## Adopted Levels, Gammas

		History	
Туре	Author	Citation	Literature Cutoff Date
Full Evaluation	C. D. Nesaraja	NDS 125, 395 (2015)	31-Mar-2014

 $Q(\beta^{-})=-3100 SY; S(n)=7400 SY; S(p)=2802 20; Q(\alpha)=7462 20$  2012Wa38  $\Delta Q(\beta^{-}=120, \Delta S(n)=220 \text{ (syst, 2012Wa38).}$ 

#### Identification:

1989Ha27: Observed in <sup>249</sup>Cf(p,3n) and <sup>238</sup>U(<sup>14</sup>N,5n).

1973Es01: Produced from <sup>243</sup>Am(<sup>12</sup>C, $\alpha$ 4n). Identified by emitted  $\alpha$  energies, T<sub>1/2</sub> and excitation functions.

1967Mi06: Synthesized from  $^{238}$ U( $^{14}$ N,<sup>5</sup>n). Identified by emitted  $\alpha$  energies, T<sub>1/2</sub> and excitation functions.

### Theoretical studies:

2012Ni16:  $\alpha$  decay T<sub>1/2</sub> for transitions from ground-state to favored rotational bands using Multicluster Channel Model.

2012Zh01: Comparison of the low-lying one-quasineutron band for Z=99 isotopes between the experimental values and calculated values using the cranked shell model (CSM) with pairing correlations.

2003Re14: Calculated binding energy, QA and deformations using the deformed RMF theory.

2002Lo05: Calculated binding energies, pairing gaps and deformations using RMF+BCS theory.

2002Du16: Calculated partial half-lives for  $\alpha$  and cluster decays.

1997Mo25: Calculated ground-state binding energy, proton and neutron pairing gaps, neutron and proton separation energies, Q values and partial half-lives for  $\alpha$  and  $\beta$  decays.

1996St28:  $\alpha$  decay through deformed barrier and anisotropies for alphas were calculated.

1993Bu09: Calculated partial  $\alpha$  decay half-life,  $\alpha$  branching, and nuclear radius using the cluster model predictions.

1981Mo24: Calculated ground-state electric multipole moments Q<sub>2</sub>, Q<sub>4</sub> and masses.

1980Ho32: Calculated mass excess, S(n), S(p),  $Q(\beta)$ ,  $Q(\alpha)$ , fission-barrier heights, deformation and energy at saddle-point.

Systematic Studies:

2006Ch52: Systematics studies of one-quasiparticle states in Es isotopes using Skyrme-HFB calculations.

# <sup>247</sup>Es Levels

#### Cross Reference (XREF) Flags

- **A**  $^{251}$ Md  $\alpha$  decay
- **B**  $^{247}$ Fm  $\varepsilon$  decay (31 s)

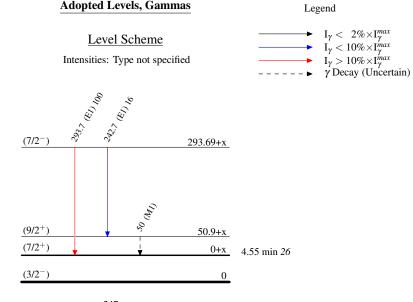
E(level)	$\mathbf{J}^{\pi}$	T <sub>1/2</sub>	XREF	Comments
0	$(3/2^{-})$		A	$J^{\pi}$ : 3/2 <sup>-</sup> [521].
0+x	$(7/2^+)$	4.55 min 26	AB	$\% \alpha \approx 7; \ \% \varepsilon + \% \beta^+ \approx 93$
				XREF: B(?).
				E(level): $X \approx 30$ keV.
				Additional information 1.
				Proposed configuration=7/2[633](1989Ha27).
				Observation of the ground-state in $^{247}$ Fm $\varepsilon$ decay is indirect.
				$\alpha$ branching was estimated by 1967Mi06 from observed $\alpha$ yield and calculated total cross section for <sup>238</sup> U( <sup>14</sup> N, <sup>5</sup> N) reaction.
				$J^{\pi}$ : Analogy to <sup>249</sup> Es suggests 7/2[633] state.
				$T_{1/2}$ : From 1989Ha27. Others: 5.0 min 3 (1967Mi06), 4.7 min 3 (1973Es01).
50.9+x 3	$(9/2^+)$		Α	$J^{\pi}$ : Suggested by theoretical calculations in 2006Ch52.
293.69+x 10	(7/2-)		Α	Proposed configuration=7/2[514] (based upon multipolarities proposed for depopulating $\gamma$ transitions).

# Adopted Levels, Gammas (continued)

# $\gamma(^{247}\text{Es})$

E <sub>i</sub> (level)	$\mathbf{J}_i^{\pi}$	Eγ	$I_{\gamma}$	$E_f$	$\mathrm{J}_f^\pi$	Mult.	Comments
50.9+x	(9/2+)	(50)		0+x	(7/2 <sup>+</sup> )	(M1)	$E_{\gamma}$ : $\gamma$ transition has not been observed. $E_{\gamma}$ is from level energies. Transition considered to be highly converted (2006Ch52).
293.69+x	(7/2 <sup>-</sup> )	242.7 <i>3</i> 293.7 <i>1</i>	16 2 100	50.9+x 0+x	(9/2 <sup>+</sup> ) (7/2 <sup>+</sup> )	(E1) (E1)	Mult.: E2 is also possible but less likely.

#### Adopted Levels, Gammas



<sup>247</sup><sub>99</sub>Es<sub>148</sub>