Adopted Levels

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	C. D. Nesaraja, E. A. Mccutchan	NDS 121, 695 (2014)	30-Sep-2013

S(n)=7107 *SY*; S(p)=2726 *SY*; Q(α)=8.69×10^3 *5* 2012Wa38
ΔS(n)=455; ΔS(p)=334 (2012Wa38).
S(2n)=15905 syst *368*; S(2p)=4541 syst *272*; Q(εp)=2688 syst *216* (2012Wa38).

1981Mu12: first identification using ^{206}Pb(^{40}Ar,3n) with E(^{40}Ar)=194 MeV. Assignment of 8546-MeV α activity to ^{243}Fm was made based on the arguments that ^{40}Ar bombarding energy was chosen to maximize for 3n channel, and that the observed α activity could not be assigned to any other nucleus.
2008Kh10: ^{206}Pb(^{40}Ar,3n) with E(^{40}Ar)=180-204 MeV. Evaporation residues (ER) separated with the velocity filter SHIP and implanted into a position-sensitive Si detector. Fm isotopes identified through TOF and ER-α and ER-SF correlations. Measured Eα, Iα, ER-α(t), ER-SF(t) using 7 position-sensitive Si detectors (implantation detector and 6 additional Si detectors mounted in the backward hemisphere); deduced $T_{1/2}$ and branching. γ-rays measured with an HPGe clover detector; no isomers were identified.

Theoretical calculations:

2013Zd01: $T_{1/2}$ for α decay calculated with phenomenological model based on Gamow theory with WKB approximation for Coulomb barrier penetration .
2011Ad15: calculations for one-quasi particle states.
2001Mo07: calculations of $T_{1/2}$ for α decay.
1985Cw01: fission barrier calculations.
1984Ga06: calculations of fusion barrier for the (^{206}Pb + ^{40}Ar) system.
1982Il01: calculations of ^{206}Pb(^{40}Ar,3n)^{243}Fm production cross sections.
1978Po09: calculations of spontaneous fission half-lives.
1975Te01: $T_{1/2}$(SF) estimated from data on fission activities following the ^{206}Pb(^{40}Ar,xn) reaction and calculated excitation functions.
1973Ta30: partial half-life for $T_{1/2}$(ε decay) calculated from β gross theory.

^{243}Fm Levels

E(level)	J^π	$T_{1/2}$	Comments
0.0	(7/2$^-$)	231 ms *9*	%α=91 *3*; %SF=9 *1*; %ε+%β^+<10 (2008Kh10) $T_{1/2}$: from evaporation residue (ER)-α(t) in 2008Kh10 with 1400 measured correlations. Other: 221 ms *12* from ER-SF(t) (2008Kh10); 180 ms +*80*−*40* (1981Mu12) from 10 ER-α correlations. J^π: analogy with ^{237}Pu and ^{235}U suggest J^π=7/2$^-$ of the 7/2[743] Nilsson state. The 1/2[631] state is 0.0765 keV above the 7/2[743] state in ^{235}U, 145.5 keV in ^{237}Pu, ≈152 keV in ^{239}Cm, and ≈150 keV in ^{241}Cf. Calculations in 2011Ad15 also give J^π=7/2$^-$ for the ground state. %α: other: estimated as 40% *20* (1981Mu12) by parent-daughter correlation technique where alphas from ^{243}Fm and from its daughter ^{239}Cf were counted, and by assuming the α branching of ^{239}Cf is 100%. The alpha branching of ^{239}Cf has not been determined. Additional information 1.