1984Sc25: observed alpha from ^{208}Pb(^{11}B,4n) E=66 MeV.

Target: >99% enriched ^{208}Pb. Measured Eγ, Iγ, Eα, $\gamma\gamma$- and $\gamma\alpha$ coin, $\gamma\gamma$(t), pulsed-beam, $\gamma(\theta)$. Deduced α-particle branches.

1984De16: observed alpha from ^{208}Pb(^{11}B,4n) E=58,62 MeV. Eγ, Iγ, Eα, ce, $\gamma\gamma$- and $\gamma\alpha$ coin, $\gamma\gamma$(t), g factors. Deduced α-particle branches.

^{211}At Levels

E(level)	J^{π}
0.0	$9/2^{-}$

α radiations

Eα[†]	E(level)	Iα[‡@]	HF[#]	Comments
10779 *15*	0.0	100	6.2×10^{2} *32*	Eα: weighted average of 10740 *30* (1984Sc25) and 10789 *15* (1984De16). α from 1440.0, $(19/2)^{-}$ level of ^{215}Fr.

[†] Long-range α particle group from 1440-keV level in ^{215}Fr.

[‡] From $\alpha\gamma$-coin and relative to the total number of α particles in the spectrum.

[#] $r_0(^{211}At)$=1.5365 *55*; interpolated value deduced from $r_0(^{210}Po)$=1.532 *6*, $r_0(^{212}Rn)$=1.541 *5* (1998Ak04).

[@] For absolute intensity per 100 decays, multiply by 0.047 *4*.